BRISBANE BAYLANDS

Draft Environmental Impact Report
State Clearinghouse #2006022136

Prepared for
City of Brisbane

June 2013

ESA

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CHAPTER 1
Introduction

This program environmental impact report (EIR) has been prepared by the City of Brisbane (City) as the Lead Agency in conformance with the California Environmental Quality Act (CEQA) (Public Resources Code Section 21000 *et seq.*) and the CEQA Guidelines (California Code of Regulations, Title 14, Division 6, Chapter 3, Section 15000 *et seq*.) to analyze the environmental effects of the proposed development of the Brisbane Baylands (Project). The "Project Site" encompasses a total of approximately 733 acres primarily within the Brisbane city limits. This includes areas identified in the adopted City of Brisbane 1994 General Plan as the Baylands Subarea, portions of the Northeast Bayshore Subarea, and the Beatty Subarea. The remainder of the Project Site encompasses property within the limits of the City and County of San Francisco (San Francisco) that is part of the existing 44.2-acre Recology Solid Waste Transfer Facility. The Recology site is situated partially within Brisbane and partially within San Francisco.

The proposed Project consists of the following components:

- A **Concept Plan** for the development of the Baylands, as required by the Brisbane General Plan prior to development within the Baylands. Development of the following four Concept Plans are evaluated in the EIR at an equal level of detail:
    - ***Developer-Sponsored Plan (DSP).*** The DSP scenario was proposed by Universal Paragon Corporation (UPC), the primary landowner at the Project Site, and is defined within the February 2011 *Draft Brisbane Baylands Specific Plan* (Specific Plan). The DSP includes only the 684-acre portion of the Baylands within the Brisbane city limits and excludes the 44.2-acre Recology site and adjacent road rights-of-way. The DSP proposes approximately 7 million square feet of office/ retail /industrial/ institutional uses, 4,434 residential units, approximately 169.7 acres of "open space/open area," and approximately 135.6 acres of "lagoon" area. Total new development under the DSP would be approximately 12.1 million square feet.
    - ***Developer-Sponsored Plan – Entertainment Variant (DSP-V).*** The DSP-V scenario is also proposed by UPC and defined within the Specific Plan. The DSP-V encompasses the same 684-acre area as the DSP. It is similar to the DSP in its development intensity and land use pattern, but replaces the retail and office/research and development (R&D) uses proposed under the DSP in the northeast portion of the Project Site with entertainment-oriented uses, including a 17,000- to 20,000-seat sports arena, a 5,500-seat concert theater, a multiple-screen cinema, and more conference/exhibition space and hotel rooms than are proposed under the DSP. New development under the DSP-V also includes 4,434 residential units, and would total approximately 12.0 million square feet.

- ***Community Proposed Plan (CPP).*** The CPP scenario was developed through extensive community input and designated for study in this EIR by the Brisbane City Council in 2010. The CPP provides for approximately 7.7 million square feet of office, industrial, commercial, and institutional uses, along with approximately 330 acres of open space/open area and the 135.6-acre lagoon. In addition to the 684-acre area included as part of the DSP, the CPP includes the 44.2-acre Recology site, which spans the cities of Brisbane and San Francisco, encompassing the Beatty Subarea designated in the City of Brisbane General Plan and adjacent roadway rights-of-way for a total area of 733 acres. The CPP does not include residential development. New development under the CPP would total approximately 7.7 million square feet.

- ***Community Proposed Plan – Recology Expansion Variant (CPP-V).*** The CPP-V scenario encompasses the same 733-acre area as the CPP scenario, and differs from the CPP in that it proposes expansion of the existing Recology facility in the northeast portion of the Brisbane Baylands within the Brisbane city limits. Under the CPP-V scenario, Recology would expand southward from its current boundary, replacing the hotel and R&D uses proposed under the CPP just north of Geneva Avenue and east of Tunnel Road. The existing 44.2-acre Recology site would expand by 21.3 acres to a total of 65.5 acres, consolidating existing offsite recycling and corporation yard facilities into one location within the Baylands. The square footage of the developed areas on the Recology site would increase from the existing 260,000 square feet to 1,011,000 square feet. Total new development under the CPP-V scenario would be approximately 8.1 million square feet.

- Amendments to the Brisbane General Plan as needed to ensure consistency of proposed development with the provisions of the General Plan.

- A Specific Plan submitted to the City by Universal Paragon Corporation (UPC) detailing development for the two "Developer-Sponsored Plan" scenarios. The proposed Specific Plan addresses the DSP and DSP-V Concept Plan scenarios only.

- Proposed expansion of the existing Recology facility, which is included in the CPP-V Concept Plan scenario only.

- Relocation of existing lumberyards to a different location within the Baylands, which is proposed under each of the four Concept Plan scenarios.

- Remediation of hazardous materials contamination within the former railyard and landfill areas of the Project Site, which is proposed under each of the four Concept Plan scenarios.

- Importation of water supply to the Baylands and City of Brisbane, which is proposed for each of the four Concept Plan scenarios. Under the proposed water supply agreement, the City would acquire a supplemental water supply of up to 2,400 acre-feet per year (AFY) via a water transfer agreement with the Oakdale Irrigation District (OID). OID and the City have signed a term sheet that establishes a framework for negotiating an agreement for the future transfer of up to 2,400 AFY annually for a 50-year period, with possible renewals for additional 25-year periods. The 2,400 AFY includes up to 2,000 AFY to serve the Baylands and 400 AFY to accommodate planned growth within Brisbane as a whole. The water would be transferred from OID to Brisbane pursuant to water supply and conveyance agreements to be executed among OID, the Modesto Irrigation District (MID), the San Francisco Public Utilities Commission (SFPUC), and the City of Brisbane.

- Construction and operation of an onsite recycled water plant, which would provide tertiary treatment of wastewater for recycled water re-use within the Project Site.

Table 1-1 lists these Project components, showing which components are included in each development scenario.

TABLE 1-1
PROJECT COMPONENTS ANALYZED IN THIS EIR

Project Component	Development Scenario			
	DSP	DSP-V	CPP	CPP-V
Concept Plan	✓	✓	✓	✓
General Plan Amendment	✓	✓	✓	✓
Specific Plan[1]	✓	✓		
Site-Specific Development				
Recology Expansion				✓
Lumberyard Relocation	✓	✓	✓	✓
Site Remediation	✓	✓	✓	✓
Importation of Water Supply	✓	✓	✓	✓
Onsite Recycled Water Plant	✓	✓	✓	✓

✓ = development scenario includes this Project component

1 Since the Brisbane General Plan requires preparation of a Specific Plan prior to development within the Baylands, the CPP or CPP-V Concept Plan scenarios would require future preparation and environmental analysis of a Specific Plan.

SOURCE: ESA, 2012.

As part of the analysis of Project Site development, this EIR also evaluates roadways and other Project Site infrastructure, including water supply and delivery, wastewater collection and treatment, and renewable energy generation technologies, along with site grading and remediation. These elements of the Project Site development are described in Chapter 3, *Project Description*, and analyzed in further detail in the appropriate technical sections of this EIR (see Chapter 4, *Environmental Setting, Impacts, and Mitigation Measures*).

Where certain infrastructure and site preparation elements, such as site grading and water supply and delivery, would be the same for all four Concept Plan scenarios, the analysis of impacts related to these elements refers to "Project" development impacts. In other cases, the proposed Specific Plan for the two developer-sponsored scenarios (DSP and DSP-V) provides more detail than is available in any of the four Concept Plans. Where differences in levels of detail exist, as is the case for proposed infrastructure elements such as roadway configurations, wastewater collection, or energy generation technologies, the impact analyses refer to individual Concept Plan scenarios. Individual Concept Plan scenarios are also referred to whenever the anticipated environmental impacts of individual Concept Plan scenarios differ.

Approval authority for development of the Project Site development rests with the City of Brisbane and San Francisco for the portion of the Recology site outside of Brisbane. As part of Project review, the City will consider the alternatives evaluated in Chapter 5 of this EIR, along with the Concept Plan scenarios, Specific Plan, and site-specific development described above. Alternatives to the proposed Project analyzed in this EIR include the following:

- **No Project Alternatives**
  - ***No Project – No Build.*** This alternative assumes that no Concept Plan, Specific Plan, or site-specific development of the Project Site would be approved; site remediation would not occur; no water supply agreement would be approved; and there would be no further development on the Baylands.

  - ***No Project – General Plan Buildout.*** This alternative assumes that none of the proposed Concept Plan scenarios would be selected. In addition, the Brisbane Baylands Specific Plan, as well as site-specific development projects would not be approved, and buildout of the Project Site would occur pursuant to the existing adopted provisions of Brisbane 1994 General Plan. Thus, this alternative assumes that a Concept Plan would be prepared and one or more Specific Plan(s) would be prepared and approved consistent with the existing General Plan land use designations for the Project Site, which are *Planned Development-Trade Commercial*, *Marsh/Lagoon/Bayfront,* and *Heavy Industrial*. This alternative also assumes that site remediation would be undertaken, and that the currently proposed water supply agreement would be approved but with a lesser amount of water. To support development of the Baylands under this alternative would require securing a reliable water supply prior to development site development. Since Project Site development would far less intense than any of the four Project Site development scenarios, the onsite recycled water plant is not part of this alternative.

- **Other Alternatives to Reduce or Eliminate Significant Project Impacts**
  - ***Renewable Energy Generation Alternative.*** Land uses under this alternative consist of alternative energy uses including a combination of small vertical-axis wind turbines, wind turbines placed within development, and photovoltaic solar panels; research and development facilities; and retail/entertainment uses. Others uses at the Project Site would include relocated industrial uses. This alternative also assumes that site remediation would be undertaken and that imported water supply would be approved to support development under this alternative, but at a lesser amount than proposed for Project Site development. Since Project Site development would far less intense than any of the four Project Site development scenarios, the onsite recycled water plant is not part of this alternative.

  - ***Reduced Intensity Non-Residential Alternative.*** This alternative incorporates a mix of commercial, office, business park, and institutional uses at a reduced level of development from that proposed by the CPP-V Concept Plan scenario, including the full Recology expansion proposed in the CPP-V scenario. This alternative also assumes that site remediation would be undertaken, that imported water supply would be approved to support development under this alternative, and that an onsite water reclamation facility would be developed.

  - ***Reduced Intensity Mixed Use Alternative.*** This alternative incorporates a mix of uses similar to the DSP scenario, but at a reduced level of development from that proposed by the DSP. This alternative also assumes that site remediation would be undertaken, that imported water supply would be approved to support development under this alternative, and that an onsite water reclamation facility would be developed.

As shown in Table 1-1, development within the Baylands will require various discretionary actions, including selection of a Concept Plan, and approval of General Plan amendment(s) and Zoning Ordinance amendment(s) as needed, adoption of one or more specific plans, and site-

specific development permits and other actions and approvals identified in Chapter 3, *Project Description*, of this EIR.

All Concept Plan scenarios would require implementation of various site preparation activities, including the completion of the remedial actions described in Chapter 3, *Project Description*, of this EIR, prior to Project Site development. Remedial actions proposed within the Project Site would address cleanup of two areas of a former railyard and final closure of a former landfill. Each scenario also provides for relocation of existing lumberyards within the Project Site.

1.1 Environmental Review

As noted above, Project Site development requires approval of a Concept Plan, General Plan amendment(s) and Zoning Ordinance amendment(s) as needed, adoption of one or more specific plans, and site-specific development permits and other actions and approvals related to water supply and site remediation. Because the currently proposed Project components identified in Table 1-1 require discretionary actions by the City and other public agencies, these Project components constitute a "project" under the CEQA and therefore must be evaluated for their potential to create adverse environmental effects. Consistent with CEQA requirements, this EIR has been prepared to assess the direct and indirect environmental impacts associated with the physical changes associated with proposed development of the Project Site. Additionally, this EIR evaluates a reasonable range of alternatives to the Project Site development components identified in Table 1-1 and identifies feasible mitigation measures to address identified significant impacts.

This EIR evaluates the major environmental effects of Project Site development, as proposed by the four development scenarios, at a program level of analysis. The EIR frames the nature and magnitude of the expected environmental impacts associated with Project Site development and identifies program mitigation measures to reduce the impacts of the elements as proposed. Where more detailed information is presently available, or where the nature of the proposed activity is clearly known, such as information included in the Specific Plan proposed for the DSP and DSP-V scenarios, the proposed expansion of the existing Recology facility, the relocation of existing lumberyards within the Baylands, and site remediation, more detailed analysis is provided in the EIR.

Future discretionary approvals and permits proposed for development within the Baylands will be subject to the provisions of CEQA. Pursuant to CEQA Guidelines Section 15168(c), the City will review future discretionary actions for development within the Baylands to determine the extent to which the analyses contained in this EIR address the impacts of such discretionary actions, whether additional environmental review is required, and what form that that review will take. Should additional environmental analysis be determined necessary, the City may use the information in this EIR to support such future environmental review.

Project Notices of Preparation

2006 Notice of Preparation

The City initially issued a Notice of Preparation (NOP) (State Clearinghouse Number 2006022136) on February 24, 2006 to prepare an EIR analyzing the 2005 *Brisbane Baylands Phase I Specific Plan*, prepared by the property owner (Universal Paragon Corporation) which encompassed a smaller geographic area than the currently proposed Specific Plan and included a different mix of land uses. From March to June 2006, the City held five public scoping meetings that solicited comments regarding the types and breadth of environmental analysis to be included in the EIR.

2010 Notice of Preparation

Between 2006 and 2009, several community workshops were held to develop the CPP scenario. Subsequent to this process, the developer chose to revise the Specific Plan (DSP scenario). In December 2010, a revised NOP was published and circulated for a 30-day review period in order to receive additional comment on the analyses and content of the EIR. The revised NOP was issued (1) to reflect changes in the Project description, including revisions to the specific plan proposed by the applicant, the inclusion of the entertainment variant to the DSP scenario (DSP-V), and identification of the CPP and CPP-V scenarios to be studied at an equal level of detail in the forthcoming EIR; and (2) to recognize the time that had elapsed since the NOP was originally published.

The 2010 NOP was distributed to governmental agencies, organizations, and persons interested in the Project Site development and requested their input on the scope and content of the environmental information that should be addressed in the EIR. A public scoping meeting was held on January 4, 2011 to receive oral comments on the proposed EIR scope from local agencies and the community.

2012 Notice of Preparation

A subsequent NOP was circulated in October 2012 to provide notice that, subsequent to issuance of the previous NOP in December 2010, an additional component – a proposed water transfer agreement between the City and OID – would be added to the previously described Project components, and would be analyzed as part of the forthcoming EIR. As noted above and described in the 2012 NOP, the City proposes to acquire a supplemental water supply of 2,400 AFY via a water transfer agreement with the OID in order to serve the proposed development of the Brisbane Baylands.

Responses to Notices of Preparation

The 2006, 2010, and 2012 NOPs, and associated written comments and transcripts of oral comments that the City received in response to the NOPs are included as **Appendix A** of this EIR. In preparing this Draft EIR, the City has reviewed and considered all relevant comments received in response to the NOPs.

EIR Analysis Overview

As described above, this EIR presents a program-level analysis for development of the Brisbane Baylands. Specifically, it evaluates the physical and land use changes that would occur with adoption of any one of the four Concept Plan scenarios (i.e., the goals, objectives, land use designations, and development density and intensity parameters therein), along with other Project components (e.g., General Plan Amendment, Specific Plan, site-specific development, site remediation, water supply importation) identified in Table 1-1.

A program EIR is considered appropriate for the proposed development of the Project Site, in that the current Project Description includes a number of different components and there would be future development proposals that are (1) related geographically, (2) logical parts in a chain of contemplated actions, (3) connected as part of a continuing program, and (4) carried out under the same authorizing stature or regulatory authority and having similar environmental impacts that can be mitigated in similar ways (CEQA Guidelines Section 15168). Insofar as the each of the proposed development scenarios would include a plan and policy framework that would govern future development within a discrete geographic area, such a program-level approach is appropriate. The analysis of program-level environmental impacts is based on current information about future development that would occur on and around the Project Site.

This EIR considers changes that would occur as a result of implementation of the Project Site development over approximately 20 years. It assesses environmental effects that may occur with such development, including cumulative effects of that development combined with other past, present, and reasonably foreseeable future development. The EIR also analyzes alternatives and sets forth mitigation measures to reduce the impacts of Project Site development, pursuant to Section 15126 of the CEQA Guidelines.

EIR Process and Review

During the period that this Draft EIR is available for public review (specified in the Notice of Availability and Notice of Completion), written comments may be submitted to the City of Brisbane and should focus upon the sufficiency of this Draft EIR in identifying and analyzing the possible impacts of Project Site development on the environment and ways in which the significant effects of Project Site development might be avoided or mitigated (CEQA Guidelines Section 15204(a)). Responses to all comments received will be included in the Final EIR.

Prior to approval of any of the proposed development scenarios, the City must certify the Final EIR and adopt Findings and a Mitigation Monitoring and Reporting Program, along with a Statement of Overriding Considerations, if necessary.

1.2 Purpose and Intended Use of this EIR

This EIR is intended to provide the information and objective environmental analysis to assist the City and the Responsible Agencies (see Section 3.15.1 for a list of responsible agencies and approvals) in considering each of the approvals and actions related to Project Site development. It

has been prepared to aid the review and decision-making process by disclosing the significant environmental impacts that would occur with implementation of the various Project components and identifying feasible mitigation measures and alternatives to reduce those impacts.

The CEQA Guidelines provide the following information regarding the purpose of an EIR:

- **Project Information and Environmental Effects.** An EIR is an informational document that will inform public agency decision-makers and the public generally of the significant environmental effect(s) of a project, identify possible ways to minimize the significant effects, and describe reasonable alternatives to the Project Site development. The public agency shall consider the information in the EIR along with other information that may be presented to the agency (CEQA Guidelines Section 15121(a)).

- **Standards for Adequacy of an EIR.** An EIR should be prepared with a sufficient degree of analysis to provide decision-makers with information that enables them to make a decision that intelligently takes account of environmental consequences. An evaluation of the environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in the light of what is reasonably feasible. Disagreement among experts does not make an EIR inadequate, but the EIR should summarize the main points of disagreement among the experts. The courts have looked not for perfection but for adequacy, completeness, and a good faith effort at full disclosure (CEQA Guidelines Section 15151).

In addition to providing sufficient information and adequate analysis of the environmental effects of Project Site development, this EIR also provides analysis of those activities that must occur as conditions of future development within the Project Site. Such activities include the remediation of hazardous materials contamination in the former railyard and landfill areas of the Project Site and verification of water supply for Project Site development. More specifically, this EIR is intended to adequately characterize and analyze the impacts of possible remedial activities to be undertaken within the former landfill and railyard areas of the Project Site recognizing that appropriate remediation activities must be completed prior to initiation of Project Site development in areas requiring such remediation. Additionally, with regard to water supply, this EIR is intended to assess the impacts that would occur with the proposed transfer of water from its source to the Project Site.

As discussed above, this EIR includes a program-level analysis intended to provide a comprehensive environmental review of proposed Project Site development and may be used to evaluate future site-specific development proposals within the Baylands. The EIR analyzes certain specific Project components for which more clearly defined plans, construction methods, and operational requirements are currently available. Such actions include the proposed Specific Plan for two of the four Concept Plan scenarios being evaluated, and the proposed expansion of the Recology facility included as part of the CPP-V Concept Plan scenario.

1.3 Public Participation

As described in Section 1.1, the first NOP for Baylands Project Site development was distributed in 2006, and five public scoping meetings were held to solicit comments from public agencies and the public about the EIR's scope of analysis.

Subsequently, the CPP and CPP-V scenarios were developed over the course of three years (2006 through 2009), incorporating results of multiple community workshops, input from community groups and City advisory commissions, and ideas from notable professionals provided during a community speaker series. The speaker series covered topics such as sustainable cities, renewable energy, and transit-oriented developments. Through this process, a variety of land uses were considered before the CPP was selected for further review in the EIR. Subsequently, the CPP-V was designated as another Project development scenario for review. This public process also led to the development of a Renewable Energy Generation Alternative which is evaluated in the EIR.

Additional opportunities for public participation will be available during the public review and comment period for this Draft EIR and subsequent public hearings before the Brisbane Planning Commission and City Council.

1.4 Organization of this Draft EIR

Following this Chapter 1, *Introduction*, the Draft EIR is organized as follows:

- **Chapter 2, *Summary,*** contains a brief summary of Project Site development scenarios and allows the reader to quickly review the analysis presented in the Draft EIR. Table 2-1, Summary of Impacts, Mitigation Measures, and Residual Impacts, is provided at the end of Chapter 2 as a reader-friendly reference to each of the environmental impacts, recommended mitigation measures, and significance of environmental impacts after mitigation is implemented. This information is presented by environmental topic. Chapter 2 also summarizes the analysis of alternatives to the Project Site development, areas of controversy, and issues to be resolved.

- **Chapter 3, *Project Description,*** describes in detail proposed Project Site development, Project objectives and other components, and the Project Site and surroundings. Chapter 3 also identifies the specific approvals and actions required for the City to implement the Project Site development.

- **Chapter 4, *Environmental Setting, Impacts, and Mitigation Measures,*** discusses, for each environmental topic addressed in the EIR, the regulatory setting, existing conditions, applicable plans and policies, significance criteria, environmental impacts of proposed Project Site development, and mitigation measures recommended for the Project Site development.

- **Chapter 5, *Alternatives,*** evaluates a reasonable range of alternatives to Project Site development as described in Chapter 3, *Project Description*, as required by CEQA, and identifies an environmentally superior alternative.

- **Chapter 6, *Significant Unavoidable Impacts, Growth Inducement, Cumulative Impacts, and Other CEQA Considerations,*** summarizes the less-than-significant, significant unavoidable, and cumulative impacts that could result with the Project Site development, as they are identified throughout Chapter 4. Chapter 6 also describes Project site development's potential to induce growth beyond development of the Project Site alone and provides an analysis for each environmental topic of the impacts of Project Site development together with other local and regional projects causing related impacts.

- **Chapter 7, *Sustainability,*** provides a summary of Project Site development-related environmental sustainability features and recommended mitigation measures which enhance the Project Site development's environmental sustainability.
- **Chapter 8, *Report Preparation,*** identifies the authors of the EIR, including City staff and the EIR consultant team.
- **Appendices** to the Draft EIR are provided at the end of the document and include the NOP and certain supporting background documents and technical reports used for the impact analyses for specific topics.

All reference documents, persons contacted to prepare this EIR, and documents incorporated by reference are listed at the end of each topical analysis section in Chapter 4, *Environmental Setting, Impacts, and Mitigation Measures*. References are available for review at the City of Brisbane Community Development Department, 50 Park Place, Brisbane, CA.

CHAPTER 2
Executive Summary

2.1 Purpose of the Executive Summary

As provided by Section 15123 of the California Environmental Quality Act (CEQA) Guidelines, this chapter provides a brief summary of the Project Site development's actions and its consequences. This summary is intended to highlight the major areas of importance in the environmental analysis for the Project Site development of the Brisbane Baylands, and includes a brief description of the Project Site development, Project Site development objectives, approval requirements, areas of controversy/issues to be resolved, and a summary of alternatives to the Project Site development. In addition, this chapter provides a table summarizing (1) potential environmental impacts that would occur as a result of the Project Site development; (2) the level of significance of the environmental impacts prior to implementation of any applicable mitigation measures; (3) the recommended mitigation measures that avoid or reduce significant environmental impacts; and (4) the level of significance after mitigation measures are implemented (see **Table 2-1**).

The lead agency, the City of Brisbane (City), is the public agency that has the principal responsibility for carrying out or approving the Project Site development, which is described in Section 2.3.

The purpose of the analyses contained in this EIR is not to assess whether the Project Site development components described herein would be successful or even whether they are "good", but rather to define and measure the potential environmental impacts that are likely to result from implementation of the various components of Project Site development of the Brisbane Baylands.

2.2 Regional Location and Project Site

The Project Site contains approximately 733 acres[1] (including the 136-acre Brisbane Lagoon area) and is located within the City of Brisbane in northeast San Mateo County, flanking the west side of San Francisco Bay and U.S. Highway 101.

[1] The total Project Site acreage consists of the 684-acre Specific Plan area and the 47.4 acre Recology site plus adjacent roadway rights-of-way, for a total of 733 acres.

2.3 Project Overview

Proposed development of the Project Site includes the following components (the Project Site development):

- A Concept Plan for the development of the Baylands, as required by the Brisbane General Plan prior to development within the Baylands. Development of the following four Concept Plans are evaluated in the EIR at an equal level of detail:
  - ***Developer-Sponsored Plan (DSP).*** The DSP scenario was proposed by UPC, the primary landowner at the Project Site, and is defined within the February 2011 *Draft Brisbane Baylands Specific Plan* (Specific Plan). The DSP includes only the 684-acre portion of the Baylands within the Brisbane city limits and excludes the 44.2-acre Recology site and adjacent road rights-of-way. The DSP proposes approximately seven million square feet of office/ retail/industrial/institutional uses, 4,434 residential units, approximately 169.7 acres of open space/open area, and approximately 135.6 acres of lagoon area. Total new development under the DSP would be approximately 12.1 million square feet.
  - ***Developer-Sponsored Plan – Entertainment Variant (DSP-V).*** The DSP-V scenario is also proposed by UPC and defined within the Specific Plan. The DSP-V encompasses the same 684-acre area as the DSP. It is similar to the DSP in its development intensity and land use pattern, but replaces the retail and office/research and development (R&D) uses proposed under the DSP in the northeast portion of the Project Site with entertainment-oriented uses, including a 17,000- to 20,000-seat sports arena, a 5,500-seat concert theater, a multiple-screen cinema, and more conference/exhibition space and hotel rooms than are proposed under the DSP. New development under the DSP-V also includes 4,434 residential units, and would total approximately 12.0 million square feet.
  - ***Community Proposed Plan (CPP).*** The CPP scenario was developed through extensive community input and designated for study in this EIR by the Brisbane City Council in 2010. The CPP provides for approximately 7.7 million square feet of office, industrial, commercial, and institutional uses, along with approximately 330 acres of open space/open area and the 135.6-acre lagoon. In addition to the 684-acre area included as part of the DSP, the CPP includes the 44.2-acre Recology site, which spans the cities of Brisbane and San Francisco, encompassing the Beatty Subarea designated in the City of Brisbane General Plan and adjacent roadway rights-of-way for a total area of 733 acres. The CPP does not include residential development. New development under the CPP would total approximately 7.7 million square feet.
  - ***Community Proposed Plan – Recology Expansion Variant (CPP-V).*** The CPP-V scenario encompasses the same 733-acre area as the CPP scenario, and differs from the CPP in that it proposes expansion of the existing Recology facility in the northeast portion of the Brisbane Baylands within the Brisbane city limits. Under the CPP-V scenario, Recology would expand southward from its current boundary, replacing the hotel and R&D uses proposed under the CPP just north of Geneva Avenue and east of Tunnel Road. The existing 44.2-acre Recology site would expand by 21.3 acres to a total of 65.5 acres, consolidating existing offsite recycling and corporation yard facilities into one location within the Baylands. The square footage of the developed areas on the Recology site would increase from the existing 260,000 square feet to 1,011,000 square feet. Total new development under the CPP-V scenario would be approximately 8.1 million square feet.

- Amendments to the Brisbane General Plan as needed to ensure consistency of proposed development with the provisions of the General Plan.
- A Specific Plan submitted to the City by Universal Paragon Corporation (UPC) detailing development for the two "Developer-Sponsored Plan" scenarios.
- Proposed expansion of the existing Recology facility, which is included in one of the four Concept Plan scenarios.
- Relocation of existing lumberyards to a different location within the Baylands, which is proposed under each of the four Concept Plan scenarios.
- Remediation of hazardous materials contamination within the former railyard and landfill areas of the Project Site, which is proposed under each of the four Concept Plan scenarios.
- Importation of water supply to the Baylands and City of Brisbane, which is proposed for each of the four Concept Plan scenarios.
- Construction and operation of an onsite recycled water plant, which would provide tertiary treatment of wastewater for recycled water re-use within the Project Site, which is proposed for each of the four Site Plan development scenarios.

The City has prepared a programmatic EIR for the Project Site development pursuant to state and local guidelines for implementing CEQA and the CEQA Guidelines.

2.4 Proposed Project Approvals

This EIR is intended to provide the information and environmental analysis necessary to assist the City in considering all the approvals and actions necessary for implementation of any of the four Concept Plan scenarios. It will also serve as a programmatic environmental document under CEQA supporting subsequent, tiered CEQA environmental documentation for specific projects contemplated by a Concept Plan (CPP and CPP-V scenarios) or Specific Plan (DSP and DSP-V scenarios). After consideration of the EIR's analysis, the City may select, with or without modifications, or not select any one of the four Concept Plan scenarios. Consistent with the CEQA Guidelines, the City also has the authority to modify and approve any of the Project Site development alternatives that are discussed and analyzed in Chapter 5 of this EIR rather than the components of the Project Site development.

The following subsections provide a description of the approvals required to adopt and implement a land use plan for the Brisbane Baylands. As noted below, preparation, as needed, and adoption of a specific plan is required prior to development of the Baylands. As required by the Brisbane General Plan, a specific plan corresponding to the selected Concept Plan scenario – whether it is the DSP, DSP-V, CPP, or CPP-V, an alternative evaluated in this EIR, or a modification of any of these – would need to be adopted in accordance with the requirements set forth in Government Code Section 65451 for the structure and content of a specific plan. As discussed previously, a Specific Plan has been proposed by UPC for the DSP and DSP-V scenarios; implementation of any other Concept Plan development scenarios or alternatives would require the preparation and approval of a specific plan and further environmental review under CEQA.

The portion of the proposed expansion of the Recology facility that is within San Francisco would require approval by the City and County of San Francisco (San Francisco). As an agency responsible for approving a project where more than one public agency is involved, San Francisco is identified as a Responsible Agency. As noted below, approvals from San Francisco would be required for the construction of buildings associated with the Recology expansion, roadway and transit facilities improvements, and sewer and water supply infrastructure improvements.

2.4.1 Approvals Required from the City of Brisbane

Development of the Project Site would require the following approvals from the City of Brisbane:

- Selection of a Concept Plan for the Brisbane Baylands;
- Adoption of a General Plan amendment, as needed, to ensure consistency between the Concept Plan and the Brisbane General Plan;
- Adoption of a Specific Plan;
- Adoption of amendments to the Zoning Ordinance, as needed, to ensure consistency among the specific plan, General Plan, and Zoning Ordinance and to establish the land use regulations and development standards set forth in the specific plan as the regulatory authority governing future Project Site development;
- Discretionary approvals and grading and building permits for expansion of the Recology facility (CPP-V scenario only); and
- Subsequent required approvals, including development agreement(s), planned development permits, conditional use permits, design permits, subdivision map approvals, and grading and building permits. These subsequent approvals may also require additional CEQA compliance, as noted below.

2.4.2 Permits and Approvals Required from Other Agencies

Future development of the Baylands would require the following approvals from other agencies:

- Landfill Closure Permit, Landfill Closure Plan and Post-Closure Maintenance Plan (State Water Resources Control Board [SWRCB], Bay Area Air Quality Management District [BAAQMD], and CalRecycle/Environmental Health Division, San Mateo County Health Services Agency).
- Remedial Action Plan and Remedial Design and Implementation Plan (California Department of Toxic Substances Control [DTSC] and San Francisco Bay Regional Water Quality Control Board [RWQCB]).
- Gas Collection and Control System Design Plan (BAAQMD).
- Water Supply and Conveyance Agreements (Oakdale Irrigation District [OID], Modesto Irrigation District [MID], and San Francisco Public Utilities Commission [SFPUC]).
- Sanitary sewer connection permits (Bayshore Sanitary District [BSD]).

  - Interagency Cooperation Agreements to coordinate and implement roadway and utility improvements as follows: Bayshore Sanitary District (BSD): utility relocation coordination;
  - City and County of San Francisco: Expansion of the Recology site, roadway and transit facilities improvements, bus route realignments, sewer and water supply infrastructure improvements.
  - City of Daly City: Bayshore Boulevard roadway and Bayshore Boulevard/Geneva Avenue intersection improvements and transit facilities improvements.
  - North County Fire Authority (NCFA): expansion of fire facilities.
  - San Francisco County Transportation Authority: Transportation corridors and transit facilities improvements.
  - San Mateo County Congestion Management Agency: Regional transportation facilities and roadway improvements.
  - San Mateo County Transportation District (SamTrans): bus route realignments and transit facilities improvements.

- San Francisco Bay Conservation and Development Commission (BCDC) design review approval and permit for development within the 100-foot shoreline band. The lagoon and Visitacion Creek are both subject to tidal action from San Francisco Bay. Any development that occurs within the 100-foot shoreline band of these features requires BCDC review.
- Bay Trail Review (Association of Bay Area Governments [ABAG]).
- Streambed Alteration Agreement (California Department of Fish and Wildlife [CDFW]) and Section 404 permit (United States Army Corps of Engineers [Corps]) for activities in or around Visitacion Creek as part of the closure requirements of the RWQCB.
- Water quality certification, National Pollutant Discharge Elimination System (NPDES) permit, and waste discharge requirement compliance (RWQCB).
- Air quality permits (BAAQMD).
- Incidental Take Permit, if necessary, for special-status species (CDFW).
- State Lands Commission approvals, if necessary. Portions of the Project Site development that occupy filled and unfilled tidelands and submerged lands sold into private ownership by the State Lands Commission, and that remain submerged or subject to tidal action, are subject to a Public Trust easement retained by the state. Any portion of the Project Site development located within the Guadalupe Canal would require a lease from State Lands Commission.
- California Public Utilities Commission approval to modify an existing highway rail crossing or to construct a new crossing.
- Encroachment permits if construction occurs in right-of-way owned by the California Department of Transportation (Caltrans District 4) or the Peninsula Corridor Joint Powers Board (Caltrain).
- Project Study Report/ Project Report/Plan Specifications and Estimates (Caltrans District 4).
- Regional transportation funding (Metropolitan Transportation Commission).

- City and County of San Francisco discretionary approvals and grading and building permits for expansion of the Recology facility within San Francisco's boundaries (CPP-V scenario only).
- Transportation Demand Management Program (City/County Association of Governments).
- Required approvals for location, design, and construction of Kindergarten through eighth grade school facilities by the Bayshore Elementary School District (DSP and DSP-V scenarios).
- Required approvals for location, design, and construction of grade 9-12 school facilities by the Jefferson Union High School District.

2.5 Project Objectives

The following subsections identify Project objectives that have been identified by the Lead Agency (the City of Brisbane), as well as those identified by the Specific Plan applicant (UPC), as part of the Specific Plan, and by Recology, Inc. for the proposed expansion and redevelopment of its existing facility. For the purposes of analyzing the effects of the Project Site development as compared to the alternatives to the Project Site development presented in Chapter 5, *Alternatives*, of this EIR, the City's Project objectives are employed.

2.5.1 Objectives Identified by the City of Brisbane

Overarching Objectives

The City's overarching objective is to establish a development plan for the Baylands that will be a leading model of sustainable development, which is a source of pride to Brisbane and demonstrates that environmental, social, and economic considerations can be harmonized to the betterment of the natural environment, the Brisbane and regional community, and the individuals who will use the Baylands. Sustainable development is simply defined as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs."

The Project Site development objectives identified below have been organized around three major components of sustainability: environmental protection and enhancement, social equity, and economics.

Environmental Protection and Enhancement Objectives

A. Remediate the Baylands to a level which ensures the safety of all who use the site, and eliminates ongoing ecological damage.

B. Incorporate a "green building" approach for all future development on the Baylands, wherein buildings are sited, designed, constructed and operated to encourage resource conservation, minimize waste and pollution, maximize energy and resource efficiency, and promote healthy indoor environments.

C. Preserve, restore and enhance wetlands and natural habitat on the site and create natural linkages across the site to promote physical and visual connectivity between the San Bruno Mountains and the Bay.

D. Promote and encourage non-vehicular access and movement to and from the site (particularly from Central Brisbane) and within the site as well. Land use mix, good urban design, the provision of safe and pleasant pedestrian and bike paths, and convenient access and linkages to public transit are all necessary components.

E. Strive to achieve energy neutrality or better for the project through a combination of efficiency, conservation, and maximizing on site renewable power generation.

F. Minimize the net consumption of water supplies.

G. Safely and efficiently accommodate project traffic in a manner that does not adversely impact Brisbane or adjacent communities.

H. Incorporate innovative methods to reduce resource consumption and waste generation.

I. Site and design new infrastructure to minimize adverse environmental impacts.

J. Design the project sensitively to protect Brisbane's viewshed, taking into account light spillage and pollution, building height and massing, and placement of landscape features.

K. Maximize solid waste diversion with the goal of achieving zero waste.

Social Equity Objectives

L. Incorporate significant open space and related improvements which provide opportunities for a wide range of passive and active public recreational opportunities benefiting the City and region.

M. Provide employment opportunities for Brisbane residents and residents of nearby local communities, thereby improving the jobs/housing balance at regional and subregional levels.

N. Contribute to critically-needed solutions to regional transit and transportation issues which will benefit both the project and existing communities.

O. Recognize that the project is of regional significance, and provide for the well-being not only of the City of Brisbane, but also of surrounding communities.

P. Provide on-site opportunities for public art and education to contribute to public understanding of the site, including its history, ecology and the project's sustainability mission.

Economic Objectives

Q. Enhance the City's tax base and future ability to improve services within all of Brisbane.

R. Retain and accommodate the expansion of existing businesses within the Baylands that contribute to the City's fiscal health and economic vitality.

S. Establish a project which remains economically viable on a long-term basis, including excellence in architecture which can withstand the test of time.

T. Build in flexibility so the project can adapt to changing market conditions over time, without compromising the other stated project objectives.

U. Provide greater choices for Brisbane residents by providing desired goods, services, entertainment, and/or other amenities not currently available within the City.

2.5.2 Objectives Identified by the Specific Plan Applicant, UPC

In preparing the Specific Plan, UPC (the applicant for the Specific Plan) identified the following general project objectives that apply to the DSP and DSP-V Concept Plan scenarios.

Remediation and Redevelopment

1. The reclamation of former railyards and landfill areas for safe and productive future use through the remediation of pollutants from the site's industrial past.
2. A land use mix and development program, for which the financial return could offset the significant costs associated with landfill closure, site remediation, infrastructure construction and other site improvements necessary for the safe and productive use of the Baylands.
3. A mix of land uses that provides fiscal benefit to the City through the generation of increased tax revenue, and is flexible to accommodate market trends.

Economic Revitalization

1. The generation of substantial numbers of new jobs of a wide range of income levels over the long term, including jobs for local populations.
2. The creation of a hub for new and growing industries, such as clean technology, to the Baylands by providing a critical mass of commercial development opportunities and other incentives to attract both established and new companies.
3. The creation of attractive local and regional retail and entertainment destinations that offer Brisbane residents greater opportunity to shop and recreate within their City.
4. The establishment of an integrated business environment that complements the existing business community within Brisbane.

Ecological Enhancements

1. The creation of a dynamic open space network that incorporates existing wetlands and native habitats, with opportunities for passive and active recreation, urban parks, productive landscapes and visual and ecological connectivity between San Bruno Mountain, Brisbane Lagoon, and the San Francisco Bay.
2. The reconnection to local ecology through restorative efforts and interpretive programs, resulting in improved ecological productivity and understanding.

Sustainable Living

1. The integration of the Baylands with regional transit networks that allow residents and employees to conveniently connect with the greater Bay Area.
2. A circulation network of "complete streets" balancing efficient circulation of pedestrian, bicycle, transit, and personal vehicles with human safety.
3. The creation of mixed-use districts that are walkable, pedestrian-friendly and easily accessible by transit, resulting in a vibrant street environment and lower traffic volumes than with typical development.

4. Include sufficient residential density in proximity to transit and jobs, to create a sustainable community that supports neighborhood-serving retail and encourages use of walking and public transportation to minimize the use and impacts of private automobiles.

5. A comprehensive sustainability program that unites on-site power generation, energy-efficient buildings and infrastructure, water-efficient building and landscaping, and best management practices for stormwater management and waste minimization.

6. The development of distinctive, high-quality neighborhoods that accommodate regional housing demands and contribute to Brisbane's strong sense of place.

7. The inclusion of community facilities that will support and connect existing and future Brisbane residents.

8. Enhance the viewshed of Brisbane through sustainable design and provide opportunities for public art.

2.5.3 Objectives Identified by Recology, Inc.

Recology, Inc. has identified the following two primary objectives for its proposed redevelopment and expansion of the existing Recology solid waste transfer facility, included as part of the CPP-V concept plan scenario:

1. Replace aging and deteriorating infrastructure; and
2. Provide the infrastructure needed to achieve San Francisco's goal of zero waste.

2.6 Environmental Impacts and Mitigation Measures

The impacts and mitigation measures identified in this EIR are summarized in **Table 2-1** at the end of this chapter. This table lists potential impacts, recommended mitigation measures, and the level of significance of the impact after any recommended mitigation measures are implemented.

Significant Unavoidable Impacts of Proposed Project Site Development

This EIR identifies the following Significant Unavoidable impacts with the Project Site development, by scenario:

Developer-Sponsored Plan (DSP) and Developer-Sponsored Plan – Entertainment Variant (DSP-V)

Significant Unavoidable Aesthetics and Visual Resources Impact

- **Impact 4.A-4:** The Project would create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area.

Significant Unavoidable Air Quality Impacts

- **Impact 4.B-2:** The Project would generate construction emissions that would result in a cumulatively considerable net increase of criteria pollutants and precursors for which the air basin is in nonattainment under an applicable federal or state ambient air quality standard.

- **Impact 4.B-4:** The Project would generate operational emissions that would result in a cumulatively considerable net increase of criteria pollutants and precursors for which the air basin is in nonattainment under an applicable federal or state ambient air quality standard.

- **Impact 4.B-9:** The Project would conflict with or obstruct implementation of the applicable air quality plan.

Significant Unavoidable Noise Impacts

- **Impact 4.J-4:** Project construction activities would result in substantial temporary or periodic increase in ambient noise levels in the Project Site above levels existing without the Project.

Significant Unavoidable Population and Housing Impact

- **Impact 4.K-1:** The Project would induce substantial population growth in the area either directly or indirectly.

Significant Unavoidable Traffic and Circulation Impacts

- **Impact 4.N-1:** The Project would result in a substantial increase in traffic under Existing plus Project conditions at intersections in the vicinity of the Project Site.

- **Impact 4.N-2:** The Project would contribute to significant existing traffic impacts at freeway mainline segments.

- **Impact 4.N-3:** The Project would result in a significant increase in traffic under Cumulative With Project conditions at the study intersections.

- **Impact 4.N-4:** The Project's contribution to future cumulative traffic impacts at freeway mainline segments would be cumulatively considerable.

- **Impact 4.N-7:** The Project would cause an increase in transit demand that could not be accommodated by San Francisco Muni or SamTrans transit capacity.

- **Impact 4.N-8:** The Project would cause an increase in delays or operating costs resulting in substantial adverse effects on transit service levels (i.e., additional buses or trains could be required due to Project transit trips).

Significant Unavoidable Utilities Impacts (DSP-V only)

- **Impact 4.O-3:** The Project result in the construction of new water, wastewater treatment, and/or stormwater drainage facilities or expansion of existing facilities, the constructions of which could cause significant environmental effects.

Community Proposed Plan (CPP) and Community Proposed Plan – Recology Expansion Variant (CPP-V)

Significant Unavoidable Aesthetics and Visual Resources Impact

- **Impact 4.A-4:** The Project would create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area.

Significant Unavoidable Air Quality Impacts

- **Impact 4.B-2:** The Project would generate construction emissions that would result in a cumulatively considerable net increase of criteria pollutants and precursors for which the

air basin is in nonattainment under an applicable federal or state ambient air quality standard.

- **Impact 4.B-4:** The Project would generate operational emissions that would result in a cumulatively considerable net increase of criteria pollutants and precursors for which the air basin is in nonattainment under an applicable federal or state ambient air quality standard.
- **Impact 4.B-9:** The Project would conflict with or obstruct implementation of the applicable air quality plan.

Significant Unavoidable Greenhouse Gas Emissions Impacts

- **Impact 4.F-1:** The Project (CPP and CPP-V scenarios) would generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.
- **Impact 4.F-2:** The Project could conflict with an applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.

Significant Unavoidable Population and Housing Impact

- **Impact 4.K-1:** The Project would induce substantial population growth in the area either directly or indirectly.

Significant Unavoidable Traffic and Circulation Impacts

- **Impact 4.N-1:** The Project would result in a substantial increase in traffic under Existing plus Project conditions at intersections in the vicinity of the Project Site.
- **Impact 4.N-2:** The Project would contribute to significant existing traffic impacts at freeway mainline segments**.**
- **Impact 4.N-3:** The Project would result in a significant increase in traffic under Cumulative With Project conditions at the study intersections.
- **Impact 4.N-4:** The Project's contribution to future cumulative traffic impacts at freeway mainline segments would be cumulatively considerable.
- **Impact 4.N-7:** The Project would cause an increase in transit demand that could not be accommodated by San Francisco Muni or SamTrans transit capacity.
- **Impact 4.N-8:** The Project would cause an increase in delays or operating costs resulting in substantial adverse effects on transit service levels (i.e., additional buses or trains could be required due to Project transit trips).

2.7 Alternatives

Chapter 5 of this EIR analyzes a range of reasonable alternatives to the Project Site development. The alternatives that are analyzed in detail in that Chapter are described below.

2.7.1 No Project Alternatives

No Project-No Build Alternative

The No Project-No Build Alternative assumes that no Baylands concept plan scenario is approved, and that there would be no further development on the Project Site. Existing conditions would continue, and future infrastructure development would not occur under this alternative. Existing, continuing uses in the Baylands include Sierra Point Lumber and Van Arsdale-Harris, the Recology resource recovery facility, Brisbane Bayshore Industrial Park, Lazzari Fuel Company, Brisbane Soils Processing, and the Brisbane Recycling rock crushing facility. Insofar as the Geneva Avenue extension is included in the San Francisco Bay Area Regional Transportation Plan and is assumed in the Candlestick Point-Hunters Point Shipyard Phase II Development Plan Project EIR, the roadway extension could still occur under a no-build scenario if it is funded and built solely by others. However, because the roadway extension and associated interchange improvements at U.S. Highway 101 are unlikely to occur in the absence of any development within the Baylands, it is assumed that the Geneva Avenue extension would not occur under the No Project-No Build Alternative.

No Project-General Plan Buildout Alternative

This alternative assumes that none of the Baylands project scenarios are approved and that buildout of the Project Site would occur pursuant to the existing adopted provisions of Brisbane General Plan, which assumed existing uses would remain in the Northeast Bayshore and Beatty Subareas, and that new development would occur only within the Baylands Subarea. The General Plan designates the Baylands Subarea as *Planned Development-Trade Commercial* and *Marsh/Lagoon/Bayfront*. Allowable uses under these designations include retail sales, offices, residential uses, bulk sales, open space, recreational facilities, statuary, public and quasi-public facilities, services and utilities, commercial services, hotels, research and development, educational institutions, and lagoon/bayfront.

Presuming that "the realistic capacity of the land would be revealed with analysis of the specific plans required before any development could proceed," the General Plan EIR calculated the hypothetical carrying capacity of the Baylands Subarea by defining the range of square footage of development that "could be accommodated without producing more traffic than could reasonably be mitigated to within the City's level-of-service standard LOS D. The low end of the range of square footage, one million square feet, related to high trip generating land use, such as certain types of retail, and the high end, 4.2 million square feet to a low trip-generating land use such as warehouse-type commercial. The actual trip generation and corresponding allowable square footage of development would lie somewhere between the hypothetical 'high' and 'low' and would reflect a mix of land use on the Baylands, as reflected in all three of the hypothetical long-term land use alternatives."

As noted above, the General Plan EIR sets forth three conceptual land use scenarios for the Baylands Subarea, each reflecting a mix of retail and light industrial uses. The scenarios differ from each other in the type of commercial use, ranging from small shops to a major shopping

center, and inclusion of a hotel/golf course resort facility in two of the alternatives. The General Plan EIR also identified an initial 10-year buildout of the Baylands Subarea, indicating 650,000 square feet of development, including 450,000 square feet of retail and commercial services, as well as 200,000 square feet of laboratory space and miscellaneous related uses.

2.7.2 Alternatives Intended to Avoid Significant Impacts of the Proposed Project

Renewable Energy Generation Alternative

The Renewable Energy Generation Alternative is based on a proposal by the Committee for Renewable Energy for the Baylands (CREBL) to develop utility-scale renewable energy generation facilities at the Baylands. CREBL's goal for this alternative was to not only offset the energy demand that would be generated by development of the Baylands, but to also produce additional electricity for consumption by Brisbane homes, businesses, and City-owned facilities. The City worked with the CREBL to develop a preliminary land use plan reflecting this goal. The preliminary plan for this alternative defines the approximate acreages and locations for solar PV and wind energy facilities.

To assist in the development of the Renewable Energy Generation Alternative, the City contracted with Energy Solutions to perform an analysis regarding the technical feasibility and energy generation potential of solar photovoltaic (PV) and wind energy generation within the Baylands. This analysis led to a refinement of the preliminary plan as originally conceived in order to optimize energy generation potential. The Renewable Energy Generation Alternative is based on the concept proposed by CREBL as refined following the Energy Solutions study.

Land uses under the Renewable Energy Generation Alternative consist of 170 acres of alternative energy generation facilities, including a combination of small vertical-axis wind turbines, wind turbines placed within development areas, and solar PV panels; 654,900 square feet of research and development facilities on 59 acres; and 173,800 square feet of retail/entertainment uses on 26 acres. A new water treatment plant would be constructed on seven acres, and the existing lumberyards (142,500 square feet) would be relocated to a three-acre parcel within the Project Site. The Recology expansion (included in the CPP-V) would also occur under this alternative. The remainder of the site would be designated for open space/public uses.

The relocation of the existing lumberyards, Geneva Avenue extension, and water supply agreement would occur as part of this alternative.

Reduced Intensity Non-Residential Alternative

The Reduced Intensity Non-Residential Alternative is intended to eliminate the significant unavoidable greenhouse gas emissions impacts of the CPP and CPP-V scenarios. This was accomplished by reducing development intensity within the Baylands and providing for 25 acres of land dedicated to renewable energy production. The Reduced Intensity Non-Residential Alternative provides for the expansion of the existing Recology facility within the northeast

portion of the Project Site. As with each of the Concept Plan scenarios, relocation of existing lumberyards, adaptive reuse of the Roundhouse and Lazzari Fuel Company buildings, and replacement of the existing 231,400-square-foot Brisbane Bayshore Industrial Park would occur.

Under the CPP-V scenario, total proposed new development would include:

- General Retail: 500,000 square feet
- General Office: 800,000 square feet
- R&D: 2,000,000 square feet
- Industrial/Warehouse: 224,000 square feet
- Public/Civic (community center/community theater): 180,000 square feet
- Recology Expansion (total): 752,000 square feet
- Hotel: 520,000 square feet (650 rooms)
- Institutional (medical office): 80,000 square feet
- Renewable Energy Generation: 25 acres

Including existing lumberyard uses to be relocated, total square footage of development at buildout of the Reduced Intensity Non-Residential Alternative would be 5,245,300 square feet.

Under this alternative, the maximum permitted 2,400 acre-feet of water supply would be reduced to provide for the reduced water demand within the Baylands of the Reduced Intensity Non-Residential Alternative along with 400 acre-feet amount of water to be used for citywide purposes.

Reduced Intensity Mixed Use Alternative

The Reduced Intensity Mixed Use Alternative is intended to substantially reduce the significant unavoidable traffic impacts DSP and DSP-V scenarios, and by doing so, significant unavoidable air quality and noise impacts resulting from project—generated traffic would be reduced. By reducing the overall development intensity of the DSP scenario (including reductions in both residential and non-residential development intensity), the Reduced Intensity Mixed Use Alternative would also reduce the aesthetics impacts of the Project Site development.

As with each of the Concept Plan scenarios, relocation of existing lumberyards, adaptive reuse of the Roundhouse and Lazzari Fuel Company buildings, and replacement of the existing 231,400-square-foot Brisbane Bayshore Industrial Park would occur.

The Reduced Intensity Mixed Use Alternative provides for development of 2,400 dwelling units and 3,750,780 square feet of new non-residential development. This represents approximately 54 percent of the proposed buildout of the DSP Concept Plan scenario. The Reduced Intensity Mixed Use Alternative assumes the existing 44.7-acre area encompassing the Recology site stays in place and is not expanded.

Under this alternative, the buildout density would be greater than under buildout of the existing General Plan, but reduced from that proposed by each of the Project Site development scenarios in order to reduce or avoid impacts while meeting basic Project objectives. Such objectives include creating a dynamic open space network; striving to achieve energy neutrality, or better;

remediating contamination with the Project site; and establishing an integrated business environment that complements Brisbane's existing business community.

The relocation of the existing lumberyards to a site within the Baylands and the expansion of the existing Recology facility would occur under this alternative. As would occur under each of the Project Site development scenarios, existing uses including the Brisbane Bayshore Industrial Park, Brisbane Soils Processing, and the Brisbane Recycling rock crushing facility would be removed over time and replaced with new development under this alternative.

The Reduced Intensity Non-Residential Alternative also assumes that the Geneva Avenue extension, along with implementation of the infrastructure improvements required to serve development on the Project Site, would occur. Implementation of required remedial actions also would occur under this alternative. This alternative would include development of small-scale wind and solar energy generation technologies.

2.8 Environmentally Superior Alternative

CEQA requires that the EIR identify an environmentally superior alternative that, when compared to the proposed scenarios and the alternatives considered, would avoid (or reduce to the greatest extent) more of the adverse environmental effects identified for the Project Site development, particularly any significant impacts. Typically, the No Project Alternative is identified as the environmentally superior alternative since it involves retention of baseline conditions and avoids all of the impacts associated with the proposed project. When that occurs, CEQA requires that an alternative other than the No Project Alternative be identified.

In the case of the Baylands, the No Project-No Build Alternative would not be environmentally superior since it allows existing site contamination to remain without remediation. The No Project-General Plan Buildout would also not be environmentally superior since it provides for future development of the site without a reliable water supply. Of the Project Site development scenarios and alternatives evaluated in this EIR, the Renewable Energy Generation Alternative would be the environmentally superior alternative since it is consistent with the Brisbane General Plan, involves minimal impacts compared to other scenarios and alternatives, and meets key project objectives including:

- Remediating the Baylands to appropriate levels of safety, while eliminating ongoing ecological damage.
- Providing for a "green building" approach for future development.
- Preserving, restoring, and enhancing wetlands and natural habitat and promoting physical and visual connectivity between the San Bruno Mountains and the Bay.
- Achieving a positive balance between energy demand and generation through maximum use of passive and active sources of renewable energy.
- Minimizing the net consumption of water supplies.

- Accommodating project traffic in a manner that does not adversely affect Brisbane or adjacent communities.
- Incorporating innovative methods to minimize waste generation.
- Minimizing impacts on Brisbane's viewshed.
- Helping the region achieve established zero waste goals for solid waste disposal.
- Incorporating significant open space improvements.
- Providing a degree of local employment opportunities.
- Recognizing that Project Site development is of regional significance, providing for the well-being of Brisbane residents and those of surrounding communities by minimizing offsite impacts.
- Providing onsite opportunities for education to contribute to public understanding of the site, including its history, ecology and the Project Site development's sustainability mission.
- Enhancing the City's tax base.
- Retaining and accommodating the expansion of existing businesses within the Baylands that contribute to the City's fiscal health and economic vitality.
- Establishing a project which remains economically viable on a long-term basis.
- Providing greater choices for Brisbane residents establishing a place for uses that provide desired goods and services.

2.9 Areas of Controversy and Issues to be Resolved

CEQA Guidelines Section 15123 specifies that the EIR summary shall identify "areas of controversy" known to the Lead Agency, including issues raised by agencies and the public, and issues to be resolved, including the choice among alternatives and whether or how to mitigate the significant effects.

This section lists the areas of controversy and major concerns raised during environmental scoping, as well as issues to be resolved. Issues to be resolved include those areas of concern that will be addressed either (1) during the permitting and approval processes for Project components and subsequent to the completion of the CEQA process, or (2) during design and implementation of project site-specific development projects (assuming proposed Project Site development is approved).

A summary of the issues that were raised in written and oral comments received in response to the Notices of Preparation (NOPs) for this EIR is presented below. This summary list is compiled based on written comments received (which are included in **Appendix A** of this EIR) and comments stated during the scoping meeting held on January 4, 2011, as well as the five community scoping meetings held between February and June 2006. Each of these topics is addressed in this EIR.

Major areas of controversy include, but are not limited to, the following:

- **Remediation of hazardous materials**, including use of risk-based clean-up goals and the level of hazardous materials clean-up being provided.
- Proposed **development of residential uses** within the Project Site under the DSP and DSP-V scenarios. Development of residential uses within the Baylands is now prohibited by the Brisbane General Plan.
- **Preservation of community character**, in relation to the amount and density of development being proposed within the Project Site under all four scenarios. Proposed development intensity under all four scenarios would be substantially greater than existing development within Brisbane.
- **Preservation of scenic views** of San Bruno Mountain and the San Francisco Bay, which would be affected to varying degrees by each of the Project Site development scenarios.
- **Environmental sustainability**, including the extent to each development scenario addresses is "sustainable" as that term is discussed in Chapter 7, *Sustainability*, of this EIR, including the inability of the four Project Site development scenarios to achieve energy neutrality (onsite production of renewable energy meeting or exceeding the energy demands of Project Site development).

TABLE 2-1
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL IMPACTS

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Aesthetics and Visual Resources			
Impact 4.A-1: Project Site development would block or partially block views of scenic vistas, including San Bruno Mountain and the San Francisco Bay, resulting in a substantial adverse effect on a scenic vista.	DSP: Significant DSP-V: Significant CPP: Significant CPP-V: Significant	**Mitigation Measure 4.A-1a:** Development within 350 feet of the eastern boundary of the Project Site (US Highway 101) shall be designed to avoid blockage of views of the Bay shoreline from Viewpoints 1, 2, 3, 7, 8, and 11. Each specific plan approved for development within the Project Site shall include development standards setting forth this requirement. These standards shall require that buildings within 350 feet of US Highway 101 be no taller than 80 feet in height. **Mitigation Measure 4.A-1b:** Development within 350 feet of the eastern boundary of the Project Site (US Highway 101) shall be designed to avoid blockage of views of the Bay shoreline from Viewpoints 1, 2, 8, and 11. Each specific plan approved for development within the Project Site shall include development standards setting forth this requirement. These standards shall include a requirement that buildings within 350 feet of US Highway 101 be no greater than 80 feet in height.	DSP: LTS DSP-V: LTS CPP: LTS CPP-V: LTS
Impact 4.A-2: Project site development would not Project substantially damage scenic resources, including but not limited to trees, rock outcroppings, hillsides, and historic buildings.	DSP: LTS DSP-V: LTS CPP: LTS CPP-V: LTS	**No mitigation is required.**	
Impact 4.A-3: Project Site development would be substantially greater in intensity than existing surrounding development. While such development would not substantially degrade the existing visual character of the site (former railyard and landfill), the substantial difference between the intensity of proposed Project Site development and that of its surroundings would substantially degrade the existing character of surrounding development by introducing a large amount of development that is out of scale with surrounding development.	DSP: Significant DSP-V: Significant CPP: Significant CPP-V: Significant	**Mitigation Measure 4.A-3:** All site-specific development projects within the Project Site shall be subject to the following minimum standards, which shall be set forth in required specific plan(s) prepared for development of the Project Site: • **Landscaping/Open Space:** Landscaping and open space areas shall be designed to provide usable outdoor spaces; to provide a pedestrian orientation within residential (DSP and DSP-V scenarios) and non-residential development areas; and to avoid the appearance of a solid mass of buildings as viewed from within the Project Site, from US Highway 101, from Bayshore Boulevard, and from the representative viewpoints shown in Figure 4.A-1. • **Development Intensity, Setbacks, Stepbacks, and Building Heights:** Variations, including reductions in the development intensity of site-specific development sites within the Project Site from the maximum allowable development intensity, shall be provided to maintain compatibility with the development intensity of surrounding neighborhoods and community areas. Variations in building heights (including reductions from maximum allowable heights), along with appropriate building setbacks and provision of provision of buildings stepbacks in height, shall be employed to maintain a feeling of openness within Project Site open space areas; to maintain compatibility with the scale of historic structures being preserved onsite; and to reduce the perceived intensity of development as viewed from the Geneva Avenue extension, Bayshore Boulevard, and Viewpoints 1, 2, 3, 7, 8, and 11, • **Roofs:** Roof design shall be compatible with the building design and articulation, emphasizing color, form, and materials. Rooftop mechanical equipment shall be screened from visibility from the representative viewpoints shown in Figure 4.A-1. Roofs shall incorporate opportunities for solar panels, which when installed need not be screened from view.	DSP: LTS DSP-V: LTS CPP: LTS CPP-V: LTS

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TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL IMPACTS

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Aesthetics and Visual Resources (cont.)			
Impact 4.A-3 (cont.)		• **Fenestration:** Window patterns shall be well proportioned to the building, shall be varied to achieve diversity in architecture, and shall provide adequate light and air to interiors. • **Building Articulation:** Facade articulation of a minimum of five feet shall be required at minimum intervals of 80 feet. • **Building Materials:** Materials shall be high quality with textures and colors that further accentuate building design. Changes in building materials along a building face shall relate to building massing. • **Signage:** Signage shall complement building design in material, scale, lettering, and lighting and enhance the public realm. • **Transparency:** In retail buildings along publicly accessible frontages, 40 to 60 percent of ground-floor wall areas shall be transparent. • **Building Facades:** Building design shall avoid large flat wall areas unbroken by protections, recesses, or other architectural features. Entrances shall be appropriately scaled and easy to find. • **Outdoor Storage and Mechanical Equipment:** Any permitted outdoor storage or mechanical equipment shall be fully screened from view from areas accessible to the general public, as well as from the representative viewpoints shown in Figure 4.A-1 • **Parking:** Podium or structured parking shall be wrapped with active uses at ground level and not exposed to the street. As part of the approval of specific plan(s) for development within the Project Site, the City shall first make the finding that the design standards and guidelines contained in the specific plan set forth, at a minimum, these standards. As part of the approval of all subsequent site-specific development within the Project Site, the approving body for such development shall first make the finding that the site-specific development being reviewed meets the standards and guidelines set forth in the applicable specific plan implementing the requirements of this mitigation measure.	
Impact 4.A-4: Project Site development would create substantial new sources of daytime glare a part of onsite buildings, along with substantial nighttime lighting from streets, buildings, parking lots, and other outdoor activity areas.	Nighttime Lighting DSP: Significant DSP-V: Significant CPP: Significant CPP-V: Significant Daytime Glare DSP: Significant DSP-V: Significant CPP: Significant CPP-V: Significant	**Mitigation Measure 4.A-4a:** All development within the Project Site shall comply with the following lighting design standards in order to minimize project lighting to the extent required for safety and comfort only in order to reduce nighttime lighting effects: • Limit light spill across the property lines, such that illumination at the property line of any use within the Project Site that is attributable to the subject property does not exceed 0.1 foot-candles on business properties and 0.05 foot-candles on residential properties and open space areas. Onsite lighting of site-specific development within the Project Site shall result in zero direct-beam illumination leaving the site. • Street lighting shall be comprised of shorter, pedestrian-scaled fixtures, rather than tall cobra head fixtures • Laser source lights and searchlights, and any other high-intensity light for outdoor advertising or entertainment used to attract attention to commercial activities or community events, shall be prohibited.\ • Light fixtures that produce a warm light and focus the light downward onto the pedestrian zone shall be selected. • Exterior lighting shall be kept to the minimum required for safety; purely decorative lighting displays shall be prohibited.	Nighttime Lighting DSP: SU DSP-V: SU CPP: SU CPP-V: SU Daytime Glare DSP: LTS DSP-V: LTS CPP: LTS CPP-V: LTS

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TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL IMPACTS

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Aesthetics and Visual Resources (cont.)			
Impact 4.A-4 (cont.)		• All parking lot, recreational area, walkway, and trail lighting shall have no light emitted above 90 degrees. • Project lighting shall be designed to control light energy and ensure that exterior lighting is directed downward and away from adjacent streets and buildings in a manner designed to minimize offsite light spillage. • A master plan for street and parking lot lighting shall be approved by the City prior to final approval of design plans for roadways within the Brisbane portion of the Project Site. - All streets within the Brisbane portion of the Project Site shall have uniform lighting standards with regard to style, colors, and materials in order to ensure consistency with design. - Parking lot lighting shall be of the same source of illumination as street lighting so as to ensure uniformity of night lighting color. - Due to their high energy efficiency, long life, and spectral characteristics, Narrow-Spectrum Amber LEDs shall be the preferred illumination source throughout the Brisbane portion of the Project Site. • A photometric analysis and lighting plan shall be prepared for each development project. The photometric analysis shall include an assessment of potential lighting impacts based on the height, location, light fixtures, direction, illumination intensity, and hours of operation. This analysis shall identify any potential light spill beyond the boundary of the specific plan, as well as light spill beyond the boundaries of individual sites within the Project Site Lighting performance standards as described above shall apply. The lighting plan shall demonstrate maintenance, to the maximum extent feasible, of ambient light levels as measured from 100 feet from the individual site. The lighting plan shall be submitted to the Community Development Department and City Engineer for final approval prior to approval of a building permit. **Mitigation Measure 4.A-4b:** All building exteriors within the Project Site shall be composed of textured and other non-reflective materials, including high-performance tinted non-mirrored glass. Reflective materials on building exteriors that have a light reflectivity factor greater than 30 percent shall be limited to less than 50 percent of any wall area.	
Air Quality			
Impact 4.B-1: Project Site development would result in substantial localized dust during the anticipated 20-year construction period.	DSP: Significant DSP-V: Significant CPP: Significant CPP-V: Significant	**Mitigation Measure 4.B-1:** To reduce fugitive dust emissions, the following provisions shall be incorporated into construction specifications for all site-specific development projects within the Project Site. These measures would reduce fugitive dust emissions primarily during soil movement, grading and demolition activities but also during vehicle and equipment movement on unpaved project sites. ***Basic Controls that Apply to All Construction Sites*** 1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day. 2. All haul trucks transporting soil, sand, or other loose material off-site shall be covered.	DSP: LTS DSP-V: LTS CPP: LTS CPP-V: LTS

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TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL IMPACTS

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Air Quality (cont.)			
Impact 4.B-1 (cont.)		3. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited. 4. All vehicle speeds on unpaved roads shall be limited to 15 mph. 5. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used. 6. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations). Clear signage shall be provided for construction workers at all access points. 7. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation. 8. A publicly visible sign shall be posted with the telephone number and person to contact at the Lead Agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. BAAQMD's phone number shall also be visible to ensure compliance with applicable regulations.	
Impact 4.B-2: Project Site development will generate cumulatively considerable construction emissions of criteria pollutants and precursors for which the air basin is in nonattainment under an applicable federal or state ambient air quality standard from onsite and mobile sources.	DSP: Significant DSP-V: Significant CPP: Significant CPP-V: Significant	**Mitigation Measure 4.B-2a:** To reduce construction vehicle emissions, the following provisions shall be incorporated into construction specifications for all projects on the Baylands: • Idling times shall be minimized either by shutting diesel-powered or gasoline-powered equipment off when not in use or reducing the maximum idling time of diesel-powered equipment to five minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points. • All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. It shall be the contractor's responsibility to ensure that all equipment has been checked by a certified mechanic and determined to be running in proper condition prior to operation. • All construction contract specifications shall include a requirement that on-road diesel trucks used to transport spoils consist of 2007 or newer model-year trucks with factory built engines. All on-road diesel trucks shall be required to have emission control labels as specified in 13 CCR 2183(c) or any subsequent updates to this CARB regulation, whichever is more stringent. The construction contract specifications shall require that the contractor submit to the City a comprehensive inventory of all on-road trucks used to haul spoils. The inventory shall include each vehicle's license plate number, the engine production year, and a notation of whether the truck is in possession of an emission control label as defined in 13 CCR. The contractor shall update the inventory and submit it monthly to the City throughout the duration of the project. **Mitigation Measure 4.B-2b:** All construction contract specifications shall include a requirement that off-road construction equipment used for site improvements shall be equipped with Tier 3 (Tier 2 if greater than 750 hp) diesel engines or better. All diesel generators used for project construction must meet Tier 4 emissions standards. If new emissions standards are adopted by U.S. EPA during project construction, construction contract specifications shall incorporate whichever standard is more stringent.	DSP: SU DSP-V: SU CPP: SU CPP-V: SU

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TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL IMPACTS

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Air Quality (cont.)			
Impact 4.B -3: Project Site development would not expose sensitive receptors to substantial concentrations of toxic air contaminants or respirable particulate matter ($PM_{2.5}$).	DSP: LTS DSP-V: LTS CPP: LTS CPP-V: LTS	**No mitigation is required.**	
Impact 4.B-4: Operational emissions from Project Site development result in a considerable net increase of criteria pollutants and precursors for which the air basin is in nonattainment under an applicable federal or state ambient air quality standard, primarily from mobile (vehicular) sources.	DSP: Significant DSP-V: Significant CPP: Significant CPP-V: Significant	**Mitigation Measure 4.B-4:** The following measures identified in the 2012 BAAQMD *CEQA Guidelines* shall be implemented for site-specific development projects within the Project Site and shall be included, as applicable, into commercial leases, as well as Covenants, Codes, and Restrictions (CC&Rs) within the Project Site: • Provide free transit passes (e.g., Clipper Card for use on Caltrain, San Francisco Municipal Railway [Muni], and SAMTrans) to employees (for employers of 100 or more employees); • Provide and maintain secure bike parking for commercial and industrial uses (at least one space per 20 vehicle spaces) as a condition of occupancy permit/tenancy contract; • Provide and maintain showers and changing facilities for employees as a condition of final building permit; • Provide information on transportation alternatives to employees as a condition of occupancy permit/tenancy contract; • Establish a dedicated employee transportation coordinator for each site-specific development as a condition of occupancy permit/tenancy contract; • Provide and maintain preferential carpool and vanpool parking for non-residential uses; • Increase building energy efficiency by 20 percent beyond Title 24 (reduces NOx related to natural gas combustion); • Require use of electrically powered landscape equipment through CC&Rs; • Require only natural gas hearths in residential units as a condition of final building permit; • Use low VOC architectural coatings in maintaining buildings through CC&Rs; • Require smart meters and programmable thermostats; • Meet Green Building Code standards in all new construction (reduces NOx related to natural gas combustion); and • Install solar water heaters for all uses as feasible. • A majority of these measures could be included in the TDM plan that would be required of all project scenarios. Refer to **Mitigation Measure 4.N-13** of the Section 4.N, *Traffic and Circulation*, of this EIR.	DSP: SU DSP-V: SU CPP: SU CPP-V: SU

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TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL IMPACTS

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Air Quality (cont.)			
Impact 4.B-5: Sensitive receptors would not be exposed to substantial concentrations of toxic air contaminants or respirable particulate matter ($PM_{2.5}$) as the result of Project Site development.	DSP: LTS DSP-V: LTS CPP: LTS CPP-V: LTS	**No mitigation is required.**	
Impact 4.B-6: Persons (new receptors) would not be exposed to substantial levels of toxic air contaminants (TACs), which may lead to adverse health as the result of Project Site development.	DSP: LTS DSP-V: LTS CPP: LTS CPP-V: LTS	**No mitigation is required.**	
Impact 4.B-7: Sensitive receptors would not be exposed to substantial carbon monoxide concentrations as the result of Project Site development.	DSP: LTS DSP-V: LTS CPP: LTS CPP-V: LTS	**No mitigation is required.**	
Impact 4.B-8: Objectionable odors would be generated by the proposed onsite recycled water plant, affecting a substantial number of people under all Project site development scenarios. In addition, expansion of the existing Recology facility would also generate objectionable odors affecting a substantial number of people under the CPP-V scenario.	DSP: Significant DSP-V: Significant CPP: Significant CPP-V: Significant	**Mitigation Measure 4.B-8: Recycled Water Plant Odor Management Plan.** Prior to the start of operation pursuant to issuance of a permit to operate from San Francisco Public Utilities Commission or RWQCB, the recycled water plant shall formulate and implement a progressive Odor Management Plan for review and comment by BAAQMD prior to review and approval by the City. The Odor Management Plan shall select a sufficient number of control measures from the following menu of options identified by BAAQMD to attain a performance standard which meets the odor detection thresholds of BAAQMD Regulation 7 as achieved and verified by the BAAQMD inspector. • Activated carbon filter/carbon adsorption • Biofiltration/bio trickling filters • Fine bubble aerator • Hooded enclosures • Wet and dry scrubbers • Caustic and hypochlorite chemical scrubbers • Ammonia scrubber • Energy efficient blower system • Thermal oxidizer	DSP: LTS DSP-V: LTS CPP: LTS CPP-V: LTS

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TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL IMPACTS

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Air Quality (cont.)			
Impact 4.B-8 (cont.)		• Capping/covering storage basins and anaerobic ponds • Mixed flow exhaust • Wastewater circulation technology • Exhaust stack and vent location with respect to receptors	
Impact 4.B-9: Would the Project conflict with or obstruct implementation of the applicable air quality plan? Because each Project Site development scenario results in significant unavoidable emissions of criteria pollutants during both construction and operations, Project Site development would not support the primary goals of the Clean Air Plan and would therefore conflict with its implementation.	DSP: Significant DSP-V: Significant CPP: Significant CPP-V: Significant	**Mitigation Measure 4.B-9:** The following TDM measures shall be implemented: • Promote use of clean fuel-efficient vehicles through preferential parking and/or installation of charging stations. • Promote zero-emission vehicles by providing a neighborhood electric vehicle program to reduce the need to have a car or second car vehicles as one potential element of a TDM program that would be required of all new developments. See also Table 4.B-21.	DSP: SU DSP-V: SU CPP: SU CPP-V: SU
Biological Resources			
Impact 4.C-1: Project Site development would have a substantial adverse effect on candidate, sensitive, or special-status plant and wildlife species, including species which meet the definition of endangered, rare or threatened in CEQA Guidelines Section 15380, through direct injury or mortality from bird and bat strikes on wind turbines and buildings, loss of special status plants, and discouragement of use of other habitat areas due to the close presence of human activities.	DSP: Significant DSP-V: Significant CPP: Significant CPP-V: Significant	**Mitigation Measure 4.C-1a:** Prior to construction, or any other Project Site development-related ground disturbance activities on Icehouse Hill, the applicant shall conduct pre-construction presence/absence surveys for special-status plants. Initial surveys at Icehouse Hill shall be carried out in conjunction with surveys for endangered butterfly host plants as described in **Mitigation Measure 4.C-1c**. Surveys would be implemented to determine if a special-status plant species has colonized the site in the interim between the determination of baseline conditions for this EIR, and project initiation, as well as to provide site-specific direction for final trail routing and design to avoid sensitive plant species (see **Mitigation Measures 4.C-1b** and **4.C-1c**). Surveys shall be conducted in accordance with CNPS and CDFW rare plant survey guidelines and shall be conducted during the flowering period when each species is most readily identifiable. In order to capture variability of special-status plant species distribution, three special-status plant surveys shall be conducted at two-week intervals during the appropriate flowering period (April to June), before commencement of any development activities on Icehouse Hill. Any special-status plant populations shall be mapped in the field (see **Mitigation Measure 4.C-1b**). If the presence of any special-status plant species is confirmed, a copy of the survey results shall be forwarded to CDFW, and **Mitigation Measure 4.C-1b** shall be implemented. In the event that special-status plants are not identified within development areas, including areas used for construction, the additional mitigation identified in **Mitigation Measure 4.C-1b** is not required.	DSP: LTS DSP-V: LTS CPP: LTS CPP-V: LTS

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TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL IMPACTS

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Biological Resources (cont.)			
Impact 4.C-1 (cont.)		**Mitigation Measure 4.C-1b:** Documented plant occurrences on Icehouse Hill shall be avoided by establishing a buffer zone of no less than 25 feet prior to Project trail construction, or other ground-disturbing activities having the potential to disturb or result in mortality of special-status plant populations. This buffer zone shall be demarcated using flagging, orange fencing, or any other visual barrier between plant populations and the active disturbance footprint. Buffer distances may be increased if hydrology features would be altered as a result of train construction. If the City determines that disturbance or mortality is unavoidable, special-status plants shall be restored onsite in either the annual grassland or coastal scrub habitat located on Ice House Hill. Restoration would be at a 1:1 ratio consistent with typical CDFW requirements in areas that are to remain as post-development open space, as is Icehouse Hill. The 1:1 replacement ratio shall be met at the end of five years, and may therefore require initial plantings at a greater than 1:1 ratio, as determined by a qualified botantist. If feasible, special-status plants and/or seeds shall be salvaged from on-site plants and used for any replacement plantings. To reduce impacts from off-trail use, and increased horse use, trail head signage shall be required to educate the public regarding sensitive resources and restoration that would be affected by off-trail use. Mitigation areas shall be fenced or marked for three years. Trail use rules shall be developed prior to construction, and in addition to limiting use to identified trails, may include other requirements to limit the possibility that sensitive species would be impacted. To avoid indirect impacts to special status plant species that could occur if slope drainage or surface hydrology is modified as a result of trail construction **Mitigation Measure 4.C1-g** shall also be applied. Prior to issuance of project approvals, and in coordination with state and federal permitting requirements, a five-year restoration mitigation and monitoring program shall be developed and implemented for any planting areas established to mitigate impacts to special-status species plants. Restoration success criteria shall include: 1) Establishment of mitigation site(s) at or near the location of impacts where plant restoration will occur. 2) A qualified botanist shall identify an appropriate plant palette and restoration methodology compatible with the specific impacted special status species. Mitigation sites could include existing annual grassland or coastal scrub habitat areas on Icehouse Hill, depending on site conditions and locations of special status plants found. 3) No loss in total number of individual plants in a special status plant population found on Project Site shall be verified at the end of the five-year monitoring period established in coordination with state and federal agencies with jurisdiction over these resources. **Mitigation Measure 4.C-1c:** Prior to any trail-related construction, vegetation management, development, or any other ground disturbing activities taking place on Icehouse Hill, pre-construction surveys for butterfly larval host plants (*Viola pedunculata*, *Lupinus albifrons*, *L. formosus*, and *L. versicolor*) shall be conducted by a qualified invertebrate biologist with demonstrated experience working with the species to ensure avoidance of such host plants. Required surveys may be conducted in conjunction with the rare plant surveys required under **Mitigation Measure 4.C-1a**. The timing for these preconstruction surveys is further specified, below.	

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TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL IMPACTS

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Biological Resources (cont.)			
Impact 4.C-1 (cont.)		All populations of butterfly host plants located on Icehouse Hill shall be mapped and trails shall be designed to avoid them, whether or not they are being used by butterflies at the time of the initial surveys. All populations of butterfly host plants located on Icehouse Hill shall be inspected by a qualified invertebrate biologist, at an appropriate time of year, to determine whether or not they are being used by endangered butterflies for reproduction. If it is determined that they are being used for reproductive purposes by endangered butterflies, the specific project applicant shall contact USFWS to identify the appropriate consultation process prior to proceeding further with any activities on Icehouse Hill. Consultation may indicate that an Incidental Take Permit is required pursuant to the FESA. If populations of callippe silverspot or Mission blue butterflies are determined to be reproducing on Icehouse Hill, the property owner shall prepare and implement a Butterfly Protection Plan in coordination with the USFWS and the habitat managers for the SBMHCP prior to any ground-disturbing activities on or adjacent to Icehouse Hill. The plan shall include, but not be limited to, the following elements: • Pre-construction surveys shall be conducted during the period of identification for larval host plants and butterfly larvae in the flowering and/or breeding season immediately prior to trail construction or any other work scheduled to occur on Icehouse Hill. • Trail construction on Icehouse Hill shall avoid populations of larval host plants. • All trails, or alternately, sensitive habitats, shall be fenced to minimize the establishment of “informal” trails through habitats supporting special-status plants. • Dogs shall be allowed on Icehouse Hill trails on leash only. • Interpretative signage shall be posted at trailheads explaining the presence of endangered butterflies and/or their habitat and the importance of preserving Icehouse Hill as habitat for endangered species. • Grassland habitat on Icehouse Hill shall be restored and enhanced to maintain and expand healthy populations of butterfly host plants. This shall include regular and ongoing management of non-native invasive species, such as French broom and fennel, as well as revegetation with native grassland species and establishment of new populations of butterfly host plants for callippe silverspot and Mission blue butterfly species, particularly lupine host species and Veolia species. These efforts shall be planned in coordination with similar SBMHCP efforts and according to the butterfly habitat restoration and vegetation management guidelines that have been established for the SBMHCP (San Mateo County, 2007). The criteria for successful implementation of habitat restoration shall be no loss of butterfly habitat and at least 50 percent cover (includes at least two of the lupine species used by butterflies) in restored areas after five years. **Mitigation Measure 4.C-1d:** The following steps shall be taken to avoid direct losses of nests, eggs, and nestlings and indirect impacts to special status avian species. Vegetation removal including removal of trees and shrubs as part of site development shall be confined to the non-breeding season, except as provided for below. Grading or ground disturbance activities associated with site development including site remediation activities shall occur after pre-construction protocol burrowing owl surveys are conducted as described below and in the 2012 CDFW Staff Report on Burrowing Owls.	

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TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL IMPACTS

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Biological Resources (cont.)			
Impact 4.C-1 (cont.)		• If removal of trees and shrubs or disturbance to trees and shrubs (i.e., tree removal, tree trimming) is proposed to occur between January 1 and September 15, a qualified avian biologist shall survey any trees proposed to be removed or trimmed during the nesting season (i.e., January 1 through September 15) to determine if active nests are present. Surveys shall occur not more than 14 days prior to tree removal or trimming. If active nests are found, tree removal and/or tree trimming shall be conducted only after the young have left the nest and the nest is no longer in use. Confirmation that the nest is no longer in use shall be provided by a qualified biologist familiar with the species. If the qualified avian biologist identifies active nests, a no disturbance buffer of 150 feet shall be established and monitored by a qualified avian biologist, with authority to stop work in the event construction activities encroach within the disturbance buffer thus ensuring that impacts to nesting birds would not occur. Survey and monitoring reports shall be submitted to City staff for review: preconstruction survey reports shall be submitted prior to initiating construction activities; monitoring reports shall be submitted weekly until activities associated with nest habitat removal or disturbance activities are completed. • Prior to initiating ***grading or ground disturbance activities*** associated with remediation activities required prior to site development, the following shall occur: - Not less than 45 days prior to site grading, a qualified biologist shall survey the site to determine the presence of active burrowing owl nests. If active nests are found passive relocation of the individuals would be accomplished according to the CDFW standards in effect at the time of the survey including the 2012 CDFW Staff Report on Burrowing Owls. - Results of the burrowing owl survey will be forwarded to CDFW. - Should the results of the survey include positive finding for occupied burrows, the location and condition of the burrows shall be reported to the CDFW and an on-site mitigation plan shall be prepared for review and approval by the CDFW. Onsite mitigation shall include construction of artificial burrows at a ratio of not less than 1:1 with the burrows located away from areas permitted for use by dogs and hikers. Following construction of the artificial burrows, the existing owls shall be passively removed from their burrows using one-way trap doors. The artificial burrows shall be monitored for a period of five years to confirm occupation by the species. Monitoring reports shall be forwarded to the CDFW to document compliance with this mitigation measure. **Mitigation Measure 4.C-1e:** Prior to construction of any wind turbines within the Project Site, the applicant for such wind turbines shall prepare a site-specific micrositing report in designing the proposed turbine layout that incorporates modeling of raptor species' flight patterns, hovering or kiting patterns, bat roosting habitat areas and foraging areas. The report shall provide micrositing recommendations to reduce avian collision and impacts to bat species that shall be implemented in the final design and placement of wind turbines. Utilization data; digital elevation modeling; slope attributes; techniques to identify saddles, notches, and benches; and associations between bird utilization and topography may be included, for example. The report shall include adaptive management during and after Project Site construction using information gathered in the pre-construction assessment to guide possible Project modifications, mitigation, or the need for and	

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TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL IMPACTS

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Biological Resources (cont.)			
Impact 4.C-1 (cont.)		design of post-construction studies; post-construction studies can test design modifications and operational activities to determine their effectiveness in avoiding or minimizing significant adverse impacts (USFWS, 2010b). The design of wind turbines shall minimize the use of above ground electrical cabling; be designed with solid surfaces that are not conducive to perching; not run when visibility is poor, such as at night and during periods of heavy fog; and be designed with low rotor speeds (20 rpm maximum). **Mitigation Measure 4.C-1f:** Prior to construction or operation of wind turbines within the Project Site, the applicant shall implement the following mitigation measure, which is based upon the California Bat Working Group *Guidelines for Assessing and Minimizing Impacts to Bats at Wind Energy Development Sites in California* (CBWG, 2006). These measures will help to mitigate the Project's effects on bats by addressing the data gaps that prevent adequate assessment of the Project's effects on bats, such as what bat species are using the site and how they are using the Project area. The applicant shall contribute to the body of knowledge on bat/turbine interactions by performing pre-construction and post-construction surveys, and post-construction monitoring within the Project area at each discrete location of a wind turbine or solar facility. **Mitigation Measure 4.C-1g:** Construction and operation of proposed recreational and open space areas along Visitation Creek or adjacent to the northern lagoon edge shall include implementation of erosion control and water pollution control measures consistent with Storm Water Pollution Prevention Program (SWPPP) requirements, and implementation of an on-going maintenance plan to ensure no reduction in water and environmental quality as a result of recreational uses adjacent to the Creek and lagoon. Project applicants shall provide the City with proof that appropriate stormwater permits have been obtained pursuant to the City of Brisbane's NPDES stormwater discharge permit, the San Francisco Regional MS4 Permit. This shall include construction site inspection and control programs at all construction sites, with follow-up and enforcement consistent with each Permittee's respective Enforcement Response Plan, to prevent construction site discharges of pollutants and impacts on beneficial uses of receiving waters. The goal of Provision C.3 of the MS4 Permit is for the Permittee, such as the City of Brisbane, to use their planning authorities to include appropriate source control, site design, and stormwater treatment measures in new development and redevelopment projects to address both soluble and insoluble stormwater runoff pollutant discharges and prevent increases in runoff flows from new development and redevelopment projects. This goal is to be accomplished primarily through the implementation of low impact development techniques. Project applicants shall comply with local municipal requirements and the local storm water program as mandated under the Municipal Stormwater Permit, including, at minimum, the following measures: • Plan the development to fit the topography, soils, drainage pattern and natural vegetation of the Project Site. • Delineate clearing limits, easements, setbacks, sensitive or critical areas, trees, drainage courses, and buffer zones to prevent excessive or unnecessary disturbances and exposure. • Phase grading operations to reduce disturbed areas and time of exposure. • Avoid excavation and grading during wet weather.	

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TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL IMPACTS

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Biological Resources (cont.)			
Impact 4.C-1 (cont.)		• Limit on-site construction routes and stabilize construction entrance(s) and exit(s). • Any increase in impervious surface area shall include establishment of vegetated swales, permeable pavement materials, preserve vegetation, re-plant with native vegetation and appropriate measures should be evaluated and implemented where appropriate. • Whenever practicable, native vegetation buffer areas shall be provided as part of a project to control pollutants from entering the Bay, and vegetation shall be substituted for rock riprap, concrete, or other hard surface shoreline and bank erosion control methods where appropriate and practicable. • Construct diversion dikes and drainage swales to channel runoff around the site and away from bodies of water. • Use berms and drainage ditches to divert runoff around exposed areas. • Place diversion ditches across the top of cut slopes. • No use of fertilizers or pesticides. Applicants shall prepare a maintenance program for approval by the City that includes maintenance of water quality pollution-control features such as swales, sediment traps or other passive applications of pollution-prevention measures required as part of NPDES permitting. The maintenance program shall address the management of open space adjacent to the Brisbane lagoon and Visitation Creek and, at minimum, shall include the following requirements, to be performed to the satisfaction of the City: • Identify the entity responsible for ongoing maintenance of the lagoon perimeter and recreational facilities within the perimeter area (e.g., property owners' association, landscape maintenance district), along with provisions permitting the City to enforce maintenance requirements and recoup costs for such enforcement. • Provide trash receptacles at appropriate locations and regular litter removal. • Maintain all improvements within the lagoon perimeter in a safe and working condition. • Identify a funding mechanism to ensure site maintenance and implementation of environmental quality monitoring at the creek and lagoon as part of the open space interpretive center. Monitoring parameters may include but would not be limited to water quality monitoring, vegetation monitoring, and passive observation and recording of fish species present. See also Mitigation Measures 4.H-1a, 4.H-1b and 4.H-4.	
Impact 4.C-2: Project Site development would have a substantial adverse effect on riparian habitat resulting from proposed site remediation and grading operations.	DSP: Significant DSP-V: Significant CPP: Significant CPP-V: Significant	**Mitigation Measure 4.C-2a:** The applicant shall avoid or minimize adverse effects on sensitive natural communities and restored wetland mitigation areas created to comply with remediation permit requirements or any restored habitat that may have been created as part of site clean-up actions. After Project Site remediation has concluded, measures shall be implemented to avoid impacts to sensitive natural communities or restored habitat areas, including the installation of silt fencing, straw wattles, or other appropriate erosion and sediment control methods or devices to prevent runoff and construction debris from	DSP: LTS DSP-V: LTS CPP: LTS CPP-V: LTS

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TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL IMPACTS

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Biological Resources (cont.)			
Impact 4.C-2 (cont.)		entering these areas. Such measures shall also be employed where pre-construction grading and post-remediation development may require work adjacent to sensitive natural communities, either prior to or after restoration of those areas occurs. Where construction activities occur in the vicinity of sensitive natural communities onsite, the following shall be implemented to ensure no loss of restored mitigation sites: • Fencing shall be erected adjacent to the areas where construction is occurring to avoid unintended impacts to sensitive natural area that occur just outside the construction area. Construction workers will be educated about local resources and instructed to avoid sensitive habitats during construction including limiting any human intrusion into natural areas. • If work in the vicinity of natural communities cannot be avoided, work within these areas shall be conducted during the dry season, typically between May 1 and October 15, and shall occur under permit authority of CDFW, Corps and RWQCB pursuant to the CWA Section 404 requirements for avoidance, mitigation and monitoring. **Mitigation Measures 4.2-2b** and **4.C-2c** shall also apply if work cannot be avoided in or directly adjacent to sensitive natural areas or restored habitats created as part of site cleanup actions. **Mitigation Measure 4.C-2b:** The measures described below shall be employed to avoid degradation of natural communities or sensitive natural communities by maintaining water quality and controlling erosion and sedimentation during construction as required by compliance with the National Pollutant Discharge Elimination System (NPDES) General Permit for Construction Activities and as established by **Mitigation Measures 4.H-1a** and **4.H-1b** (see Section 4.H, *Hydrology and Water Quality*, of this EIR) to address impacts on water quality. In addition, measures shall include, but not be limited to, the following: • Installing silt fencing between aquatic sensitive natural communities and Project-related activities; • Locating fueling stations away from potentially jurisdictional areas and features; and • Otherwise isolating construction work areas from any identified jurisdictional features. **Mitigation Measure 4.C-2c:** Where disturbance to sensitive natural communities cannot be avoided, compensation shall be provided for temporary impacts and permanent loss to ensure that there is no overall loss of sensitive natural communities as a result of Project Site development. Onsite, in kind replacement of sensitive natural communities including coastal scrub, willow scrub, tidal marsh, freshwater emergent wetlands, and lined manmade drainages that have developed bed and bank characteristics shall be a condition of development. Compensation shall be detailed on an impact-specific basis and shall include development of an onsite wetland mitigation and monitoring plan, which shall be developed prior to Project Site development or in coordination with permit applications and/or conditions. Alternately, offsite mitigation may be pursued through an approved mitigation bank, although this option may result in a higher ratio for compensation. At a minimum, such plans shall include: • Baseline information, including a summary of findings for the most recent wetland delineation conducted at the Project Site; • Anticipated habitat enhancements to be achieved through compensatory actions, including mitigation site location (onsite enhancement or offsite habitat creation) and hydrology;	

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TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL IMPACTS

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Biological Resources (cont.)			
Impact 4.C-2 (cont.)		• Performance and success criteria for wetland creation or enhancement including, but not limited to, the following: - At least 70 percent survival of installed plants for each of the first three years following planting. - Performance criteria for vegetation percent cover in Years 1-4 as follows: at least 10 percent cover of installed plants in Year 1; at least 20 percent cover in Year 2; at least 30 percent cover in Year 3; at least 40 percent cover in Year 4. - Performance criteria for hydrology in Years 1-5 as follows: 14 or more consecutive days of flooding, ponding, or a water table 12 inches or less below the soil surface during the growing season at a minimum frequency of three of the five monitoring years; OR establishment of a prevalence of wetland obligate plant species. - Invasive plant species that threaten the success of created or enhanced wetlands should not contribute relative cover greater than 35 percent in Year 1, 20 percent in Years 2 and 3, 15 percent in Year 4, and 10 percent in Year 5. - If necessary, supplemental water shall be provided by a water truck for the first two years following installation. Any supplemental water must be removed or turned off for a minimum of two consecutive years prior to the end of the monitoring period, and the wetland must meet all other criteria during this period. At the end of the five-year monitoring period, the wetland must be self-sufficient and capable of persistence without supplemental water. - At least 75 percent cover by hydrophytic vegetation at the end of the five-year monitoring period. In addition, wetland hydrology and hydric soils must be present and defined as follows: ▪ *Hydrophytic vegetation* – A plant community occurring in areas where the frequency and duration of inundation or soil saturation produce permanently or periodically saturated soils of sufficient duration to exert a controlling influence on the plant species present. ▪ *Wetland hydrology* – Identified by indicators such as sediment deposits, water stains on vegetation, and oxidized rhizospheres along living roots in the upper 12 inches of the soil, or satisfaction of the hydrology performance criteria listed above. ▪ *Hydric soils* – Soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions, which are often characterized by features such as redox concentrations, which form by the reduction, translocation, and/or oxidation of iron and manganese oxides. Hydric soils may lack hydric indicators for a number of reasons. In such cases, the same standard used to determine wetland hydrology when indicators are lacking can be used. - Five years after any wetland creation, a wetland delineation shall be performed to determine whether created wetlands are developing according to the success criteria outlined in the project permits. If they are not, remedial measures such as re-planting and or re-design and construction of the created wetland shall be taken to ensure that the Project's mitigation obligations are met.	

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TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL IMPACTS

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Biological Resources (cont.)			
Impact 4.C-2 (cont.)		• Monitoring and reporting requirements. If permanent and temporary impacts on jurisdictional waters cannot be compensated onsite through the restoration or enhancement of wetland features incorporated within proposed open space areas, the specific project applicant shall provide additional compensatory mitigation for these habitat losses. Potential options include the creation of additional wetland acreage onsite or the purchase of offsite mitigation. Offsite compensatory mitigation would be required to fulfill the performance standards described above.	
Impact 4.C-3: Project Site development would have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act through direct removal as part of Project Site remediation and grading activities.	DSP: Significant DSP-V: Significant CPP: Significant CPP-V: Significant	**See Mitigation Measures 4.C-2a, 4.C-2b, and 4.C-2c**	DSP: LTS DSP-V: LTS CPP: LTS CPP-V: LTS
Impact 4.C-4: Project Site development would restrict movement of wildlife species (primarily avian species) through the construction and lighting of mid-rise buildings that will directly restrict movement (collision impacts) and hinder nighttime navigation as the result of Project Site lighting.	DSP: Significant DSP-V: Significant CPP: Significant CPP-V: Significant	**Mitigation Measure 4.C-4a:** Development in the Baylands shall be subject to a requirement for a Project wide Open Space Plan to be prepared by a landscape architect in coordination with a qualified habitat restoration biologist and included as a component of the Specific Plan. The Plan shall incorporate designs to provide for wildlife movement corridors and to enhance habitat for native wildlife species. Specific requirements shall include the following: • Landscaped areas shall contain a mosaic of native habitat types that support fauna of the surrounding area, including coastal scrub, grassland, and willow scrub habitats. Tree plantings shall be limited to native species whenever possible, as these species could create more nesting and roosting habitat for native birds and bats. • Landscape plans shall incorporate both east-west and north-south open space areas, to promote both linkages between upland habitats and San Francisco Bay and linkages between upland habitats along the Bay shoreline. • Removed trees shall be replaced at a minimum ratio of 1:1 (native trees shall be substituted for non-native trees whenever possible). The minimum ratio of 1:1 shall be met five years after planting; initial plantings may require greater than 1:1 ratio to achieve this standard. Nest boxes for bats and cavity-nesting bird species shall be installed in passive recreational areas. **Mitigation Measure 4.C-4b:** Development in the Baylands shall be subject to a requirement for a Marsh Wildlife and Habitat Protection Plan for the Project to be prepared as part of the specific plan process prior to approval of any development projects. The Habitat Protection Plan shall be prepared by a qualified biologist and subject to approval by the Brisbane Community Development Department. The Plan shall include (but not be limited to), the following components: • To minimize the effect of night lighting on wetland habitats adjacent to Project Site development, the following shall apply in the vicinity of wetlands located north of the lagoon, development north and south of the Visitacion Creek channel, and any development adjacent to freshwater wetlands in the western portion of the Project Site:	DSP: LTS DSP-V: LTS CPP: LTS CPP-V: LTS

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TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL IMPACTS

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Biological Resources (cont.)			
Impact 4.C-4 (cont.)		- Street lighting shall be provided only at intersections. - Low-intensity street lamps and low elevation lighting poles shall be provided. - Internal silvering of the globe or external opaque reflectors shall be provided to direct light away from preserved wetland or open water habitats. - In addition, private sources of illumination around homes (**for DSP and DSP-V only**) shall also be directed and/or shaded to minimize glare into these habitats. • Residential and commercial leases within the Project Site shall prohibit building occupants from creating outdoor feeding stations for feral cats to prevent feral cat colonies from establishing and to prevent the attraction of other predatory wildlife such as red fox, raccoon, or opossums. Such restrictions shall be monitored by a property owners association which shall have the right to impose fines for violation of this requirement. • If a buffer cannot be accommodated between development and habitat areas, cyclone fencing with vinyl slats (or an equivalent screening barrier) at a minimum height of three feet for screening shall be installed outside of wetland habitat and between any preserved wetland or open water habitat and all residential or commercial development. Appropriate native vegetation shall be planted both inside and outside of the fence to provide further screening. This fencing would provide a barrier to exclude cats, dogs, and other household pets, which are not effectively deterred by buffers. • An education program for residents shall be developed including posted interpretive signs and informational materials regarding the sensitivity of preserved habitats, the dangers of unleashed domestic animals in this area. Such restrictions shall be monitored by a property owners association which shall have the right to impose fines for violation of the pet policy. Such information shall be provided in the vicinity of onsite marshes where public access is provided. **Mitigation Measure 4.C-4c:** All development on the Baylands that includes a residential component shall include a pet policy that requires residents to adhere to the measures of this policy to prevent impacts on wildlife from domestic animals. The policy shall become a part of the Covenants, Conditions, and Restrictions (CC&Rs) attached to each property deed for for-sale residential properties and enforced through the homeowners association or other entity specified in the CC&Rs, and made part of leases for residential rental properties and commercial leases within the Project Site. The pet policy shall limit the number of animals per residence and require adult cats, dogs, and rabbits to be spayed or neutered. Cats and dogs shall be required to be kept inside the residences and allowed outside residences only if on a leash and under the tenant's control and supervision, except within areas specifically designed as dog parks. To provide effective predator control, feral animal trapping may be necessary. **Mitigation Measure 4.C-4d:** During design of any building greater than 100 feet tall, the applicant and architect shall consult with a qualified biologist experienced building/lighting design issues (as approved by the City of Brisbane Planning Department) to identify lighting related measures to minimize the effects of the building's lighting on birds. Such measures, which may include the following and/or other measures, shall be incorporated into the building's design and operation.	

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TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL IMPACTS

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Biological Resources (cont.)			
Impact 4.C-4 (cont.)		• Use strobe or flashing lights in place of continuously burning lights for obstruction lighting. Use flashing white lights rather than continuous light, red light, or rotating beams. • Install shields onto light sources not necessary for air traffic to direct light towards the ground. • Extinguish all exterior lighting (i.e., rooftop floods, perimeter spots) not required for public safety. • When interior or exterior lights must be left on at night, the operator of the buildings shall examine and adopt alternatives to bright, all-night, floor-wide lighting, which may include: - Installing motion-sensitive lighting. - Using desk lamps and task lighting. - Reprogramming timers. - Use of lower-intensity lighting. • Windows or window treatments that reduce transmission of light out of the building will be implemented to the extent feasible. • Educational materials will be provided to building occupants encouraging them to minimize light transmission from windows, especially during peak spring and fall migratory periods, by turning off unnecessary lighting and/or closing drapes and blinds at night. • A report of the lighting alternatives considered and adopted shall be provided to the City of Brisbane Planning Department for review and approval prior to construction. The City of Brisbane Planning Department shall ensure that lighting-related measures to reduce the risk of bird collisions have been incorporated into the design of such buildings to the extent practicable. **Mitigation Measure 4.C-4e:** During design of any building greater than 100 feet tall, the applicant and architect shall consult with a qualified biologist experienced with urban building bird strikes design issues (as approved by the City of Brisbane Planning Department) to identify measures related to the external appearance of the building to minimize the risk of bird strikes. Such measures, which may include the following and/or other measures, shall be incorporated into the building's design: • Use non-reflective tinted glass. • Use window films to make windows visible to birds from the outside. • Use external surfaces/designs that break up reflective surfaces. • Place bird attractants, such as bird feeders and baths, at least three feet and preferably 30 feet or more from windows in order to reduce collision mortality. • A report of the design measures considered and adopted shall be provided to the City of Brisbane Planning Department for review and approval prior to construction. The City of Brisbane Planning Department shall ensure that building design related measures to reduce the risk of bird collisions have been incorporated to the extent practicable.	

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TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL IMPACTS

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Biological Resources (cont.)			
Impact 4.C-4 (cont.)		**Mitigation Measure 4.C-4f:** Prior to tree removal, trimming of trees or shrubs or soil disturbance for site grading, a survey of suitable nesting habitat shall be conducted by a avian biologist familiar with Bay Area species and habitats to map the location of vegetation that could support avian species. If ground-disturbing activities or vegetation removal are proposed during the breeding bird season (January 1 through September 15), to avoid direct losses of nests, eggs, and nestlings and indirect impacts on avian breeding success, a qualified avian biologist shall survey active sites for nesting raptors and passerine birds not more than 14 days prior to the ground-disturbing activity or vegetation removal. Surveys shall include all trees in line-of-sight and within 500 feet of construction for raptors, and all vegetation (including bare ground within 250 feet) for all other species. If active nests are found, tree removal or tree trimming and construction activities, including soil disturbance, construction noise, increased human presence, would be halted and the nest would be monitored by a qualified biologist who shall verify when the nestlings have fledged and left the nest. **Mitigation Measure 4.C-4g:** Applicants for site specific development projects pursuant to an approved specific plan within the Project Site shall take the following measures to avoid direct mortality of roosting special-status bats and disturbance of maternity roosts or winter hibernacula: • A bat biologist familiar with Bay Area species shall conduct surveys of all potential bat habitat, including areas suitable for maternity roosts and/or winter hibernacula within a site proposed for development prior to initiation of construction activities, including initial grading. Surveys shall be conducted within one year prior to construction to capture current bat habitats at the site, as presence of bats could vary yearly and survey results several years before impacts occur could be inaccurate. Potentially suitable habitat shall be located visually. Bat emergence counts shall be made at dusk as the bats depart from any suitable habitat. In addition, an acoustic detector shall be used to determine any areas of bat activity. At least four nighttime emergence counts shall be undertaken on nights that are warm enough for bats to be active. The bat biologist shall determine the type of each active roost (i.e., maternity, winter hibernacula, day or night). • Removal or trimming of trees or demolition of buildings showing evidence of bat activity shall occur during the period least likely to affect the bats as determined by a qualified bat biologist (generally between February 15 and October 15 for winter hibernacula and between August 15 and April 15 for maternity roosts). If active day or night (non-maternity) roosts are found, the bat biologist shall take action to allow individual bats to depart prior to tree removal or building demolition. • During construction, a no-disturbance buffer shall be created around active bat roosts being used for maternity or hibernation purposes at a distance to be determined in consultation with CDFW. Bat roosts initiated during construction are presumed to be unaffected, and no buffer is necessary.	
Impact 4.C-5: Because of the Project Site development will be required to comply with the provisions of the Brisbane Tree Ordinance, although trees will be removed for needed remediation and grading activities, mitigation required by the Ordinance will be provided, and impacts on trees protected by that ordinance will be less than significant.	DSP: LTS DSP-V: LTS CPP: LTS CPP-V: LTS	**No mitigation is required.**	

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TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL IMPACTS

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Biological Resources (cont.)			
Impact 4.C-6: Because the Project Site is not within or subject to any adopted habitat conservation plans or natural community conservation plans, proposed development will not conflict with such plans. While San Bruno Mountain is subject to a conservation plan, proposed Project Site development is compatible with the provisions of that conservation plan.	DSP: LTS DSP-V: LTS CPP: LTS CPP-V: LTS	**No mitigation is required.**	
Cultural Resources			
Impact 4.D-1: The historically significant Roundhouse will be restored, as will the Lazzari Fuel building as part of Project site development. However, because of the existing condition of the Roundhouse, short term protection of the building is needed prior to its adaptive reuse. In addition, substantial new development is proposed in close proximity to these two structures, affecting the character of their historic setting.	DSP: Significant DSP-V: Significant CPP: Significant CPP-V: Significant	**Mitigation Measure 4.D-1a:** Within 90 days of Specific Plan adoption or prior to the issuance of the first grading or building permit within the Project Site (whichever occurs first), the property owner shall prepare and implement a stabilization plan subject to review and approval by the Brisbane Planning Department to protect and stabilize the Roundhouse from further deterioration and future vandalism. Such a plan may include, but is not limited to, additional protective fencing, signage, installation of temporary roof coverings to protect the interior from rainwater intrusion, and covering of all window and door openings with plywood. In preparation of the stabilization plan, the property owner shall use the National Park Service's *Preservation Brief #31, Mothballing Historic Buildings*. Within 90 days of the issuance of any planning or development approval (e.g., site remediation, grading, site development plan, building permit) encompassing the area of the historic Roundhouse, the property owner shall also submit a rehabilitation plan for the historic Roundhouse to the City for review and approval by the Brisbane Planning Commission. Implementation of the rehabilitation plan shall be completed prior to the first occupancy permit for the area subject to the planning or development permit approved encompassing the area of the historic Roundhouse. The rehabilitation plan shall be consistent with the performance standards contained in the following documents: • The Secretary of the Interior's Standards for Rehabilitation. Such standards call for the retention of significant, character-defining features of the building while finding a new use for the structure that is compatible with its historic character; • The National Park Service's *Preservation Brief #17, Identifying the Visual Aspects of Historic Buildings as an Aid to Preserving Their Architectural Character*; and • The National Park Service's *Preservation Brief #18, Rehabilitating Interiors in Historic Buildings - Identifying and Preserving Character-Defining Elements*. To ensure compliance with the Secretary of the Interior's Standards for Rehabilitation, rehabilitation plans shall also be reviewed by a qualified consulting architectural historian who meets the Secretary of the Interior's Standards for Architectural History prior to action by the Planning Commission. The rehabilitation plans shall meet a minimum of 7 out of 10 of the Standards.	DSP: LTS DSP-V: LTS CPP: LTS CPP-V: LTS

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TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL IMPACTS

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Cultural Resources (cont.)			
Impact 4.D-1 (cont.)		• The Secretary of the Interior's Standard #6, specifically, requires that replacement of missing features will be substantiated by documentary and physical evidence. As nearly 50 percent of the building is missing due to fires and vandalism, such evidence is key to its successful rehabilitation. Original plans and early photographs of the Roundhouse are available at the Library and Collections Department of the California State Railroad Museum in Sacramento. These original plans and early photographs shall be used when preparing the rehabilitation plan for this building to ensure that rehabilitation efforts will adequately preserve the historic architectural and structural integrity of the building. **Mitigation Measure 4.D-1b:** All Project Site development within 50 feet of the Roundhouse or the Machinery & Equipment building be designed to ensure their architectural compatibility with the historic Roundhouse, and to ensure that new buildings do not overwhelm or unnecessarily contrast with these historic buildings. To this end, all development projects shall incorporate a minimum 50-foot structural setback and appropriate heights, volumes, and materials for any proposed new buildings in the immediate vicinity to ensure compatibility with the Roundhouse and the Machinery & Equipment building. Appropriate heights of new construction adjacent to the Roundhouse would be the same as (about 25 feet), or slightly greater than (i.e., up to 15 feet greater than), the existing height of the building. Appropriate heights of new construction adjacent to the Machinery & Equipment building would be the same as (about 40 feet) or slightly greater than (up to 10 feet greater than), the existing height of the building. Appropriate materials for new construction in the immediate vicinity of either building would be brick cladding and/or cementitious materials painted a similar dark red color, as well as Spanish tile roof cladding. Appropriate volumes for new development that would face the Roundhouse should mirror the curve of the existing structure. Appropriate volumes for new development in the vicinity of the Machinery & Equipment building would be rectilinear in massing. All development projects within 50 feet of the Roundhouse or the Machinery & Equipment building shall be subject to City design permit review and approval prior to development.	
Impact 4.D-2: While there is no surface evidence of a significant archaeological resource, Project Site remediation and grading could uncover previously unidentified archaeological resources, thereby causing a substantial adverse change in the significance of an archaeological resource.	DSP: Significant DSP-V: Significant CPP: Significant CPP-V: Significant	**Mitigation Measure 4.D-2:** If any previously unidentified archaeological resources are discovered during ground-disturbing activities associated with development on the Baylands, all work within 100 feet of the resources shall be halted. The City, in consultation with a City-approved qualified consulting archaeologist, shall assess the significance of the find according to CEQA Guidelines Section 15064.5. Prehistoric materials subject to this measure might include obsidian and chert flaked-stone tools (e.g., projectile points, knives, scrapers) or toolmaking debris; culturally darkened soil ("midden") containing heat-affected rocks, artifacts, or shellfish remains; stone milling equipment (e.g., mortars, pestles, handstones, or milling slabs); and battered stone tools, such as hammerstones and pitted stones. Historic-era materials subject to this measure might include in-situ (in place) stone, concrete, or adobe footings and walls; filled wells or privies; and in-situ deposits of metal, glass, and/or ceramic refuse. If any find is determined to be a historical resource or a unique archaeological resource, the City and the consulting archaeologist shall meet to determine the appropriate avoidance measures or other appropriate mitigation. The City shall make the final determination. All archaeological resources recovered shall be subject to scientific analysis, professional museum curation, and documentation according to current professional standards.	DSP: LTS DSP-V: LTS CPP: LTS CPP-V: LTS

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TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL IMPACTS

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Cultural Resources (cont.)			
Impact 4.D-2 (cont.)		Preservation in place, i.e. avoidance, is the preferred method of mitigation for impacts to cultural resources and shall be required unless there are other equally effective methods. Preservation in place would include planning construction to avoid archaeological sites; deeding archaeological sites into a conservation easement, park, or green space; or capping/covering archaeological sites with a layer of soil before building. Other methods to be considered shall include archeological testing, archeological monitoring, and/or an archeological data recovery program that would include sample excavation, artifact collection, site documentation, and historical research. All archaeological work shall be completed in accordance with a Cultural Resources Management Plan prepared by the City-approved qualifying archaeological consultant. Work may commence upon completion of treatment, as approved by the City.	
Impact 4.D-3: There are no unique paleontological resources or unique geologic features within the Project site. No impact will therefore result.	DSP: NI DSP-V: NI CPP: NI CPP-V: NI	**No mitigation is required.**	
Impact 4.D-4: While there is no surface evidence or historic record of use of the Project Site as a cemetery, Project Site remediation and grading could uncover human remains, including those interred outside of formal cemeteries.	DSP: Significant DSP-V: Significant CPP: Significant CPP-V: Significant	**Mitigation Measure 4.D-4:** If human skeletal remains are uncovered during Project construction, work shall immediately be halted within 100 feet of the find and the San Mateo County Coroner shall be contacted to evaluate the remains as required by the protocols set forth in Section 15064.5(e)(1) of the CEQA Guidelines. If the County Coroner determines that the remains are Native American, the coroner has 24 hours to contact the Native American Heritage Commission (NAHC), in accordance with Health and Safety Code Section 7050.5, subdivision (c), and Public Resources Code Section 5097.98 (as amended by Assembly Bill 2641). The NAHC will then identify the person(s) thought to be the Most Likely Descendent (MLD) of the deceased Native American, who will then help determine what course of action should be taken in dealing with the remains. In accordance with Public Resources Code Section 5097.98, the specific project applicant/landowner shall ensure that, according to generally accepted cultural or archaeological standards or practices, the immediate vicinity where the Native American human remains are located is not damaged or disturbed by further development activity until the landowner has discussed and conferred, as prescribed in Public Resources Code Section 5097.98, with the MLD regarding their recommendations, if applicable, taking into account the possibility of multiple human remains.	DSP: LTS DSP-V: LTS CPP: LTS CPP-V: LTS
Geology, Soils, and Seismicity			
Impact 4.E-1: Because there are no know earthquake faults within the Project Site, proposed development will not expose people or structures to substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault.	DSP: LTS DSP-V: LTS CPP: LTS CPP-V: LTS	**No mitigation is required.**	

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TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL IMPACTS

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Geology, Soils, and Seismicity (cont.)			
Impact 4.E-2: Because all structures within the Project Site will be required to meet all applicable building codes and seismic design standards based on site-specific geotechnical analyses, Project Site development will not expose people or structures to substantial adverse effects from strong seismic groundshaking.	DSP: Significant DSP-V: Significant CPP: Significant CPP-V: Significant	**Mitigation Measure 4.E-2a:** Prior to the issuance of a grading permit, applicants for all site-specific development and infrastructure projects within the Project Site, including structures, utilities, and roadways shall submit to the City Engineer a final design-level geotechnical report prepared by a licensed geotechnical or soil engineer experienced in construction methods on fill materials in an active seismic area. The report shall provide site-specific construction methods and recommendations regarding grading activities, fill placement, soil corrosivity/expansion/erosion potential, compaction, foundation construction, drainage control (both surface and subsurface), and avoidance of settlement, liquefaction, differential settlement, and seismic hazards in accordance with current California Building Code requirements including Chapter 16, Section 1613. The report shall also require that all subsurface improvements such as utilities that include any materials susceptible to corrosive effects would be engineered in conformance with the most recently adopted California Building Code requirements including the use of engineered backfill. The report shall also include stability analyses of final design cut and fill slopes, including recommendations for avoidance of slope failure(s). The final grading plan and associated development elements including the landfill cap layer shall be designed and constructed in accordance with requirements of the final design-level geotechnical investigation as approved by the City Engineer prior to the issuance of any building permits. Designers and contractors shall comply with recommendations of the design-level geotechnical investigation during project construction including any modifications required by the City Engineer. A licensed geotechnical or soil engineer shall monitor earthwork and construction activities to ensure that recommended site-specific construction methods are followed during Project construction. These recommendations shall be incorporated into all development plans submitted and approved for the Project Site development as conditions of approval. **Mitigation Measure 4.E-2b:** To address recovery from damage to future structures and to the landfill itself that may be caused by future earthquakes, a Post-Earthquake Inspection and Corrective Action Plan (Plan) for the site-specific development projects within the former landfill portion of the Project Site shall be prepared and implemented by all Project applicants in accordance with Title 27 landfill closure requirements as approved by the RWQCB and the San Mateo County Department of Environmental Health prior to issuance of a building permit. The plan shall be implemented in the event of a magnitude 7.0 or greater earthquake centered within 30 miles of the former Brisbane Landfill. Results of the inspection of containment features and groundwater and leachate control facilities potentially affected by any static or seismic deformations of the landfill shall be reported to the RWQCB within 72 hours of the event. Immediately following an earthquake event causing damage to the landfill structures, the Plan shall be implemented and the RWQCB notified of any damage. Plan activities following a triggering event shall include assessing perimeter dikes and shoreline erosion protection measures, the surface locations of underground utilities, landfill cover including roads and parking areas, groundwater monitoring systems, leachate monitoring systems, and surface-water drainage and outlet facilities. Any restorative measures as required under Order 01-041 shall be implemented in accordance with RWQCB requirements.	DSP: LTS DSP-V: LTS CPP: LTS CPP-V: LTS

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TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL IMPACTS

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Geology, Soils, and Seismicity (cont.)			
Impact 4.E-3: Because all structures within the Project Site will be required to meet all applicable building codes and engineering design standards based on site-specific geotechnical analyses, Project Site development will not expose people or structures to potential substantial adverse effects from seismic-related ground failure including liquefaction.	DSP: Significant DSP-V: Significant CPP: Significant CPP-V: Significant	**Mitigation Measure 4.E-3:** The final design-level geotechnical investigation recommended in Mitigation Measure 4.E-2a above, to be prepared by a licensed professional and submitted to the City for review and approval, shall address liquefaction potential. The geotechnical investigation shall include recommendations for foundation design to address site specific potential liquefaction issues. The recommendations of the investigation shall be in accordance with the most recent California Building Code requirements for building design and incorporated into all development plans submitted for the Project Site development. All final design and engineering plans submitted by the applicant shall be subject to review and approval by the City of Brisbane Building Official.	DSP: LTS DSP-V: LTS CPP: LTS CPP-V: LTS
Impact 4.E-4: Although the Project Site is generally flat, manmade slopes are present at the former landfill and existing railroad grade separation. Others manmade slopes will be created as the result of site grading and construction of railroad grade separations. Such constructed slopes will be required to meet applicable engineering design standards to avoid landslide impacts.	DSP: Significant DSP-V: Significant CPP: Significant CPP-V: Significant	**Mitigation Measure 4.E-4a:** Site-specific development projects within the Project Site shall not place new fill materials within 600 feet of Brisbane Lagoon. All manufactured slopes shall require certification by a licensed geotechnical engineer to the satisfaction of the City Engineer that a factor of safety of at least 1.5 for static conditions and 1.2 under dynamic conditions will be achieved. **Mitigation Measure 4.E-4b:** Site-specific development projects within the Project Site shall comply with Brisbane General Plan policy requirements and the most recent California Building Code requirements for slope stability, including Chapters 16 and 18 that require geotechnical investigations. The recommendations of the investigation shall be in accordance with the most recent California Building Code requirements for building design and incorporated into all development plans submitted for Project Site development. All final design and engineering plans submitted by the Project applicant shall be subject to review and approval by the City of Brisbane Building Official prior to issuance of a building permit.	DSP: LTS DSP-V: LTS CPP: LTS CPP-V: LTS
Impact 4.E-5: Project Site development, including grading and remediation, as well as building and landscape construction, will require removal of existing groundcover, resulting in substantial soil erosion hazards.	DSP: Significant DSP-V: Significant CPP: Significant CPP-V: Significant	**See Mitigation Measures 4.H-1a and 4.H-1b**	DSP: LTS DSP-V: LTS CPP: LTS CPP-V: LTS
Impact 4.E-6: The former landfill portion of the Project Site has been subject to substantial differential settlement. Future development within that area will be subject to continuing settlement hazards.	DSP: Significant DSP-V: Significant CPP: Significant CPP-V: Significant	**See Mitigation Measure 4.E-2a**	DSP: LTS DSP-V: LTS CPP: LTS CPP-V: LTS
Impact 4.E-7: Because corrosive subsurface soils may exist in places within the Project Site and are especially likely along Bayshore Boulevard, where Bay Mud is present, as well as beneath the landfill, depending on the chemistry of the leachate, corrosive soils could have a detrimental effect on concrete and metals.	DSP: Significant DSP-V: Significant CPP: Significant CPP-V: Significant	**See Mitigation Measure 4.E-2a**	DSP: LTS DSP-V: LTS CPP: LTS CPP-V: LTS

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TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL IMPACTS

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Geology, Soils, and Seismicity (cont.)			
Impact 4.E-8: Bay Mud and other clay-rich deposits are located primarily beneath the groundwater level, and therefore have a relatively low corresponding expansiveness. However, the depth of these deposits in the former railyard area is somewhat poorly constrained, and in one boring near Icehouse Hill, Bay Mud is located above the groundwater table, suggesting a possible higher shrink-swell potential.	DSP: Significant DSP-V: Significant CPP: Significant CPP-V: Significant	**See Mitigation Measure 4.E-2a**	DSP: LTS DSP-V: LTS CPP: LTS CPP-V: LTS
Impact 4.E-9: Project Site development will utilize be provided with a full sewer system, and will not use septic tanks or alternative wastewater disposal systems for the disposal of wastewater.	DSP: NI DSP-V: NI CPP: NI CPP-V: NI	**No mitigation is required.**	
Greenhouse Gas Emissions			
Impact 4.F-1: Project Site development will generate greenhouse gas emissions primarily as the result of motor vehicle use, but also through stationary sources (e.g., building energy use). Because of the proposed onsite mix of residential and commercial/office development in the DSP and DSP/V scenarios, per capita vehicle miles travelled are less for those two scenarios and the CPP and CPP-V scenarios. As a result, greenhouse gas emissions impacts for the DSP and DSP-V scenarios will be less than significant, while significant impacts will result for the CPP and CPP-V scenarios.	DSP: LTS DSP-V: LTS CPP: Significant CPP-V: Significant	**Mitigation Measure 4.F-1:** All new development within the Project Site shall be required to develop and implement a Greenhouse Gases Emissions Reduction Plan (GHG Plan) containing strategies to increase energy efficiency and reduce GHG emissions to the greatest extent feasible with a minimum performance standard of five percent (as reflected in Table 4.F-3). The GHG Plan shall be submitted to the City for approval as part of the initial application process for building permits so that the measures will be verified as present in building specifications. The GHG Plan, as implemented, shall include strategies that exceed those already identified in the project description or required by law. The GHG Plan shall include strategies designed to reduce emissions generated by motor vehicles, as well as strategies to reduce stationary source emissions from energy consumption. Strategies shall include, but not be limited to, the following types of GHG reduction measures: • ***Motor Vehicle Emissions*** - Provide free transit passes to employees and onsite residences; - Provide secure bike parking (at least one space per 20 vehicle spaces); - Provide showers and changing facilities for employees; - Provide information on transportation alternatives to employees; - Establish a dedicated employee transportation coordinator; and - Include preferential carpool and vanpool parking.	DSP: LTS DSP-V: LTS CPP: SU CPP-V: SU

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TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL IMPACTS

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Greenhouse Gas Emissions (cont.)			
Impact 4.F-1 (cont.)		• ***Stationary Source Emissions*** - Provide stand-alone or rooftop solar, wind, or other renewable energy generation facilities (e.g., co-generation) to accommodate at least 3,600 MT per year of GHG offset within the Project Site; - Upgrade buildings within the Project Site to achieve a LEED Gold rating, rather than the LEED Silver rating now required by the Brisbane Municipal Code; - Increase solid waste diversion from landfills by 10 percent beyond state and local diversion requirements; - Employ "cool roof" technology for buildings; and - Use electrically powered landscape equipment.	
Impact 4.F-2: As noted in Impact 4.F-1, above, greenhouse gas emissions impacts for the DSP and DSP/V scenarios will be less than significant, while significant impacts will result for the CPP and CPP-V scenarios. As a result, the CPP and CPP-V scenarios would impair attainment of GHG reduction goals established pursuant to AB 32 in the *Climate Change Scoping Plan* and would therefore be considered to conflict with an applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases. Mitigation Measure 4.F-1 is recommended for the CPP and CPP-V scenarios. The DSP and DSP-V scenarios would have a less-than-significant impact with regard to GHG reduction planning efforts, as emissions per service population would be below thresholds developed based on attainment of AB 32 goals.	DSP: LTS DSP-V: LTS CPP: Significant CPP-V: Significant	**See Mitigation Measure 4.F-1**	DSP: LTS DSP-V: LTS CPP: SU CPP-V: SU

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TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL IMPACTS

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Hazards and Hazardous Materials			
Impact 4.G-1: Project Site construction activities for each of the four development scenarios would require the use and transportation of hazardous materials. In addition, vehicles used in construction activities could accidentally release hazardous materials such as oils, grease or fuels. Accidental releases of hazardous materials during demolition and construction activities could impact soil and/or groundwater quality, which could result in adverse health effects. However, contractor's compliance with federal, state and local requirements related to use, storage, and disposal of hazardous materials during construction would reduce impacts related to inadvertent release of hazardous materials to less-than-significant levels.	DSP: Significant DSP-V: Significant CPP: Significant CPP-V: Significant	**See Mitigation Measure 4.H-1a**	DSP: LTS DSP-V: LTS CPP: LTS CPP-V: LTS
Impact 4.G-2: While the routine use, storage, transport, and disposal of hazardous materials in accordance with applicable regulations would not pose health risks, improper use, storage, transportation and disposal of hazardous materials and wastes could result in accidental spills or releases. Encountering contaminated soils or groundwater either during or following remediation could result in significant adverse effects. If temporary dewatering occurs in areas of shallow groundwater and groundwater contamination is still present, exposure if dewatering is not handled appropriately. While current regulations and procedures would minimize the potential for accidental damage to existing underground fuel pipelines within the Project Site, the possibility remains that underground excavations would still damage a pipeline, with a resulting release of hazardous materials. With compliance with federal, state,	DSP: Significant DSP-V: Significant CPP: Significant CPP-V: Significant	**Mitigation Measure 4.G-2a (Confirm Achievement of Remediation Goals):** Prior to approval of a specific plan for any parcel within the Project Site, the project applicant shall provide confirmation to the City that the Department of Toxic Substances Control (DTSC), Regional Water Quality Control Board (RWQCB), and/or the San Mateo County Environmental Health Division as the Local Enforcement Agency, as applicable, have reviewed and are prepared to approve a Remedial Action Plan or final closure and post-closure maintenance plans upon certification of appropriate environmental documentation for that action. Prior to issuance of a building or grading permit (other than for grading needed for remediation activities) for any parcel within the Project Site, the applicant shall provide the City with evidence that the Department of Toxic Substances Control (DTSC), Regional Water Quality Control Board (RWQCB), and/or the San Mateo County Environmental Health Division as the Local Enforcement Agency in relation to the landfill have approved applicable Remedial Action Plan(s) or final closure and post-closure maintenance plans. Prior to commencement of building construction or site grading for any parcel within the Project Site, the project applicant shall obtain regulatory approval from the Department of Toxic Substances Control (DTSC), Regional Water Quality Control Board (RWQCB), and/or the San Mateo County Environmental Health Division as the Local Enforcement Agency in relation to the landfill for the proposed land use, in the form of a Remediation Action Completion Report or equivalent closure letter stating that remediation goals have been achieved for proposed land uses.	DSP: LTS DSP-V: LTS CPP: LTS CPP-V: LTS

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TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL IMPACTS

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Hazards and Hazardous Materials (cont.)			
Impact 4.G-2 (cont.) and local regulations pertaining to the handling and disposal of hazardous waste; implementation of a Soil and Groundwater Management Plan and a Master Deconstruction and Demolition Plan; and Mitigation Measures 4.G-2a, 4.G-2b, 4.G-2c, 4.G-2d significant impacts would be avoided.		**Mitigation Measure 4.G-2b (Soil and Groundwater Management Plan):** Prior to issuance of a building or grading permit for any parcel within the Project Site a Soil and Groundwater Management Plan (SGMP) shall be prepared by a qualified environmental consulting firm, reviewed and approved by DTSC and the RWQCB and implemented by the project applicant. The Soil and Groundwater Management Plan shall also include a requirement for development and implementation of site-specific safety plans to be prepared prior to commencement of construction consistent with Occupational Safety and Health Administration (OSHA) Safety and Health Standards 29 CFR 1910.120 as well as management of groundwater produced through temporary dewatering activities. Such site-specific safety plans shall include necessary training, operating and emergency response procedures, and reporting requirements to regulate all activities that bring workers in contact with potentially contaminated soil or groundwater, landfill gas, or leachate to ensure worker safety and avoid impacts to the environment. Further, the Soil and Groundwater Management Plan shall include protocols for any areas of the site that require excavation and relocation of refuse material (e.g., building foundations and utility infrastructure) in accordance with the Title 27 of the California Code of Regulations to ensure that the integrity of the low-hydraulic-conductivity layer (LHCL) requirements are maintained. **Mitigation Measure 4.G-2c (Master Deconstruction and Demolition Plan):** Prior to issuance of a demolition permit for any parcel within the Project Site, a Master Deconstruction and Demolition Plan shall be submitted by the project applicant to the City Building Official. The plan shall be reviewed and approved by the Building Official prior to issuance of the requested demolition permit. This plan shall include documentation of hazardous materials determinations (surveys) and demolition or deconstruction recommendations in accordance with local and state requirements. If the surveys conducted by licensed professionals prior to issuance of a demolition permit per the requirements above hazardous building materials, demolition or deconstruction shall proceed in accordance with applicable BAAQMD, OSHA, and CalOSHA requirements, which may include air permits or agency notifications, worker awareness training, exposure monitoring, medical examinations and a written respiratory protection program. **Mitigation Measure 4.G-2d (NPDES Permit):** Prior to issuance of a building or grading permit for any parcel within the Project Site, preparation and implementation of an industry standard spill prevention and protection procedure plan shall be conducted by a licensed professional selected or approved by the City in accordance with NPDES General Construction Permit requirements, and reviewed and approved by the City Building Official. The plan shall include implementation of Best Management Practices for the storage and use of hazardous materials in accordance with California Stormwater Quality Association Construction guidelines, including emergency procedures for hazardous materials releases for materials that shall be brought onto the site as part of site development and construction activities. The plan shall include standard emergency procedures for hazardous materials releases that would be implemented during Project construction activities, identification of required personal protective equipment, proper housekeeping, spill containment procedures, training of workers to respond to accidental spills/releases, most direct route to a hospital, and requirements for a site safety officer. These measures shall be included within a construction management plan required to be reviewed by all workers.	

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TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL IMPACTS

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Hazards and Hazardous Materials (cont.)			
Impact 4.G-2 (cont.)		**Mitigation Measure 4.G-2e (Hazardous Materials Business Plan).** Prior to receipt of a Certificate of Occupancy, any business that would handle, store, transport, or dispose of hazardous materials or wastes shall prepare and implement a Hazardous Materials Business Plan (HMBP) that shall include at a minimum, the following components: • Details, including floor plans, of the facility and business conducted at the site; • An inventory of the type and quantity of hazardous materials that are handled or stored onsite; • Spill prevention procedures; • An emergency response plan that provides emergency notification procedures; and • A safety and emergency response training program for new employees with annual refresher courses. The HMBP shall be submitted to and approved by the San Mateo Department of Environmental Health prior to site occupancy. **Mitigation Measure 4.G-2f:** Prior to issuance of a building permit for any development within the Project Site, proposed underground utilities and utility vaults located on or within 500 feet of the landfill footprint shall be constructed with soil vapor barriers and constructed of intrinsically safe and/or explosion-proof equipment in accordance with City Building Division requirements and overseeing agency (DTSC or RWQCB) as well as the San Mateo County Environmental Health Division as necessary. **Mitigation Measure 4.G-2g:** Prior to issuance of a grading permit, all grading specifications for OU-1 and OU-2 shall be developed in accordance with RWQCB and DTSC requirements regarding soil vapor barriers, and incorporated into the final grading plan. Any installation of utilities in areas that have adopted soil capping remediation strategies shall be located above the contaminated soil and groundwater areas in accordance with RWQCB and DTSC requirements. Where gravity and utility force mains require encroachment into contaminated areas, special construction details and mitigation measures shall be developed during the preparation of the final RAPs for OU-1 and OU-2 as approved by the RWQCB and DTSC and in accordance with Soil and Groundwater Management Plans. Final RAPs shall include overseeing agency (DTSC or RWQCB) approved Human Health Risk Assessments which include inhalation risks and are based on proposed land uses. **Mitigation Measure 4.G-2h** Construction of all new structures within the former landfill footprint and within OU-1 and OU-2, as well as on site areas within 1,000 feet of the waste material footprint shall incorporate sub-slab vapor barriers to minimize potential vapor intrusion into buildings. Further, all structures built on within 1,000 feet of the landfill footprint shall be equipped with automatic combustible gas sensors in sub-floor areas and in the first floor of occupied interior spaces of buildings. A centralized sensor monitoring and recording system shall also be provided. Gas monitoring for trace gases shall be conducted in accordance with the requirements of Title 27, for 30 years or until the operator receives authorization from the local enforcement agency (LEA) and CalRecycle to discontinue monitoring upon demonstration by the operator that there is no potential for trace gas migration into onsite structures.	

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TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL IMPACTS

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Hazards and Hazardous Materials (cont.)			
Impact 4.G-3: Each Project Site development scenario includes a charter high school; the DSP and DSP-V scenarios also include an elementary school in the same area. Under the CPP and CPP-V scenarios, a charter high school would be developed at the base of Icehouse Hill within 0.25 mile of the Kinder Morgan site. In addition, all development scenarios would entail the storage, handling, transport, and disposal of hazardous materials in association with the R&D, institutional, and commercial uses. If not managed appropriately, schoolchildren may be exposed to accidental spillage or leakage of the common hazardous materials (fuels, oils, lubricants, paints, cleaning chemicals, and other petroleum products) used onsite.	DSP: Significant DSP-V: Significant CPP: Significant CPP-V: Significant	**Mitigation Measure 4.G-3:** Grade K-12 school facilities constructed on the Project Site shall not be located within 0.25 miles of a facility with hazardous emissions or that handles hazardous or acutely hazardous materials, substances or waste, unless approved by School Facilities Planning Division of the California Department of Education in conformance with California Code of Regulations (CCR) Title 5, Section 14010 which sets forth California Department of Education criteria for school site locations: • "If the proposed [school] site is within 1,500 feet of a railroad track easement, a safety study shall be done by a competent professional trained in assessing cargo manifests, frequency, speed, and schedule of railroad traffic, grade, curves, type and condition of track need for sound or safety barriers, need for pedestrian and vehicle safeguards at railroad crossings, presence of high pressure gas lines near the tracks that could rupture in the event of a derailment, preparation of an evacuation plan. In addition to the analysis, possible and reasonable mitigation measures must be identified in accordance the referenced code." California Code of Regulations (CCR) Title 5, Section 14010 (d) • "The [school] site shall not be located near an above-ground water or fuel storage tank or within 1,500 feet of the easement of an above ground or underground pipeline that can pose a safety hazard as determined by a risk analysis study, conducted by a competent professional, which may include certification from a local public utility commission." CCR Title 5, Section 14010 (h): Grade K-12 school facilities shall also comply with California Education Code Sections 17210 through 17224 and related statutory provisions related to risk to human health or the environment at proposed school properties as overseen by the Department of Toxic Substances Control (DTSC). In accordance with California Education Code Sections 17210 through 17224 and related statutory provisions, the school district must prepare a Phase I Environmental Site Assessment and/or a Preliminary Endangerment Assessment (PEA) to identify potential contamination and evaluate whether it presents a risk to human health or the environment at proposed school properties as overseen by the Department of Toxic Substances Control (DTSC). The environmental investigation and any required remediation of properties to be developed for use as schools shall be overseen by DTSC in coordination with the California Department of Education and the School Facilities Planning Division. Final design plans shall be approved by the School Facilities Planning Division of the California Department of Education prior to commencement of construction. All required remediation within 0.25 miles of a proposed K-12 school site within the Project Site shall be completed prior to occupancy of the school. **See also Mitigation Measure 4.G-2e**	DSP: LTS DSP-V: LTS CPP: LTS CPP-V: LTS
Impact 4.G-4: The Project Site includes a number of different sites that are included on databases listing hazardous materials pursuant to Government Code Section 65962.5 including the former Brisbane Landfill, OU-1 and OU-2, and the Schlage	DSP: Significant DSP-V: Significant CPP: Significant CPP-V: Significant	**See Mitigation Measures 4.G-1a and 4.G-1b**	DSP: LTS DSP-V: LTS CPP: LTS CPP-V: LTS

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TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL IMPACTS

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Hazards and Hazardous Materials (cont.)			
Impact 4.G-4 (cont.) Lock facility. These sites have a long history of environmental investigation and cleanup efforts with additional remediation activities occurring in the future, and are actively overseen by regulatory agencies (DTSC and RWQCB) to ensure that all remediation is completed to levels that protect human health and the environment.			
Impact 4.G-5: The Project Site is located more than 2 miles from the nearest public airport (SFO) or airstrip, and is not located within an airport land use plan. Development under any of the proposed scenarios would not conflict with an airport land use plan nor present any other impact related to a public airport use or private airstrip.	DSP: NI DSP-V: NI CPP: NI CPP-V: NI	**No Mitigation is required.**	
Impact 4.G-6: Circulation plans are designed to ensure appropriate emergency access to and egress from the Project Site under all four scenarios. The DSP and DSP-V scenarios reserve a specific site for a centrally located fire facility. The CPP and CPP-V scenarios would include a similar fire facility in a similar location. Adequate access to and from this facility would be provided by the roadway and circulation improvements proposed for each scenario. Additionally, all site-specific development site designs, including private internal circulation and building site plans, will be subject to review and approval by the City, as well as emergency service providers under each of the four development scenarios.	DSP: LTS DSP-V: LTS CPP: LTS CPP-V: LTS	**No Mitigation is required.**	

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TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL IMPACTS

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Hazards and Hazardous Materials (cont.)			
Impact 4.G-7: The Project Site is located in an urban setting, has been developed with urban uses in the past, and does not adjoin any wildlands that are at risk for wildfires. Project Site development under any of the development scenarios would be required to adhere to applicable fire and building codes, which provide safety measures that would be incorporated into all building designs. No impact related to wildland fire hazards would result.	DSP: NI DSP-V: NI CPP: NI CPP-V: NI	**No Mitigation is required**.	
Surface Water Hydrology and Water Quality			
Impact 4.H-1: With the substantial amount of earthwork, grading, and remediation activities required for construction under any of the four Project Site development scenarios, water quality standards would be violated, resulting in a significant impact. In addition, Project Site development would result in changes to existing drainage patterns that could affect water quality of stormwater runoff.	DSP: Significant DSP-V: Significant CPP: Significant CPP-V: Significant	**Mitigation Measure 4.H-1a:** Prior to issuance of a grading permit, an applicant for any site specific development project to be constructed within the Project Site shall file a Notice of Intent to the RWQCB to comply with the statewide General Permit for Discharges of Storm Water Associated with Construction Activities and shall prepare and implement a SWPPP for construction activities on the Project Site in accordance with the NPDES General Construction Permit and the demonstrate compliance with the City of Brisbane's Municipal Regional Stormwater Permit Order No. 2011-0083 Provision C.3. The SWPPP shall include all provisions of the Erosion and Sediment Control Plan submitted as part of grading and construction permits. In addition to meeting the regulatory requirements for the SWPPP, the site-specific SWPPP shall include provisions for the minimization of sediment disturbance (i.e., production of turbidity) and release of chemicals to the Bay. **Mitigation Measure 4.H-1b:** Prior to issuance of a grading permit, an applicant for any site specific development project to be constructed within the Project Site shall comply with any site-specific NPDES permit requirements for dewatering activities, as administered by the RWQCB. The RWQCB could require compliance with certain provisions in the permit, such as treatment of the flows prior to discharge, depending on the particular site conditions. Discharge of the groundwater generated during dewatering to the sanitary sewer or storm drain system shall only occur with authorization of and required permits from the applicable regulatory agencies, including the Bayshore Sanitary District or the RWQCB. **Mitigation Measure 4.H-1c.** Applicants for site-specific development projects to be constructed within the Project Site shall prepare and implement a Final Stormwater Management Plan (SMP) in accordance with the most recent NPDES C.3 requirements to be reviewed and approved by the City Engineer prior to approval of final design plans. The SMP shall be prepared by licensed professionals and act as the guiding document detailing best management practices for mitigating water quality impacts in the post-construction phase. Industrial uses shall prepare a SMP in accordance with NPDES permit requirements for Industrial Activity. Industrial applicants shall include management measures that will achieve the performance standard of best available technology economically achievable and best conventional pollutant control technology in accordance with the General Industrial Permit as approved by the RWQCB and shall demonstrate compliance within an annual report be submitted each July 1. The SMP shall provide operations and	DSP: LTS DSP-V: LTS CPP: LTS CPP-V: LTS

NI = No Impact LTS = Less than Significant SU = Significant Unavoidable

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL IMPACTS

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Surface Water Hydrology and Water Quality (cont.)			
Impact 4.H-1 (cont.)		maintenance guidelines for all of the BMPs identified in the SMP, including LID measures and other BMPs designed to mitigate potential water quality degradation of runoff from all portions of the completed development, and shall clearly identify the funding sources for the required ongoing maintenance. The SMP shall be developed in conjunction with the Storm Drain Master Plan to ensure that the treatment designs support the hydraulics and hydrology of the proposed storm drainage system.	
Impact 4.H-2: Project site development would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level.	DSP: LTS DSP-V: LTS CPP: LTS CPP-V: LTS	**No mitigation is required**.	
Impact 4.H-3: The DSP and DSP-V scenarios retain the existing drainage pattern of the Bayshore and Brisbane Lagoon drainage areas, but alter the Beatty Avenue drainage area by redirecting runoff from approximately 47 acres away from Beatty Avenue to a proposed storm drain discharging to the Central Drainage Channel. The CPP and CPP-V scenarios propose similar substantial changes to existing drainage patterns, but preserve a larger amount of open space, reducing the amount of impervious surface area. Project Site development would not alter the actual existing course (location) of Visitacion Creek east of the railroad right of way, but would daylight the currently subsurface portion of the creek from the railroad right of way east and extending to the Roundhouse. Development under each development scenario would collect and convey onsite runoff through a modified storm drainage system constructed in accordance with the City's requirements and regional MS4 NPDES permit requirements to accommodate the increase in runoff and changes to existing drainage patterns.	DSP: Significant DSP-V: Significant CPP: Significant CPP-V: Significant	**See Mitigation Measures 4.H-1a, 4.C-1g and 4.C-2a and 4.C-2c.**	DSP: LTS DSP-V: LTS CPP: LTS CPP-V: LTS

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TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL IMPACTS

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Surface Water Hydrology and Water Quality (cont.)			
Impact 4.H-4: Each Project Site development scenario would add a substantial amount of new impervious area that would reduce the rate of infiltration of precipitation and increase the amount of runoff generated during a rain event. The CPP and CPP-V scenarios would add a lesser amount of new impervious area than the DSP and DSP-V scenarios, although the amount would still be substantial and increase runoff generated onsite. Thus, if not properly designed, development would exacerbate existing flooding onsite and offsite.	DSP: Significant DSP-V: Significant CPP: Significant CPP-V: Significant	**Mitigation Measure 4.H-4a:** Prior to issuance of a building permit, all site-specific development plans within the Project Site shall include systemwide drainage improvements that shall accommodate all increased runoff in accordance with City requirements and correct known existing deficiencies (e.g., Levinson Overflow Area and the PG&E property). On-site storm drainage collection facilities shall be sized to convey the peak flow rate from a 25-year storm event entirely within the piping system. Drainage improvements shall accommodate the 100-year peak storm event within the piping system and streets such that building finished floor elevations provide a minimum of 1-foot of freeboard above the 100-year storm event hydraulic grade line water elevation with tidal flow and 100 years of estimated sea level rise. The proposed system design shall be submitted to the City Engineer for approval and shall hydraulically isolate existing drainage inlets fronting Levinson Overflow Area and the PG&E property from existing Brick Arch Sewer system. **Mitigation Measure 4.H-4b:** Prior to issuance of a building permit, all site-specific development plans within the Project Site shall include additional conveyance capacity by incorporating new storm drain facilities along Bayshore Boulevard north of Industrial Avenue. Development plans shall also require addition of a new inlet near the Bayshore Boulevard and Industrial Way intersection that is large enough to intercept surface flows from Levinson Overflow Area and the PG&E property in accordance with and as approved by the City. Review and approval by the City engineer shall be required to confirm that conveyance capacity is sufficient to accommodate the 100-year peak storm event within the piping system and streets such that building finished floor elevations provide a minimum of 1-foot of freeboard above the 100-year storm event hydraulic grade line water elevation with tidal flow and 100 years of estimated sea level rise. **Mitigation Measure 4.H-4c:** Prior to issuance of a building permit, all development plans in the Baylands shall include conveyance improvements to existing Visitacion Creek in the final drainage plan design and extend it further west of Tunnel Road to the Roundhouse area as approved by the City and in accordance with Army Corps of Engineers and California Department of Fish and Wildlife requirements. Improvements to tidal portions of Visitacion Creek will be made in accordance with requirements stipulated in permits from the BCDC. Project Site development and infrastructure design shall also incorporate a detention zone within the newly extended channel. Project Site development shall remove the existing Timber Box Culvert between Tunnel Road and the Caltrain mainline tracks and replace it with an open channel system prior to Project site development completion. The design shall accommodate increases in peak runoff during 100-year design storm event with tidal flow, and with consideration of estimated sea level rise over the next century and provide protection of new structures for human occupancy from the 100-year design storm event throughout and after Project Site development.	DSP: LTS DSP-V: LTS CPP: LTS CPP-V: LTS
Impact 4.H-5: Each scenario would substantially increase impervious surfaces and increase stormwater runoff volumes. There is a lack of adequate capacity in the Project Site's existing storm drainage system. While the CPP and CPP-V scenarios would result in a lesser increase in stormwater runoff than the DSP and DSP-V scenarios, they	DSP: Significant DSP-V: Significant CPP: Significant CPP-V: Significant	**Mitigation Measure 4.H-5:** Prior to issuance of an occupancy permit for site-specific development within the Project Site, an integrated pest management plan shall be prepared and implemented, subject to City review and approval, to set forth a preventative, long-term, low toxicity program to control pests. The plan shall provide guidelines for landscape and building maintenance with the emphasis on minimizing the use of pesticides while controlling pests. At a minimum, the integrated pest management plan shall include: • ***Identification of acceptable pest levels*** (action thresholds) with an emphasis on *control*, not *eradication*, identifying site and pest specific action thresholds, and the controls to be used if those thresholds are exceeded.	DSP: LTS DSP-V: LTS CPP: LTS CPP-V: LTS

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TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL IMPACTS

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Surface Water Hydrology and Water Quality (cont.)			
Impact 4.H-5 (cont.) would still exceed the capacity of the existing system. Thus, development under each development scenarios would result in changes to existing drainage patterns that would result in flooding impacts onsite and offsite. Project Site development would introduce new impervious surfaces that would be the source of new stormwater runoff pollutants typical of urban settings, which, if not managed appropriately, would violate water quality standards. The management of landscaped areas would also present the potential for runoff and/or infiltration of herbicides and pesticides. These common urban pollutants could be transported in runoff, potentially adversely affecting the surface and ground water quality.		• ***Preventive practices*:** Design, construction, and maintenance of landscape facilities, and buildings, as well as operation of uses that prevent or minimize pest problems. • ***Monitoring*:** Regular observation, including inspection and identification. • ***Mechanical controls*:** Should a pest reach an unacceptable level, provide for mechanical methods as the first options, including include simple hand-picking, erecting insect barriers, using traps, vacuuming, and tillage to disrupt breeding. • ***Biological Controls*:** Provide for use of natural biological processes and materials for control, including promoting beneficial insects that prey on eat target pests and biological insecticides derived from naturally occurring microorganisms. • ***Responsible Pesticide Use*:** Provide for use of synthetic pesticides generally only as required when preferred methods are infeasible or ineffective, including use of the least toxic pesticide that will do the job and is the safest for other organisms and for air, soil, and water quality; use of pesticides in bait stations rather than sprays; or spot-spraying rather than general application. **See also Mitigation Measures 4.H-1c, 4.H-4a, 4.H-4.b, 4.H-4c.**	
Impact 4.H-6: The DSP and DSP-V scenarios propose housing in areas that have been mapped as 100-year flood hazard areas based on existing topography. These areas are prone to flooding primarily due to insufficient capacities in the existing drainage system. The CPP and CPP-V scenarios do not propose residential use.	DSP: Significant DSP-V: Significant CPP: NI CPP-V: NI	**See Mitigation Measures 4.H-1c, 4.H-4a, 4.H-4.b,and 4.H-4c**	DSP: LTS DSP-V: LTS CPP: NI CPP-V: NI
Impact 4.H-7: Development under all four development scenarios would allow development of structures in areas between Bayshore Boulevard and the Caltrain tracks that, as described under Impact 4.H-6 above, could become flooded during a 100-year storm event. As also discussed under Impact 4.H-4 above, Project Site development would be required to improve the existing system conveyance capacity to reduce flooding onsite and offsite.	DSP: Significant DSP-V: Significant CPP: Significant CPP-V: Significant	**See Mitigation Measures 4.H-1c, 4.H-4a, 4.H-4.b, and 4.H-4c**	DSP: LTS DSP-V: LTS CPP: LTS CPP-V: LTS

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TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL IMPACTS

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Surface Water Hydrology and Water Quality (cont.)			
Impact 4.H-7 (cont.) Mitigation Measures 4.H-1c, 4.H-4a, 4.H -4b, and 4.H -4c would require a Final Stormwater Management Plan and improvements to existing system deficiencies as mentioned above. Implementation of these mitigation measures is recommended under all four proposed development scenarios to reduce impacts related to the placement of structures within the flood zone.			
Impact 4.H-8: The Project Site is not located in any inundation area for any dams or reservoirs. Therefore, impact due to failure of a levee or dam would be less than significant for all four scenarios. Increases in sea level, if sustained for 50-100 years or more, could create or exacerbate existing coastal flooding hazards for the Project Site. While it is not possible to project exactly what the future effects of sea level rise will be within the Project site, over time, Project Site development would be subject to impacts related to sea level rise.	DSP: Significant DSP-V: Significant CPP: Significant CPP-V: Significant	**Mitigation Measure 4.H-8:** Concurrent with submittal of development applications, site-specific development projects within the area south of the proposed Geneva extension shall submit design plans along with a Sea Level Rise Risk Assessment Report to the City. Site specific development projects within portion of the Project Site under BCDC jurisdiction shall submit design plans and a Sea Level Rise Risk Assessment Report to BCDC in accordance with the most current San Francisco Bay Plan policies. Site-specific development within the Project Site shall incorporate protection measures that demonstrate ability to handle the flood levels expected by mid-century in accordance with the San Francisco Bay Plan. Any BCDC requirements after review of the Sea Level Rise Risk Assessment report shall also be incorporated into Project design prior to issuance of a building permit. Sea level rise analyses shall be based on the California Climate Action Team's sea level rise projections for the West Coast, unless otherwise substantiated to the satisfaction of BCDC. For site-specific development projects within the area subject to BCDC jurisdiction, discretionary permits from the City such as grading or building permits shall be obtained prior to final approval of the BCDC permit.	DSP: LTS DSP-V LTS CPP: LTS CPP-V: LTS
Impact 4.H-9: The Project Site is located in the western part of San Francisco Bay, which is not subject to potential flooding by wind-induced seiches because of the predominant eastward winds. In addition, no seismically induced seiche waves have been documented in the Bay. The Project Site is located in a relatively low-lying area in a developed urbanized region that is not susceptible to mudflows, and therefore Project Site development impacts would be less than significant. In addition, the Project Site t is not susceptible to mudflows, and therefore impacts would be less than significant.	DSP: LTS DSP-V: LTS CPP: LTS CPP-V: LTS	**No mitigation is required.**	

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TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL IMPACTS

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Land Use and Planning Policy			
Impact 4.I-1: Each of the Project site development scenarios is inconsistent with several provisions of the City's existing General Plan, including exceeding its permitted development intensity for the Baylands subarea, proposing residential development within the Baylands that is prohibited by the existing General Plan and other issues described in Table 4.I-1 and Mitigation Measure 4.I-1.	DSP: Significant DSP-V: Significant CPP: Significant CPP-V: Significant	**Mitigation Measure 4.I-1:** As noted in Chapter 3, Project Description, one of the components of the Project Site development is a General Plan Amendment that would ensure consistency with the Brisbane General Plan. Each of the inconsistencies identified in Table 4.I-1 shall be resolved prior to selection of a Concept Plan or approval of a Specific Plan for development within the Baylands through either modification(s) to the Concept Plan or Specific Plan or amendments to the Brisbane General Plan, as follows: • ***Policy 38.1 (roadway level of service standards) –*** Recognizing that current roadway level of service standards (LOS D) will be exceeded due to future development in other cities even if no development within the Project Site occurs, modify General Plan roadway level of service standards to accommodate the level of Project Site development approved for development of the Brisbane Baylands Project Site. (DSP, DSP-V, CPP, and CPP-V scenarios) • ***Overall Project Site Development Intensity –*** Either (1) reduce the proposed intensity of Project Site development to the level described in the 1994 General Plan EIR, or (2) provide clear development intensity standards for buildout of the Baylands, Northeast Bayshore, and Beatty Subareas that would accommodate the development of a Concept Plan or Specific Plan (which could include reducing currently proposed development intensities), or (3) provide a combination of reducing proposed development intensity in certain subarea(s) while increasing the development intensity set forth in the General Plan for other subarea(s). (DSP, DSP-V, CPP, and CPP-V scenarios) • ***Policy 81.1 (establishment of educational opportunities consistent with the sensitivity of onsite resources) –*** Modify the Specific Plan for the DSP and DSP-V scenarios to clearly require future development within the Project Site to implement educational opportunities consistent with the sensitivity of onsite resources. (DSP and DSP-V scenarios only) • ***Policy 87 and Policy 95 (parks standards) –*** Should residential development be permitted within the Project Site, either (1) require such development to provide actual park land meeting General Plan standards for the provision of parks, or (2) modify the park standards set forth in the General Plan to reflect the park land ratios required in the Brisbane Municipal Code pursuant to the provisions of the Quimby Act (see Section 4.M, Recreational Resources). (DSP and DSP-V scenarios only) • ***Policy 330.1 (prohibition of housing within the Baylands) –*** Delete the policy or modify the Concept Plan and Specific Plan to comply with the prohibition. (DSP and DSP-V scenarios only) • ***Policy 337 (phasing schedule for Baylands development) –*** Either (1) amend the General Plan to include public services and facilities performance standards and concurrency requirements (DSP, DSP-V, CPP, and CPP-V scenarios); or (2) modify the proposed Specific Plan to include an infrastructure phasing program that ties the rate of land development within the Project Site to the availability of needed public services and facilities. (DSP and DSP-V scenarios only) • ***Policy 340.1 (demonstration of feasibility of the Geneva Avenue extension and provision of cost estimates with the first specific plan for the Baylands) –*** Either (1) require preparation of preliminary cost estimates for the Geneva Avenue extension to be completed along with a demonstration of the engineering and financial feasibility of the extension as part of the required Specific Plan (DSP and DSP-V scenarios only), or (2) modify the policy to call for demonstration of the engineering feasibility of the	DSP: LTS DSP-V: LTS CPP: LTS CPP-V: LTS

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TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL IMPACTS

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Land Use and Planning Policy			
Impact 4.I-1 (cont.)		extension along with establishment of the infrastructure phasing program required by General Plan Policy 337 (DSP, DSP-V, CPP, and CPP-V scenarios) • ***Policy 374 (Beatty Subarea Land Use)*** **–** Modify the policy to accommodate the land uses proposed in the Concept Plan (CPP and CPP-V scenarios only	
Noise and Vibration			
Impact 4.J-1: Residents of multi-family housing proposed by the DSP and DSP-V scenarios would be exposed to noise levels that exceed Brisbane General Plan noise standards, resulting in a significant impact. Exterior noise exposure at hotel uses would also be considered significant. Impacts related to schools and recreational areas in the DSP and DSP-V scenarios would be less than significant. Noise impacts to schools under the CPP and CPP-V scenarios would be less-than-significant. Impacts associated with hotel exposure to noise would be significant.	DSP: Significant DSP-V: Significant CPP: Significant CPP-V: Significant	**Mitigation Measure 4.J-1a:** All residential development within the Project Site shall minimize the exposure of people within the Project Site to noise from Caltrain operations through construction of noise barriers or maintenance of buffer distances, and shall adhere to the following noise performance standards: • Exterior noise level of below 65 dBA, DNL for outdoor common areas within any approved residential use; and • Interior noise standard of 45 dBA, DNL. These noise levels shall be attained through use of appropriate building materials as required by state of California Title 24 standards. Compliance with these performance standards shall be verified by an acoustical professional prior to issuance of a building permit. Specific measures to achieve these performance standards shall include all or any combination of the following options: • Site design measures, including use of building orientation to minimize window exposure toward noise sources, avoid placing balcony areas in high noise areas, and use of buildings as noise barriers. • Use of acoustically rated building materials (insulation and windows); • Construction of architectural noise barriers between sources and receptors; and • Provision of landscaping or other non-noise-sensitive buffer zones between sources and receptors. **Mitigation Measure 4.J-1b:** All hotel projects within the Project Site shall minimize the exposure of people within the Project Site to noise from Caltrain operations through construction of noise barriers or maintenance of buffer distances, and shall adhere to the following noise performance standards: • Exterior noise level of below 65 dBA, DNL for outdoor common areas within any approved residential use or hotel; and • Interior noise standard of 45 dBA, DNL These noise levels shall be attained through use of appropriate building materials as required by state of California Title 24 standards. Compliance with these performance standards shall be verified by an acoustical professional prior to issuance of a building permit. Specific measures to achieve these performance standards shall include all or any combination of the following options: • Site design measures, including use of building orientation to minimize window exposure toward noise sources, avoid placing balcony areas in high noise areas, and use of buildings as noise barriers;	DSP: LTS DSP-V: LTS CPP: LTS CPP-V: LTS

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TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL IMPACTS

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Noise and Vibration (cont.)			
Impact 4.J-1 (cont.)		• Use of acoustically rated building materials (insulation and windows); • Construction of architectural noise barriers between sources and receptors; and • Provision of landscaping or other non-noise-sensitive buffer zones between sources and receptors.	
Impact 4.J-2: Under the DSP and DSP-V scenarios, Project site development would expose onsite residents to vibration from rail operations, representing a significant impact. Construction activities in the vicinity of onsite historic buildings would also result in significant vibration impacts on the structures depending on construction methods that are employed.	DSP: Significant DSP-V: Significant CPP: Significant CPP-V: Significant	**Mitigation Measure 4.J-2a:** All development in the Baylands shall be designed to avoid vibration from Caltrain operations in excess of 72 VdB for residences. Prior to issuance of any building permit for structures intended for human occupancy within 200 feet of the mainline track, a detailed vibration design study shall be completed by a qualified acoustical engineer to confirm the ground vibration levels and frequency content along the Caltrain tracks and to determine appropriate design to limit interior vibration levels to 72 VdB for residences. Implementation of the recommended measures of the acoustical study into project design elements shall be verified by the Brisbane Building Department as part of the plan-check process. Specific measures to achieve the performance standards set forth above shall include all or any combination of the following methods: • Use of vibration isolation techniques such as supporting the new building foundations on elastomer pads similar to bridge bearing pads; • Installation of vibration wave barriers. Wave barriers would consist of control trenches or sheet piles, which are analogous to controlling noise with sound barrier. The applicability of this technique depends on the characteristics of the vibration waves. **Mitigation Measure 4.J-2b:** Pre-Construction Assessment to Minimize Structural Pile-Driving Vibration Impacts on Adjacent Historic Buildings and Structures and Vibration Monitoring. Any development within 85 feet of the Roundhouse that would require pile driving or other construction techniques that could result in vibrations of 0.25 in/sec shall engage a qualified geotechnical engineer subject to City approval to conduct a pre-construction assessment of existing subsurface conditions and the structural integrity of the nearby historic structures subject to pile-driving or other vibration-inducing activity before a building permit is issued to demonstrate that the proposed construction activities would not result in vibration-induced damage to the Roundhouse building. If recommended by the pre-construction assessment, groundborne vibration monitoring of nearby historic structures shall be required. Such methods and technologies shall be based on the specific conditions at the construction site such as, but not limited to, the pre-construction surveying of potentially affected historic structures and underpinning of foundations of potentially affected structures, as necessary. The pre-construction assessment shall include a monitoring program to detect ground settlement or lateral movement of structures in the vicinity of pile-driving activities. Monitoring shall be maintained while construction occurs within 85 feet of historic structures, and results shall be submitted to the City Engineer. In the event of unacceptable ground with the potential to cause structural damage movement (in excess of 0.25 in/sec PPV at historic structures), as determined by the City Engineer, all impact work shall cease until corrective measures (e.g., installation of vibration wave barriers) are implemented to reduce ground movement to below 0.25 inches PPV.	DSP: LTS DSP-V: LTS CPP: LTS CPP-V: LTS

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TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL IMPACTS

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Noise and Vibration (cont.)			
Impact 4.J-3: Under all four scenarios, Project site develop-generated operational noise would result in substantial permanent increases in ambient noise levels from a variety of stationary and mobile sources, representing a significant impact.	DSP: Significant DSP-V: Significant CPP: Significant CPP-V: Significant	**Mitigation Measure 4.J-3a:** All development within the Project Site shall incorporate the following design features into the final site plans prior to issuance of a building permit: • Building equipment (e.g., heating, ventilation, and air conditioning units) shall be located away from nearby residences, on building rooftops, or adequately shielded within an enclosure that effectively blocks the line of sight of the source from receivers in order to meet a performance standard of 5 dBA over existing ambient noise levels (generally perceptible increase to most persons) for this source which would potentially operate more than 20 minutes in a given hour. • Formal truck delivery areas (e.g. loading bays) shall be located at least 100 feet from residences to maintain noise levels of less than 5 dBA over existing monitored levels. Truck delivery bays and waste collection areas shall be located so that they are blocked by Project buildings or designed with noise reduction barriers to reduce noise impacts on residences or other sensitive receptors. **Mitigation Measure 4.J-3b:** Small wind turbines shall be cited a minimum of 50 feet from the property line of noise sensitive land uses (e.g., residential, schools, religious institutions), and utility scale wind turbines shall be sited a minimum of 100 feet from the property line of noise sensitive land uses.	DSP: LTS DSP-V: LTS CPP: LTS CPP-V: LTS
Impact 4.J-4: Project construction would occur in multiple phases and involve demolition, remediation, transport of soils, excavation, grading, trenching, paving, concrete work for foundations, and building erection. Noise from these activities could impact nearby existing (off-site) receptors as well as future (on-site) receptors developed in earlier increments of construction. Construction-related noise levels at and near locations on the Project Site would fluctuate depending on the particular type, number, and duration of use of various pieces of construction equipment. The effect of construction noise would depend upon the level of construction activity on a given day and the related noise generated by that activity, the distance between construction activities and the nearest noise-sensitive uses, and the existing noise levels at those uses. Under all four scenarios, construction would create substantial temporary or intermittent noise.	DSP: Significant DSP-V: Significant CPP: Significant CPP-V: Significant	**Mitigation Measure 4.J-4a:** All applicants for site-specific development within the Project Site shall implement site-specific noise attenuation measures during all construction-related activities under the supervision of a qualified acoustical consultant as a pre-requisite to issuance of site grading(s). These measures shall be included in a Noise Control Plan that shall be submitted for review and approval by the City of Brisbane Building Department to ensure that construction noise does not exceed the standards set forth in the City's Noise Ordinance. These attenuation measures shall include all or any combination of the following control strategies: • Limit standard construction activities to between 7:00 a.m. and 7:00 p.m. Monday through Friday and between 9:00 a.m. and 7:00 p.m. on weekends and holidays. Pile driving and/or other extreme noise-generating activities (greater than 90 dBA) would be limited to between 8:00 a.m. and 4:00 p.m. Monday through Friday, with no extreme noise-generating activity permitted between 12:30 p.m. and 1:30 p.m. No extreme noise-generating activities would be allowed on weekends and holidays; • Equipment and trucks used for construction shall use the best available noise control techniques (e.g., improved mufflers, equipment redesign, use of intake silencers, ducts, engine enclosures, and acoustically attenuating shields or shrouds; • Impact tools (e.g., jack hammers, pavement breakers, and rock drills) used for construction shall be hydraulically or electrically powered wherever possible to avoid noise associated with compressed air exhaust from pneumatically powered tools. Where use of pneumatic tools is unavoidable, an exhaust muffler on the compressed air exhaust shall be used; this muffler can lower noise levels from the exhaust by up to about 10 dBA. External jackets on the tools themselves shall be used where feasible; this could achieve a reduction of 5 dBA. Quieter procedures, such as use of drills rather than impact tools, shall be used;	DSP: SU DSP-V: SU CPP: LTS CPP-V: LTS

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TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL IMPACTS

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Noise and Vibration (cont.)			
Impact 4.J-4 (cont.)		• Stationary noise sources shall be located as far as possible from adjacent receptors, and they shall be muffled and enclosed within temporary sheds, incorporate insulation barriers, or include other measures; • Erect temporary plywood noise barriers around the construction site when adjacent occupied sensitive land uses are present within 75 feet; • Implement "quiet" pile-driving technology (such as pre-drilling of piles and the use of more than one pile driver to shorten the total pile driving duration), where feasible, in consideration of geotechnical and structural requirements and conditions; • Use noise control blankets on building structures as buildings are erected to reduce noise emission from the site; and • Use cushion blocks to dampen impact noise. **Mitigation Measure 4.J-4b:** Prior to City issuance of grading permits, applicants for site-specific development projects within the Project Site shall submit to the Brisbane Building Department, a list of measures that will be undertaken to respond to and track complaints pertaining to construction noise, including: • A procedure for notifying the Building Department staff of complaints; • A plan for posting onsite signs pertaining to permitted construction days and hours, complaint procedures, and the contact person who should be notified in the event of a problem; • A listing of telephone numbers (during regular construction hours and off-hours); • Designation of an onsite construction complaint manager for Project site development; • Notification of neighbors within 300 feet of the Project site development construction area about the estimated duration of the pile-driving activity at least 30 days in advance of the activity; and • A preconstruction meeting with the job inspectors and the general contractor/onsite project manager to confirm that noise mitigation and practices (including construction hours, neighborhood notification, posted signs, etc.) are completed.	
Impact 4.J-5: While aircraft noise contributions on the Project Site would be below the federal noise abatement criterion of 65 CNEL, and impacts would be less than significant with regard to exposing people to long-term excessive noise levels related from operations at the nearest airport, nuisance noise impacts from airport operations may be experienced by future receptors of the Project Site. While there is a potential for aircraft	DSP: LTS DSP-V: LTS CPP: LTS CPP-V: LTS	**No mitigation required.**	

NI = No Impact LTS = Less than Significant SU = Significant Unavoidable

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL IMPACTS

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Noise and Vibration (cont.)			
Impact 4.J-5 (cont.) noise to be a nuisance to future Project Site residents in the DSP and DSP-V scenarios, impacts would not be significant noise since the Project Site is located outside of the airport's 65 CNEL noise contour, which is the significance threshold for airport-related noise impacts.			
Population and Housing			
Impact 4.K-1: The growth in employment and households that would result from either the DSP of DSP-V scenario, as well as the employment growth from either the CPP or CPP-V scenario represent a substantial portion of housing (DSP and DSP-V scenarios only) and employment needs projected by ABAG for Brisbane and surrounding cities, but would exceed ABAG projections for Brisbane. The result is manifested in significant unavoidable traffic and air quality impacts. Because the DSP and DSP-V scenarios scenario propose a mix of housing and employment, per capita vehicle miles traveled would be less than for the CPP and CPP-V scenarios, leading to significant but mitigable greenhouse gas impacts for the DSP and DSP-V scenarios (compared to significant unavoidable GHG impacts for the CPP and CPP-V scenarios). Employment and housing (DSP and DSP-V scenarios) would be consistent with ABAG projections only if Project site development drew projected growth from what is now projected for surrounding communities or elsewhere within the Bay Area.	DSP: Significant DSP-V: Significant CPP: Significant CPP-V: Significant	**No feasible mitigation available.**	DSP: SU DSP-V: SU CPP: SU CPP-V: SU

NI = No Impact LTS = Less than Significant SU = Significant Unavoidable

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL IMPACTS

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Public Services			
Impact 4.L-1: Because desired response times could not be maintained under each development scenario, given the location of the Project Site in relation to existing police facilities, addition of one or more new 24/7 police shifts would be required along with construction of new facilities within the Project site. To ensure that centrally located police facilities are provided to serve the Project site while maintaining adequate response times throughout the City, specific plan(s) for development within the Project Site will be required as part of the planning review process to prepare and implement a Police Services and Facilities Plan, subject to City approval, to define specific timing requirements for establishment of additional police shifts based on the progression of development within the Project Site. The mitigation measures noted to the right address the physical impacts of police facility construction.	DSP: Significant DSP-V: Significant CPP: Significant CPP-V: Significant	**Mitigation Measure 4.L-1:** A site for a storefront substation that is easily visible and accessible to the general public and sized large enough to accommodate operations described in the Police Services and Facilities Plan shall be provided as required by the Brisbane Police Department**.** **See Mitigation Measures 4.B-2a, 4.B-2b, 4.B-3, 4.C-1a through 4.C-1c, 4.C-2a through 4.C-2c, 4.C-4d, 4.C-4e, 4.D-2, 4.D-4, 4.E-2a, 4.G-2a, 4.G-2b, 4.G-2d, 4.G-2f through 4.G-2h, 4.J-4a, 4.J-4b, and 4.N-12**	DSP: LTS DSP-V: LTS CPP: LTS CPP-V: LTS
Impact 4.L-2: Project Site development under the DSP or DSP-V scenario is expected to more than double current fire service demands within the City, while development of the CPP or CPP-V scenario will nearly double fire service demands within the City. Because existing NCFA facilities and staffing are not meeting current response goals, increased demand of such a magnitude will require a new fire station or expansion of the existing station adjacent to the Project site to provide adequate fire protection service to the Project site. To ensure adequate fire protection services and facilities for the Project site while maintaining adequate response times throughout the City, specific plan(s) for development within the Project Site will be required as part of the planning review	DSP: Significant DSP-V: Significant CPP: Significant CPP-V: Significant	**See Mitigation Measures 4.B-2a, 4.B-2b, 4.B-3, 4.C-1a through 4.C-1c, 4.C-2a through 4.C-2c, 4.C-4d, 4.C-4e, 4.D-2, 4.D-4, 4.E-2a, 4.G-2a, 4.G-2b, 4.G-2d, 4.G-2f through 4.G-2h, 4.J-4a, 4.J-4b, and 4.N-12**	DSP: LTS DSP-V: LTS CPP: LTS CPP-V: LTS

NI = No Impact LTS = Less than Significant SU = Significant Unavoidable

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL IMPACTS

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Public Services (cont.)			
Impact 4.L-2 (cont.) process to prepare and implement a Fire Protection Services Plan that provides for the timely provision of fire protection facilities, equipment, and staffing. The Fire Protection Services Plan will specify the means and methods that will be employed, over time, to ensure that the fire service performance standards. The mitigation measures noted to the right address the physical impacts of police facility construction.			
Impact 4.L-3: The DSP and DSP-V scenarios would more than double the combined current enrollment of the Brisbane ESD and the Bayshore ESD along with an 11-percent increase in the enrollment of the JUHSD. Even though the CPP and CPP-V scenarios do not propose residential use, students enrolled in school based on their parents' place of employment would represent a 35-percent increase in the combined current enrollment of both Brisbane ESD and Bayshore ESD, along with a 7-percent increase in the enrollment of the JUHSD. Pursuant to the requirements of State law (SB 50), payment of the school facilities impact fees mandated under SB 50 is the mitigation measure prescribed by the statute, and payment of such fees is the exclusive method available to the City to mitigate the direct impacts on school facilities. Further, payment of such fees is presumed under the law to be mitigation in full for direct impacts to school facilities caused by increasing student enrollment. The mitigation measures noted to the right address the physical impacts of school facility construction and operation.	DSP: Significant DSP-V: Significant CPP: Significant CPP-V: Significant	**Mitigation Measure 4.L-3:** A site for an elementary/middle school of sufficient size to accommodate development-related enrollment under the CPP and CPP-V scenarios shall be reserved as part of the specific plan required by the Brisbane General Plan for development within the Project Site. **See also Mitigation Measures 4.B-2a, 4.B-2b, 4.B-3, 4.C-1a through 4.C-1c, 4.C-2a through 4.C-2c, 4.C-4d, 4.C-4e, 4.D-2, 4.D-4, 4.E-2a, 4.G-2a, 4.G-2b, 4.G-2d, 4.G-2f through 4.G-2h, 4.J-4a, 4.J-4b, and 4.N-12**	DSP: LTS DSP-V: LTS CPP: LTS CPP-V: LTS

NI = No Impact LTS = Less than Significant SU = Significant Unavoidable

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL IMPACTS

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Public Services (cont.)			
Impact 4.L-4: Each of the proposed development scenarios would require expansion of library space to avoid impacting the capacity of existing facilities. Because the increase in library use will primarily result from proposed residential development in the DSP and DSP-V scenarios, significant environmental effects related to the provision of library services will occur in those scenarios. This impact would be less than significant for the CPP and CPP-V scenarios which do not propose residential development.	DSP: Significant DSP-V: Significant CPP: LTS CPP-V: LTS	**Mitigation Measure 4.L-4:** To avoid existing and proposed library facilities in surrounding communities, a library facility shall be developed within the Project Site that is of sufficient size to serve Project Site population. The onsite library shall be constructed and operational prior to issuance of the occupancy permits for more than 50 percent of the residential dwelling units permitted under the DSP and DSP-V scenarios, thereby ensuring an onsite resident population to use onsite library facilities at the time of its opening. This requirement shall be reflected in the specific plan(s) required to be prepared and approved prior to Project Site development.	DSP: LTS DSP-V: LTS CPP: -- CPP-V: --
Recreational Resources			
Impact 4.M-1: The DSP and DSP-V scenarios provide for park and recreational land in excess of Brisbane Municipal Code requirements, and would therefore not increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated. The CPP and CPP-V scenarios do not propose residential units; therefore, there would be no resident population within the Project Site, although the employee population would increase. The CPP and CPP-V scenarios provide substantial park land and, and impacts would be less than significant.	DSP: LTS DSP-V: LTS CPP: LTS CPP-V: LTS	**No mitigation required.**	
Impact 4.M-2: Each development scenario provides for the construction of new parks and recreational facilities. This construction would vary depending upon the location, type, and size of the park, open space, or recreation facility proposed. Construction the proposed parks and recreational facilities has been evaluated as part of Project site development. Due to its time-limited nature, construction-	DSP: Significant DSP-V: Significant CPP: Significant CPP-V: Significant	**See Mitigation Measures 4.B-2a, 4.B-2b, 4.B-3, 4.C-1a through 4.C-1c, 4.C-2a through 4.C-2c, 4.C-4d, 4.C-4e, 4.D-2, 4.D-4, 4.E-2a, 4.G-2a through 4.G-2c and 4.G-2f through 4.G-2h, 4.J-4a, 4.J-4b, and 4.N-12**	DSP: LTS DSP-V: LTS CPP: LTS CPP-V: LTS

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TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL IMPACTS

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Recreational Resources (cont.)			
Impact 4.M-2 (cont.) related impacts in any single location would be temporary. Construction of new recreational facilities on the Project Site would result in significant environmental impacts. However, the impacts of such facilities have been considered throughout this EIR in the analysis of construction-related impacts.			
Impact 4.M-3: None of the Project scenarios would reduce wind speeds enough to substantially impair windsurfing in prime windsurfing areas on San Francisco Bay or substantially impair access to or from those areas from the Candlestick Point Sate Recreation Area launch site.	DSP: LTS DSP-V: LTS CPP: LTS CPP-V: LTS	**No mitigation required.**	DSP: LTS DSP-V: LTS CPP: LTS CPP-V: LTS
Traffic and Circulation			
Impact 4.N-1: A total of 12 of the intersections analyzed would continue to operate acceptably under Existing plus Project conditions. Intersection that would not operate at acceptable levels of serving under continue to operate acceptably under Existing plus Project conditions include: • San Bruno Ave.& Bayshore Blvd. • **Geneva Ave & Bayshore Blvd.** • Old County Rd. & Bayshore Blvd. • **Alana Way, Beatty Road, & US 101 Southbound Ramps** • **Alana Way/Harney Way/Thomas Mellon Drive** • **Tunnel Ave. & Bayshore Blvd.** Mitigation Measures are available to achieve acceptable levels of service; however, the intersections shown in **bold**, above, are	DSP: Significant DSP-V: Significant CPP: Significant CPP-V: Significant	**Mitigation Measure 4.N-1a:** Prior to issuance of the first building occupancy permit for new development within the Project Site other than relocation or improvement of an existing use, the eastbound approach on Geneva Avenue to Bayshore Boulevard shall be restriped to create one additional through lane. One of the existing two right-turn lanes shall also be modified to become a shared through/right-turn lane. In addition, existing AM signal timing setting shall be modified by shifting 8 seconds of green time from the protected eastbound left and westbound left phases to the protected southbound left and southbound through phases. For the PM signal timing settings, 6 seconds of green time shall be shifted from the protected eastbound left and westbound left phases to the protected northbound left and southbound left phases. **Mitigation Measure 4.N-1b:** Prior to issuance of the first building occupancy permit for new development other than improvement or relocation of an existing use, the intersection of Bayshore Boulevard and Old County Road shall be improved, including modifications to the tunnel to provide additional lanes and modify signal timing to improve intersection operations to achieve, at a minimum, LOS C during both AM and PM peak hours under the DSP and DSP-V scenarios and ensure that LOS remains at LOS D or better under the CPP and CPP-V scenarios. **Mitigation Measure 4.N-1c:** Prior to issuance of the first building occupancy permit for new development other than for improvement or relocation of an existing use, the intersection of Alana Way/Beatty Road/US 101 Southbound Ramps shall be signalized and longer green time shall be allowed for the eastbound/westbound traffic than for the northbound/southbound traffic. In addition, the southbound (Alana Way) approach shall be restriped to provide an additional exclusive right-turn pocket, and the westbound (off-ramp) approach shall be restriped to provide an additional through lane to increase the capacity at the off-ramp.	DSP: SU DSP-V: SU CPP: SU CPP-V: SU

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TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL IMPACTS

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Traffic and Circulation (cont.)			
Impact 4.N-1 (cont.) maintained by agencies other than Brisbane, and the City does not have the authority to impose mitigation measures; therefore significant impacts would be unavoidable. With the inclusion of Mitigation Measure 4.N-1b, operational impacts at Old County Road & Bayshore Boulevard would be less than significant under the DSP and DSP-V scenarios and significant and unavoidable under the CPP and CPP-V scenarios.		**Mitigation Measure 4.N-1d:** Prior to issuance of the first building occupancy permit for new development other than for relocation or improvement of an existing use, the eastbound approach to the Alana Way/Harney Way/Thomas Mellon Drive intersection shall be restriped to provide an additional right-turn lane. Harney Way shall be widened to the south of its existing alignment to accommodate this change. **Mitigation Measure 4.N-1e:** Prior to issuance of the first building occupancy permit for new development other than for relocation or improvement of an existing use, a signal phase shall be provided for the westbound right approach at the intersection of Tunnel Avenue & Bayshore Boulevard, and signal timing settings for the AM and PM peak periods shall be modified by changing the southbound left phase from the existing permitted to protected phase, and shifting 20 seconds of green time from the northbound and southbound movements to each of the southbound left and westbound right phases. **Mitigation Measure 4.N-1f:** Prior to issuance of the building occupancy permit for an arena within the Project Site, the arena operator shall develop a Transportation Management Plan (TMP) for coordination with the San Francisco Municipal Transportation Agency (SFMTA), the San Francisco Police Department, and the City of Brisbane, developing incentives to increase transit ridership to the arena, and deploying traffic control officers at the unsignalized intersection of Blanken Avenue and Tunnel Avenue to approximate traffic control with traffic signals of LOS C. The final arena TMP shall be approved by the City of Brisbane and developed in cooperation with SFMTA. Preparation of the TMP shall be fully funded by the arena operator and shall be completed in time for implementation on opening night of the arena. **Mitigation Measure 4.N-1g:** Approval of any tentative map providing for spacing of less than 1,200 feet between full-access intersections along the Geneva Avenue extension shall require that the interactions of green and red signal timing at any one intersection along the Geneva Avenue extension shall not affect operations at any other intersection along the extension, by backing traffic waiting for a green signal at one intersection along the Geneva Avenue extension into another intersection along the extension. Should full-access intersections along the Geneva Avenue extension with spacing of less than 1,200 feet be proposed, a microsimulation of all proposed intersections along the extension (e.g., Synchro, VISSUM) shall be undertaken to analyze interactions of green and red signal timing and demonstrate that operations at any one intersection along the Geneva Avenue extension would not affect operations at any other intersection along the extension. **Mitigation Measure 4.N-1h:** Access via public street(s) to non-Recology lands east of the Caltrain tracks shall be maintained at all times prior to the completion of the proposed Geneva Avenue extension.	
Impact 4.N-2: Project site development would cause the following freeway mainline segments to degrade from an acceptable LOS condition (LOS E or better) to an unacceptable LOS F under one or more of the development scenarios:	DSP: Significant DSP-V: Significant CPP: Significant CPP-V: Significant	**See Mitigation Measure 4.N-13**	DSP: SU DSP-V: SU CPP: SU CPP-V: SU

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TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL IMPACTS

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Traffic and Circulation (cont.)			
Impact 4.N-2 (cont.) • US 101 southbound mainline from Third Street / Bayshore Boulevard (AM peak hour) to Harney Way under all four development scenarios. • US 101 northbound mainline from Sierra Point to Harney Way (PM peak hour) under the CPP and CPP-V development scenarios. • US 101 northbound mainline from Harney Way to Third Street / Bayshore Boulevard (PM peak hour) under all four development scenarios.			
Impact 4.N-3: Project site development would result in substantial increases in traffic under Cumulative With Project conditions at the study intersections compared to Cumulative Without Project conditions for the AM and PM peak hours. The following intersections would not operate acceptably under Cumulative With Project conditions: • *San Bruno Ave/Bayshore Blvd.* • ***Geneva Ave/Bayshore Blvd*** • Old County Rd/Bayshore Blvd • **Tunnel Ave/Bayshore Blvd** • **Sunnydale Ave/Bayshore Blvd** • Sierra Point Pkwy/US 101 Ramps • Lagoon Way/Tunnel Ave • Lagoon Way/Sierra Point Pkwy • **Geneva Ave/US 101 SB Ramps** • **Jamestown Ave/Third St** • **Carter St/Geneva Ave**	DSP: Significant DSP-V: Significant CPP: Significant CPP-V: Significant	**Mitigation Measure 4.N-3a:** Prior to issuance of the first building occupancy permit for new development other than improvement or relocation of an existing use within the Project Site, the improvements required by Mitigation Measure 4.N-1a (which addressed Existing Plus Project conditions) shall be supplemented to account for cumulative traffic conditions. Thus, the full extent of improvements shall include the following: The eastbound approach at the signalized intersection of Geneva Avenue & Bayshore Boulevard shall be restriped to create one additional through lane and to modify one of the existing two right-turn lanes to become a shared through/right-turn lane. In addition, the southbound approach shall be restriped to provide an additional exclusive left-turn pocket. Finally, the northbound approach shall be restriped to provide two additional lanes: an additional left-turn pocket and an added right-turn lane. As a condition of approval for the first discretionary action taken for development within the Project Site, the applicant shall be required to initiate a corridor plan for Bayshore Boulevard in cooperation with Daly City and San Francisco to determine the suite of improvements necessary to resolve long-term cumulative traffic issues along the corridor. Because the effectiveness of such a corridor plan would necessitate participation by Daly City and San Francisco in recognition of increases in traffic along the Bayshore corridor that will be generated by future development within those two jurisdictions, Brisbane will also make its best efforts to assist the developer in securing the agreement of Daly City and San Francisco to participate in the corridor study and its implementation.	DSP: SU DSP-V: SU CPP: SU CPP-V: SU

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TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL IMPACTS

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Traffic and Circulation (cont.)			
Impact 4.N-3 (cont.) • **Geneva Ave/Mission St** • **E. Market St/Orange St** Mitigation identified for the intersections in *italics* above include a corridor plan for Bayshore Boulevard as the appropriate venue for determining long-term improvements needed for cumulative traffic, including traffic generated in Brisbane, Daly City, and San Francisco, necessitating the participation of those agencies, which Brisbane cannot, however, require. While Mitigation Measures may be available to achieve acceptable levels of service; however, the intersection shown in **bold**, above, are maintained by agencies other than Brisbane, and the City does not have the authority to impose mitigation measures; therefore significant impacts would be unavoidable. While Mitigation Measures may be available to reduce cumulative traffic impacts, those intersections shown above in underline cannot be mitigated to achieve acceptable levels of service in both the AM and PM peak hour for all scenarios. In other instances, there are no feasible mitigation measures for shown intersections above shown in underline.		**Mitigation Measure 4.N-3b:** At the signalized intersection of Old County Road & Bayshore Boulevard, the eastbound approach shall be restriped to create one additional exclusive through lane. In addition, the southbound approach shall be restriped to create two additional lanes: an added exclusive left-turn pocket and an added through lane for the southbound approach. Eastbound Tunnel Avenue shall be widened to the east of its existing alignment to accommodate two receiving lanes for the southbound left and eastbound through traffic. These improvements shall be completed prior to issuance of the first building occupancy permit for new development other than improvement or relocation of an existing use within the Project Site. **Mitigation Measure 4.N-3c:** Installation of a traffic signal at the intersection of Sierra Point Parkway and the US 101 freeway ramps shall be required when the peak hour signal warrant is met in the AM or PM peak hour. **Mitigation Measure 4.N-3d:** A traffic signal shall be installed when the peak hour signal warrant is met in either the AM or PM peak period. In addition, widening and restriping of the intersection approaches to provide one through lane and one left-turn lane in the southbound direction, one through lane and one right-turn lane in the northbound direction, and one shared left/through and one right-turn lane in the westbound direction shall be provided. **Mitigation Measure 4.N-3e:** A traffic signal shall be installed when the peak hour signal warrant is met in either the AM or PM peak period. In addition, the Lagoon Way/Sierra Point Parkway intersection shall be widened and intersection approaches shall be restriped to provide two through lanes and one right-turn lane in the southbound direction, one through lane and two left-turn lanes in the northbound direction, and two left-turn lanes and one right-turn lane in the eastbound direction. Additional road widening on Lagoon Road & Sierra Point Parkway would also be required. **Mitigation Measure 4.N-3f:** The City of Brisbane shall work with the San Francisco County Transportation Authority (SFCTA), San Francisco Municipal Transportation Authority (SFMTA), and Caltrans to ensure that projected traffic volumes are accounted for in the design of the Geneva Avenue & US 101 SB Ramps intersection as part of the Geneva Avenue extension project. Mitigations and associated fair-share funding measures for cumulative regional roadway system impacts will be formulated through the current inter-jurisdictional Bi-County Transportation Study effort being led by the SFCTA. Development within the Project Site shall contribute its fair share to the Geneva Avenue & US 101 SB Ramps intersection and improvements. **Mitigation Measure 4.N-3g:** Prior to the issuance of the first building occupancy permit for new development other than relocation or improvement of an existing use within the Project Site, signal timing settings at the Carter Street/Geneva Avenue intersection shall be modified by the City and County of San Francisco to provide longer green time on eastbound/westbound permitted movements and longer cycle length. **Mitigation Measure 4.N-3h:** A traffic signal shall be installed if determined to be safe when the hour signal warrant for the E. Market Street/Orange Street intersection is met in the PM peak hour**.**	

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TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL IMPACTS

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Traffic and Circulation (cont.)			
Impact 4.N-4: Project Site development would contribute cumulatively considerable amounts of traffic to freeway mainline segments expected to operate at LOS E or LOS F: ***Weekday AM peak hour:*** • US 101 northbound from Sierra Point Parkway to Harney Way/Geneva Avenue (LOS E to LOS E; DSP, DSP-V, CPP, and CPP-V scenarios) • US 101 northbound from Harney Way/ Geneva Avenue to Third Street/Bayshore Boulevard (LOS F to LOS F; all scenarios) • US 101 southbound from Harney Way/Geneva Avenue to Sierra Point Parkway (LOS F to LOS F; all scenarios) ***Weekday PM peak hour:*** • US 101 northbound from Sierra Point Parkway to Harney Way/Geneva Avenue (LOS F to LOS F; all scenarios) • US 101 northbound from Harney Way/ Geneva Avenue to Third Street/Bayshore Boulevard (LOS F to LOS F; all scenarios) • US 101 southbound from Harney Way/Geneva Avenue to Sierra Point Parkway (LOS F to LOS F; all scenarios)	DSP: Significant DSP-V: Significant CPP: Significant CPP-V: Significant	**Mitigation Measure 4.N-4:**The City of Brisbane, as part of the Geneva Avenue extension project, shall account for existing traffic, background traffic growth, and the most recent forecasts of traffic expected to be associated with each of several adjacent development projects, including development of the Project Site. Brisbane shall work with the San Francisco County Transportation Authority (SFCTA) and San Francisco Municipal Transportation Agency (SFMTA) to ensure projected traffic volumes are accounted for in the design of the Geneva Avenue Extension. Mitigation measures and associated fair-share funding measures for cumulative regional roadway system impacts, including freeway segment impacts, will be formulated through the current inter-jurisdictional Bi-County Transportation Study update effort being led by the SFCTA. Development within the Project Site shall contribute its fair share to the Geneva Avenue extension project, based upon the SF-CHAMP model or such other model used by the SFCTA in the Bi-County Study. If the Bi-County Study is terminated prior to identification of required mitigations and adoption of fair share funding obligations, the City and County of San Francisco, the SFCTA, and the City of Brisbane shall meet and confer to establish an alternative method for determination of the respective fair shares of project costs, including amounts to be contributed by Project Site development, using the SF-CHAMP model or such other model agreed upon by the agencies. **See also Mitigation Measure 4.N-13.**	DSP: SU DSP-V: SU CPP: SU CPP-V: SU
Impact 4.N-5: Project site development (DSP-V scenario) would result in a substantial increase in PM peak hour traffic at study intersections and freeway mainline segments and would operate unacceptably due to weekday evening events at the proposed arena.	DSP: NI DSP-V: Significant CPP: NI CPP-V: NI	**Mitigation Measure 4.N-5:** Prior to issuance of building occupancy permits for the arena, the operator shall develop and submit to the City a Transportation Management Plan for deploying traffic control officers in the Project Site vicinity to increase efficiency of pre- and post-event traffic, and for developing incentives to increase transit ridership to the arena, such as parking pricing policies, customer information strategies, and/or ticket/other related discounts with proof of payment for transit. Implementation of this plan shall be designed to speed vehicle entrance to and exit from the arena site, as well as maintain orderly traffic operations and prevent turning movements that would intrude onto minor routes to and from the arena. Traffic control officers shall be provided on event dates to, at a minimum, facilitate traffic flow at the intersection of Valley Drive & Bayshore Boulevard, which would otherwise operate at LOS E conditions without manual traffic control by officers at the intersection with a sold-out arena event. Preparation and implementation of the plan shall be fully funded by the arena operator and shall be completed to the satisfaction of the City prior to opening day of the arena.	DSP: -- DSP-V: SU CPP: -- CPP-V: --

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TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL IMPACTS

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Traffic and Circulation (cont.)			
Impact 4.N-6: None of the proposed development scenarios would cause an increase in transit demand that could not be accommodated by train transit capacity (BART and Caltrain), nor would any of the proposed scenarios require changes to Caltrain operations at the Bayshore Station or on the Bayshore / Brisbane four-track rail segment. The baseline and cumulative impacts would be less than significant under all four development scenarios.	DSP: LTS DSP-V: LTS CPP: LTS CPP-V: LTS	**No mitigation required.**	
Impact 4.N-7: Transit ridership under all four proposed development scenarios would contribute to cumulatively significant impacts on Muni operations at San Francisco transit screenline locations and would result in significant impacts on San Francisco Muni transit service on the Geneva Avenue corridor. Increase ridership on SamTrans would not cause capacity on buses to be exceeded. While impact fees would be paid to mitigate impacts on Muni services, because Brisbane does not have the authority to direct the use of those fees, significant impacts would be unavoidable.	DSP: Significant DSP-V: Significant CPP: Significant CPP-V: Significant	**Mitigation Measure 4.N-7:** Prior to issuance of the first building occupancy permit for new development other than improvement of relocation of an existing use within the Project Site, the developer(s) of Project Site land uses shall work with the San Francisco Municipal Transportation Agency (SFMTA) to provide a fair-share contribution to capital costs for providing additional transit service to accommodate Project Site development-related ridership demand on San Francisco Muni transit corridors. In addition, provision shall be made for implementation of shuttle service between the Project Site and the Balboa Park BART Station in the Geneva Avenue corridor.	DSP: SU DSP-V: SU CPP: SU CPP-V: SU
Impact 4.N-8: Project Site development would cause an increase in delays or operating costs such that significant adverse impacts on Muni transit service levels could result (i.e., additional buses or trains could be required due to Project transit trips). This impact is addressed by Mitigation Measure 4.N-7. However, while payment of such mitigation fees is common within San Francisco, how SFMTA would actually use such funds would be beyond Brisbane's ability to control. Therefore, the implementation of this measure is uncertain, and the impact would be significant and unavoidable.	DSP: Significant DSP-V: Significant CPP: Significant CPP-V: Significant	**See Mitigation Measure 4.N-7**	DSP: SU DSP-V: SU CPP: SU CPP-V: SU

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TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL IMPACTS

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Traffic and Circulation (cont.)			
Impact 4.N-9: Project Site development would cause an onsite transit demand that would not be adequately served by adjacent transit service for those proposed land uses that would be located more than one-third mile from the Caltrain and Muni T-line stations. This would result in significant baseline and cumulative impacts under all four proposed development scenarios.	DSP: Significant DSP-V: Significant CPP: Significant CPP-V: Significant	**Mitigation Measure 4.N-9:** Prior to issuance of the first building occupancy permit for any new development other than improvement or relocation of an existing use within the Project Site, a shuttle bus service plan shall be developed and approved by the City that provides convenient transit service between Project Site land uses located more than one-third mile from the Bayshore Caltrain Station or Sunnydale Muni Station to those stations. Shuttle service shall be implemented as described in the plan prior to occupancy of any qualifying Project Site land use other than improvement or relocation of an existing use within the Project Site. This requirement shall also be included in any specific plan approved for development within the Project Site.	DSP: LTS DSP-V: LTS CPP: LTS CPP-V: LTS
Impact 4.N-10: Pedestrian circulation within the Project Site would be improved under all four development scenarios and Project Site development would not disrupt existing pedestrian facilities outside the Project Site. However, on the periphery of the Project Site, baseline and cumulative pedestrian accessibility would be limited under each development scenario due to the lack of existing pedestrian facilities in some areas (including segments of Bayshore Boulevard with no sidewalks south of Geneva Avenue).	DSP: Significant DSP-V: Significant CPP: Significant CPP-V: Significant	**Mitigation Measure 4.N-10:** Prior to issuance of the first building occupancy permit for new development other than improvement or relocation of an existing use within the Project Site, at a minimum, the following measures shall be implemented to improve pedestrian accessibility: • The Bay Trail in the northern portion of the Project Site shall be realigned to provide a more direct route to the east side of US 101, following Geneva Avenue through the US 101 interchange. • Sidewalks or equivalent pedestrian paths shall be provided to safely permit pedestrian access to all uses within the Project Site intended for human occupancy and use, including provision of through pedestrian routes to minimize pedestrian travel distances between uses. • Specific provisions shall be made for safe pedestrian movement within and through parking areas to access buildings • Sidewalks shall be provided along the Project Site frontage on Bayshore Boulevard between Sunnydale Avenue and Tunnel Avenue. These minimum requirements, along with the equivalent of the facilities shown in Table 4.N-8, shall also be included within each specific plan approved within the Project Site.	DSP: LTS DSP-V: LTS CPP: LTS CPP-V: LTS
Impact 4.N-11: Bicycle circulation within the Project Site would be improved under existing and cumulative conditions, and development would not disrupt existing bicycle facilities outside the Project Site. None of the proposed development scenarios would interfere with planned bicycle facilities, or create inconsistencies with adopted bicycle system plans. However, because the Specific Plan for the DSP and DSP-V scenarios does not include detailed requirements to enhance the bicycling environment and maximize bicycle accessibility and the CPP and CPP-V	DSP: Significant DSP-V: Significant CPP: Significant CPP-V: Significant	**Mitigation Measure 4.N-11:** Prior to issuance of the first building occupancy permit for new development other than improvement or relocation of an existing use within the Project Site, roadways and trails shall provide for safe accessibility for bicycles to buildings and recreational areas throughout the Project Site, including connections to offsite bicycle routes and trails. In addition, Project Site land uses shall provide bicycle parking in appropriate areas (i.e., where they will get the most use, where security is maximized, and where pedestrian circulation is minimally affected by their presence). The minimum standards contained in this mitigation measure, along with the equivalent bicycle access as that shown in Table 4.N-7, shall be included in any specific plan approved for development within the Project Site. In addition, details of Project Site development-provided bicycle parking spaces (number and location) shall be determined at the time when site-specific development projects are proposed pursuant to the adopted Specific Plan, and shall adhere to the following guidelines which shall also be included in any specific plan adopted for development within the Project Site:	DSP: LTS DSP-V: LTS CPP: LTS CPP-V: LTS

NI = No Impact LTS = Less than Significant SU = Significant Unavoidable

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL IMPACTS

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Traffic and Circulation (cont.)			
Impact 4.N-11 (cont.) Concept Plan scenarios do not include a detailed bicycle circulation plan at this time, significant impacts to bicycle accessibility could occur.		• Bicycle parking shall be placed within 50 feet of building and facility entrances, where it can be well-lit, clearly visible, and out of the primary travel path of pedestrians. Retail shopping centers and supermarkets shall include one Class I rack (covered bicycle locker for long-term parking) per 30 employees, and one Class II rack (able to secure both the frame and at least one wheel of a bicycle for short-term parking) per 6,000 square feet of retail space. • Parks and recreational fields normally shall include one Class I rack per 30 employees and one Class II rack per 9 users (during peak daylight times of peak season). • Transit centers normally shall include individual parking spaces equal to 2 percent of daily boardings (75 percent Class I and 25 percent Class II).	
Impact 4.N-12: Development would result in temporary traffic increases during the site's 20-year construction period (with periods of no activity). Traffic impacts associated with construction would be temporary and intermittent related to the delivery of materials and equipment, removal of debris, and daily commute trips for construction workers. Construction traffic coinciding with peak hour traffic could exacerbate adverse effects on traffic, transit services, and pedestrian and bicycle circulation.	DSP: Significant DSP-V: Significant CPP: Significant CPP-V: Significant	**Mitigation Measure 4.N-12:** In conjunction with all construction permits, site-specific development projects shall develop, submit for City review and approval, and implement Construction Management Plans that specify measures that would reduce impacts on motor vehicle, bicycle, pedestrian, and transit circulation. The Construction Management Plans shall include, but not necessarily be limited to, the following: • Location of construction staging areas for materials, equipment, and vehicles. • Notification procedures for adjacent property owners and public safety personnel regarding when major deliveries, detours, and lane closures will occur. • Identification of haul routes for movement of construction vehicles that would minimize impacts on vehicular and pedestrian traffic, circulation and safety; and provision for monitoring surface streets used for haul routes so that any damage and debris attributable to the haul trucks can be identified and corrected by the project applicant. • Provisions for removal of trash generated by construction activity. • A process for responding to, and tracking, complaints pertaining to construction activity, including identification of an onsite complaint manager.	DSP: LTS DSP-V: LTS CPP: LTS CPP-V: LTS
Impact 4.N-13: Proposed development would generate more than 100 vehicle trips during the AM and PM peak hours, resulting in significant existing and cumulative impacts and triggering the C/CAG requirement to mitigate the impacts of these trips.	DSP: Significant DSP-V: Significant CPP: Significant CPP-V: Significant	**Mitigation Measure 4.N-13:** Prior to issuance of the first building occupancy permit for new development other than improvement or relocation of an existing use within the Project Site, the developer(s) and/or tenants of Project Site land uses shall prepare, submit to the City/County Association of Governments of San Mateo County (C/CAG) for approval, and establish a Transportation Demand Management (TDM) program to mitigate the C/CAG project impact of generating more than 100 net new vehicle trips during the peak traffic hours. Implementation of TDM programs shall be made a condition of approval for all new development within the Project Site that generates 100 or more net new trips during the AM or PM peak hour. A summary of recommended TDM strategies can be found in **Table 4.N-45**.	DSP: LTS DSP-V: LTS CPP: LTS CPP-V: LTS
Impact 4.N-14: Project site development would not result in a change in air traffic patterns.	DSP: NI DSP-V: NI CPP: NI CPP-V: NI	**No mitigation required.**	

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TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL IMPACTS

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Traffic and Circulation (cont.)			
Impact 4.N-15: Project site development would be required to meet applicable roadway design standards, and would therefore not substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses.	DSP: LTS DSP-V: LTS CPP: LTS CPP-V: LTS	**No mitigation required.**	
Impact 4.N-16: Project site development would provide internal circulation systems meeting City and NCFA requirements, and would therefore not result in inadequate emergency access, defined as physical or traffic congestion impediments that would prevent emergency vehicles from traveling to and from an emergency situation.	DSP: LTS DSP-V: LTS CPP: LTS CPP-V: LTS	**No mitigation required**	
Impact 4.N-17: Project site development would substantially increase loading demand during the peak hour of activities. There are not sufficient details (e.g., number and location of parking spaces) at this time to assess loading conditions in this Program EIR, but as site-specific development projects are proposed under the selected development scenario and required specific plan, loading (demand and supply) would be reviewed to ensure that demand would be met. Because there are no specific loading requirements in the Brisbane Municipal Code, a significant impact could result.	DSP: Significant DSP-V: Significant CPP: Significant CPP-V: Significant	**Mitigation Measure 4.N-17:** Each site-specific development project shall provide sufficient loading areas in appropriate locations such that loading activities, including loading vehicle queuing, will not block roadway or onsite parking area travel lanes, or bicycle or pedestrian facilities**.**	DSP: LTS DSP-V: LTS CPP: LTS CPP-V: LTS
Utilities, Service Systems, and Water Supply			
Impact 4.O-1: Brisbane does not have adequate existing water supplies to serve proposed development. Thus, a new supplemental water supply – a proposed surface water transfer of 2,400 AFY from Oakdale Irrigation District (OID) to Brisbane, and extensive water conservation including	DSP: Significant DSP-V: Significant CPP: Significant CPP-V: Significant	**Mitigation Measure 4.O-1a:** The City shall issue building permits for habitable structures only after it determines that sufficient water storage is available and connected to the Project Site's water delivery system. Water storage facilities shall be constructed either by the Brisbane Baylands developer or by the City, as mutually agreed. Should the City construct facilities, site-specific development projects shall reimburse the City for their fair share of costs, as determined by the City of Brisbane Public Works Department, for the development of water storage to provide fire flows and peak daily water demands to serve Project Site development. Prior to issuance of the first permit of occupancy, site-specific development	DSP: LTS DSP-V: LTS CPP: LTS CPP-V: LTS

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TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL IMPACTS

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Utilities, Service Systems, and Water Supply (cont.)			
Impact 4.O-1 (cont.) demand management and provision of recycled water via an onsite recycled water plant, are included as part of proposed development. The proposed water transfer coupled with the proposed water conservation and recycled water actions would provide adequate water supply to meet long-term water supply needs. Thus, while Project Site development would require new water supply, this supply would be provided as part of proposed development. Existing water storage facilities would not provide adequate peak day/peak hour water flow to the Project in the event of an emergency. Additional storage capacity within the City is needed to provide adequate fire flows and meet peak daily water demands. The proposed OID water transfer would contribute to a potential impact on the Tuolumne River associated with SFPUC's reservoir release pattern from Hetch Hetchy Reservoir that, in some years, could lead to flow changes and adversely affect streamside meadows and other alluvial deposits. The SFPUC is implementing an adopted mitigation measure to reduce potential impacts to streamside meadows and other alluvial deposits below the reservoir to a less than significant level.		projects shall verify the availability of adequate water storage capacity to provide fire flows and meet peak daily water demands to serve Project Site development. Each required specific plan for development within the Project Site shall include this mitigation measure as a requirement for future development. **Mitigation Measure 4.O-1b: Controlled Releases to Recharge Groundwater in Streamside Meadows and Other Alluvial Deposits.** As part of this measure the SFPUC will gather baseline data regarding the extent, species composition and condition of the existing meadow vegetation within the Poopenaut Valley. Some of these environmental baseline data may be available as a result of current study efforts in the Poopenaut Valley. As needed, the SFPUC will augment this information by carrying out vegetation composition surveys in the meadow before implementing the WSIP and at 5 year intervals after WSIP implementation to assess the efficacy of mitigation releases in maintaining or improving the percentage cover of meadow species as described by Ratliff (1985). The basic methodology for baseline vegetation survey and subsequent mitigation monitoring will be generally accepted quantitative vegetation sampling methods to permit statistical comparison of vegetation composition over time, as well as mapping the meadow vegetation in the Poopenaut Valley. The SFPUC will retain the services of a qualified biologist to assist in shaping the releases from Hetch Hetchy Reservoir in consideration of baseline and future meadow vegetation data. If a significant decline in the extent or diversity of native meadow vegetation occurs, releases will be modified as needed to achieve the mitigating effect of sustaining the existing meadow communities**.** The SFPUC will manage reservoir releases for this purpose by releasing the expected available volume of water in the reservoir in a pattern that provides flows of a magnitude that inundate the meadows and streamside alluvial deposits for as long as possible. For example, rather than making releases at a constant rate each day (e.g., releasing 1,000 cfs for seven days), the SFPUC could release the same volume of water but with varying cfs rates, creating flow pulses to meet the objective. As part of this measure the SFPUC will gather baseline data regarding the extent, species composition and condition of the existing meadow vegetation within the Poopenaut Valley. Some of these environmental baseline data may be available as a result of current study efforts in the Poopenaut Valley. As needed, the SFPUC will augment this information by carrying out vegetation composition surveys in the meadow before implementing the WSIP and at 5 year intervals after WSIP implementation to assess the efficacy of mitigation releases in maintaining or improving the percentage cover of meadow species as described by Ratliff (1985). The basic methodology for baseline vegetation survey and subsequent mitigation monitoring will be generally accepted quantitative vegetation sampling methods to permit statistical comparison of vegetation composition over time, as well as mapping the meadow vegetation in the Poopenaut Valley. The SFPUC will retain the services of a qualified biologist to assist in shaping the releases from Hetch Hetchy Reservoir in consideration of baseline and future meadow vegetation data. If a significant decline in the extent or diversity of native meadow vegetation occurs, releases will be modified as needed to achieve the mitigating effect of sustaining the existing meadow communities.	

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TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL IMPACTS

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Utilities, Service Systems, and Water Supply (cont.)			
Impact 4.O-2: Based on existing and projected wastewater flows from the BSD and the City to the SFPUC, development of the Project Site with or without the onsite recycled water plant would not exceed the BSD's or the City's contractual capacity for wastewater treatment by the SFPUC. Recology's wastewater discharge to the SFPUC would only increase by approximately 0.002 mgd. Therefore, adequate treatment capacity at the SFPUC would be available for wastewater discharge. Wastewater generated by proposed development would be discharged into the BSD system for treatment at the SFPUC SEP. Midway through the Project Site development buildout (about year 15), an onsite recycled water plant would be constructed to produce recycled water for Project site non-potable water needs. Adequate conveyance and treatment capacity are available in the BSD and SFPUC SEP systems under existing contract arrangements to handle wastewater flows from Project Site development. As a result, wastewater flows from Project Site development would be properly treated and disposed of through facilities that comply with SFRWQCB wastewater treatment requirements.	DSP: LTS DSP-V: LTS CPP: LTS CPP-V: LTS	**No mitigation is required.**	
Impact 4.O-3: Project site development would require the construction of new or expanded local water storage and conveyance infrastructure. While the City has future plans to build a water storage tank to provide fire flow demand and peak demand equalization to lower pressure zones, including the Project Site, funding has not been identified, nor has a specific site or schedule for construction been developed. A new storage tank would need to be located at an elevation higher than the Project Site, most likely in a hillside	DSP: Significant DSP-V: Significant CPP: Significant CPP-V: Significant	**See Mitigation Measure 4.A-3, Mitigation Measures 4.B-2a and 4.B-2b, Mitigation Measures 4.C-1a through 4.C-1c, Mitigation Measures 4.C-2a through 4.C-2c, Mitigation Measures 4.C-4d and 4.C-4e, Mitigation Measures 4.D-2 and 4.D-4, Mitigation Measures 4.G-2a, 4.G-2b, 4.G-2d through 4.G-2h, and 4.G-3, Mitigation Measures 4.J-1a, 4.J-4a and 4.J-4b, and Mitigation Measure 4.N-12.**	DSP: SU DSP-V: SU CPP: SU CPP-V: SU

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TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL IMPACTS

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Utilities, Service Systems, and Water Supply (cont.)			
Impact 4.O-3 (cont.) location. Construction of a new storage tank could result in impacts due to (1) siting, which could affect slope stability or visual, biological, land use, and/or cultural resources; and (2) construction, which could result in noise, dust, other air pollutant emissions, soil erosion, and possible water quality effects. While it is likely that impacts of siting and constructing could be avoided or mitigated through a combination of siting options and mitigation measures, at this time without site-specific information these impacts are considered to be significant unavoidable. The proposed recycled water plant and stormwater drainage facilities included in the Project would have significant impacts in relation to aesthetic resources, air quality, biological resources, cultural resources, and other areas.			
Impact 4.O-4: Construction and operation of an onsite recycled water plant would require detailed engineering design, development, and approval of wastewater treatment requirements by the SFRWQCB, and further project-level environmental evaluation specific. The facility would be designed and engineered to produce tertiary-treated effluent that conforms to California Code of Regulations Title 22 requirements for unrestricted reuse of recycled water to replace the use of potable water onsite for non-potable uses. Operation of the plant would include the ability to modulate the amount of recycled water produced for serving the Project Site development, thereby allowing for excess raw sewage to be pumped directly to the SFPUC SEP for treatment, and only treating enough raw sewage onsite for recycled water demands.	DSP: LTS DSP-V: LTS CPP: LTS CPP-V: LTS	**No mitigation is required.**	

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TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL IMPACTS

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Utilities, Service Systems, and Water Supply (cont.)			
Impact 4.O-4 (cont.) The onsite recycled water plant would be required to comply with the SFPUC's SEP pre-treatment requirements and discharge limitations and meet Title 22 standards. Depending on the recycled water demand needed for Project Site development, the recycled water plant may discharge a blend of excess produced recycled water and raw sewage to the SEP for treatment. The SEP is permitted through the U.S. EPA and SFRWQCB to meet required waste discharge criteria. The BSD would notify the SFBRWQCB before use delivering recycled water to the Project Site development.			
Impact 4.O-5: Solid waste from construction within the Project Site represents a small proportion of remaining landfill capacity, the fact that the solid waste would be generated and disposed of over a period of 30 years, and the fact that one landfill has enough remaining capacity until 2077, there is adequate existing landfill capacity to accept all Project Site construction waste.	DSP: LTS DSP-V: LTS CPP: LTS CPP-V: LTS	**No mitigation is required.**	
Impact 4.O-6: Solid waste from Project Site development would represent a small portion of remaining landfill capacity, recognizing programs required by Chapter 8.32 of the Brisbane Municipal Code for recycling and recovery to reduce the quantity of waste sent to landfills. One landfill has enough remaining capacity to remain open until 2077. Thus, existing landfills would have adequate capacity to accept all Project Site development-related waste through 2077.	DSP: LTS DSP-V: LTS CPP: LTS CPP-V: LTS	**No mitigation is required.**	

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TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL IMPACTS

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Utilities, Service Systems, and Water Supply (cont.)			
Impact 4.O-7: Project site development would comply with existing federal, state, and local statues and regulations related to solid waste.	DSP: LTS DSP-V: LTS CPP: LTS CPP-V: LTS	**No mitigation is required.**	
Energy Resources			
Impact 4.P-1: Project Site construction would result in substantial consumption of energy, which is considered to be a significant impact under all four proposed development scenarios. Energy use during Project Site construction would (with the exception of site remediation) be similar on a unit basis to other developments throughout the region. Although the extent of Project Site development is large, construction and development would occur over a 20-year period, and demand for construction-related electricity and fuels would be spread out over that time.	DSP: Significant DSP-V: Significant CPP: Significant CPP-V: Significant	**See Mitigation Measures 4.B-2a, 4.B-2b, Mitigation Measure 4.N-12, and Mitigation Measure 4.P-1, below.** **Mitigation Measure 4.P-1:** During all Project Site construction activities, construction contractors shall implement the following measures to prevent the wasteful or inefficient use of energy during construction: • Implement work schedules and procedures that minimize equipment idle time and double-handling of material; • Minimize equipment idling time either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California Airborne Toxic Control Measure Title 13, Section 2485 of California Code of Regulations [CCR]); • Switch off office equipment and lights when not in use; • Use solar power sources for road signs and other applicable equipment that will be required at the construction site; • Design all temporary roads to minimize travel distances; and • Maintain and properly tune all construction equipment in accordance with manufacturer's specifications. It shall be the contractor's responsibility to ensure that all equipment has been checked by a certified mechanic and determined to be running in proper condition prior to operation.	DSP: LTS DSP-V: LTS CPP: LTS CPP-V: LTS
Impact 4.P-2: Proposed development would substantially increase consumption of electricity and natural gas. While Project Site development-related electrical consumption would be largely offset by renewable energy generation, the total increase in energy consumption would nevertheless remain substantial and is therefore considered to be significant for all four development scenarios. Brisbane Municipal Code Section 15.80 specifies green building standards for new	DSP: Significant DSP-V: Significant CPP: Significant CPP-V: Significant	**Mitigation Measure 4.P-2a:** All new buildings within the Project Site subject to the provisions of Brisbane Municipal Code Section 15.80 shall be required to achieve a LEED Gold rating, rather than the LEED Silver rating now required by the Municipal Code. In addition, all appliances installed within the Project Site as part of original building construction shall be ENERGY STAR rated or equivalent. **Mitigation Measure 4.P-2b:** All street and parking lot lighting within the Project Site shall be energy efficient light emitting diode (LED) based lighting. **Mitigation Measure 4.P-2c:** Should the CPP scenario be selected, Project Site development shall provide for an equivalent amount of onsite renewable energy generation as the DSP scenario (42,000 to 45,000 megawatt hours). Should the CPP-V scenario be selected, Project Site development shall provide for an equivalent amount of onsite renewable energy generation as the DSP scenario (42,000 to 45,000 megawatt hours) in addition to the renewable energy generation proposed as part of the Recology expansion.	DSP: LTS DSP-V: LTS CPP: LTS CPP-V: LTS

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TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL IMPACTS

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Energy Resources (cont.)			
Impact 4.P-2 (cont.) developments, including meeting a minimum LEED "Silver" rating on the Green Building Project Checklist for all new commercial projects over 10,000 square feet and achieving a "green home" rating on the MultiFamily GreenPoint Checklist for residential developments with 20+ units.			
Impact 4.P-3: Proposed development would increase fuel use. Inefficient, wasteful, and unnecessary consumption of fuel would be avoided or reduced with implementation of the mitigation measures to help minimize fuel use associated with Project Site development-related trips.	DSP: Significant DSP-V: Significant CPP: Significant CPP-V: Significant	**See Mitigation Measure 4.B-4, Mitigation Measure 4.N-1f, Mitigation Measure 4.N-7, Mitigation Measure 4.N-11, and Mitigation Measure 4.N-13**	DSP: LTS DSP-V: LTS CPP: LTS CPP-V: LTS

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CHAPTER 3
Project Description

This program environmental impact report (EIR) analyzes the environmental effects of the proposed development of the Brisbane Baylands (Project). For purposes of this EIR, the "Project Site" encompasses a total of approximately 733 acres primarily within the City of Brisbane (City or Brisbane). This includes areas identified in the adopted 1994 Brisbane General Plan as the Baylands Subarea, portions of the Northeast Bayshore Subarea, and the Beatty Subarea. The remainder of the Project Site encompasses property within the limits of the City and County of San Francisco (San Francisco) that is part of the existing 44.2-acre Recology Solid Waste Transfer Facility (Recology), along with adjacent road rights-of-way. The Recology site is situated partially within Brisbane and partially within San Francisco.

The Project Site development consists of the following components:

- A **Concept Plan** for the development of the Baylands, as required by the Brisbane General Plan prior to development. The following four Concept Plans are evaluated in this EIR at an equal level of detail:

  - ***Developer-Sponsored Plan (DSP).*** The DSP scenario was proposed by Universal Paragon Corporation and its subsidiaries (UPC), the primary landowner at the Project Site, and is defined within the *Draft Brisbane Baylands Specific Plan* (dated February 2011) (Specific Plan). The DSP includes only the 684-acre portion of the Baylands within the Brisbane city limits and excludes the 44.2-acre Recology site and adjacent roadway rights-of-way. The DSP proposes approximately 7 million square feet of office/ retail /industrial/ institutional uses, 4,434 residential units, approximately 169.7 acres of "open space/open area," and approximately 135.6 acres of "lagoon" area. Total new development under the DSP would be approximately 12.1 million square feet.

  - ***Developer-Sponsored Plan – Entertainment Variant (DSP-V)***. The DSP-V is also proposed by UPC and defined within the Specific Plan. The DSP-V encompasses the same 684-acre area as the DSP scenario. It is similar to the DSP in its development intensity and land use pattern but replaces the retail and office/research and development (R&D) uses proposed under the DSP in the northeast portion of the Project Site with entertainment-oriented uses, including a 17,000- to 20,000-seat sports arena, a 5,500-seat concert theater, a multiple-screen cinema, and more conference/exhibition space and hotel rooms than are proposed under the DSP. Total new development under the DSP-V scenario would total approximately 12.0 million square feet.

  - ***Community Proposed Plan (CPP).*** The CPP scenario was developed through extensive community input and designated for study in this EIR by the Brisbane City Council in 2010. The CPP provides for approximately 7.7 million square feet of office,

industrial, commercial, and institutional uses, along with approximately 330 acres of open space/open area and the 135.6-acre lagoon. In addition to the 684-acre area included as part of the DSP, the CPP includes the 44.2-acre Recology site, which spans the cities of Brisbane and San Francisco, encompassing the Beatty Subarea designated in the City of Brisbane General Plan and adjacent roadway rights-of-way. The CPP does not include residential development. Total new development under the CPP scenario would total approximately 7.7 million square feet.

- ***Community Proposed Plan – Recology Expansion Variant (CPP-V).*** The CPP-V scenario differs from the CPP in that it proposes expansion of the existing Recology facility in the northeast portion of the Brisbane Baylands within the Brisbane city limits. Under the CPP-V, Recology would expand southward from its current boundary, replacing the hotel and R&D uses proposed under the CPP just north of Geneva Avenue and east of Tunnel Road. The existing 44.2-acre Recology site would expand by 21.3 acres to a total of 65.5 acres, consolidating existing offsite recycling and corporation yard facilities into one location within the Baylands. The square footage of the developed areas on the Recology site would increase from the existing 260,000 square feet to 1,011,000 square feet. Total new development under the CPP-V scenario would be approximately 8.1 million square feet.

- Amendments to the Brisbane General Plan as needed to ensure consistency of the Project Site development with the provisions of the General Plan.

- A Specific Plan submitted to the City by UPC detailing development for the two "Developer Sponsored Plan" scenarios. The proposed Specific Plan is part of the Project Site development included with the DSP and DSP-V Concept Plan scenarios.

- Proposed expansion of the existing Recology facility, which is included in the CPP-V Concept Plan scenario only. Although included only in the CPP-V scenario, because the Recology expansion responds to Recology's desire to modernize and consolidate its existing facilities to meet San Francisco's zero waste program needs, the Recology expansion could be approved regardless of any action taken by the City of Brisbane in relation to other Project components.

- Relocation of existing lumber yards to a different location within the Baylands, which is proposed under each of the four Concept Plan scenarios.

- Remediation of hazardous materials contamination within the former railyard and landfill areas of the Project Site, which is proposed under each of the four Concept Plan scenarios.

- Water Transfer / Importation of water supply to the Baylands and City of Brisbane, which is proposed under each of the four Concept Plan scenarios. Under the proposed water supply agreement, the City would acquire a supplemental water supply of up to 2,400 acre-feet per year (AFY) via a water transfer agreement with the Oakdale Irrigation District (OID). OID and the City of Brisbane have signed a term sheet which establishes the framework for a proposed water supply agreement for the potential future transfer of up to 2,400 AFY annually for a 50-year period, with possible renewals for additional 25-year periods. The 2,400 AFY includes up to 2,000 AFY to serve the Baylands and 400 AFY to accommodate planned growth within Brisbane as a whole. The water would be transferred from OID to Brisbane pursuant to water supply and conveyance agreements to be executed among OID, Modesto Irrigation District, San Francisco Public Utilities Commission (SFPUC) and the City of Brisbane. Only existing diversion rights and existing facilities would be used for the proposed water transfer; no new facilities would be built. In accordance with the term sheet

between OID and Brisbane, Brisbane will be responsible for securing the transfer agreement with MID and the wheeling/conveyance agreement with the SFPUC.

- Construction and operation of an onsite recycled water plant, which would provide tertiary treatment of wastewater for recycled water re-use within the Project Site, which is proposed under each of the four Concept Plan scenarios.

Table 3-1 lists these Project components, showing which components are included in each development scenario.

TABLE 3-1
PROJECT COMPONENTS ANALYZED IN THIS EIR

Project Component	Development Scenario			
	DSP	DSP-V	CPP	CPP-V
Concept Plan	✓	✓	✓	✓
General Plan Amendment	✓	✓	✓	✓
Specific Plan	✓	✓		
Site-Specific Development				
Recology Expansion				✓
Lumberyard Relocation	✓	✓	✓	✓
Site Remediation	✓	✓	✓	✓
Water Transfer / Importation of Water Supply	✓	✓	✓	✓
Onsite Recycled Water Plant	✓	✓	✓	✓

✓ = development scenario includes this Project component

NOTE: Since the Brisbane General Plan requires preparation of a Specific Plan prior to development within the Baylands, the CPP or CPP-V Concept Plan scenarios would require future preparation and environmental analysis of a Specific Plan.

SOURCE: ESA, 2012.

As part of the analysis of Project Site development, this EIR also evaluates roadways and other Project infrastructure, including water supply and delivery, wastewater collection and treatment, and energy generation technologies, along with site grading and remediation. These elements of the Project Site development are described below and analyzed in further detail in the appropriate technical sections of this EIR (see Chapter 4, *Environmental Setting, Impacts, and Mitigation Measures*).

Where backbone infrastructure and site preparation elements, such as site grading and other site preparation activities, and water supply and delivery, would be the same for all four proposed Concept Plan scenarios, the analysis of impacts related to these elements refers to "Project" impacts. In other cases, the proposed Specific Plan provides a higher level of project detail for the two developer-sponsored scenarios (DSP and DSP-V) than is available for any of the four Concept Plans. Where differences in level of project detail exist, as is the case for proposed on-site infrastructure elements such as roadway configurations, wastewater collection, or stormwater drainage, the impact analyses refer to individual Concept Plan scenarios. Individual Concept Plan scenarios are also referred to whenever the anticipated environmental impacts of individual Concept Plan scenarios differ.

3.1 Regional Setting

Most of the Project Site is located within Brisbane in northeast San Mateo County, flanking the west side of San Francisco Bay. Brisbane is nestled between San Francisco and South San Francisco, along the west side of US Highway 101. San Bruno Mountain provides a dramatic backdrop to Brisbane when viewed from the north and east. Views of Candlestick Point and the Bay to the east are available from the developed northeast-facing slopes of San Bruno Mountain. Jurisdictions adjoining Brisbane are San Francisco (i.e., the neighborhoods of Visitacion Valley and Little Hollywood) to the north, Daly City and an unincorporated portion of San Mateo County to the west, and South San Francisco to the south. A regional location map is shown in **Figure 3-1**. As noted above, the Project Site includes the existing Recology site, which spans the boundaries of Brisbane and San Francisco. Only the CPP and CPP-V Concept Plan scenarios include the Recology site in their land use plans, and only the CPP-V includes the Recology expansion. The Recology site is shown as "not a part" of the DSP and DSP-V scenarios.

The area surrounding the Project Site includes residential areas in San Francisco, Daly City, and the western portion of Brisbane, and commercial/industrial uses near the San Francisco/San Mateo County line and along Bayshore Boulevard. The Visitacion Valley neighborhood of San Francisco adjoins the northwestern border of the Brisbane Baylands. Candlestick Park, an existing National Football League venue, is approximately 0.5 mile northeast of the Brisbane Baylands, east of US Highway 101. Central Brisbane lies directly west of Brisbane Lagoon, separated by Bayshore Boulevard. Sierra Point, an office/commercial/hotel development with access to the Brisbane Marina, lies just to the southeast of Brisbane Lagoon on the east side of US Highway 101. Caltrain, a major commuter line connecting San Francisco with communities in the Peninsula region and San Jose, has tracks that bisect the Brisbane Baylands, with the nearest Caltrain station (Bayshore Station) located at the northern end of the Baylands. The Brisbane Fire Station (Station Number 81), operated by the North County Fire Authority, is located on Bayshore Boulevard just outside of the southwestern edge of the Project Site.

3.2 Project Site Setting

The Project Site is bounded on the east by US Highway 101, on the west and south by Bayshore Boulevard, and on the north by the City and County of San Francisco. The Project Site is comprised primarily of the Brisbane Baylands (Baylands), a subarea of Brisbane identified in the City's adopted General Plan. A portion of the Northeast Bayshore Subarea is also included within the Project Site. Two of the proposed Concept Plan development scenarios (CPP and CPP-V) also include the Recology site and adjacent road rights-of-way, encompassing the City's Beatty Subarea and a portion of land within San Francisco. The Project Site boundaries are shown in **Figure 3-2**.

The Baylands and Northeast Bayshore portions of the Project Site include approximately 548 acres of land area and 119 acres of lagoon along with 17 acres of lagoon perimeter, for a total of 684 acres. With the addition of the Beatty Subarea, the portion of the Recology facility that lies within San Francisco and adjacent roadway rights-of-way, the entire Project Site consists of 597 acres of land area and 136 acres of lagoon, for a total of 733 acres.

Figure 3-1
Project Site Location

Figure 3-2
Existing Project Site

The Project Site is bisected in the north-south direction by the Caltrain railroad tracks and in the east-west direction by a central drainage channel, which is a part of the Visitacion Creek alignment. The majority of the Project Site is flat or gently sloping toward the Bay, with an elevation range of 10 to 50 feet above mean sea level. A prominent hill (Icehouse Hill), located at the southeastern end of the Project Site, ranges from 25 to 200 feet above mean sea level with steep cuts adjacent to the Caltrain railroad and more gently sloping cuts along Bayshore Boulevard. Project Site topography is shown in **Figure 3-3**.

The terrestrial portions of the Project Site are located nearly entirely on fill that was placed over Bay mud in the past, with the exception of Icehouse Hill, which represents a segment of the historical bay margin and is composed of sandstones. Additionally, the northernmost portion of the Project Site, within the existing Recology site, is underlain by sandstone, shale, and greenstone (fine-grained volcanic rock). **Figure 3-4** shows the evolution of fill on the Project Site.

The portion of the Project Site west of the Caltrain line is mostly undeveloped and dominated by the former Southern Pacific railyards, but also includes a developed industrial park with 231,400 square feet of building area. The portion of the Project Site east of the Caltrain line is the former Brisbane Landfill site and includes operating industrial uses, including the Recology facility, Sierra Point Lumber and Van Arsdale-Harris Lumber companies, Brisbane Recycling Company (rock and concrete crushing operation), and Baylands Soil Processing facility, along with areas of disturbed soil. The Caltrain Bayshore Station is located at the north end of the Project Site, straddling the existing Caltrain rail line. Existing land uses are more fully discussed in Section 3.2.3 below.

On the vast majority of the Project Site, vegetation and wildlife habitat have been, and in some cases continue to be, highly disturbed. The site is dominated by non-native ruderal and grassland species, with landscaped areas containing non-native trees and shrubs also located in several areas. Native vegetation types, including coastal scrub and perennial grasslands, are confined to relatively small areas on Icehouse Hill in the western portion of the Project Site, tidal and freshwater wetlands along the edges of drainage channels and Brisbane Lagoon, and seasonal wetlands in the western portion of the site. In addition, the Project Site encompasses the open water/estuarine communities of Brisbane Lagoon, which is tidally connected to San Francisco Bay located just east of US Highway 101.

3.2.1 Site History

As noted above, the western portion of the Baylands largely consists of a former railroad yard. The San Francisco & San Jose Railroad (SF&SJRR) Company incorporated in 1861 and the railroad connecting the two cities was completed in 1864. The SF&SJRR was consolidated into the Southern Pacific Railroad (SPRR) in October 1870. The SPRR expanded the agricultural economy of California and led to more innovative ways of shipping and preserving food supplies, such as transporting fruit and meat in refrigerator cars that were developed in 1880. At the turn of the 20th century, SPRR initiated extensive improvements to the rail line, including the construction of the Bayshore Cutoff, a new level route in the rail line's current location that more closely followed the bay's shoreline. This route was needed between San Bruno and San Francisco to eliminate the steep grade through Bernal Cut. Initiated in 1904, construction of the Bayshore Cutoff was one of the

most expensive segments of railroad that had been built up to that time, costing almost $1 million per mile for its 9.81 miles between San Francisco and San Bruno. After the 1906 San Francisco earthquake, the area west of the rail corridor was filled in primarily with demolition rubble.

As part of the Bayshore Cutoff project, a modern freight terminal designed to replace the old machine shops at 16th and Harrison Streets and the car repair and roundhouse facilities at Mariposa Street on the old line in San Francisco was constructed on some 200 acres of fill at Visitacion Bay. The new "Bayshore Yard," some 8,400 feet long, included a roundhouse, machine and car shops, and a hump,[1] the second to be built on the West Coast. The former roundhouse (Roundhouse) at the Bayshore Yard was built circa 1907 to service freight locomotives and is now listed on the National Register of Historic Places. The former Tank and Boiler Shop at the Bayshore Yard was built in 1920 to maintain and repair the iron boilers on the steam locomotives. Use of the freight yard ceased in the 1960s and the yard was predominantly idle at the time of its purchase in the late 1980s by Tuntex, now UPC. Caltrain took over the Union Pacific rail line in the 1980s, and by 1989 nearly all of the railroad spur tracks and numerous other maintenance shops and smaller support structures had been removed. **Figure 3-5** shows changes in the former railyard site over time.

The area east of the rail corridor was used as a municipal landfill by San Francisco beginning in the 1930s. Starting from the north, dumping continued southward until it was finally stopped in the 1960s at the edge of what is now Brisbane Lagoon. The construction of US Highway 101 in the mid-1950s established the easternmost boundary of the Bay fill. The former Brisbane Landfill site encompasses an area of approximately 364 acres and is bounded by the Union Pacific/Joint Powers Board railroad corridor (Caltrain tracks) to the west, US Highway 101 to the east, and Brisbane Lagoon to the south. After closure of the landfill in 1967, the area was buried with a 20- to 30-foot cover of soil and has been used for soil and construction material recycling since the 1980s.

Simultaneous with landfill operations, various industrial and commercial businesses were established within the western portion of the Project Site. The Gamerston & Green Lumber Company, Mars Metal Company, and Jones Hardwood Plywood Company are referenced on the 1946 Southern Pacific station plan of the Bayshore freight yard. Van Arsdale Lumber, now Van Arsdale-Harris Lumber Company, appears for the first time on the 1962 Southern Pacific Bayshore-Visitacion station plan. Sierra Point Lumber and Plywood Company, immediately south of Van Arsdale Lumber, appears to have been constructed more recently (circa 1965-1970).

[1] A railroad "hump" is an artificially built hill that uses the force of gravity to propel the cars through the various switches in order to arrange them into various trains without having to use switch engines to guide the cars into place. The hump at Bayshore is no longer extant.

Figure 3-3
Existing Site Topography
11 x 17

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Figure 3-4
Railyard Evolution

3.2.2 Areas Subject to Remediation and Landfill Closure Activities

Former landfill and railyard uses have resulted in the contamination of groundwater and soil within portions of the Project Site. **Figure 3-6** shows the general boundaries of these areas. Potential remedial actions associated with the former landfill and railyard areas are described in Section 3.11 below and analyzed in further detail in Chapter 4, Section 4.G, *Hazards and Hazardous Materials*, of this EIR.

Former Brisbane Landfill

The Brisbane Landfill operated prior to modern waste disposal practices and was closed before formal regulatory design requirements for closure were established. Waste containment at the former Brisbane Landfill was consistent with the practices of the industry at the time, including placement of waste fill directly on native soils (RWQCB, 2001). Thus, waste disposal design features such as liners, segregation of waste into disposal cells, and leachate collection systems were not incorporated into the design of the landfill.

The former Brisbane Landfill was filled in three areas:

1. A portion that extended eastward about 1,000 feet into San Francisco Bay from the area near the Southern Pacific railroad tracks was used for waste placement from 1932 until 1952. Following construction of US Highway 101 immediately east of the landfill in 1948, the Brisbane Landfill was isolated from the direct wave action of San Francisco Bay.
2. From 1953 to 1959, the landfill was extended an additional 600 feet eastward into San Francisco Bay and filling of the northern portion of the landfill was completed.
3. An additional landfill area was created in 1959 when the landfill was extended to the south and used for waste placement from 1959 until the landfill stopped receiving waste in 1967.

Upon completion of disposal operations, refuse fill materials were covered with earth fill and other inert debris. Since closure of the landfill in 1967, recycled fill and inert construction waste have been placed on large portions of the site which has served to accelerate consolidation of the refuse within the landfill. A small number of structures, such as commercial and industrial buildings, have been constructed on the landfill since the 1950s. Portions of the landfill, including streets and parking areas, have been paved.

Over time, approximately 12.5 million cubic yards of waste were disposed of at the former landfill. Of this volume, an estimated 73 percent was produced by residential and commercial activities, with inert fill accounting for approximately 25 percent and the remaining two percent assumed to be liquid waste (Geosyntec, 2012). Waste tires also were placed in the landfill. Aerial photos of the Project Site that were taken while the landfill was in operation show four localized black areas likely representing tire stockpiles. The thickness of the cover over the former landfill area is estimated to range from 1 to 37 feet.

Figure 3-5
Landfill Evolution
11 x 17

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Figure 3-6
Former Landfill Site and Former Railyard Site
(Remediation Areas)

The landfill site is currently overseen by the Environmental Health Division of the San Mateo County Health Agency, which serves as the Local Enforcement Agency and, along with the California Department of Resources Recycling and Recovery (CalRecycle), enforces Title 27 regulations related to landfill closure, post-closure maintenance, and landfill gas monitoring and control. Additional oversight of the landfill is provided by the California Regional Water Quality Control Board–San Francisco Bay Region (RWQCB). Groundwater/leachate and stormwater quality is monitored regularly at monitoring wells and outfall locations and reported to the RWQCB.

Former Southern Pacific Railyard

The former railyard encompasses approximately 228 acres, including some offsite areas in San Francisco, and was historically operated by Southern Pacific Railroad for freight train activity into and out of San Francisco between 1914 and 1960. The majority of this area is now vacant with remnant railroad buildings, such as the Roundhouse, remaining. Contaminants known to be present in this area include volatile organic compounds (VOCs), metals, Bunker C oil (a fuel oil used for locomotives), and total petroleum hydrocarbon (TPH), a term used for any mixture of hydrocarbons found in crude oil.

For purposes of regulatory oversight pertaining to site contamination and remediation, the railyard is divided into two separate "Operable Units." Operable Unit 1 (OU-1), in the northern portion of the railyard, is under the jurisdiction of the California Department of Toxic Substances Control (DTSC); Operable Unit 2 (OU-2), in the southern portion of the railyard, is under the jurisdiction of the RWQCB. Potential remedial actions for these areas also are summarized in Section 3.11 below. As noted below, the final remedy selection process for OU-1 and OU-2 is under the jurisdiction of DTSC and the RWQCB, respectively, and would occur through preparation and public review of separate Remedial Action Plans for each Operable Unit.

3.2.3 Existing Uses

Although the Project Site is largely undeveloped, existing uses include two lumberyards (Sierra Point Lumber and Van Arsdale-Harris Lumber), the Brisbane Bayshore Industrial Park, Brisbane Recycling Company (rock and concrete crushing operation), the Baylands Soil Processing facility, and buildings associated with former railyard uses including the Roundhouse and the Lazzari Fuel Company building, now used as a charcoal warehouse (see Figure 3-2). Other existing uses within the Baylands include the Caltrain Bayshore Station, a solid waste transfer facility operated by Recology, a horse boarding stable on the north slope of Icehouse Hill, and a number of interim uses, which are described below.

As shown in Figure 3-2, the Kinder Morgan Energy Tank Farm, the Bayshore Sanitary District pump station, and Machinery & Equipment, Inc., an equipment manufacturing/distribution company, are immediately adjacent to or encompassed by the Project Site boundaries but are not included as part of the Project Site development. These facilities will continue in their current operations and are not a part of any of the Project Site development.

Former Railyard Buildings

Buildings associated with the former SPRR railyard uses that are located on the Project Site include the Roundhouse and the Lazzari Fuel Company building. Designed by the SPRR and constructed circa 1907, the Roundhouse remains a classic example of a railroad roundhouse, despite being severely damaged by fire in recent years. Fire damage occurred primarily in the western half of the Roundhouse, with portions of its roof now missing, charred timbers, and missing or broken window frames. This abandoned building also shows evidence of vandalism and graffiti, despite the chainlink fencing that encircles the building. Originally used to maintain and repair boilers on steam locomotives, the Lazzari Fuel Company building is located about 150 feet northwest of the Roundhouse. This industrial building, designed by the SPRR and constructed in 1920, is currently used as a charcoal warehouse.

Lumberyards

The Sierra Point and Van Arsdale-Harris lumberyards are located on 8.6 acres at 601 and 595 Tunnel Avenue. The lumberyards provide retail and wholesale operations and receive pre-formed lumber via truck and rail; no milling is done within the lumberyards. The lumberyards currently include 142,500 square feet of building space, along with and outdoor lumber storage areas.

Brisbane Bayshore Industrial Park

The Brisbane Bayshore Industrial Park is a multi-tenant industrial/warehouse complex with approximately 231,400 square feet of building area. Existing businesses range from automotive repairs, engineers, and landscapers to product distributors.

Recology

The 44.2-acre Recology site straddles the Brisbane/San Francisco boundary between US Highway 101 and Tunnel Avenue. The facility provides landfill diversion and resource recovery services to residential, commercial, and municipal customers in San Francisco.

There are approximately 20 existing buildings located on the site that contain administration, operations, and maintenance functions for the facility; about half of these buildings are located within the Brisbane city limits. These existing uses include 41,578 square feet of administrative buildings, 78,168 square feet of operations area, and 113,142 square feet of vehicle and container maintenance facilities. Existing facilities also include a fleet of 558 vehicles. Operational activities that occur on the site include waste transfer, materials recovery, public disposal and recycling, vehicle weighing and maintenance, organics transfer, fueling, temporary hazardous materials storage, fleet parking, cart and container maintenance and storage, and administrative activities, which include a learning center, offices, and an artist-in-residence studio.

Many of the Recology buildings are more than 50 years old. Buildings in the southern portion of the site were constructed on top of a solid waste landfill and have experienced significant

settlement. All infrastructure and utilities systems are currently in place; however, utilities at the site have failed repeatedly in recent years due to differential settlement and corrosion.

Caltrain Bayshore Station

The existing Caltrain Bayshore Station is located in the northwestern portion of the Project Site, north of Beatty Avenue. The station includes a pedestrian overpass with elevators, ticket machines, and furnished waiting areas. It currently serves fewer than 300 average daily weekday riders (138 outbound and 150 inbound in February 2011). A small parking lot provides about 40 spaces on the east side of the Bayshore Station and is well-used on typical weekdays.

During most weekday hours of operation, Caltrain service at the Bayshore Station consists of one local train per hour in each direction.

Interim Uses

A number of interim uses have been established within the Baylands subject to Section 17.41 of the Brisbane Municipal Code. Interim use permits are limited to a maximum initial term of five years and can be extended in increments not exceeding five years.

Active interim use permits on the Project Site include the following:

- **Brisbane Recycling Company** operates a rock and concrete crushing operation on approximately 60 acres within the northern portion of the Project Site. Brisbane Recycling Company shares a common point of access from Beatty Road with Brisbane Soil Processing (described below), which has access through an internal road (approximately 1,700 linear feet) that runs through Brisbane Recycling Company's operational area.
- **Baylands Soil Processing** operates within the former landfill portion of the Project Site. Since 1990, the City has authorized the importation of soil that was either used as stockpile or processed for resale. Processing includes screening the soil to produce fill, sand, and top soil. Incidental materials (e.g., concrete, asphalt, plants/wood, and brick) are removed through the screening process, stockpiled, and eventually off-hauled. This operation currently occupies approximately 174 acres.
- **Friends of San Bruno Mountain Greenhouse** is a 4,000-square-foot greenhouse housing a native plant nursery at 3435 Bayshore Boulevard, near Fire Station No. 51.
- **Tunnel Avenue Bus Yard** is a bus storage and dispatch facility consisting of parking for 50 buses and an approximately 2,000-square-foot dispatch trailer on 2.3 acres at 575 Tunnel Avenue.
- **Outdoor storage** for lumber and construction equipment parking has been approved on approximately three acres on the west side of Tunnel Avenue, generally across from Sierra Point Lumber.
- **A 55-foot-high Clear Channel billboard** with two 23-foot-by-60-foot faces is located approximately 100 feet south of Beatty Avenue at US Highway 101.
- **San Francisco Trains** uses an existing 48-foot-by-100-foot concrete slab near the existing Roundhouse for storage and rehabilitation of an historic railroad steam engine.

Temporary Uses

The City of Brisbane has also periodically allowed short-term temporary uses to occur within the Baylands Subarea subject to the provisions of the Brisbane Municipal Code. These temporary uses include special event parking for San Francisco 49ers home games and for the Grand National Rodeo held at the Cow Palace in Daly City.

Lagoon and Other Natural Resources

Vegetation and the wildlife habitat it supports have been, and continue to be, highly disturbed on the vast majority of the Project Site. The Project Site is dominated by non-native ruderal and grassland species, with landscaped areas containing non-native trees and shrubs also located in several areas. Native vegetation types, including coastal scrub and perennial grasslands, are confined to relatively small areas on Icehouse Hill, to the tidal and freshwater wetlands along the edges of drainage channels and Brisbane Lagoon, and to seasonal wetlands in the western portion of the Project Site.

The Project Site encompasses the open water/estuarine communities of Brisbane Lagoon, which is comprised of approximately 119 acres of open water subject to muted tidal influence. Brisbane Lagoon is located at the southern end of the Project Site. The lagoon's shorelines contain little beach during high tides and most of the shoreline exposed during low tides is protected by riprap. Small areas of mudflats are present along portions of the Bay shoreline and within the lagoon at low tide. Brisbane Lagoon is tidally connected through two large concrete box culverts to San Francisco Bay located just east of US Highway 101. These box culverts are 12 feet long by 12 feet wide and are unobstructed for a length of 300 feet. Natural resources existing on the Project Site are described in greater detail in Chapter 4, Section 4.C, *Biological Resources*, of this EIR.

3.2.4 Existing Infrastructure and Services

Traffic and Circulation

Regional vehicle access to the Project Site is provided by three freeways: US Highway 101, Interstate 280 (I-280), and Interstate 380 (I-380). Local access to the Project Site is provided by US Highway 101 and the following key arterial and collector streets within Brisbane and the adjacent cities of San Francisco and Daly City:

- **Bayshore Boulevard**, a four-lane arterial street that flanks the Project Site to the west and parallels US Highway 101 between Caesar Chavez Boulevard in San Francisco and South San Francisco, where it becomes Airport Boulevard;
- **Geneva Avenue**, a four-lane east-west arterial street between I-280 (adjacent to the Balboa Park Bay Area Rapid Transit (BART) Station and the City College of San Francisco Phelan Campus) and Bayshore Boulevard, where it currently terminates adjacent to the Project Site without providing access into it;
- **Guadalupe Canyon Parkway**, a four-lane east-west arterial street near the Project Site that runs from Bayshore Boulevard over the hills to Daly City, where it becomes East Market Street;

- **Valley Drive**, a four-lane east-west collector street between Bayshore Boulevard and West Hill Drive; and
- **Sunnydale Avenue**, a two-lane east-west street north of Geneva Avenue that runs between Bayshore Boulevard and Persia Avenue and provides access to the Visitacion Valley neighborhood of San Francisco.

Existing roadways that provide internal circulation within the Project Site include the following (see **Figure 3-7**):

- **Tunnel Avenue**, a two-lane north-south collector street that connects to Bayshore Boulevard at both ends and provides both vehicle access to and internal circulation within the Project Site;
- **Beatty Avenue**, a two-lane east-west collector street near the northern edge of the Project Site;
- **Lagoon Way**, a two-lane collector street that borders the lagoon in the southern portion of the Project Site and runs east-west from Sierra Point Parkway to Tunnel Avenue; and
- **Sierra Point Parkway**, a two-lane collector roadway running parallel to US Highway 101 and Bayshore Boulevard through the southeast portion of the Project Site.

Water and Wastewater Facilities

Water Facilities

Water service is provided to the Project Site by the City of Brisbane, which operates two separate water districts providing water to the local residents and businesses. The Brisbane Water District serves Central Brisbane, Sierra Point, and the Brisbane Baylands. The Guadalupe Valley Municipal Improvement District (GVMID) serves Crocker Park and the Northeast Ridge residential area.

Brisbane does not have its own groundwater or surface water supplies and therefore purchases potable water from the SFPUC, which operates the water system for San Francisco. The SFPUC provides water service to the existing Recology site, including the portion that is within Brisbane.

Existing Brisbane infrastructure serving the Project Site includes a 14-inch AC water line that runs south of the northwestern corner of Bayshore Boulevard and Main Street and a 14-inch line that connects to the 12-inch line at Bayshore Boulevard and Main Street and runs to Tunnel Avenue in the southwestern corner of the site. There is also a 12-inch line at the intersection of Bayshore Boulevard and Old County Road at the southern portion of the site. GVMID has a 12-inch water line connected from the SFPUC meter facility on North Hill Drive near Guadalupe Canyon Parkway to a location near the southwestern corner of the Project Site.

Other existing water facilities in the vicinity of the Project Site include the following:

- The City of Daly City has a six-inch water line on MacDonald Avenue near the northwest corner of the Project Site; and
- The SFPUC has a 12-inch water line on Tunnel Avenue at the north end of the Project Site that provides water service to customers in Brisbane.

Figure 3-7
Existing Roadways

Wastewater Facilities

Wastewater services within the Project Site are provided by the Bayshore Sanitary District (BSD) for all upland areas of the Baylands north of Brisbane Lagoon, and by the City of Brisbane in the area to the south (BSD, 2012). Both agencies maintain wastewater collection facilities and contract with the SFPUC for wastewater treatment. The existing Recology site receives wastewater services from the SFPUC.

Within the Baylands is a 0.1-acre sewer pump station known as the "Carlyle Pump Station" that was built in 1972 and is operated by the BSD. The majority of the BSD's wastewater flows into this station and is pumped to the SFPUC's southeast treatment plant where it receives secondary treatment. The station has a capacity to pump over five million gallons per day. Its current average daily pump flows are 380,000 gallons during dry weather and 1.2 million gallons during wet weather (BSD, 2012).

Existing wastewater flows from the Project Site are collected and conveyed for treatment at the SFPUC's Southeast Water Pollution Control Plant (SEP) through two connections to the existing SFPUC 78-inch-diameter combined sewer transmission main (SFCS) located in Sunnydale Avenue and underneath portions of the Recology facility. The SFCS facility collects stormwater runoff and sewage flows.

Located in the Bayview District of southeastern San Francisco, the SEP is a 250-million-gallon-per-day (MGD) pure-oxygen activated-sludge treatment facility that provides secondary treatment and serves municipal and industrial customers on the east side of San Francisco, in Brisbane, and within the BSD. The SEP was originally constructed in 1952 and has been expanded several times. The SEP is part of San Francisco's combined sewer system, which allows the collection and treatment of both wastewater and stormwater. The SEP does not currently have the capability to produce recycled water.

Solid Waste Services

The South San Francisco Scavenger Company provides solid waste collection and recycling services to the City of Brisbane. Waste is transported to the Blue Line Transfer Incorporated Public Disposal and Recycling Facility for sorting and processing. The Blue Line facility is located in the South San Francisco and has a permitted capacity of 2,400 tons of waste per day and an average daily throughput of 1,200 tons per day (BKF, 2011).

In 2009, solid waste from Brisbane was sent to Forward Landfill, Inc. (San Joaquin County), Guadalupe Sanitary Landfill (Santa Clara County), Newby Island Sanitary Landfill (Santa Clara County), Ox Mountain Sanitary Landfill (San Mateo County), Recology Hay Road (Solano County), Zanker Material Processing Facility (Santa Clara County), and Zanker Road Class III Landfill (Santa Clara County) (BKF, 2011).

Fire Protection Services

Fire protection services at the Baylands are provided by the North County Fire Authority (NCFA). The City of Brisbane entered into an agreement along with other neighboring communities to form the NCFA, a Joint Powers Authority that provides fire protection, emergency medical, and other hazardous assistance and public services to the communities of Brisbane, Daly City, and Pacifica. The NCFA operates nine fire companies in eight fire stations throughout its 60-square-mile service area. There are eight engines, and one aerial ladder. Brisbane funds one fire company (personnel and apparatus) and one fire station located within the City. There are a minimum of three firefighters, including at least one paramedic, assigned to each engine and aerial ladder truck. In addition, two battalion chiefs and one duty deputy fire chief are on-duty daily. Overall, the NCFA maintains 30 personnel on duty on a daily basis (NCFA, 2011). The closest fire station to the Project Site is NCFA Fire Station No. 81, located at 3445 Bayshore Boulevard in Brisbane, outside and immediately adjacent to the southwestern edge of the Project Site.

In 2010, severe mold was detected in this station building, and as a result, Fire Station No. 81 firefighters are being housed in adjacent semi-permanent trailers. The primary response area for this station is Brisbane. The station is staffed by one three-person paramedic engine company NCFA Fire Station No. 93, located at 464 Marin Street in Daly City, is approximately one mile from the Project Site. This station is also staffed by a three-person paramedic engine company (NCFA, 2011). NCFA Fire Station No. 92 is located on the west side of San Bruno Mountain, approximately 2.5 miles from the Project Site.

The NCFA's Fire Prevention Services Bureau seeks to ensure that all new buildings comply with state and local building and fire code requirements. To enforce standards for features such as sprinkler and fire alarm systems and emergency vehicle access, the Fire Prevention Services Bureau conducts over 1,500 plan reviews and construction inspections annually. In addition to its firefighting and emergency medical response capabilities, the NCFA, through its Special Operations Division, trains for and responds to emergencies involving hazardous materials as well as incidents involving cliff/high angle, water or trench rescue, urban search and rescue, confined space, and structural collapse (NCFA, 2011).

Police Services

The Brisbane Police Department (BPD) provides security and police services within the Brisbane city limits from its headquarters in City Hall, located less than 0.5 mile from the Project Site. The BPD is staffed with 11 sworn officers and two civilian personnel. Current patrol staffing consists of a single beat with a minimum of one sergeant or shift supervisor and at least one other officer per shift. The BPD maintains 13 vehicles: six patrol cars, two motorcycles, one pick-up truck, two unmarked detective vehicles, one unmarked administration vehicle, and one full-size special unit vehicle (Meisner, 2011).

Schools

The Brisbane Elementary School District (Brisbane ESD), the Bayshore Elementary School District (Bayshore ESD), and the Jefferson Union High School District (JUHSD) provide grades K-12

public education to Brisbane residents. The Project Site is within the jurisdiction of Bayshore ESD and JUHSD. The elementary school closest to the Project Site is Brisbane Elementary School operated by Brisbane ESD and located at 500 San Bruno Avenue, less than one mile from the Project Site. Panorama Elementary School, operated by Bayshore ESD and located at 25 Bellevue Avenue in Daly City, is less than two miles west of the Project Site. Lipman Middle School (within Brisbane ESD) and located at 1 Solano Street, is also less than one mile from the Project Site. The two JUHSD schools closest to the Project Site are Jefferson High School, approximately three miles west of the Project Site at 6996 Mission Street in Daly City, and Westmoor High School, approximately four miles west of the Project Site at 131 Westmoor Avenue in Daly City.

3.3 Existing Project Site Land Ownership

As shown in **Figure 3-8**, UPC owns the vast majority of the upland (non-water) and lagoon portions of the Project Site. The upland area of the Project Site consists of 21 San Mateo County Assessor's parcels and five San Francisco Assessor's parcels. UPC also owns approximately 75 acres within Brisbane Lagoon. The remaining lagoon acreage is owned by the City of Brisbane and other private owners. The entire lagoon area is included within the Project Site. The lagoon property is separated from UPC's upland holdings by a 600-foot-wide strip of lagoon shoreline owned by the State Lands Commission (see Figure 3-8).

The City of Brisbane owns the 60-foot-wide Lagoon Way right-of-way, which crosses the southern end of the Brisbane Baylands between the existing Sierra Point Parkway freeway off-ramp and Tunnel Avenue. In addition, the BSD holds a 60-foot-wide access ("roadway") easement that follows Tunnel Avenue south of the Sierra Point Lumber site, veering west before reaching Visitacion Creek; this easement provides access to the BSD's pump station. Union Pacific holds a 30-foot-wide right-of-way parallel to and west of Tunnel Avenue near the Sierra Point Lumber and Van Arsdale-Harris Lumber sites, which are owned by Sierra Point Lumber and Van Arsdale-Harris Lumber, respectively. Additionally, a drainage easement follows the existing drainage channel and a water line easement crosses the Brisbane Baylands and terminates near the Kinder Morgan Energy Tank Farm (see Figure 3-8).

Recology owns the existing site of its operations, which is split between Brisbane and San Francisco. The area proposed for Recology's expansion under the CPP-V Concept Plan scenario is currently owned by UPC, Van Arsdale-Harris Lumber, Sierra Point Lumber, and Papenhause.

3.4 Existing Land Use Regulations

The portion of the Project Site located within the Brisbane city limits is within the Baylands Subarea, the Northeast Bayshore Subarea, and the Beatty Subarea, as designated in the City's 1994 General Plan (see **Figure 3-9**) and is subject to the City's development regulations. The Brisbane General Plan designates the various portions of the Project Site as follows:

- Baylands Subarea - *Planned Development-Trade Commercial*;
- Southerly Brisbane Lagoon area - *Marsh/Lagoon/Bayfront;*

Figure 3-8
Site Ownership and Easements

Figure 3-9
General Plan Land Use Designations

- Northeast Bayshore Subarea, a 15.5-acre strip of land along Bayshore Boulevard, encompassing the Bayshore Industrial Park - *Trade Commercial*; and
- Beatty Subarea, including the Recology waste recycling facility and a part of the former landfill developed with office and warehouse buildings and storage yards - *Heavy Commercial*.

The portion of the Recology site within San Francisco is governed by the San Francisco General Plan, which designates the site as *Light Industry*.

Six zoning districts apply to the Project Site. The southern and eastern parts of the Project Site are zoned Marsh Lagoon Bayfront (MLB), and the northern and western parts are zoned Commercial Mixed-Use (C-1). The Northeast Bayshore Subarea is zoned Manufacturing (M-1), and the Beatty Subarea is zoned Heavy Commercial (C-3). That portion of the existing Recology site located within San Francisco is zoned Light Industrial and Heavy Industrial (M-1 and M-2) (see **Figure 3-10**).

3.5 Concept Plan Development Scenarios

As noted above, the Brisbane General Plan requires preparation of a "Concept Plan" for the Baylands prior to or concurrent with a specific plan, which is to be approved prior to future development within the Baylands Subarea.[2] All relevant aspects of the Brisbane 1994 General Plan, Zoning Ordinance, and other applicable land use regulations are discussed in more detail in Chapter 4, Section 4.I, *Land Use and Planning Policy*, of this EIR.

Four Concept Plan development scenarios have been prepared for the Baylands and are addressed in this EIR at an equal level of detail. These Concept Plan scenarios are:

- Developer-Sponsored Plan (DSP)
- Developer-Sponsored Plan – Entertainment Variant (DSP-V)
- Community Proposed Plan (CPP)
- Community Proposed Plan – Recology Expansion Variant (CPP-V)

[2] Relevant General Plan policies carrying these requirements read as follows:

Policy 329: Prior to or in conjunction with the first Specific Plan for the Baylands subarea, a Concept Plan shall be submitted, which shows the disposition of the entire site. The Concept Plan shall include the following;

1. an overall conceptual plan, illustrative in nature, showing uses and locations by means of bubble and schematic diagrams with an accompanying text;
2. a general description of conceptual uses, densities, intensities and locations consistent with the adopted General Plan;
3. a listing of responsible State, Federal or local agencies which have jurisdiction over the development of the site in the manner contemplated by the Concept Plan and a description of the studies to be concluded and the issues to be resolved with such agencies.

Prior to or in conjunction with any subsequent Specific Plan, the applicant shall provide an updated Concept Plan for City consideration. The conceptual plan need not represent a commitment by the owner to any form of development. In no event shall a submitted Concept Plan be deemed an application for any form of development project approval under the City's subdivision or Zoning regulations.

Policy 329.1: Adopt one or more Specific Plans and accompanying environmental impact reports prior to any development of the subarea.

Policy 330: In any Specific Plan which may be prepared for less than the entire Baylands subarea, demonstrate the major circulation, open space and utilities for the remainder of the property."

Figure 3-10
Zoning Map

These Concept Plan scenarios provide four alternative concepts for the future use of the Project Site, including a general description of proposed uses and their locations, density and intensity of proposed development, a listing of agencies with jurisdiction over Project Site development, and a description of studies to be conducted and issues to be resolved with those agencies (see General Plan Policy 329). The identification of agencies with jurisdiction over site development, studies to be prepared, and issues to be resolved will, among other things, address the provision of backbone roadways and other infrastructure to serve planned development of the Project Site.

The Concept Plan for each of the four scenarios is presented below. Summaries of land area types proposed for development (**Table 3-2A**), proposed land use changes under each of the Concept Plan scenarios (**Table 3-2B**), and proposed development by land use under each of the Concept Plan scenarios (**Table 3-2C**) are included below.

TABLE 3-2A
LAND AREA TYPES ON BRISBANE BAYLANDS PROJECT SITE

Component	Developer-Sponsored Plan (DSP) and Variant (DSP-V) (acres)	Community Proposed Plan (CPP) and Variant (CPP-V) (acres)
Project Site Area		
Total Buildable Area[a]	**380.4**	**223.2**
Existing Recology Site	0.0	44.2
Lagoon (including open water and perimeter)	135.6	135.6
Open Space	168.0	330.0
Total Site Area	**684.0**	**733.0**[b]

[a] The "buildable area" includes all planned development and associated area for streets and infrastructure.
[b] The total site area under the CPP and CPP-V includes the existing 44.2-acre Recology site plus adjacent roadway rights of way.

SOURCE: UPC, 2011; Dyett and Bhatia, 2011.

TABLE 3-2B
PROPOSED LAND USE CHANGES FOR BRISBANE BAYLANDS PROJECT SITE

	Developer-Sponsored Plan		Community Proposed Plan	
Component	DSP (square feet)	DSP-V (square feet)	CPP (square feet)	CPP-V (square feet)
Existing Development				
Existing Industrial Park to be Removed	(231,400)	(231,400)	(231,400)	(231,400)
Existing Roundhouse and Lazzari Fuel Company	28,200	28,200	28,200	28,200
Existing Lumberyards to be Relocated	142,500	142,500	142,500	142,500
Existing Recology Use to Remain/(be Removed)	NA	NA	260,000	(174,000)[a]
Total Square Feet of Existing Uses	**402,100**	**402,100**	**662,100**	**662,100**
Total Square Feet of Existing Uses to Remain	**170,700**	**170,700**	**430,700**	**256,700**
Proposed New Development				
Net New Residential Development	5,150,400	5,150,400	0	0

TABLE 3-2B (Continued)
PROPOSED LAND USE CHANGES FOR BRISBANE BAYLANDS PROJECT SITE

Component	Developer-Sponsored Plan		Community Proposed Plan	
	DSP (square feet)	DSP-V (square feet)	CPP (square feet)	CPP-V (square feet)
Proposed New Development (cont.)				
Net New Non-Residential Development	6,945,900	6,899,000	7,742,600	8,072,600
Total Square Feet of New Development	**12,096,300**	**12,049,400**	**7,742,600**	**8,072,600**
Total Square Feet of Development at Buildout[b]	**12,267,000**	**12, 220,100**	**8,173,300**	**8,243,300**

NA = not applicable

[a] Recology's plan for facility redevelopment indicates that "most" (approximately 20) existing structures would be removed.
[b] This total represents the total square feet of new development plus the total square feet of existing uses that would be relocated.

SOURCE: UPC, 2011; Dyett and Bhatia, 2011.

TABLE 3-2C
PROPOSED DEVELOPMENT FOR BRISBANE BAYLANDS PROJECT SITE BUILDABLE AREA

	DSP (square feet)	DSP-V (square feet)	CPP (square feet)	CPP-V (square feet)
Residential	**5,150,400**	**5,150,400**	**0**	**0**
Residential Flats	4,351,800 (3,950 units)	4,351,800 (3,950 units)	-	-
Residential Townhomes	798,600 (484 units)	798,600 (484 units)	-	-
Hotels and Conference	**261,100**	**586,800**	**1,392,300**	**1,046,100**
Hotels and Conference	261,100 (369 rooms)	586,800 (719 rooms)	1,392,300 (1,990 rooms)	1,046,100 (1,500 rooms)
Retail and Mixed Use	**566,300**	**283,400**	**2,209,500**	**2,209,500**
Retail	566,300	283,400	-	-
Commercial/Office/R&D	-	-	2,209,500	2,209,500
Research and Development Single Use	**3,328,300**	**2,599,200**	**2,007,000**	**1,672,200**
Research and Development	3,328,300	2,599,200	2,007,000	1,672,200
Office and Institutional	**2,762,000**	**2,363,100**	**992,700**	**992,700**
Office	2,651,200	2,252,300	-	-
Institutional	110,800	110,800	-	-
Office/ Institutional Mixed	-	-	992,700	992,700
Entertainment/Civic/Cultural	**28,200**	**1,066,500**	**1,074,500**	**1,074,500**
Arena	-	630,100	-	-
Theater/ Exhibition/Performance Venue	-	337,200	274,500	274,500
Multiplex	-	71,000	-	-
Cultural/Entertainment	-	-	611,300	611,300
Civic/ Cultural	28,200	28,200	188,700	188,700
Industrial	**142,500**	**142,500**	**469,100**	**1,220,100**
Existing Relocated Industrial	142,500	142,500	142,500	142,500
New Industrial	-	-	66,600	66,600
Existing Resource and Recovery	-	-	260,000	-
Expanded/Rebuilt Resource and Recovery	-	-	-	1,011,000
Total	**12,238,800**	**12,191,900**	**8,145,100**	**8,215,100**

NOTE: See Table 3-2A for description of "buildable area."

SOURCE: UPC, 2011; Dyett and Bhatia, 2011.

3.5.1 Developer-Sponsored Plan (DSP)

In 2011, UPC submitted a Specific Plan that includes two Concept Plan scenarios offering a vision for Project Site development (see **Appendix C** for a full copy of the draft Specific Plan).[3] The two Concept Plan scenarios set forth in the Specific Plan are referred to in this EIR as the "Developer-Sponsored Plan" (DSP) and the "Developer-Sponsored Plan – Entertainment Variant" (DSP-V). The DSP Concept Plan scenario is described below and the DSP-V Concept Plan scenario is described in Section 3.5.2. Because the DSP and DSP-V are both included in the Specific Plan proposed by UPC, many of the uses, standards, and improvements in those two Concept Plan scenarios are the same or similar. This EIR identifies the provisions of the DSP and DSP-V that differ and does not repeat the same discussion for both scenarios.

The DSP provides for development of 4,434 dwelling units and 6,945,900 square feet of new non-residential uses on 684 acres of the Project Site (see **Figure 3-11**). Also included in the DSP are relocation of 142,500 square feet of existing lumberyards and reuse of the existing Roundhouse and Lazzari Fuel Company buildings. The DSP also proposes that new, higher density development replace the existing 231,400-square-foot Brisbane Bayshore Industrial Park (see **Figure 3-2**). The DSP does not include the existing 44.2-acre area encompassing the Recology site and adjacent road rights-of-way.

Proposed Land Uses

The DSP includes residential, retail, office, campus research and development, public/civic/cultural center, institutional, industrial/warehouse, and open space land uses. To promote transit accessibility, the DSP proposes higher intensity uses in proximity to transit stops. Under the DSP, and as noted in Table 3-1B, the existing lumberyards would be relocated to a site within the Project Site boundary. The remains of the Roundhouse building would be renovated as part of a public use/civic/cultural center, and the Lazzari Fuel Company building would be incorporated into the research and development uses proposed for the area.

Land Use Designations

Land use designations proposed by the DSP are shown in Figure 3-11. The corresponding land use designations listed below delineate the type and range of land uses, minimum and maximum floor area ratios (FARs), and maximum allowable heights. Associated overlay designations delineate additional development standards and uses that may be located within underlying designations as well as specific limitations on site coverage and maximum allowable heights.

[3] The *Draft Brisbane Baylands Specific Plan* proposed by UPC is described in greater detail in Section 3.7 and is also available online at: http://www.ci.brisbane.ca.us/departments/building-and-planning/baylands-specific-plan.

Residential Uses

- **Flats.** This designation is primarily intended for multi-family residential development, such as stacked flats, multi-family apartments, townhomes, and duplexes. Also included within this designation are accessory commercial, office, entertainment, visitor-serving, public/semi-public, and other similar uses primarily in ground floor locations. Two designations of Flats are proposed: High Density (60 to 95 dwelling units per acre) and Medium Density (45 to 70 dwelling units per acre).

- **Townhomes.** This designation is also primarily intended for multi-family residential development, such as stacked flats, multi-family apartments, townhomes, and duplexes. It is distinguished from the Flats land use designation in that single-family attached dwelling units are permitted and that single-family detached dwelling units could also be approved within areas designated Townhomes. Also included within this designation are accessory commercial, office, entertainment, visitor-serving, public/semi-public, and other similar uses in ground floor locations. Two Townhomes designations are proposed: High Density (25 to 35 dwelling units per acre) and Medium Density (20 to 30 dwelling units per acre).

Commercial Uses

- **Retail.** This designation provides for the shopping and general commercial needs of the community and includes a wide range of retail, commercial service, entertainment, visitor-serving, public/semi-public, and other similar uses. This designation also provides for approval of more intensive commercial and entertainment uses, such as home improvement centers, theaters, and hotels, as well as research and development facilities. Two types of retail areas are proposed: (1) one- to two-story single-use retail, and (2) more intensive retail use (two to three stories) at Geneva Avenue adjacent to the transit station area.

- **High-Rise Office.** This designation is intended to provide for office-based employment opportunities in a high-intensity setting (six- to nine-story buildings). Also permitted are a range of retail, commercial service, entertainment, visitor-serving, public/semi-public, and other similar uses, primarily in ground floor locations. Some of the more intensive commercial and entertainment uses, such as exhibition/convention centers, as well as research and development may also be permitted.

- **Mid-Rise Office.** This designation is intended to provide for office-based employment opportunities in a less intensive setting (up to five-story buildings) than High-Rise Office. Also permitted are a range of retail, commercial service, entertainment, visitor-serving, public/semi-public, and other similar uses, primarily in ground floor locations. Some of the more intensive commercial and entertainment uses, such as exhibition/convention centers, as well as research and development may also be permitted.

- **Office R&D-1.** This designation is intended for the development of a mix of office, research and development, and supporting service uses in a high-intensity, transit-oriented setting.

- **Office R&D-2.** This designation is intended for the development of a mix of office, research and development, light industrial, and supporting service uses in a lower intensity, suburban setting.

- **Hotels and Conference.** This designation is intended for the development of visitor-serving uses, including hotels, conference facilities, and similar uses.

- **Ground Floor Retail Below Other Use.** This overlay designation is used to denote locations where retail uses are permitted on the ground floor of lands designated for other uses, such as residential.

Figure 3-11
Developer-Sponsored Plan (DSP) Proposed Land Use Plan and Figure 3-12
Developer-Sponsored Plan-Entertainment Variant (DSP-V)
Proposed Land Use Plan (11x17)

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Industrial Uses

- **Light Industrial.** This designation is intended for the development of light industrial uses involved in production, research and development, warehousing, and wholesaling, as well as limited support uses.
- **Renewable Energy Generation.** This designation is intended for the production of renewable energy resources and compatible recreational uses.
- **Renewable Energy Generation/Open Space Reserve.** This designation is also intended for the production of renewable energy resources and compatible recreational uses, and serves as a buffer area between proposed renewable energy facilities and planned open space areas.
- **Recycled Water Plant.** This designation is intended for the development of a recycled water plant for the Baylands capable of producing recycled water supplies for non-potable irrigation use within the Baylands.

Institutional Uses

- **Institutional.** This designation provides for the range of public, semi-public, governmental, and institutional uses needed to support other uses proposed for the Baylands.

Open Space Uses

- **Open Space.** This designation provides for a range of recreational, educational, and environmental protection uses.

Development Intensity

Proposed uses development intensity for uses proposed under the DSP are shown in **Table 3-3** below (the information in Table 3-3 is also applicable to the DSP-V).

Agencies with Jurisdiction over Site Development, Studies to be Conducted, and Issues to be Resolved

As required by the Brisbane General Plan, a Concept Plan for Baylands development must include "a listing of responsible State, Federal or local agencies which have jurisdiction over the development of the site in the manner contemplated by the Concept Plan and a description of the studies to be concluded and the issues to be resolved with such agencies." The jurisdictions having authority over various aspects of Baylands development and the issues that that need to be resolved with those agencies include the following:

- A Landfill Closure Permit, Landfill Closure Plan, and Post-Closure Maintenance Plan require approval by the State Water Resources Control Board, Bay Area Air Quality Management District (BAAQMD), and CalRecycle/ Environmental Health Division, San Mateo County Health Services Agency. The requisite studies needed for closure of the landfill in a manner that would permit future use of the area as proposed in this Concept Plan have been prepared as part of the Specific Plan. Still to be resolved are specific methods that will be employed to cap and close the landfill and for methane control.
- A Remedial Action Plan and Remedial Design and Implementation Plan for OU-1 and OU-2 require approval by DTSC and RWQCB, respectively. While many of the studies needing to be conducted to support preparation of the Remedial Action Plans and Remedial

TABLE 3-3
PROPOSED DEVELOPMENT INTENSITY (FOR BOTH DSP AND DSP-V)

Land Use	Building Height (feet and/or stories)	Building Density (dwelling units per net acre)	Floor Area Ratio (FAR)[a]
Residential Flats-High Density	45 feet to 70 feet typical range Up to 90 feet at four tower locations along Geneva Avenue and 2nd Street Up to 125 feet at two tower locations along Geneva Avenue between 5th Street and Caltrain right-of-way	60 to 95	2.0 to 4.0
Residential Flats-Medium Density	45 feet to 70 feet typical range	45 to 70	2.0 to 3.5
Townhomes-High Density	2-1/2 to 3-1/2 stories (up to 35 feet)	25 to 35	0.8 to 2.0
Townhomes-Medium Density	2 to 3-1/2 stories (up to 35 feet)	20 to 30	0.7 to 2.0
Single-Use Retail	1 to 2 stories (45 feet)	NA	0.4 to 1.25
Retail	2 to 3 stories (up to 60 feet), at Geneva Avenue adjacent to the transit station area	NA	0.4 to 1.25
High-Rise Office	6 to 9 stories (up to 125 feet)	NA	2.25 to 3.50
Mid-Rise Office	4 to 5 stories (up to 70 feet)	NA	2.0 to 3.0
Hotels and Conference	12 to 16 stories (160 feet)	NA	2.0 to 5.50
Office R&D-1 (TOD)	Up to 5 stories (up to 70 feet), and 6 stories (up to 85 feet) with variance	NA	0.6 to 2.0
Office R&D-2 (Suburban)	1 to 3 stories (25 to 45 feet)	NA	0.6 to 2.0
Multiplex (DSP-V only)	Up to 90 feet	NA	0.4 to 1.25
Theater (DSP-V only)	90 feet in front; up to 125 feet after stepback	NA	1.0 to 3.0
Arena (DSP-V only)	90 feet in front; up to 150 feet after stepback	NA	1.0 to 2.5
Light Industrial (including water recycling facility)	1 story (up to 25 feet)	NA	NA
Industrial-Renewable Energy Generation	NA	NA	NA
Institutional	1 to 3 stories (up to 45 feet)	NA	0.3 to 1.0

[a] The floor area ratio (FAR) is the ratio of the total floor area of buildings at a certain location to the size of the land at that location, or the limit imposed on such a ratio. As a formula: floor area ratio = (total covered area on all floors of all buildings on a certain plot)/(area of the plot). Thus, an FAR of 2.0 would indicate that the total floor area of a building is two times the gross area of the plot on which it is constructed. An FAR of 2.0 is typically found in a multiple-story building.

NA = not applicable

SOURCE: UPC, Draft Brisbane Baylands Specific Plan, 2011.

Design and Implementation Plans have been prepared as part of the Project Site development, the actual plans still require preparation and final approval prior to any ground-disturbing activities within the two Operable Units. Issues to be resolved include the specific remediation methods to be employed on a site-specific basis within the two Operable Units.

- Following certification of this EIR, implementation of the proposed water transfer / supply agreement will require approvals of final Water Supply and Conveyance Agreements between Brisbane and OID, between Brisbane and the Modesto Irrigation District (MID), and Brisbane and SFPUC for individual portions of the proposed water transfer. There are no known issues other than certification of this EIR to address the environmental impacts of the water transfers that will implement the agreements that require resolution.

- Interagency Cooperation Agreements will be needed to coordinate and implement public facilities and infrastructure improvements with various agencies, as follows:
  - City and County of San Francisco.
    - Specific roadway alignments and transit facilities improvements will need to be designed and approved;
    - Design of sewer and water supply infrastructure improvements connecting the Baylands to the SFPUC's sewer system via BSD.
    - Design of water infrastructure improvements connecting the Baylands to the SFPUC supply via the City of Brisbane.
  - BSD. In addition to an onsite recycled water plant, specific recycled water supply improvements will need to be designed and approved.
  - City of Daly City. Specific improvements will need to be designed and approved for the new Bayshore Boulevard/Geneva Avenue intersection.
  - NCFA. Expansion of fire facilities will be necessary to implement the fire service performance standards of the NCFA as set forth in this EIR to provide adequate fire protection to support development of the Baylands. This may require a review of services and fire service demands for the NCFA's overall service area to determine the best method of meeting applicable fire service performance standards.
  - San Francisco County Transportation Authority. Engineering and architectural studies, as well as funding agreements, will be required to define specific transportation corridor alignments and transit facilities improvements.
  - San Mateo County Congestion Management Agency. Engineering and architectural studies will be required to define specific designs for regional transportation facilities and roadway improvements.

- San Francisco Bay Conservation and Development Commission (BCDC) design review and permit approvals will be required for development within the 100-foot shoreline band. The lagoon and Visitacion Creek are both subject to tidal action from San Francisco Bay. Any development that occurs within the 100-foot shoreline band of these features requires BCDC review. Engineering and architectural design studies for any development proposed within this 100-foot shoreline band will be required.

- One or more Streambed Alteration Agreement(s) may be required from the California Department of Fish and Wildlife (CDFW) and Section 404 permit(s) from the United States Army Corps of Engineers (Corps) may be required for activities in or around Visitacion Creek as part of the landfill closure requirements of the RWQCB. Design studies to

determine whether such agreements will be needed and to support permit requests if they are, in fact needed, will be required. Issues to be resolved include the extent to which such permits, if any, will be required, and what conditions may be imposed under such required permits.

- Water quality certification pursuant to the provisions of the National Pollutant Discharge Elimination System (NPDES), along with waste discharge requirement compliance from the RWQCB, will be needed. Final grading plans and specific methods of preventing erosion will be required prior to issuance of such a permit. Receiving waste discharge requirements from the RWQCB will require completion of engineering studies for the recycled water plant proposed within the Baylands.

- To receive applicable air quality permits from the BAAQMD, specific engineering designs for uses/activities requiring such permits must first occur.

- Issuance of an Incidental Take Permit, if necessary, for special-status species from CDFW will require completion of specific engineering designs for site-specific development and infrastructure to determine whether such permits would, in fact, be required.

- State Lands Commission approvals, if necessary. Portions of the proposed Project that occupy filled and unfilled tidelands and submerged lands sold into private ownership by the State Lands Commission, and that remain submerged or subject to tidal action, are subject to a Public Trust easement retained by the state. Any portion of the Project Site development located within the Guadalupe Canal would require a lease from the State Lands Commission. Site-specific engineering designs for development and infrastructure within the Baylands would be required prior to determining whether any State Lands Commission approvals are, in fact, necessary.

- California Public Utilities Commission approval will be required for a railroad grade separation along the proposed Geneva Avenue extension. Specific engineering designs to determine the alignment and grade of the Geneva Avenue extension will be required prior to California Public Utilities Commission approval.

- Encroachment permits will be required if construction occurs in right-of-way owned by the California Department of Transportation (Caltrans District 4) or the Peninsula Corridor Joint Powers Board (Caltrain). Site-specific engineering designs for development and infrastructure within the Baylands would be required prior to determining whether any encroachment permits were, in fact, necessary

- The Bayshore ESD will have jurisdiction over design and construction of Kindergarten through eighth grade school facilities needed to house students from the Baylands. Construction of grade 9-12 school facilities needed to house students from the Baylands will be under the jurisdiction of the JUHSD. Specific siting studies for proposed school facilities within the Project Site will need to be undertaken in relation to site remediation and noise conditions prior to acquiring land for school facilities. Also, should proposed residential development within the Project Site generate a greater number of students than can be housed within school facilities proposed for the Baylands, it will be the responsibility of the Bayshore ESD and/or JUHSD to identify, acquire sites for, and design required school facilities.

3.5.2 DSP – Entertainment Variant (DSP-V)

The DSP-V incorporates an intensified entertainment district into the DSP land use plan and the associated development standards. The proposed type and pattern of land uses, as well as the overall development intensity under the DSP-V are the same as proposed under the DSP, with the

exception that the DSP-V replaces some of the Retail and Office R&D-1 uses proposed under the DSP with entertainment-oriented land use designations ("Theater," "Multiplex," "Arena," "Hotels & Conference") in the northeast portion of the Project Site, north of the proposed Roundhouse Avenue (see Figure 3-12) and increases in hotel use.

The DSP-V Concept Plan scenario provides for 4,434 dwelling units and 6,899,027 square feet of new non-residential development. Like the DSP, the DSP-V scenario include relocation of the existing lumberyards and adaptive reuse of the Roundhouse and Lazzari Fuel Company buildings, as indicated in Table 3-2B. The DSP-V scenario does not include the existing 44.2-acre Recology site or adjacent roadway rights-of-way.

Proposed Land Uses

As noted above, the DSP-V differs from the DSP in that it provides for approximately one million square feet of destination-oriented entertainment uses, including a 630,100-square-foot, 17,000- to 20,000-seat sports arena; a 337,200-square-foot, 5,500-seat concert theater; and a 71,000-square-foot multiplex cinema in the northeastern portion of the Project Site. The DSP-V also includes approximately 325,700 square feet more hotel and conference space than is proposed under the DSP. A corresponding reduction in retail, office, and research and development uses would occur to allow these entertainment-related land uses. All other components of the DSP-V remain the same as those described above for the DSP. Land uses proposed under the DSP-V are summarized in Table 3-2C. All uses shown in Table 3-3 for the DSP also would be allowable under the DSP-V.

Land Use Designations

The DSP-V Concept Plan scenario includes the same land use designations as the DSP scenario, while adding the following designations.

Commercial Uses

- **Arena.** This designation is intended to provide for development of a 630,100-square-foot, 17,000- to 20,000-seat sports arena, along with complementary commercial, public and semi-public, hotel and visitor-serving, and entertainment uses.
- **Theater/Multiplex.** The primary purpose of this land use designation is to provide for development of 337,000-square-foot 5,500-seat concert venue and a 71,000-square-foot multiplex cinema, along with complementary commercial, public and semi-public, hotel and visitor-serving, and entertainment uses.

Development Intensity

Proposed development intensity standards for the entertainment-oriented land use designations proposed under the DSP-V, as shown in Table 3-3, would be as follows:

- **Multiplex:** floor area ratio ranging from 0.4 to 1.25, with a maximum building height of 90 feet and parking below and/or behind the parcel in structured parking;
- **Theater:** floor area ratio ranging from 1.0 to 3.0 with a maximum building height of 90 feet within the front 20 feet of the building and up to 125 feet after the front stepback; and

- **Arena:** floor area ratio ranging from 1.0 to 2.5 with a maximum building height of 90 feet within the front 20 feet of the structure and up to 150 feet after the front stepback.

All other development intensitiesfor the DSP-V are proposed to be the same as for the DSP.

Agencies with Jurisdiction over Site Development, Studies to be Conducted, and Issues to be Resolved

The agencies with jurisdiction over site development, studies to be conducted, and issues to be resolved with those agencies for the DSP-V Concept Plan scenario are the same as those for the DSP scenario.

3.5.3 Community Proposed Plan (CPP)

In July 2009, the Brisbane City Council directed inclusion of the Community Proposed Plan (CPP) in the EIR analysis of Baylands development. The CPP was developed over the course of three years (2007 through 2009) based upon a series of community workshops, input from community groups and city advisory commissions, and ideas from notable professionals provided during a community speaker series. The speaker series covered topics such as sustainable cities, renewable energy, and transit-oriented developments. Through this process, a variety of land use issues were considered before the CPP was selected for study.

The CPP, which is intended to meet the requirements for a Concept Plan as set forth in the Brisbane General Plan, consists of a conceptual land use plan, including proposed uses and associated development standards, as well as discussion of agencies with jurisdiction over site development and issues to be resolved with those agencies. As described below, the CPP also includes an overall circulation and infrastructure plan that would support development of the Baylands (see Section 3.8.2 below). Like any of the proposed Concept Plan scenarios, implementation of the CPP would require preparation and adoption of one or more specific plans, along with amendments to the City's General Plan and Zoning Ordinance, as needed, to ensure the consistency of proposed land uses and development standards with the City's governing policy documents. However, unlike the DSP and DSP-V Concept Plan scenarios for which a Specific Plan has been prepared, only the Concept Plan for the CPP is being proposed at this time. If the CPP Concept Plan scenario were to be selected by the City Council, preparation and approval of one or more specific plans consistent with the selected Concept Plan would be required prior to site development.

As shown in Table 3-1C above, the CPP includes 7,742,600 square feet of new non-residential development. No residential development is proposed in the CPP. The CPP includes the existing 44.2-acre Recology facility. The CPP emphasizes maximizing the quality of public space and concentrating development near transit. Under the CPP, almost all of the land area south of Visitacion Creek would be designated for passive open space and active recreational use (see **Figure 3-13**).

Figure 3-13
Community Proposed Plan (CPP)
Proposed Land Use Plan and Figure 3-14
Community Preferred Plan
Recology Expansion Variant (CPP-V) Proposed Site Plan (11x17)

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Proposed Land Uses

Land uses proposed by the CPP include commercial, office, R&D, hotel/conference center, entertainment/cultural, civic, industrial, institutional, and public open space. Generally, the northwestern part of the Project Site would have the most intense uses, with development intensity decreasing to the east and south, with even less intensity in the southern area from about Visitacion Creek to the lagoon (see Figure 3-13). The relocation of existing lumberyards, adaptive reuse of the Roundhouse and Lazzari Fuel Company buildings, and removal of the existing 231,400-square-foot Brisbane Bayshore Industrial Park would be the same as under the DSP. Table 3-2C presents a summary of the proposed land uses; allowable land uses are described below.

Land Use Designations

Land use designations proposed by the CPP are shown in Figure 3-13. The corresponding descriptions listed below delineate the type and range of land uses, minimum and maximum FARs, and maximum allowable heights. Associated overlay designations delineate additional development standards and allowable uses within underlying designations as well as specific limitations on site coverage and maximum allowable heights.

Land Use Designations

- **Mixed Commercial/Office/R&D.** This designation is intended to encourage, support, and enhance the immediate multimodal transit hub area as a high-intensity employment center. Allowed uses include office, institutional, retail, and hotel developments.
- **Resource Recovery.** This designation is intended for resource recovery and solid waste management activities, including the Recology site.
- **Cultural/Entertainment.** This designation allows a wide range of commercial, cultural, and entertainment uses within an urban, pedestrian-oriented scale. The district is anchored by a "main street" with active uses required along the ground floor. Active uses may include stores, eating and drinking establishments, entertainment venues such as theaters, and cultural institutions like museums or performance spaces.
- **Hotel.** This designation permits hotels, with retail uses permitted as ancillary uses only.
- **Regional Exhibition/Performance Venue.** This designation provides for a regional destination that could include exhibit, convention, and performance spaces, such as concert halls and auditoriums.
- **Office/Institutional.** This designation provides for administrative, financial, business, professional, medical, institutional, and public office spaces. Public service institutions such as police and fire stations would be included under this designation.
- **Research & Development (R&D).** This designation allows for research and development facilities, as well as supporting office spaces. Warehousing and distribution facilities are permitted as ancillary uses only.
- **Industrial.** This designation is intended for a range of industrial uses, such as light manufacturing and the existing lumberyards that would be relocated within the Project Site.

- **Civic/Cultural/Public Facilities.** This designation is intended for civic and cultural uses open to the public, as well as other public facilities. It may include reuse or preservation of historic buildings, as well as venues for public gathering, learning, or performance, such as community centers, educational/ learning centers, or theaters. The proposed recycled water plant also is included under this designation.

- **Public Use Envelope.** This designation represents locations where active and recreational public uses are appropriate. Uses could include commercial recreational facilities, schools, interpretative centers, parks and play areas, and gathering spaces. Three subareas are identified within this envelope:

  - *Group Area*. This sub-district allows open space and revenue-generating picnic and event facilities oriented to the Brisbane residential and employment community.
  - *Charter High School/Community Use Area*. This sub-district allows open space; community-oriented recreation facilities, including gym and soccer fields; adult education in art and sustainable related jobs; and a potential charter high school.
  - *Regional Use/Park Concession Area*. This sub-district allows open space and revenue-generating regional facilities such as bicycle training areas or a golf training facility, along with supporting services and amenities.

- **Parks/Plazas.** This designation allows park and plaza uses within a developed setting, providing open space for employees and visitors and a central focus for businesses and retail/pedestrian-oriented development.

- **Public/Open Space/Open Space Connection/Wetlands.** These designations accommodate natural habitat, wetlands, recreational fields, and open space areas for the general community. Natural habitat and wetlands would have continuous connections through this area. Recreational uses could include bicycle rentals near multiuse trails and kayak rentals near the lagoon area.

Overlay Designations

- **Hotel/Extended Stay Overlay.** This overlay allows hotel uses including short- and extended-stay facilities in addition to uses allowed with the underlying base designation. Minimum and maximum FARs and maximum building height are the same as those in the underlying land use designation on which the overlay is applied.

- **Public Space-Oriented Overlay.** Development within this overlay would be integrated with open space, with connections to adjacent natural and public open space areas. This overlay requires 50 percent of the site area to be public open space. Open space would be connected to provide continuity of natural areas throughout the overlay designation.

Development Intensity

As indicated in **Table 3-4**, which summarizes proposed development intensity for the CPP and CPP-V, building heights would not exceed 160 feet, or approximately 16 stories. FARs would range from 0.1 to 3.5.

TABLE 3-4
COMMUNITY PROPOSED PLAN (CPP) AND VARIANT (CPP-V):
PROPOSED DEVELOPMENT STANDARDS

Proposed Land Use	Minimum FAR[a]	Maximum FAR[a]	Maximum Building Height (feet)
Mixed Use	1.00	3.50	160
Cultural/Entertainment	0.40	2.50	55 [b]
Hotel[c]	1.00	2.50	120
Regional Exhibition/Performance Venue	0.50	1.50	120
Office/Institutional	0.50	1.75	80
Research & Development[d]	0.50	1.75	80
Industrial	-	1.00	35
Civic/Cultural[b]	-	0.75	55
Resource Recovery	-	1.00	105
Parks/Plazas	-	0.10	25
Public/Open Space	-	-	-
Wetlands	-	-	-
Public Use Envelope			
Group Area	-	0.10	25
Charter High School/Community Use Area	-	0.50	55
Regional Use/Park Concession Area[d]	-	0.10	25

[a] The floor area ratio (FAR) is the ratio of the total floor area of buildings on a site to the site area. As a formula: FAR = (total covered area on all floors of all buildings)/(site area). Thus, a four-story building covering half of a site would have an FAR of 2.0.
[b] Cultural/Entertainment land use in the Lagoon Park Concession area is within a Public Space-Oriented Overlay designation; development is restricted to maximum building heights of 25 feet (FAR = 1.0).
[c] Areas within the Hotel/Extended Stay Overlay designation allow hotel uses including short- and extended-stay facilities in addition to uses allowed by the underlying land use designation. Minimum and maximum FARs and maximum building height are the same as those allowed by the underlying land use designation on which the overlay is applied.
[d] Development within Public Space-Oriented Overlay designations would be integrated with open space, with connections to adjacent natural and public open space areas. This overlay requires 50 percent of the site area to be public open space. Open space would be connected to provide continuity of natural areas throughout the overlay designation. Maximum building height within this overlay is 55 feet, with the exception of the Lagoon Park Concession area, where maximum building height is 25 feet.

SOURCE: Dyett & Bhatia, 2011.

Agencies with Jurisdiction over Site Development, Studies to be Conducted, and Issues to be Resolved

The agencies with jurisdiction over site development, studies to be conducted, and issues to be resolved with those agencies for the CPP Concept Plan scenario are similar to those for the DSP scenario, with the exception of studies for preparation of a specific plan, as well as school district jurisdiction and issues, as follows:

- Prior to site development pursuant to the CPP Concept Plan scenario, a specific plan would need to be prepared for review and approval by the City of Brisbane. The specific plan would include engineering and design studies needed to determine the proposed location and size of project infrastructure to serve proposed development. The analysis set forth in this EIR provides essential information needed for such engineering and design studies including traffic analyses needed for engineering of proposed circulation facilities, and analyses of water demand, sewage generation, and energy consumption needed for engineering design of water, sewer, and energy systems for the CPP Concept Plan scenario.

- Design and construction of the proposed grade 9-12 charter school is under the jurisdiction of JUHSD. Prior to acquiring land for the school, specific siting studies for the proposed school facility within the Baylands will need to be undertaken to evaluate site remediation and noise conditions.

3.5.4 CPP – Recology Expansion Variant (CPP-V)

The CPP-V Concept Plan scenario provides for the expansion of the existing Recology facility within the northeast portion of the Project Site, substituting additional Recology facilities for the hotel and R&D uses proposed for that area under the CPP (see **Figure 3-14**). Excepting the area proposed for the Recology expansion, land uses for the remainder of the Project Site are proposed to be the same under the CPP-V scenario as under the CPP scenario. A detailed site plan for the proposed Recology expansion is shown in **Figure 3-15**. As with the other three Concept Plan scenarios, relocation of existing lumberyards, adaptive reuse of the Roundhouse and Lazzari Fuel Company buildings, and removal of the existing 231,400-square-foot Brisbane Bayshore Industrial Park would occur (see **Figure 3-16** below).

Under the CPP-V scenario, total proposed new development would be 8,072,600 square feet. As under the CPP scenario, energy generation components would be incorporated into building design and elsewhere on site as appropriate. Including existing lumberyard uses to be relocated, total square feet of development at buildout would be 8,215,100 square feet.

As with the CPP scenario, no residential development is included in the CPP-V scenario. Also, as with any of the proposed Concept Plan scenarios, implementation of the CPP-V would require preparation and adoption of one or more specific plans, along with amendments to the City's General Plan and Zoning Ordinance to ensure the consistency of proposed land uses and development standards with the City's governing policy documents. However, unlike the DSP and DSP-V scenarios, the CPP-V scenario includes only the Concept Plan at this time. If the CPP-V Concept Plan scenario were to be selected by the City Council, preparation and approval of one or more specific plans consistent with the selected Concept Plan would be required prior to site development.

Permitted Uses

The CPP-V Concept Plan scenario differs from the CPP scenario in that it proposes expansion of the existing 44.2-acre Recology site by 21.3 acres to 65.5 acres, consolidating existing offsite recycling and corporation yard facilities into one location. The total square footage of the developed areas on the expanded Recology site would increase from the existing 260,000 square feet to 1,011,000 square feet. To accommodate the additional acreage devoted to resource recovery purposes, the R&D and Hotel designations proposed under the CPP scenario would be eliminated from the northeastern portion of the Project Site as follows (see Table 3-1C):

- *Research & Development:* Reduction of 334,800 square feet
- *Hotel/Extended Stay:* Reduction of 346,200 square feet (490 rooms)

All other land uses proposed under the CPP-V would be the same as proposed under the CPP.

Figure 3-15
Community Preferred Plan Recology Expansion Variant (CPP-V)

Figure 3-16
Proposed Lumberyard Relocation

Development Intensity

Development intensity applicable to land uses under the CPP-V would be the same as described for the CPP (see Table 3-4), but with the addition of development standards unique to the portion of the Recology site that is within San Francisco. Development within San Francisco would be consistent with the requirements of the San Francisco Planning Code for Light Industrial (M-1) and Heavy Industrial (M-2) uses.

Agencies with Jurisdiction over Site Development, Studies to be Conducted, and Issues to be Resolved

The agencies with jurisdiction over site development, studies to be conducted, and issues to be resolved with those agencies for the CPP-V Concept Plan scenario are similar to those for the CPP scenario, with the exception of the requirement that any changes to the Recology facility within San Francisco will be subject to review and approval by the City and County of San Francisco, and expansion of the Recology operations may require approvals from CalRecycle and/or BAAQMD.

3.5.5 Recology Expansion

The proposed expanded Recology site is located to the west of US Highway 101 at the Candlestick Point exit. It spans from San Francisco on the north, across the San Mateo County line, into Brisbane on the south.

The proposed Recology expansion would also involve a comprehensive redevelopment of the existing facility and is intended to provide updated infrastructure for managing San Francisco's solid waste stream, including zero waste programs. Site redevelopment would involve replacement of most of the buildings currently on the site within San Francisco and Brisbane with new recycling and resource recovery facilities, maintenance facilities, administrative offices, and supporting operations buildings. Plans for reuse of existing leased and owned offsite properties that are currently integrated into Recology's business operations, after the consolidation of operations, have not been determined at this time.

Need for Facility Improvements

Existing Recology facilities are on an approximately 44.2-acre site, about 20.2 acres of which are situated within San Francisco and approximately 24 acres of which are within Brisbane. Existing uses include 41,578 square feet of administrative buildings, 78,168 square feet of operations area, and 113,142 square feet of vehicle and container maintenance facilities. Existing site operations and facilities are described in detail in Section 3.2.3 of this EIR.

Many of the site's existing buildings are more than 50 years old. In addition, buildings on the southern portion of the site were constructed on a landfill and have experienced significant settlement. Utilities at the site have failed repeatedly in recent years due to differential settlement and corrosion. Also, according to Recology, the site is not efficiently configured for either current or future operations as a consequence of it being expanded incrementally over the years rather

than having been comprehensively designed. Due to growing operational needs, space constraints have resulted in Recology moving some operations previously conducted at the site to offsite locations within San Francisco, resulting in trucking inefficiencies, additional traffic, and greater emissions (Recology, 2011).

Recology has also determined that operational changes are needed to address changes that have occurred since operations began at the site, as well as changes in the way that waste materials now need to be managed. In 1989, the State of California mandated that all local jurisdictions divert 50 percent of discarded materials from landfills. Subsequently, the City and County of San Francisco (San Francisco) adopted policies that call for 75-percent diversion of material from landfills by 2010 and zero waste by 2020. In support of these policies, San Francisco passed an ordinance that took effect in October 2009 mandating separation of recyclable materials, organic materials, and other materials by all residents and businesses. The proposed expansion and redevelopment of the Recology site addresses the need for new facilities to process these segregated streams for resource recovery and diversion to markets and to advance San Francisco's objective of zero waste. Thus, the need for Recology's site expansion exists independent of any action that may be taken with regard to any of the components of Project Site development.

Components of Proposed Expansion

Primary operational changes that would occur under the proposed expansion include consolidation of offsite recycling; installation of new processing systems and technologies for municipal solid waste, recycling, and organic waste streams; and consolidation of maintenance facilities. Proposed new facilities are planned to anticipate technological advancement and to accommodate changes over time. Because technologies are rapidly changing, systems and technologies would be finalized closer to the time of building completion. For environmental and efficiency purposes, offsite recycling and corporation yard facilities would be consolidated into the expanded 65.5-acre Recology facility within the Project Site under the CPP-V Concept Plan scenario. Ingress and egress to the site would be redesigned for greater functionality and for integration with adjacent regional transportation improvements.

No significant change is anticipated in the total waste quantities of Recology's San Francisco facilities as those facilities are consolidated onto the Baylands site. Slight increases may occur based on growth in population and employment but may be offset by improved implementation of initiatives such as packaging reduction. At present, this material must be trucked along with other waste between Recology's facilities. By consolidating all operations into one location, Recology would be able to process material more effectively and increase the diversion rate from landfills while reducing the overall number of truck trips.

The major components of the proposed expansion include:

- Recycling Facilities
  - Paper and container recycling (blue cart)
  - Construction-and-demolition waste recycling
  - Public disposal and recycling

  - Reuse area
  - Buy-back recycling

- Organics Processing Facility (green cart)
- Mixed Waste Recycling and Processing (black cart)
- Transfer Station
- Household Hazardous Waste Collection Facility
- Vehicle Maintenance Facility
- Container Maintenance Facility
- Entrance Facility Upgrades (scales, scale-house, roads)
- Environmental Learning Center and Visitor Facilities
- Artist-in-Residence Gallery
- Administrative Offices and Meeting Facilities
- Vehicle Parking
- Renewable Energy Generation (solar, wind, anaerobic digestion)
- Landscaping, Stormwater Best Management Practices, and Demonstration Urban Agriculture

Site Modifications

In order to accommodate Recology's proposed new facilities and operations as described herein, the CPP-V proposes to designate an additional 21.3 acres outside Recology's existing boundaries for Resource Recovery uses. The southerly expansion, as proposed, would result in the alignment of future Geneva Avenue being moved south as compared to the alignment proposed under the DSP. The proposed Recology expansion would also result in the closure of Beatty Road and the realignment of Tunnel Avenue west to abut the Caltrain tracks.

Operations

Primary operations at the expanded Recology site would be essentially the same as the combination of existing Baylands and offsite operations, which include waste management through curbside collection, debris box rentals, hazardous waste collection, special collection of bulky/large items, waste reduction consultation, and other programs to help educate facility managers and the public on how to appropriately handle various materials. As described above, expanded and updated facilities would replace deteriorating structures and utilities and would allow for implementation of updated technologies to assist San Francisco increase its current 80-percent diversion rate to achieve its goal of 100 percent diversion (zero waste) by 2020. Updated and expanded operations facilities would include a paper and container recycling facility, an organics processing facility, and a mixed waste processing facility. These facilities would be configured in a single flexible building that would be approximately 700,000 square feet.

A second new operations building that would be accessible to the public for recycling activities would house the buy-back recycling program, a public disposal and recycling program, and the

majority of the household hazardous waste program. A small new building would be constructed away from the public area to receive and manage certain household hazardous waste materials. The existing buildings that house the construction-and-demolition waste recycling functions and the existing transfer station would remain, with minor reconfigurations to integrate receiving and loading with the other functions.

Maintenance

On the south end of the Recology expansion site, an approximately 180,000-square-foot mixed-use building would contain parking decks for cars and some service vehicles. The lower levels would have access at grade and would provide service and maintenance facilities for vehicles and equipment.

Administration

The administrative offices and meeting facilities would be approximately 100,000 square feet and would include offices, customer service, meeting rooms, and related public education display areas. The office building would include an entry at an elevated position meeting Geneva Avenue as it rises to the west to cross over the Caltrain right-of-way. A meeting auditorium with kitchen facilities is included in this overall square footage.

Education and Outreach

The education and outreach programs would be located in a centrally located 31,000-square-foot building at the top of the existing hill in the northern part of the site. This building would house the Artist in Residence Program and Environmental Learning Center and would act as the reception area for visitors to the facilities.

Construction

Construction would be phased over a total of approximately four years, with the first phase occurring over approximately 12 to 14 months. The expansion would require the use of some heavy equipment for demolition and earth-moving operations. Equipment would include several excavators for demolitions and earth-moving operations, as well as bulldozers to move earth around the site where cut and fill is required. All fill would be obtained from current onsite sources, such that no additional truck trips would be required. All demolition and construction staging and associated parking would occur within the boundaries of the expanded Recology site.

3.6 General Plan Amendments

3.6.1 DSP and DSP-V General Plan Amendments

Implementation of the DSP and DSP-V Concept Plan scenarios would require adoption of amendments to the City of Brisbane 1994 General Plan to allow for the proposed residential development and to ensure consistency of development standards. Amendments to the 1994 General Plan for the DSP and DSP-V Concept Plan scenarios include the following:

- Delete references to the former owner of the UPC property.
- Modify the description of the Trade Commercial land use designation to add the phrase "Within the Baylands, and subject to approval of a Specific Plan, the Trade Commercial Designation may also include residential uses."
- Modify the discussion of maximum buildout for the Baylands to permit the intensity of proposed site development.
- Modify Policy 38.1 (roadway level of service standards) to recognize that current roadway level of service standards (LOS D) will be exceeded due to future development in other cities even if no development within the Project Site occurs, and provide roadway level of service standards that accommodate the level of Project Site development approved for development of the Brisbane Baylands Project Site.
- Revise Policy 81.1 (establishment of educational opportunities consistent with the sensitivity of onsite resources) to clearly require future development within the Project Site to implement educational opportunities consistent with the sensitivity of onsite resources.
- Policy 87 and Policy 95 (parks standards): Should residential development be permitted within the Project Site, either (1) require such development to provide actual park land meeting General Plan standards for the provision of parks, or (2) modify the park standards set forth in the General Plan to reflect the park land ratios required in the Brisbane Municipal Code pursuant to the provisions of the Quimby Act.
- Delete General Plan Policy 330.1, which prohibits housing within the Baylands.
- In General Plan Policy 330, Program 330b, replace the phrase "not to exceed six stories in height" with the phrase "not to exceed 45 feet in height;
- Either (1) amend the General Plan Policy 337 (phasing schedule for Baylands development) to include public services and facilities performance standards and concurrency requirements, or (2) modify the proposed Specific Plan to include an infrastructure phasing program that ties the rate of land development within the Project Site to the availability of needed public services and facilities. (DSP and DSP-V scenarios only)
- Either (1) modify Policy 340.1 (demonstration of feasibility of the Geneva Avenue extension and provision of cost estimates with the first specific plan for the Baylands) to call for demonstration of the engineering feasibility of the extension along with establishment of the infrastructure phasing program or (2) require preparation of preliminary cost estimates for the Geneva Avenue extension to be completed along with a demonstration of the engineering and financial feasibility of the extension as part of the proposed Specific Plan.
- In General Plan Chapter VII (Open Space), replace the table entitled "1994 General Plan Park Standards" to reflect the open space ratios proposed in the Brisbane Baylands Specific Plan.

3.6.2 CPP and CPP-V General Plan Amendments

Implementation of the CPP and CPP-V Concept Plan scenarios would require amendments to the City of Brisbane 1994 General Plan, including the following:

- Delete references to the former owner of the UPC property.
- Modify the discussion of maximum buildout for the Baylands to permit the intensity of proposed site development
- Modify the General Plan Land Use Map to expand the "Beatty Subarea" to reflect the proposed expansion of the existing 44.2-acre Recology facility to 65.5 acres (CPP-V Concept Plan scenario only), and amend the description of the Beatty Subarea to more accurately reflect the intended use of the property for resource recovery purposes.
- Modify Policy 38.1 (roadway level of service standards) to recognize that current roadway level of service standards (LOS D) will be exceeded due to future development in other cities even if no development within the Project Site occurs, and provide roadway level of service standards that accommodate the level of Project Site development approved for development of the Brisbane Baylands Project Site.
- Amend General Plan Policy 337 (phasing schedule for Baylands development) to include public services and facilities performance standards and concurrency requirements.
- Modify Policy 374 (Beatty Subarea Land Use) to accommodate the land uses proposed in the Concept Plan (CPP and CPP-V scenarios only).

3.7 Draft Brisbane Baylands Specific Plan

The General Plan also requires adoption of one or more specific plans prior to development of the Baylands Subarea (see General Plan Policies 329.1 and 330). A specific plan was prepared by UPC and submitted to the City for the proposed development of the DSP and DSP-V Concept Plan scenarios. The *Draft Brisbane Baylands Specific Plan* (Specific Plan) includes a comprehensive plan for the 684-acre portion of the Baylands excluding the existing 44.2-acre Recology site, including goals, policies, and development standards and plans to guide future development actions. The Specific Plan also identifies necessary infrastructure and circulation improvements to accommodate proposed growth and a strategy intended to ensure coordinated implementation (described below in Section 3.8.1). The Specific Plan includes the DSP and DSP-V Concept Plan scenarios and is comprised of the following elements:

- **Sustainability Framework Plan:** describes the overarching approach to sustainability and the elements that have been incorporated into the plan to carry out the Specific Plan's objectives. This framework includes concepts for compact development, transit accessibility, ecology and open space, alternative energy strategies, green building, and other sustainable infrastructure elements.
- **Overall Land Use Concept:** describes the overall land use and development concept for the area, including specific land use goals, policies, and regulations. The overall development program including the types and intensities of land use and the form and

pattern of new development and the community design principles and goals, development standards, and design guidelines for development are also described.

- **Conservation & Open Space:** describes the open space system and its primary components, including the creation and conservation of ecological resources, such as woodlands, meadows, and wetlands, and the incorporation of windrows, groves, and landform elements. Open space also includes urban parks and recreational space. Open space recommendations are linked to elements of other sections, including landscaped areas, stormwater management, and overall energy conservation.
- **Circulation:** describes the proposed circulation network and identifies the components and design standards required for access and movement of pedestrians, bicyclists, transit, and vehicles, including connections to adjacent systems, improvements to existing facilities, and development of new facilities.
- **Utilities and Services:** describes the infrastructure and service improvements proposed to provide sewer, water, storm drainage, emergency response, and other utilities and services to serve development using integrated stormwater management and other sustainable technologies, wherever possible.
- **Implementation:** describes steps that must be taken for implementation, including development approval procedures and capital improvements.
- **Public Facilities Financing:** identifies public improvement costs and potential sources of funding and cost sharing.

The Specific Plan organizes development within the Project Site into the four "districts" described below and shown in **Figure 3-17**.

3.7.1 Specific Plan Land Use Districts

Roundhouse District

The Roundhouse District is located within the northwestern corner of the Project Site and is intended to be the primary residential district. Proposed residential development includes primarily medium-density (45 to 70 dwelling units per net acre [du/nac]) to high-density (60 to 95 du/nac) residential buildings, including stacked flats and high-density townhouses at the periphery. Single-use retail and office R&D uses are also permitted. Proposed retail uses consist of ground floor storefronts within high-density residential buildings. Office R&D uses in this district include a variety of office uses, generally situated along parks and open space areas. Building heights for office R&D uses would be up to six stories (85 feet), with typical setbacks of 30 feet.

High-density stacked flats with ground floor retail are proposed along Geneva Avenue with building heights ranging from a minimum of four stories (45 feet) to a maximum of 12 stories (125 feet) near the transit station area. Units and towers are proposed to be set around courtyards over lower-level parking. Density would range from 60 to 95 du/nac.[4] Medium-density stacked flats with three to six stories (45 feet to 70 feet), including two eight-story (90-foot) towers, are proposed

[4] Dwelling units per net acre do not include roadways and rights-of-way in the calculation.

Figure 3-17
Specific Plan Land Use Districts

along Geneva Avenue with densities ranging from 45 to 70 du/nac. Buildings are proposed to be set around courtyards over lower-level parking. Ground floor retail is also proposed to establish a pedestrian-oriented shopping district. High-density townhomes are also proposed with townhomes up to three stories (35-feet) in height and a density range of 25 to 35 du/nac.

Commercial single-use retail is proposed along Geneva Avenue with building heights of one to two stories, not exceeding 45 feet.

East Geneva District

The East Geneva District encompassing the northeastern portion of the Project Site is intended to be the primary commercial and office district. This district is proposed to contain over half of the Baylands proposed retail areas and all of its proposed high-rise office uses, in addition to a hotel and conference center. The majority of the district would be dedicated to office uses, including high- and mid-rise and office R&D buildings. A central plaza is proposed, including recreational areas and a concert pavilion.

Retail and commercial uses are proposed in the area north of Geneva Avenue, including multiple forms of retail development, from medium- to large-box national retailers to ground floor retail along Geneva Avenue, and would be intended to serve both a local and regional market. Building heights would range from two to three stories (up to 45 feet).

High-rise office development is proposed to form the core of the East Geneva District, with the greatest amount of development intensity and activity proposed at ground level. Buildings are envisioned to support offices on upper stories with retail on the ground floor to anchor a “Retail Main Street” area through the center of the district. One to two levels of subterranean parking are proposed. Building heights are proposed to range from six to nine stories (up to 125 feet), with the tallest structures proposed at Geneva Avenue adjacent to the transit station area and along Geneva Avenue east of the transit station area.

Mid-rise office development is proposed with offices on upper stories and ground floor retail on Geneva Avenue and the proposed Retail Main Street, which would form a transition between the most intense commercial development at the center of the district and the lower-rise office/R&D uses at the southern end of the district. Building heights are proposed to be up to 70 feet with a single-level parking area at ground level beneath the building.

A hotel and conference center is proposed along Sierra Point Parkway (extended) with a maximum building of 16 stories (160 feet).

Icehouse District

The Icehouse District is located within the central and western portions of the Project Site and is proposed as a multiuse district featuring residential, office/commercial, institutional, open space, and renewable energy generation uses. This district is also proposed to include an elementary school and a charter high school. Residential areas are proposed to consist of townhomes

organized around a traditional street grid pattern and would be separated from the existing rail corridor to the east by a six-acre linear array of ground-mounted photovoltaic (PV) renewable energy production fields.

High-density and medium-density townhomes are proposed to be located between Roundhouse Avenue and Icehouse Hill with buildings ranging from two to 3½ stories (up to 35 feet). Building density is proposed to range from 25 to 35 du/nac for high-density units and 20 to 30 du/nac for medium-density units. Parking is intended to be located on the ground floor beneath each unit. Office R&D uses are proposed similar to those in the Roundhouse and East Geneva Districts but would be of a lower intensity and would include surface parking. Building heights are proposed to be two to three stories.

Visitacion Green District

The Visitacion Green District is located in the central and southeastern portions of the Project Site and is further divided in the Specific Plan into a North District and a South District.

North District

The Visitacion Green North District is proposed to be primarily developed with office/R&D uses in "campus-style" structures oriented along the edge of San Francisco Bay. Production and warehouse uses are proposed to front the railroad corridor. Light industrial uses, including the relocated lumberyards and a new water recycling facility, are proposed to be located within this district.

Building heights in this district are proposed to be up to five stories (55 to 70 feet), or six stories (up to 85 feet) with approval of a variance, for office/R&D uses; one to three stories (25 to 45 feet) for secondary R&D uses; and one story with high ceilings (up to 25 feet) for light industrial uses and the water recycling plant administration building.

South District

The Visitacion Green South District is proposed to have the lowest development intensity within the Specific Plan area. More than half the land use within this district is proposed to be parks and open space. Low-rise campus R&D structures are proposed to the east near the Bay, and a small cluster of restaurant/retail uses is proposed to overlook the lagoon and Bay. A 19-acre solar farm with arrays of PV panels is also proposed. Building heights are proposed to range from 25 feet to 45 feet (up to three stories).

3.8 Specific Plan for the CPP and CPP-V Scenarios

Unlike the DSP and DSP-V scenarios, for which a Specific Plan has been proposed, only Concept Plans for the CPP and CPP-V scenarios are proposed at this time. Per the requirements of the Brisbane General Plan, each Concept Plan scenario consists of a conceptual land use plan, as well as a discussion of agencies with jurisdiction over site development and issues to be resolved with

those agencies. As described below, the CPP and CPP-V scenarios also include an overall circulation and infrastructure plan that would support development of the Baylands (see Section 3.8.2). If either the CPP or CPP-V Concept Plan scenario were selected by the City, preparation and approval of one or more specific plans consistent with the selected Concept Plan would be required prior to site development.

3.9 Project Infrastructure

3.9.1 DSP and DSP-V Infrastructure

The infrastructure improvements described below, with the exception of water supply, are included as part of Project Site development and are described in greater detail in **Appendix B**, *Draft Brisbane Baylands Infrastructure Plan*, prepared for UPC by BKF Engineers, Brown and Caldwell, Geosyntec, GrafCon, Millenium Design, and Treadwell & Rollo (BFK, 2011). Impacts related to development of proposed infrastructure improvements are analyzed in the applicable individual resource sections within Chapter 4, *Environmental Settings, Impacts, and Mitigation Measures,* of this EIR.

The following site-wide infrastructure improvements are proposed as part of the DSP and DSP-V, prior to or in concert with development of the Project Site:

- Circulation improvements, including roadway and streetscape improvements, transit connections, pedestrian and bicycle paths, and parking;
- Park and trail improvements and habitat enhancement;
- Installation of domestic water, recycled water (including recycled water facility), sanitary sewage facilities, and storm drainage facilities;
- Installation of a communications network; and
- Installation of solar PV, wind turbines, and electrical and natural gas facilities.

Transportation and Circulation

The Circulation Element of the Specific Plan describes the transportation and circulation network proposed for the DSP and DSP-V scenarios, including the components and design standards proposed for access and movement of pedestrians, bicyclists, transit, and vehicles. It also establishes specific standards and guidelines for Specific Plan area roadways.

Roadways

The Specific Plan proposes that the US Highway 101 continue to provide regional vehicular access from the Candlestick Point interchange at Harney Way/Alana Way and the Sierra Point interchange at Sierra Point Parkway/Lagoon Way. The Specific Plan also proposes that the Project Site be served by three arterial streets: the existing Bayshore Boulevard, the planned Geneva Avenue extension, and a planned Frontage Road.

Implementation of the proposed Specific Plan is intended to rely upon and be coordinated with the phased implementation of several transportation projects identified in the Brisbane General Plan and regional plans including the Bi-County Transportation Study and funded cooperatively by a combination of public and private sources. The improvements within the Specific Plan area identified in these citywide and regional plans include the Geneva Avenue extension, Candlestick Point interchange improvements, and Sierra Point interchange improvements. The Specific Plan proposes payment of fair-share financial contributions to the cost of completing these projects as a means of coordinating their construction with development of the DSP and DSP-V scenarios.

As described in the proposed Specific Plan, the DSP and DSP-V scenarios include construction of a number of new collector and local streets within the Baylands to provide access to proposed development areas and accommodate the increase in vehicle trips generated by proposed development. The following roadway improvements are described in the Specific Plan and included as part of the DSP and DSP-V scenarios:

- **Tunnel Avenue:** Tunnel Avenue is proposed to be rebuilt as a Collector Street within a realigned right-of-way, to terminate at a reconfigured Lagoon Way.
- **Lagoon Way:** Lagoon Way is proposed to be rebuilt as a Collector Street within a realigned right-of-way and is proposed to be extended from the Sierra Point interchange to Bayshore Boulevard and the Tunnel Avenue overpass and roadway.
- **Sierra Point Parkway:** Sierra Point Parkway is proposed to be extended as an Arterial Street between Beatty Avenue and Lagoon Way, north of the present Sierra Point Parkway.
- **Roundhouse Arc Road:** An overpass is proposed to be constructed over Tunnel Avenue and the Caltrain tracks along Roundhouse Arc Road between Roundhouse Circle and Sierra Point Parkway.
- **Creek Parkway:** Creek Parkway (D Street East) is proposed to be constructed as a Collector Street between Sierra Point Parkway and Tunnel Avenue.

The proposed roadway network for the DSP and DSP-V is described in greater detail in the Specific Plan (see Appendix C of the Specific Plan) and in Chapter 4, Section 4.N, *Traffic and Circulation*, of this EIR. **Table 3-5** below provides a summary of the functional classifications for the roadways proposed in the Specific Plan.

Connections to Transit Services

The Specific Plan states that, in the near term, transit services would be available from the existing Caltrain Bayshore Station, which would connect to the Baylands via Tunnel Avenue and Sunnydale Avenue or 5th Street, and to San Francisco Municipal Railway (Muni) and SamTrans buses along Bayshore Boulevard. Under the DSP and DSP-V, the Specific Plan proposes that Geneva Avenue be designed to accommodate long-term planned Muni bus rapid transit (BRT) service, which would provide connection from the Bayview community to the BART Balboa Park Station.

TABLE 3-5
PROPOSED CIRCULATION SYSTEM AND FUNCTIONAL CLASSIFICATIONS

Street	Functional Classification	Extent
Geneva Avenue	Arterial[a]	Extended from Bayshore Boulevard to the US Highway 101 southbound ramps at Beatty Avenue/ Alana Way
Bayshore Boulevard	Arterial	US Highway 101 in San Francisco to US Highway 101 near the Brisbane and South San Francisco border/ Alana
Sierra Point Parkway	Arterial	Beatty Avenue to Lagoon Way
Beatty Avenue	Collector[b]	Tunnel Avenue to US Highway 101
Tunnel Avenue	Collector	Realigned from Beatty Avenue to Lagoon Way; terminated at Lagoon Way
Lagoon Way	Collector	Realigned from US Highway 101 to Tunnel Avenue/Bayshore Boulevard
Creek Parkway (D Street (East))	Collector	Sierra Point Parkway to Tunnel Avenue
Retail Main Street (P Street)	Collector	Tunnel Avenue to Roundhouse Arc Road
Roundhouse Arc Road (J Street)	Collector	Roundhouse Circle to Sierra Point Parkway
Roundhouse Circle	Collector	Around Roundhouse Green
Residential – Promenade (2nd Sreet. East and West)	Collector	Roundhouse Circle to Sunnydale Avenue
Office (8th Street North)	Collector	Beatty Road to Sierra Point Parkway
R& D – Quad (7th Street East and West)	Collector	Roundhouse Arc Road to Creek Parkway
Residential Flats (L-S Streets, 3rd-5th Streets)	Local[c]	Between Bayshore Boulevard & Caltrain tracks
Residential Townhomes	Local	South of Geneva Avenue and west of Caltrain
Office (L and M Streets, 6th-8th Streets)	Local	South of Geneva Avenue, north of Roundhouse Arc Road, east of Tunnel Avenue
R&D Area (E and G, 6th Street)	Local	South of Roundhouse Arc Road, north of Creek Parkway
Alley	NA	Locations to be determined per individual development plans

NA = not applicable

[a] Provides the highest level of service at the greatest speed for the longest uninterrupted distance, with some degree of access control.
[b] Provides a less highly developed level of service at a lower speed for shorter distances by collecting traffic from local roads and connecting them with arterials.
[c] Consists of all roads not defined as arterials or collectors; primarily provides access to land with little or no through movement.

SOURCE: Wallace Roberts & Todd, LLC, 2011.

Buildout of the proposed Specific Plan for the DSP and DSP-V scenarios relies upon the planned extension of the Muni T-Third Street light rail line to connect to the Caltrain Bayshore Station, as well as a planned BRT line along the Geneva Avenue extension to Candlestick Point. Additionally, the Specific Plan relies on a proposed new intermodal transit station, incorporating Caltrain's Bayshore Station, to be located near the intersection of Caltrain tracks and the extended Geneva

Avenue, to directly connect transit services by accommodating more frequent Caltrain services, the proposed BRT on Geneva Avenue, the southern terminus of the Muni T-Third Street light rail, and Muni and SamTrans buses. As with planned regional roadway and intersection improvements that are integral to buildout of the site, the Specific Plan proposes fair-share financial contributions to the cost of these improvements to facilitate their completion.

Pedestrian and Bicycle Paths

The Specific Plan proposes a network of pedestrian and bicycle paths within the Baylands. Pedestrian circulation is proposed to include sidewalks and single- or multi-use paths adjacent to roadways within the Specific Plan area. The Specific Plan also establishes streetscape standards and guidelines for the provision of these facilities. Enhanced pedestrian street crossings are proposed in the Specific Plan to provide traffic calming effects and reduced distances at pedestrians crossing streets by using curb extensions or similar features that allow pedestrians and approaching vehicle drivers to see each other when vehicles parked in a parking lane would otherwise block visibility. The Specific Plan proposes one pedestrian overcrossing over the Caltrain right-of-way and Tunnel Avenue for pedestrians and bicyclists.

Parking and Loading

In addition to the proposed building areas, the Specific Plan proposes construction of surface parking lots, parking podiums (a parking configuration where parking is either at-grade or partially below grade with the building's use above), and stand-alone parking structures. As described in the proposed Specific Plan, and discussed in Chapter 4, Section 4.N, *Traffic and Circulation*, of this EIR, parking requirements and parking management strategies are proposed to be included in Transportation Demand Management plans to be prepared for development proposed pursuant to the Specific Plan.

Open Space and Trails

As shown in Table 3-2A, the Specific Plan reserves approximately 170 acres (roughly 30 percent of its developable area) for open space and public use areas under the DSP and DSP-V scenarios. Additionally, the Specific Plan intends that 5 to 10 percent of the land within private development sites (approximately 16 acres) be dedicated to open areas consisting of planted and paved outdoor spaces, such as plazas, courtyards, and gardens.

Open space areas are proposed by the Specific Plan to include both passive and active areas. Passive recreational areas are proposed along the Visitacion Creek corridor, around Icehouse Hill, and along the edges of Brisbane Lagoon. The primary open space element proposed by the Specific Plan is the Visitacion Creek Park, which would be centered on a new creek channel reconfigured around the existing tidal channel. Upper portions of the creek would provide areas for passive recreational use, while the low-lying portion would be less developed, responding to tidal, flooding, and seasonal fluctuations in hydrology.

The Specific Plan states that the lagoon may offer water-related recreational activities such canoeing and kayaking. The more active use areas proposed by the Specific Plan include parks and cultural features spread across the Specific Plan area and the extension of the San Francisco Bay Trail along the US Highway 101 frontage road. Commercial recreational opportunities, such as bicycle and kayak rental, are proposed to be allowed within the open space network.

The open space areas proposed in the Specific Plan include land reserved for wildlife habitat, public parks, landscaped areas, open areas within development sites, and other passive and active recreational uses. The Specific Plan area is proposed to be traversed by a network of pedestrian/multiuse trails. In the eastern portion of the Specific Plan area, the north-south spine of the trail network is proposed to include construction of a new section of the San Francisco Bay Trail. In the western portion of the Specific Plan area, a new north-south greenway is proposed to connect the northern boundary of the area to the Roundhouse building, over or around Icehouse Hill and farther south into downtown Brisbane.

Utilities

Utilities proposed for the DSP and DSP-V scenarios are described both within the Specific Plan and within the *Draft Brisbane Baylands Infrastructure Plan.* As noted above, the Specific Plan is included as Appendix C of this EIR. The Infrastructure Plan is included as Appendix B of the Specific Plan.

Stormwater Drainage

As described in the Specific Plan, the storm drain concept includes a stormwater management system using a reconfigured Visitacion Creek, expanded wetlands, and bioswales. The system is proposed to be designed in compliance with the City of Brisbane Storm Drainage Master Plan (RBF, 2003), and stormwater treatment would be designed to meet the requirements of the NPDES permit. A detailed analysis of the stormwater system proposed in the Specific Plan is included in Chapter 4, Section 4.H, *Hydrology and Water Quality*, of this EIR.

Wastewater System

The Project Site lies within the BSD, which owns and operates wastewater collection facilities within the Brisbane city limits. To accommodate existing uses and buildout of the DSP and DSP-V scenarios, the Specific Plan proposes that the existing onsite wastewater collection system and associated facilities be completely replaced in phases as development on the site occurs. New facilities constructed as part of the proposed wastewater collection system would be designed to meet applicable standards of the City, the BSD, and Brisbane Baylands Infrastructure Plan design criteria.

An onsite recycled water plant is proposed to be constructed to supply recycled water to Baylands development and discharge sewage in excess of the Baylands recycled water demand to a 78-inch SFPUC sewer line along Sunnydale Avenue. The onsite recycled water plant would be capable of providing an average daily recycled water demand of 0.58 MGD with capacity to handle a

maximum daily demand of 0.68 MGD, providing a tertiary level of treatment in order to supply recycled water for non-potable uses within the Project Site. Prior to the construction of the onsite recycled water plant (up to 15 years of the Project Site's 20-year buildout), sewage generated within the Project Site would flow through a conventional sewer system and discharge directly to the SFPUC sewer system.

There are two proposed designs for the recycled water plant: (1) a mechanical scalping plant or (2) a natural scalping plant which utilizes constructed wetlands as part of the treatment process. The conventional mechanical scalping plant would implement technology such as membrane bioreactors and vortex grit systems as part of the tertiary treatment process. The natural scalping plant would use natural scalping methods and free surface treatment wetlands.

For both alternative designs, effluent in excess of recycled water demands would be sent to San Francisco via a force main to the SFPUC sewer system for treatment by SFPUC. Excess effluent from the recycled water plant could also be used to develop wetlands in the Baylands, either with or without effluent discharge to the improved Visitacion Creek. A non-discharging wetlands condition would be created either by limiting the amount of discharged effluent or by pumping excess (non-consumed) effluent from the downstream end of the wetlands back to the SFPUC system for treatment and disposal. Effluent quality from the on-site recycled water plant generally would be suitable for discharge, but direct discharge to the Bay may be postponed due to potential time delays associated with obtaining a discharge permit from the RWQCB. If direct discharging were to occur, the most likely outfall would be to Visitacion Creek rather than directly to the Bay. The selection of the preferred recycled water plant option will be based on siting, environmental and economic constraints, and completed during the design and permitting process.

A detailed analysis of the wastewater system impacts, including the recycled water plant, is included in Chapter 4, Section 4.O, *Utilities. Service Systems and Water Supply*, of this EIR.

Onsite Water System

The proposed Specific Plan outlines a conceptual water system for the DSP and DSP-V scenarios consisting of 8-inch, 14-inch, and 20-inch diameter water pipelines across the Specific Plan area. A new 20-inch pipeline is proposed to be installed beneath Bayshore Boulevard from Main Street to Lagoon Way, with 8-inch and 14-inch lines installed within the Specific Plan area. The Specific Plan proposes that 14-inch lines be installed beneath Sierra Point Parkway, Lagoon Way, Tunnel Avenue, and undetermined arterial streets within proposed development areas. A permanent connection to an existing 12-inch SFPUC water line is also proposed to be established beneath Tunnel Avenue, just south of Beatty Road. A detailed analysis of impacts related to the proposed water delivery system, including water supply, is included in Chapter 4, Section 4.O, *Utilities, Service Systems and Water Supply*, of this EIR.

Communications

Both AT&T and Comcast Cable currently serve Brisbane. The Specific Plan proposes that telecommunications infrastructure, including telephone, cable, and high-speed fiber optics, be

installed in an underground combined joint trench with electric and natural gas facilities. An analysis of impacts related to communications facilities is included Chapter 4, Section 4.P, *Energy Resources*, of this EIR.

Energy

The Specific Plan proposes that electric power and natural gas for construction and future uses continue to be provided by Pacific Gas and Electric Company. To meet a portion of energy demand though onsite generation, the Specific Plan proposed that 25 acres be dedicated to renewable energy generation, as well as building-integrated and rooftop renewable energy-generating features such as PV panels. Projected energy use and generation are evaluated in detail in Chapter 4, Section 4.P, *Energy Resources*, of this EIR.

3.9.2 CPP and CPP-V Infrastructure

Because the Concept Plans for the CPP and CPP-V scenarios include land use configurations and intensities that are different from those proposed by the Specific Plan for the DSP and DSP-V scenarios, the placement of certain infrastructure, such as local roadways, utility connections, and communications and energy infrastructure, and specific sizes of facilities would be different from those proposed for the DSP and DSP-V scenarios. Specific proposals for development and financing of public facilities and infrastructure would need to be described in detail within a specific plan, and an associated infrastructure plan would be required for implementation of the CPP and CPP-V Concept Plan scenarios.

However, for the purpose of assessing programmatic environmental impacts related to infrastructure development, basic infrastructure improvements would include the following:

- Circulation improvements, including roadway and streetscape improvements, transit connections, pedestrian and bicycle paths, and parking, would be provided. Analysis is provided in this EIR regarding traffic generation and the facilities needed to maintain City roadway level of service standards. The CPP and CPP-V Concept Plan scenarios would rely upon the same regional improvements upon which the DSP and DSP-V Concept Plan scenarios depend. The CPP and CPP-V scenarios would each include a system of transit connections and pedestrian and bicycle paths providing connectivity throughout the Project Site, along with connections to the existing Brisbane community, as shown in Figures 3-13 and 3-14. Parking for uses proposed by the CPP and CPP-V scenarios would be provided in accordance with existing City zoning requirements, unless modified through a subsequent specific plan.
- Park and trail improvements would meet or exceed applicable policies of the Brisbane General Plan as conceptually shown in the CPP and CPP-V and would specifically exceed General Plan requirements that 25 percent of the Project Site be retained as open space/open area. Development of a specific plan for the CPP and CPP-V scenarios would also include habitat protection and enhancement consistent with the provisions of the Brisbane General Plan.
- Domestic water, recycled water (including an onsite recycled water facility as described for the DSP and DSP-V scenarios), sanitary sewage facilities, and storm drainage facilities

would be installed. A domestic water system capable of providing water service to uses within the Project Site analyzed in this EIR would be engineered and provided in accordance with applicable City design standards. A wastewater collection system capable of accepting sewage from uses within the Project Site would be engineered and provided in accordance with applicable City and BSD design standards and would include a proposed recycled water plant similar to what is shown for the DSP.

- Installation of a communications network would occur consistent with the requirements of the utility agencies provided communications services.
- Installation of electrical and natural gas facilities would occur pursuant to the requirements of Pacific Gas and Electric Company.

Planned infrastructure under the CPP and CPP-V would differ from that proposed under the DSP and DSP-V in the alignment of the Geneva Avenue extension, the amount of open space provided, and the placement of renewable energy-generating facilities. Under the CPP and CPP-V scenarios, the alignment of the Geneva Avenue extension would be somewhat farther south than that proposed under the DSP and DSP-V (see Figures 3-11 and 3-12). The CPP and CPP-V scenarios would reserve approximately 330 acres (approximately 45 percent of the Project Site) for open space and public use areas. Like the DSP and DSP-V scenarios, the CPP and CPP-V scenarios include commercial recreation opportunities within the larger open space network, such as bicycle rentals near multiuse trails, kayak rentals near the lagoon area, and the group use area north of Icehouse Hill. The CPP-V Concept Plan scenario also includes onsite infrastructure to serve expansion of Recology facilities.

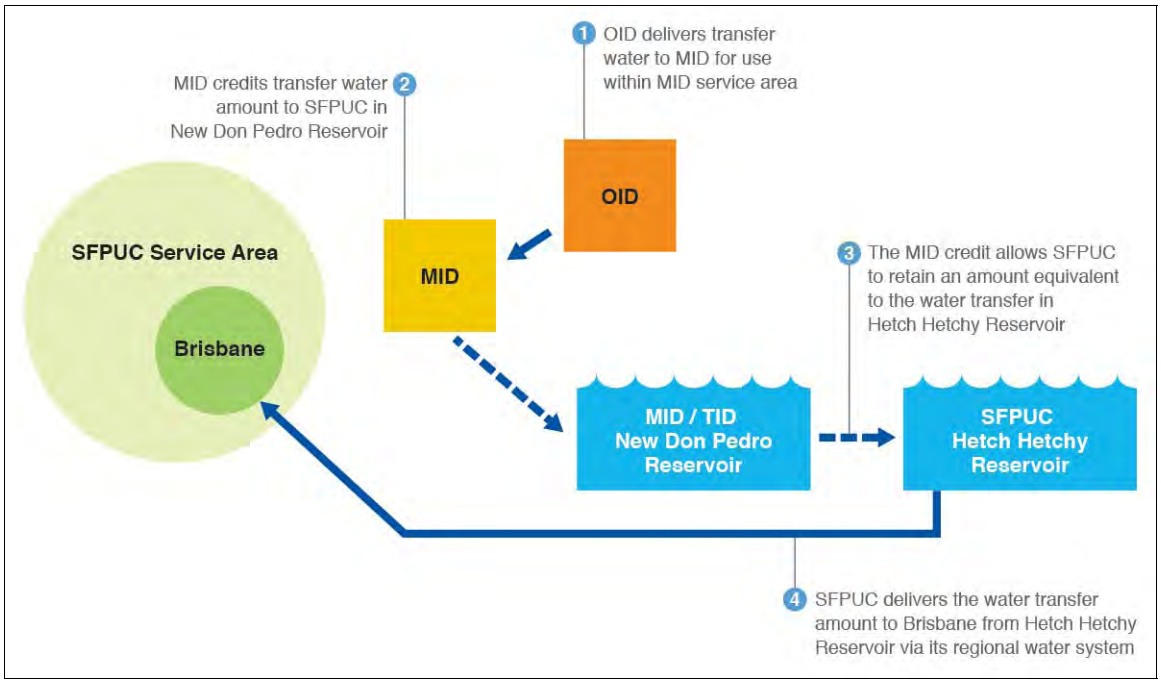
Specific locations for renewable energy facilities were generally not shown on the CPP or CPP-V Concept Plans. Renewable energy generation under the CPP and CPP-V scenarios is anticipated to consist of a combination of small-scale wind and solar facilities installed on rooftops and spaces dedicated to other uses, as well as within stand-alone solar “farms” and wind turbine generation on land dedicated to that use. Recology has stated its intent to provide for renewable energy generation on rooftops, and over parking within their proposed expanded facility, and also to produce biogas in from green waste. While the placement of such facilities may differ between Concept Plan scenarios, it was the intent of the CPP and CPP-V scenarios to generate a similar amount of renewable energy to the DSP and DSP-V scenarios. For purposes of this EIR analysis, it is therefore assumed that the total amount of renewable energy generated under all four scenarios would be the same. Development of renewable energy generation facilities is also included as part of the proposed Recology site expansion.

3.10 Water Supply

Potable water supply for the development of the Project Site under each Concept Plan scenario would come from a proposed water transfer agreement (Agreement) between the City of Brisbane and OID. The proposed Agreement between the City and OID would guarantee the transfer of up to 2,400 AFY, that is not subject to the permitting jurisdiction of the State Water Resources Control Board, for a term of 50 years. A total of 2,000 acre-feet of this amount would be reserved for use within the Project Site, while the remaining 400 acre-feet of supply would be used for buildout of

the City's existing General Plan. The proposed Agreement relies upon existing facilities and does not require the construction of any new facilities. The diagram below shows the general pathway of the water transfer from OID to Brisbane. While the Agreement has been proposed to provide an ensured water supply for the Baylands, the Agreement is being considered as an independent component of the Project Site development and could be approved or not regardless of any action taken by the City to approve, modify, or not approve any of the proposed Concept Plans or the Specific Plan proposed by UPC.

The method of water delivery to Brisbane set forth in the Agreement is illustrated and discussed in more detail below.



OID is located in the northeast portion of the San Joaquin Valley within Stanislaus and San Joaquin Counties. The majority of OID's water supplies come from pre-1914 surface water rights that enable OID to divert up to 257,074 AFY from the Stanislaus River at Goodwin Dam upstream of the city of Oakdale without restrictions. The proposed transfer would be implemented by OID physically delivering up to 2,400 AFY of water into the MID system, via existing facilities (i.e., released from OID's Claribel canal system, generally located near Claribel Road south of the city of Riverbank into MID's South Main Canal). MID would make use of the 2,400 AFY and in turn hold an excess equivalent amount of Tuolumne River water in storage in New Don Pedro Reservoir, in Tuolumne County, northeast of LaGrange. The SFPUC has a water bank account in New Don Pedro Reservoir, from which MID would credit the SFPUC with the annual amount provided by OID to the City, up to the maximum of 2,400 AFY. The SFPUC would, in turn, deliver up to 2,400 AFY from its regional water supply system (Hetch Hetchy system, which generally runs from the Sierra Nevada Mountains in Yosemite National Park

through the Central Valley and South San Francisco Bay to San Francisco) to the City using its existing water supply infrastructure and operational plans.

Brisbane has negotiated a term sheet with OID for the proposed water transfer. Brisbane is responsible for establishing a transfer agreement with MID and a wheeling agreement with the SFPUC to provide for the conveyance of the OID water transfer to Brisbane.

3.11 Remedial Actions

As described previously, portions of the Project Site have been contaminated by prior uses and must undergo environmental cleanup (remediation) prior to new development occurring within the Baylands. These areas include the former Brisbane Landfill site and the former Southern Pacific Bayshore Railyard, which for regulatory purposes is divided into two separate Operable Units: OU-1 and OU-2. While the need for ongoing remediation of the former landfill and railyard areas does not result from Project Site development under any of the proposed Concept Plan scenarios, implementation of future development projects on the Brisbane Baylands is dependent on cleanup of these properties, and land use decisions resulting from Project approvals would heavily influence the specific remedial actions required by the appropriate regulatory agencies.

Following is a description of the likely landfill closure activities and potential remedial actions that would occur prior to implementation of any of the Concept Plan development scenarios analyzed in this EIR. Contamination and remediation issues are discussed in further detail in Chapter 4, Section 4.G, *Hazards and Hazardous Materials*, of this EIR.

3.11.1 Demolition and Deconstruction

Under each of the proposed Concept Plan scenarios, preparation of lands subject to remediation includes the demolition and deconstruction of all buildings other than those to be adapted for long-term reuse, site structures (retaining walls, utility structures), streets and pavements, existing utilities, and landscape elements that are incompatible with the proposed land development program and design. The buildings to be demolished or deconstructed are primarily constructed of wood, masonry, and concrete and were formerly used for administration, railyard maintenance, and industrial operations. To the extent practical, existing structures would be “deconstructed,” allowing for maximum reuse of materials, where feasible.

Demolition/deconstruction would occur in phases in conjunction with projected building construction phases and with required environmental remediation and landfill closure. Phasing of such activities would allow the existing utility services, vehicular access areas, and vegetation to remain in place as long as possible in order to reduce disruption to existing uses within the Baylands.

3.11.2 Closure Activities at the Former Brisbane Landfill

Conditions at the former landfill that would be addressed by proposed remedial activities include landfill gas migration, leachate[5] generation and transport into groundwater and surface water, and settlement of the landfill surface with ongoing consolidation of refuse and underlying geologic materials (Bay Muds).

Regardless of the future land uses ultimately approved within the former landfill site, a set of minimum, presumptive actions, as defined by the regulatory requirements described in Section 20260 of Title 27 of the California Code of Regulations (CCR), must be taken to achieve landfill closure and to minimize or eliminate risk to human health and the environment.

To bring the former Brisbane Landfill into compliance with the appropriate portions of Title 27 and to establish a discharge monitoring program for the landfill, the following closure activities are proposed and would be applicable to all four Concept Plan scenarios:

- Adoption of Closure Waste Discharge Requirements by the RWQCB prior to landfill development;
- Approval of the landfill Final Closure and Postclosure Plans by the regulatory agencies, including the RWQCB, CalRecycle/San Mateo County Department of Health Services, and City of Brisbane;
- Continued monitoring of landfill settlement;
- Operation and maintenance of the existing Leachate Seep Collection and Transmission System, as needed;
- Operation and maintenance of the landfill Gas Collection and Control System, as needed;
- Continued groundwater, surface water, and leachate quality monitoring and evaluation;
- Installation of the final cover system over the entire landfill (or another design as approved by RWQCB and San Mateo County)and implementation of measures to control and monitor migration of landfill gas;
- Installation and monitoring of the landfill gas perimeter monitoring stations;
- Final cover post-closure maintenance, including cover inspection; and
- Land use controls, including deed restrictions that limit site uses, the extent of which will be based on concentrations of contaminants that remain in place, and requirements for soil management plans, non-interference with the soil cap, and annual inspection and reporting of maintenance of land use controls.

In accordance with the Waste Discharge Requirements, location-specific plans would be required to be prepared defining the particular remedial action components or landfill closure elements

[5] Leachate is liquid draining from a landfill that may contain contaminants. Contaminants of concern for the shallow and deep groundwaters at the former Brisbane Landfill include inorganics (ammonia, nitrate, sulfate, total dissolved solids, and total organic carbon); metals; VOCs; semi-volatile organic compounds; and organochlorine pesticides and polychlorinated biphenyls.

that must be put into place to accommodate the proposed development, regardless of the particular development scenario. The location-specific plans would need to address such issues, maintaining the required three-percent minimum grade or other site requirements set forth by the RWQCB (CCR Title 27 regulations) and long-term maintenance of all remedial action components. Landfill closure activities are analyzed in greater detail in Chapter 4, Section 4.G, *Hazards and Hazardous Materials*, of this EIR.

3.11.3 Remedial Actions at OU-1 and OU-2

Potential remedial technologies for OU-1 and OU-2 based on site-specific contaminated media and contaminants are shown in **Table 3-6** below. The identified remedies represent a range of potential technologies for remediating these areas to meet cleanup levels acceptable for proposed future development. The final remedy selection process will be conducted under the jurisdiction of DTSC for OU-1 and RWQCB for OU-2 as part of preparation of Remedial Action Plans that will undergo public review prior to approval.

TABLE 3-6
POTENTIAL REMEDIAL TECHNOLOGIES FOR OPERABLE UNIT 1 (OU-1) AND OPERABLE UNIT 2 (OU-2)

	Remedial Technologies							
Contaminants	Targeted Excavation with Offsite Disposal	Targeted Excavation with Onsite Treatment	Targeted Excavation with Onsite Relocation	Targeted Soil-Vapor Extraction	Capping	Vapor Systems	In Situ Bio-remediation	Monitored Natural Attenuation
VOCs in soil	X	X	X	X	X	X		
Metals in soil	X		X		X			
Residual Bunker C in soil	X	X	X		X	X		
Free Product Bunker C in soil	X	X						
VOCs in groundwater						X	X	X
TPH in groundwater						X	X	X

VOCs = volatile organic compounds
TPH = total petroleum hydrocarbons

SOURCE: Geosyntec Consultants, 2012.

Remedial actions for both OU-1 and OU-2 have been proposed in prior proposed Remedial Action Plans, and some remedial actions have already been implemented. Remedial Action Plans for OU-2 were initially proposed in the Final Revised Remedial Action Plan (B&M, 2002) and revised in the 2004 Interim Remedial Measures work plan (B&M, 2004). However, because specific land uses are now being proposed for development in this area, alternative remedial activities are being considered and will be finalized during the revised Remedial Action Plan for OU-2.

Numerous studies have been conducted and remedial actions have been implemented for the San Francisco portion of OU-1. Groundwater contamination in OU-1 affecting both San Francisco and San Mateo counties is being remediated as a part of the Schlage Lock remedial efforts. However, soil in the San Mateo County portion of OU-1 has not yet been remediated. Prior to any ground-disturbing activities for development within the two Operable Units, an updated Remedial Action Plan will be required to be prepared and approved by DTSC for OU-1 and the RWQCB for OU-2 to outline an approach for remediation that is specific to the land uses ultimately approved by the City.

DTSC and the RWQCB are the designated lead agencies for determination and oversight of soil and groundwater cleanup requirements and permissible types of new development on OU-1 and OU-2, respectively. All remedial activities, whether for soil or groundwater, will continue to be conducted in accordance with applicable laws and regulations, and in conformance with remedial designs and associated work plans approved by DTSC or the RWQCB. Acceptable cleanup levels will be determined by these regulatory agencies based on the land uses ultimately included in the selected Concept Plan and specific plan approved by the City and associated remediation feasibility.

These issues are discussed in further detail in Chapter 4, Section 4.G, *Hazards and Hazardous Materials*, of this EIR.

3.12 Site Preparation and Grading

The following site preparation and grading activities are described in the Draft Infrastructure Plan prepared for the Specific Plan. Because requirements for the preparation of the Baylands for future development would be very similar regardless of which Concept Plan is ultimately selected, the following descriptions apply to all four proposed Concept Plan scenarios. As discussed in the applicable technical discussions included in Chapter 4, *Environmental Setting, Impacts, and Mitigation Measures*, the Infrastructure Plan in which these proposed actions are described has been reviewed independently by the City.

3.12.1 Landfill Area

Proposed grading for the former landfill area is based on the large amount of existing fill in the area and the anticipated settlement of the landfill waste and underlying Bay Mud. The estimated amount of settlement that would need to be accommodated is approximately 18 to 30 inches over a 20-year time period. Larger amounts of settlement may require intensive maintenance and more frequent repairs, as well as re-grading of site improvements. Based on the anticipated settlement ranges for finished grades between elevations 21 to 26 feet above sea level, a conceptual grading plan was completed for the former landfill area.[6] In order to achieve the conceptual proposed finished grades, grading operations would include approximately 4,475,000 cubic yards of cut, inclusive of the 700,000 cubic yards of soil that have been added to site since 2007, and

6 All elevations are based on National Geodetic Vertical Datum of 1929 "NGVD 29" (BKF, 2011).

approximately 3,397,000 cubic yards of fill[7] (BKF, 2011). This would require approximately 3,730,000 cubic yards of export from the former landfill area, primarily to the westerly, former railyard portion of the site. As described below, approximately 2,600,000 cubic yards of soil will be exported to the Railyard area, with the remaining approximately 1,130,000 cubic yards being off-hauled from the site.

3.12.2 Former Railyard Area

Grading for the former railyard area is dictated by required capping of soil/groundwater contamination, the historic structures that are scheduled to remain, extension of the existing drainage channel, and connections to the proposed Geneva Avenue extension over the Caltrain right-of-way. As in the landfill area, the amount of added soil would increase the potential for settlement caused by consolidation of underlying Bay Mud soils. The target amount of settlement to be accommodated by the grading design is approximately 18 to 30 inches over a 20-year period. To achieve the conceptual proposed finished grades for the former railyard area, grading operations would include approximately 54,000 cubic yards of cut and approximately 2,600,000 cubic yards of fill. Transport of fill from the former landfill area to the former railyard area could include the following options:

- Transport via truck on Tunnel Avenue and Bayshore Boulevard (which would require approximately 173,400 truck trips);
- Use of a conveyor belt system over the Caltrain right-of-way (requiring review and approval by Caltrain); or
- A combination of both of the above options.

3.12.3 Geotechnical Site Improvements

Building and infrastructure design would include foundation piles, hinged slabs, and other features to accommodate differential settlement, liquefaction, and other geotechnical issues associated with construction on a former landfill. More specific improvements would be proposed as specific uses and associated development projects are proposed onsite. Geological resource impacts are discussed in detail in Chapter 4, Section 4.E, *Geology, Soils, and Seismicity*, of this EIR.

3.13 Project Objectives

The following subsections identify Project objectives that have been identified by the Lead Agency (the City of Brisbane), as well as those identified by the Specific Plan applicant, UPC, as part of the Specific Plan, and by Recology for the proposed expansion and redevelopment of its existing facility. For the purposes of analyzing the effects of the Project Site development as compared to the alternatives to the Project Site development presented in Chapter 5, *Alternatives*, the City's Project objectives are employed.

[7] The difference between the amount of cut and amount of fill and import soil is accounted for by compaction of soils.

3.13.1 Objectives Identified by the City of Brisbane

Overarching Objectives

The City's overarching objective is to establish a development plan for the Baylands that will be a leading model of sustainable development, which is a source of pride to Brisbane and demonstrates that environmental, social, and economic considerations can be harmonized to the betterment of the natural environment, the Brisbane and regional community, and the individuals who will use the Baylands. Sustainable development is simply defined as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs."

The Project Site development objectives identified below have been organized around three major components of sustainability: environmental protection and enhancement, social equity, and economics.

Environmental Protection and Enhancement Objectives

A. Remediate the Baylands to a level which ensures the safety of all who use the site, and eliminates ongoing ecological damage.

B. Incorporate a "green building" approach for all future development on the Baylands, wherein buildings are sited, designed, constructed and operated to encourage resource conservation, minimize waste and pollution, maximize energy and resource efficiency, and promote healthy indoor environments.

C. Preserve, restore and enhance wetlands and natural habitat on the site and create natural linkages across the site to promote physical and visual connectivity between the San Bruno Mountains and the Bay.

D. Promote and encourage non-vehicular access and movement to and from the site (particularly from Central Brisbane) and within the site as well. Land use mix, good urban design, the provision of safe and pleasant pedestrian and bike paths, and convenient access and linkages to public transit are all necessary components.

E. Strive to achieve energy neutrality or better for the project through a combination of efficiency, conservation, and maximizing on site renewable power generation.

F. Minimize the net consumption of water supplies.

G. Safely and efficiently accommodate project traffic in a manner that does not adversely impact Brisbane or adjacent communities.

H. Incorporate innovative methods to reduce resource consumption and waste generation.

I. Site and design new infrastructure to minimize adverse environmental impacts.

J. Design the project sensitively to protect Brisbane's viewshed, taking into account light spillage and pollution, building height and massing, and placement of landscape features.

K. Maximize solid waste diversion with the goal of achieving zero waste.

Social Equity Objectives

L. Incorporate significant open space and related improvements which provide opportunities for a wide range of passive and active public recreational opportunities benefiting the City and region.

M. Provide employment opportunities for Brisbane residents and residents of nearby local communities, thereby improving the jobs/housing balance at regional and subregional levels.

N. Contribute to critically-needed solutions to regional transit and transportation issues which will benefit both the project and existing communities.

O. Recognize that the project is of regional significance, and provide for the well-being not only of the City of Brisbane, but also of surrounding communities.

P. Provide on-site opportunities for public art and education to contribute to public understanding of the site, including its history, ecology and the project's sustainability mission.

Economic Objectives

Q. Enhance the City's tax base and future ability to improve services within all of Brisbane.

R. Retain and accommodate the expansion of existing businesses within the Baylands that contribute to the City's fiscal health and economic vitality.

S. Establish a project which remains economically viable on a long-term basis, including excellence in architecture which can withstand the test of time.

T. Build in flexibility so the project can adapt to changing market conditions over time, without compromising the other stated project objectives.

U. Provide greater choices for Brisbane residents by providing desired goods, services, entertainment, and/or other amenities not currently available within the City.

3.13.2 Objectives Identified by the Specific Plan Applicant, UPC

In preparing the Specific Plan, UPC (the applicant for the Specific Plan) identified the following general project objectives that apply to the DSP and DSP-V Concept Plan scenarios.

Remediation and Redevelopment

1. The reclamation of former railyards and landfill areas for safe and productive future use through the remediation of pollutants from the site's industrial past.

2. A land use mix and development program, for which the financial return could offset the significant costs associated with landfill closure, site remediation, infrastructure construction and other site improvements necessary for the safe and productive use of the Baylands.

3. A mix of land uses that provides fiscal benefit to the City through the generation of increased tax revenue, and is flexible to accommodate market trends.

Economic Revitalization

1. The generation of substantial numbers of new jobs of a wide range of income levels over the long term, including jobs for local populations.

2. The creation of a hub for new and growing industries, such as clean technology, to the Baylands by providing a critical mass of commercial development opportunities and other incentives to attract both established and new companies.

3. The creation of attractive local and regional retail and entertainment destinations that offer Brisbane residents greater opportunity to shop and recreate within their City.

4. The establishment of an integrated business environment that complements the existing business community within Brisbane.

Ecological Enhancements

1. The creation of a dynamic open space network that incorporates existing wetlands and native habitats, with opportunities for passive and active recreation, urban parks, productive landscapes and visual and ecological connectivity between San Bruno Mountain, Brisbane Lagoon, and the San Francisco Bay.

2. The reconnection to local ecology through restorative efforts and interpretive programs, resulting in improved ecological productivity and understanding.

Sustainable Living

1. The integration of the Baylands with regional transit networks that allow residents and employees to conveniently connect with the greater Bay Area.

2. A circulation network of "complete streets" balancing efficient circulation of pedestrian, bicycle, transit, and personal vehicles with human safety.

3. The creation of mixed-use districts that are walkable, pedestrian-friendly and easily accessible by transit, resulting in a vibrant street environment and lower traffic volumes than with typical development.

4. Include sufficient residential density in proximity to transit and jobs, to create a sustainable community that supports neighborhood-serving retail and encourages use of walking and public transportation to minimize the use and impacts of private automobiles.

5. A comprehensive sustainability program that unites on-site power generation, energy-efficient buildings and infrastructure, water-efficient building and landscaping, and best management practices for stormwater management and waste minimization.

6. The development of distinctive, high-quality neighborhoods that accommodate regional housing demands and contribute to Brisbane's strong sense of place.

7. The inclusion of community facilities that will support and connect existing and future Brisbane residents.

8. Enhance the viewshed of Brisbane through sustainable design and provide opportunities for public art.

3.13.3 Objectives Identified by Recology, Inc.

Recology, Inc. has identified the following two primary objectives for its proposed redevelopment and expansion of the existing Recology solid waste transfer facility, included as part of the CPP-V concept plan scenario:

1. Replace aging and deteriorating infrastructure; and
2. Provide the infrastructure needed to achieve San Francisco's goal of zero waste.

3.14 Phasing and Implementation

The analysis in this EIR assumes that Project Site development, as proposed by any of the four Concept Plan scenarios, is anticipated to occur over a 20-year period.

Remediation of contaminated soil and groundwater within the former landfill area and two Operable Units would be initiated and occur along with some grading of the Project Site during the first phase of development. Post-grading construction of buildings, infrastructure, and open space would occur over the course of Project buildout, depending upon market conditions.

Due to the lack of existing infrastructure throughout the Project Site, a considerable amount of basic backbone infrastructure is required prior to construction of buildings. Such infrastructure would be constructed in phases, with consideration of proximity to existing infrastructure, funding availability, technical requirements, and market timing.

Because existing infrastructure is located primarily along Bayshore Boulevard, the first phase of development would occur on the former railyard portion of the Project Site and would proceed eastward from there. Relocation of the existing lumberyards and expansion of the existing Recology facility (in the CPP-V Concept Plan scenario) could also occur in the first phase of development. The second major phase of development would be triggered by the extension of Geneva Avenue from Bayshore Boulevard to US Highway 101 and reconfiguration of the Candlestick Point interchange. Also affecting the second phase of development would be the completion of the first phase of the Bayshore Intermodal Station.

Available vacant areas within the Project Site would be used for construction staging areas and parking of construction workers' personal vehicles. No offsite construction employee parking or staging areas would be necessary.

As noted above, phasing of demolition and deconstruction activities would allow existing utility services, vehicular access areas, and vegetation to remain in place as long as possible in order to reduce disruption of existing uses.

A more detailed phasing schedule would be included within a Master Deconstruction and Demolition Plan that will be prepared in coordination with the City. This plan would include documentation of hazardous materials determination; demolition or deconstruction recommendations; a list of potentially recyclable materials; potential location of the

asphalt/concrete recycling plant, if required; City-approved haul routes; dust control measures; and a phasing schedule to show which areas of the site would be demolished or deconstructed during each phase of infrastructure construction.

3.15 Use of this EIR

This EIR evaluates at a program level the environmental effects of implementation of the Project Site development components described below and previously presented in Table 3-1.

- A Concept Plan for the development of the Baylands, as required by the Brisbane General Plan prior to development, and for which four development scenarios (DSP, DSP-V, CPP, and CPP-V) are evaluated at an equal level of detail.
- Amendments to the Brisbane General Plan as needed to ensure consistency of the ultimately selected Concept Plan with the provisions of the General Plan.
- A Specific Plan submitted to the City by UPC detailing development for the two "Developer Sponsored Plan" scenarios (DSP and DSP-V).
- Proposed expansion of the existing Recology facility, which is included in the CPP-V Concept Plan scenario only.
- Relocation of existing lumberyards to a different location within the Baylands, which is proposed for each of the Concept Plan scenarios.
- Remediation of hazardous materials contamination within the former railyard and landfill areas of the Project Site, which is proposed for each of the Concept Plan scenarios.
- Importation of water supply to the Baylands and the City, which is proposed for each of the Concept Plan scenarios.

This program EIR is intended to provide an exhaustive consideration of the environmental effects of the Project Site development at a level of detail appropriate for a Concept Plan, the Specific Plan for the DSP and DSP-V Concept Plan scenarios, and associated site preparation and infrastructure development. This includes a comprehensive, program-level analysis of the proposed remedial actions and importation of water supply, as required prior to development of the Project Site. This program-level analysis is intended to consider the impacts of development under each Concept Plan scenario at an equal level of detail, commensurate with the extent of detail available at this time. As such, where greater detail is available for certain Project components, such as the Specific Plan for the DSP and DSP-V scenario and the expansion of the Recology site, a more detailed analysis is provided.

Section 15168 of the CEQA Guidelines defines a program EIR as an EIR that may be prepared on a series of actions that can be characterized as one large project and are related either (1) geographically; (2) as logical parts in the chain of contemplated actions; (3) in connection with issuance of rules, regulations, plans, or other general criteria to govern the conduct of a continuing program; or (4) as individual activities carried out under the same authorizing statutory or regulatory authority and having generally similar environmental effects that can be mitigated in similar ways. Insofar as the components of the Project Site development, as

approved, would include a plan and policy framework that would govern future development within a discrete geographic area within Brisbane (and an adjacent portion of San Francisco and other offsite infrastructure locations), such a program-level approach is considered appropriate. Future projects that would fall within the purview of this program-level analysis would be evaluated in light of the program EIR to determine whether their implementation would require subsequent or supplemental environmental analysis. Additional CEQA compliance for specific projects or components proposed under the selected Concept Plan scenario would be required where site-specific impacts of the development proposal(s) were not addressed at a sufficient level of detail in this program EIR, or in the event subsequent changes are proposed to the selected scenario that were not analyzed in this EIR. This includes those proposed actions over which other agencies have approval authority, such as the proposed remedial actions overseen by the RWQCB, the San Mateo County Health Agency, and DTSC; the water supply transfer by OID, MID and SFPUC; and the Recology expansion requiring permits from San Francisco. The approval of these actions would rely upon the analysis presented in this EIR, provided that the information related to such actions that is analyzed herein is sufficient and remains current.

Overall, the analysis of the Project Site development components identified above is intended to avoid duplicative reconsideration of basic policy considerations and to allow the City of Brisbane as Lead Agency to consider broad policy alternatives and programwide mitigation measures at an early stage when it has greater flexibility to avoid or mitigate environmental impacts. The analysis of Project impacts under CEQA also can promote environmental sustainability by encouraging the incorporation of development standards and strategies into Project design, and by requiring implementation of mitigation measures that not only avoid or minimize significant impacts but also promote the responsible use of environmental resources. Additionally, the EIR analysis will allow for the quantification of various environmental factors that contribute to environmental sustainability, such as greenhouse gas emissions, water usage, energy usage and generation, and solid waste generation, thereby allowing the four Concept Plan scenarios and project alternatives to be compared according to their relative performance in regard to these various sustainability factors.

3.15.1 Required Approvals and Actions

This EIR is intended to provide the information and environmental analysis necessary to assist the City in considering all the approvals and actions necessary for approval of any of the four Concept Plan scenarios. It will also serve as a programmatic environmental document under CEQA supporting subsequent, tiered CEQA environmental documentation for specific projects contemplated by a Concept Plan (CPP and CPP-V scenarios) or Specific Plan (DSP and DSP-V scenarios). After consideration of the EIR's analysis, the City may select, with or without modifications, or not select any one of the four Concept Plan scenarios. Consistent with the CEQA Guidelines, the City also has the authority to modify and approve any of the Project Site development alternatives that are discussed and analyzed in Chapter 5 of this EIR rather than the components of the Project Site development.

The following subsections provide a description of the approvals and subsequent environmental review required to adopt and implement a land use plan for the Brisbane Baylands. As noted

below, preparation, as needed, and adoption of a specific plan is required prior to development of the Baylands. As required by the Brisbane General Plan, a specific plan corresponding to the selected Concept Plan scenario – whether it is the DSP, DSP-V, CPP, or CPP-V, an alternative evaluated in this EIR, or a modification of any of these – would need to be adopted in accordance with the requirements set forth in Government Code Section 65451 for the structure and content of a specific plan. As discussed previously, a Specific Plan has been proposed by UPC for the DSP and DSP-V scenarios; implementation of any other Concept Plan development scenarios or alternatives would require the preparation and approval of a specific plan and further environmental review under CEQA.

The portion of the proposed expansion of the Recology facility that is within San Francisco will require approval by the City and County of San Francisco. As an agency responsible for approving a project where more than one public agency is involved, San Francisco is identified as a Responsible Agency. As noted below, approvals from San Francisco would be required for the construction of buildings associated with the Recology expansion, roadway and transit facilities improvements, and sewer and water supply infrastructure improvements.

Approvals Required from the City of Brisbane

Development of the Project Site will require the following approvals from the City of Brisbane:

- Selection of a Concept Plan for the Brisbane Baylands;
- Adoption of a General Plan amendment, as needed, to ensure consistency between the Concept Plan and the Brisbane General Plan;
- Adoption of a Specific Plan;
- Adoption of amendments to the Zoning Ordinance, as needed, to ensure consistency among the specific plan, General Plan, and Zoning Ordinance and to establish the land use regulations and development standards set forth in the specific plan as the regulatory authority governing future Project Site development;
- Discretionary approvals and grading and building permits for expansion of the Recology facility (CPP-V scenario only); and
- Subsequent required approvals, including development agreement(s), planned development permits, conditional use permits, design permits, subdivision map approvals, and grading and building permits. These subsequent approvals may also require additional CEQA compliance, as noted below.

Permits and Approvals Required from Other Agencies

The Concept Plan development scenarios and proposed Specific Plan for the DSP and DSP-V scenarios described above do not stand alone from a regulatory perspective. Development within the Baylands must comply with other federal, state, and local regulations. The individual resource chapters in this EIR discuss these requirements to the extent that they would shape the way development occurs with the Concept Plan development scenarios.

Future development of the Baylands would require the following approvals from other agencies:

- Landfill Closure Permit, Landfill Closure Plan and Post-Closure Maintenance Plan (State Water Resources Control Board, BAAQMD, and CalRecycle/San Mateo County Department of Environmental Health Services Agency).
- Remedial Action Plan and Remedial Design and Implementation Plan (DTSC and RWQCB).
- Gas Collection and Control System Design Plan (BAAQMD).
- Water Supply and Conveyance Agreements (OID, MID, and SFPUC).
- Water and/or sanitary sewer connection permits (Guadalupe Valley Municipal Improvement District).
- Interagency Cooperation Agreements to coordinate and implement roadway and utility improvements as follows:
    - BSD: utility relocation coordination;
    - City and County of San Francisco: Expansion of the Recology site, roadway and transit facilities improvements, bus route realignments, sewer and water supply infrastructure improvements.
    - City of Daly City: Bayshore Boulevard roadway and Bayshore Boulevard/Geneva Avenue intersection improvements and transit facilities improvements.
    - NCFA: expansion of fire facilities.
    - San Francisco County Transportation Authority: Transportation corridors and transit facilities improvements.
    - San Mateo County Congestion Management Agency: Regional transportation facilities and roadway improvements.
    - San Mateo County Transportation District: bus route realignments and transit facilities improvements.
- BCDC design review approval and permit for development within the 100-foot shoreline band. The lagoon and Visitacion Creek are both subject to tidal action from San Francisco Bay. Any development that occurs within the 100-foot shoreline band of these features requires BCDC review.
- Bay Trail Review (Association of Bay Area Governments).
- Streambed Alteration Agreement (CDFW) and Section 404 permit (Corps) for activities in or around Visitacion Creek as part of the closure requirements of the RWQCB.
- Water quality certification, NPDES permit, and waste discharge requirement compliance (RWQCB).
- Air quality permits (BAAQMD).
- Incidental Take Permit, if necessary, for special-status species (CDFW).
- State Lands Commission approvals, if necessary. Portions of the Project Site development that occupy filled and unfilled tidelands and submerged lands sold into private ownership by the State Lands Commission, and that remain submerged or subject to tidal action, are

subject to a Public Trust easement retained by the state. Any portion of the Project Site development located within the Guadalupe Canal would require a lease from State Lands Commission.

- California Public Utilities Commission approval to modify an existing highway rail crossing or to construct a new crossing.
- Encroachment permits if construction occurs in right-of-way owned by Caltrans or the Peninsula Corridor Joint Powers Board (Caltrain).
- Project Study Report/ Project Report/Plan Specifications and Estimates (Caltrans).
- Regional transportation funding (Metropolitan Transportation Commission).
- City and County of San Francisco discretionary approvals and grading and building permits for expansion of the Recology facility within San Francisco's boundaries (CPP-V scenario only).
- Transportation Demand Management Program (City/County Association of Governments.
- Required approvals for location, design, and construction of Kindergarten through eighth grade school facilities by the Bayshore ESD (DSP and DSP-V scenarios).
- Required approvals for location, design, and construction of grade 9-12 school facilities by the JUHSD.

3.15.2 Subsequent/Additional Environmental Review

This EIR analyzes, on a program level, future development that may occur within the Project Site. Future individual projects and permits requiring discretionary actions, and therefore subject to the provisions of CEQA, will be evaluated to consider whether all environmental effects associated with the specific development proposal have been adequately assessed in this EIR, pursuant to CEQA Guidelines Section 15162, which sets forth the circumstances under which a lead agency must prepare a subsequent environmental document.

3.16 References

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CHAPTER 4
Environmental Setting, Impacts, and Mitigation Measures

This Draft EIR has been prepared in accordance with the California Environmental Quality Act (CEQA), as amended (Public Resources Code § 21000, *et seq.*), and the CEQA Guidelines (Title 14, California Code of Regulations § 15000 *et seq.*). This chapter focuses upon the significant environmental effects of Project Site development, and its various components, which are described in Chapter 3, *Project Description*. The analysis of Project Site development's environmental effects contained in this chapter focuses not only on the changes to existing physical conditions in the affected area caused by proposed Project Site development, but also on any significant environmental effects that Project Site development would cause by bringing development and people into the area (CEQA Guidelines Section 15126.2).

This chapter describes the existing physical environmental setting (also referred to as "baseline") for each environmental topic, and the impacts that would result from Project Site development. As discussed in Chapter 3, *Project Description*, existing federal, state, and local regulations also will shape the way Project Site development occurs; therefore, this chapter provides a discussion of the regulatory setting that is pertinent to each resource area. Finally, this chapter identifies feasible mitigation measures to reduce the impacts of Project Site buildout.

This chapter provides an overview of the scope of the analysis included in this Draft EIR, organization of the sections, and the methodology used for determining whether impacts are significant.

Environmental Topics

The following sections in this chapter analyze the environmental topics as listed below and presented in the Table of Contents at the front of this document:

- 4.A Aesthetics and Visual Resources
- 4.B Air Quality
- 4.C Biological Resources
- 4.D Cultural Resources
- 4.E Geology, Soils, and Seismicity
- 4.F Greenhouse Gas Emissions
- 4.G Hazards and Hazardous Materials
- 4.H Hydrology and Water Quality
- 4.I Land Use and Planning Policy
- 4.J Noise and Vibration
- 4.K Population and Housing
- 4.L Public Services
- 4.M Recreational Resources
- 4.N Traffic and Circulation
- 4.O Utilities, Service Systems, and Water Supply
- 4.P Energy Resources

Under CEQA, EIRs should focus their discussion on significant impacts, and may limit discussion of other impacts to a brief explanation of why the impacts are not significant. The original Notice of Preparation prepared for Baylands development in 2006 determined that impacts in relation to Agricultural and Forestry Resources and Mineral Resources would be less than significant and would not be addressed in the EIR. That conclusion was carried forward in the updated NOPs in 2010 and 2012. As discussed in Chapter 6, *Significant Unavoidable Impacts, Growth Inducement, Cumulative Impacts, and Other CEQA Considerations*, under Section 6.4, *Effects Found Not to Be Significant*, development of the Project Site would have no effect on Agricultural and Forestry Resources since the site is composed primarily of artificial fill placed at the margins of San Francisco Bay, does not contain lands zoned or used for agriculture, does not contain any state-designated farmland, and does not contain or abut forest resources. In relation to Mineral Resources, the Project Site is located in a developed urban area that has no known existing mineral resources. In addition, the Project Site has been classified by the California Department of Mines and Geology as "MRZ-1," an area where adequate information indicates a low likelihood of significant mineral resources. Therefore, CEQA does not require further detailed evaluation of these topics. Consistent with CEQA Guidelines Section 15128, details of the no impact determination for these two topics are briefly discussed in Chapter 6, *Significant Unavoidable Impacts, Growth Inducement, Cumulative Impacts and Other CEQA Considerations*, under Section 6.4, *Effects Found Not to Be Significant*. Determinations of no Project impact also were made for certain significance criteria related to the environmental topics listed above. These determinations and the accompanying analysis are presented as part of the impact assessments within the individual resource sections.

Format of Environmental Topic Sections, Impact Statements, and Mitigation Measures

Each environmental topic section generally includes four main subsections:

- *Introduction*, which outlines what the section will address.
- *Environmental Setting*, which provides a description of existing physical environmental conditions within and in the vicinity of the Project Site. Each environmental topic provides a description of the baseline physical conditions by which the City, as Lead Agency, determines whether an impact is significant.
- *Regulatory Setting*, which describes federal, state, and local regulations that govern certain aspects of Project Site development. The individual resource sections in this EIR discuss these requirements as they pertain to the individual resource topics.
- *Impacts and Mitigation Measures*, which identifies and discusses the impacts of Project Site development and feasible mitigation measures to reduce or eliminate significant impacts. This section also describes the thresholds of significance/significance criteria used and the impact assessment methodology.

This EIR identifies all impacts with an alpha-numeric designation that corresponds to the environmental topic addressed in each section (e.g., "4.G" for Section 4.G *Hazards and*

Hazardous Materials). In the "Impacts and Mitigation Measures" section, the topic designator is followed by a number that indicates the sequence in which the impact title occurs within the section. For example, "Impact 4.G-1" is the first (i.e., "1") hazardous materials impact identified in the EIR. All impact titles are presented in bold text.

The impact classification (discussed below) of Project Site development's effects prior to implementation of mitigation measures is stated in a text box next to the impact statement. The text box identifies the impact classification, before mitigation, for each Project Site development scenario described in Chapter 3, *Project Description* (i.e., DSP, DSP-V, CPP, and CPP-V).

Similarly, each mitigation measure is numbered to correspond with the impact that it addresses. Where multiple mitigation measures address a single impact, each mitigation measure is numbered sequentially. For example "Mitigation Measures 4.G-1a, 4-G-1b, and 4.G-1c" address a single impact (i.e., "Impact 4.G-1"). All mitigation measure statements are presented in bold text.

Thresholds of Significance/Significance Criteria

CEQA Guidelines Section 15382 defines a significant effect on the environment as "*a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance. An economic or social change by itself shall not be considered a significant effect on the environment. A social or economic change related to a physical change may be considered in determining whether the physical change is significant.*"

The "Significance Criteria" subsections provide thresholds of significance by which impacts are judged to be significant in this EIR. These include identifiable quantitative or qualitative standards or sets of criteria pursuant to which the significance of a given environmental effect may be determined. Exceedance of a threshold of significance normally means the effect will be determined to be significant (CEQA Guidelines Section 15064.7(a)). However, an iron-clad definition of significant effect is not always possible because the significance of an activity may vary with the setting (CEQA Guidelines Section 15064(b)). Therefore, a Lead Agency has the discretion to determine whether to classify an impact described in an EIR as "significant," depending on the nature of the area affected. The thresholds of significance used to assess the significant of impacts are based on those provided in Appendix G of the CEQA Guidelines.

Impact Classifications

The following classifications are used throughout the impact analysis in this EIR to describe the level of significance of environmental impacts:

- **No Impact (N)** – No adverse effect on the environment would occur, and mitigation measures are not required.
- **Less than Significant (LTS)** – The impact does not reach or exceed the defined threshold/criterion of significance. Therefore, no mitigation is required.

- **Significant but Mitigable (SM)** – The impact reaches or exceeds the defined threshold/criterion of significance and mitigation is therefore required. Feasible mitigation measures, including standard conditions of approval, when implemented, will reduce the significant impact to a less-than-significant level.
- **Significant and Unavoidable (SU)** – The impact reaches or exceeds the defined threshold/criterion of significance, and mitigation is therefore required. However, application of feasible mitigation measures and standard conditions of approval would not reduce the impact to a less-than-significant level.

Determinations of impact significance after the incorporation of mitigation are made independently for each proposed Concept Plan scenario. Additionally, a text box next to each proposed mitigation measure lists all Concept Plan scenarios and indicates which scenario(s) are subject to the measure.

Environmental Setting/Baseline

The "Environmental Setting" subsections describe current conditions with regard to the environmental resource area reviewed. CEQA Guidelines Section 15125 states that "*An EIR must include a description of the physical environmental conditions in the vicinity of the project, as they exist at the time the notice of preparation is published, or if no notice of preparation is published, at the time the environmental analysis is commenced, from both a local and regional perspective. The environmental setting will normally constitute the baseline physical conditions by which a Lead Agency determines whether an impact is significant. The description of the environmental setting shall be no longer than is necessary to an understanding of the significant effects of the proposed project and its alternatives.*"

The CEQA Guidelines and case law recognize that the date for establishing an environmental baseline cannot be rigid (see CEQA Guidelines Sections 15146, 15151, and 15204). In some instances, information is presented in the environmental setting that differs from the precise time of the Notice of Preparation (NOP). This information is considered representative of baseline conditions. Furthermore, environmental conditions may vary from year to year, and in some cases it is necessary to consider conditions over a range of time periods.

The Notice of Preparation was originally published in 2006. A revised Notice of Preparation was published in 2010 to reflect changes to the draft Baylands Specific Plan as proposed by the applicant and to reflect the inclusion of the CPP and CPP-V for analysis within the EIR. A subsequent NOP was published in 2012 to reflect the addition of the proposed water transfer agreement as described in EIR Section 3.10 as an additional Project component. Except as specified otherwise within the document, any reference to "existing" conditions throughout this EIR refers to the baseline condition as of December 2010. Where technical studies or other baseline information refer to a date other than December 2010, an explanation of the validity of the baseline information in relation to December 2010 baseline conditions is provided.

The baseline conditions relevant to the resource areas being analyzed are described within each resource area section in this chapter. In some cases (such as in Section 4.A, *Aesthetics and Visual Resources*), discussion of baseline conditions is also provided in the impacts analyses to provide context for the impact in the most reader-friendly format and organization.

4.A Aesthetics and Visual Resources

4.A.1 Introduction

This section describes existing aesthetics and visual resources within the Project Site and vicinity. It also analyzes and evaluates the impacts of the Project Site development on aesthetic and visual resources. Feasible mitigation measures are identified as necessary to minimize significant impacts.

4.A.2 Environmental Setting

Definitions Related to Aesthetic and Visual Resources

An aesthetic resource is a combination of numerous elements, such as landforms, vegetation, water features, urban design, and/or architecture, that impart an overall visual impression that is pleasing to, or valued by, its observers. Factors important in describing the aesthetic resources of an area include visual character, scenic resources, and scenic vistas. These factors together not only describe the intrinsic aesthetic appeal of an area, but also communicate the value placed upon a landscape or scene by its observers. These factors are defined as follows:

- *Visual Character* broadly describes the unique combination of aesthetic elements and scenic resources that characterize a particular area. The quality of the Project Site and surrounding area's visual character is qualitatively assessed considering the overall visual impression or attractiveness created by the particular landscape characteristics. In urban settings, these characteristics largely include land use type and density, urban landscaping and design, architecture, topography, and background setting.
- *Scenic Resources* are visually significant hillsides, ridges, water bodies, and buildings that are critical in shaping the visual character and scenic identity of the Project Site, Brisbane, and the surrounding region.
- *Scenic Vistas* are defined as panoramic views of important visual features, as seen from public viewing areas. These views include San Francisco Bay, striking or unusual natural terrain (such as Icehouse Hill), or unique urban or historic features. This definition combines visual quality with information about view exposure to describe the level of interest or concern that viewers may have for the quality of a particular view or visual setting.

Overview of Existing Visual Character

Surrounding Area

Brisbane is in an urban setting located on the eastern shore of the San Francisco Peninsula. The city is surrounded by urban communities dominated by single-family small lot and suburban-style homes to the north and west, San Bruno Mountain State Park to the south, and US Highway 101 and San Francisco Bay to the east with the East Bay Hills beyond. As viewed from US Highway 101, the community lies within a low density "cove" setting between the highly urbanized cities of San Francisco to the north and South San Francisco to the south.

The Central Brisbane neighborhood is located directly west of the southern portion of the Project Site, across Bayshore Boulevard. Central Brisbane consists of both residential and commercial development. It is developed primarily with one- to two-story commercial buildings along Visitacion Avenue and one- to two-story single-family houses throughout. Northeast Ridge, which lies northwest of Central Brisbane and west of Guadalupe Canyon, consists of single-family houses and higher-density residential buildings.

Non-residential uses in the city include one- to two-story industrial buildings in Crocker Park and mid-rise office buildings and hotels at Sierra Point. The visual character of nearby areas in Daly City (west of the Project Site) and San Francisco (north of the Project Site) is defined by commercial buildings along Geneva Avenue and Bayshore Boulevard, and industrial and residential uses north of the San Francisco/San Mateo border.

Project Site

Figure 4.A-1 is an aerial view of the Project Site and surroundings. Views from the viewpoints identified in Figure 4.A-1 are depicted and discussed in **Table 4.A-1**. Consistent with its historic and current uses and shown in Figure 4.A-1, the Project Site is characterized by mostly undeveloped and disturbed land in the eastern and southern portions of the Site, primarily devoted to Brisbane Lagoon and soil processing and stockpiling operations on the former landfill area north of the lagoon. Industrial uses and the former Southern Pacific Railyard occupy much of the western portion of the Project Site. The north end of the site includes lumberyards, the Recology Solid Waste Transfer Facility (Recology), and the Bayshore Caltrain station. The Project Site's visual character is in significant contrast to the open space and natural setting of San Francisco Bay and San Bruno Mountain, as well as the nearby urbanized areas of Brisbane, San Francisco, and Daly City.

The western edge of the Project Site is bordered by Bayshore Boulevard, while US Highway 101 and San Francisco Bay border the Project Site to the east. The Project Site is partially screened from view along US Highway 101 as well as Bayshore Boulevard due to vegetative growth along the highway and the boulevard. However, the northern approach to the Project Site along US Highway 101 does afford a brief but encompassing view of the Project Site, with San Bruno Mountain in the background.

No state "Scenic Highways" are located in the vicinity of the Project Site (see description of the State of California Scenic Highway Program in Subsection 4.A.3, *Regulatory Setting*, below).

The north end of the Project Site is bounded by the Recology facility located within both Brisbane and the City and County of San Francisco. As noted above, the Recology facility is included within the Project Site boundaries. As described in Chapter 3, *Project Description*, however, the facility is only included within the CPP and CPP-V scenarios, and the expansion of Recology is proposed only within the CPP-V scenario. The Recology facility is assumed to remain in its current use in the CPP, DSP, and DSP-V scenarios. The still-active Union Pacific freight and Caltrain commuter rail lines bisect the Project Site along a north-south axis.

Figure 4.A-1
Viewpoint Locations

Vegetation and the wildlife habitat it supports have been, and in some cases continue to be, highly disturbed over the majority of the Project Site. The site is dominated by non-native ruderal and grassland species, with landscaped areas containing non-native trees and shrubs aligning Tunnel Avenue, Lagoon Way, and the Project Site's eastern boundary (see Figure 4.C-1 in Chapter 4.C, *Biological Resources*, of this EIR). Native vegetation types, including coastal scrub and perennial grasslands, are confined to relatively small areas on Icehouse Hill in the western portion of the Project Site, to the tidal and freshwater wetlands along the edges of drainage channels and Brisbane Lagoon, and to seasonal wetlands in the western portion of the site. Visitacion Creek is a drainage channel that bisects the Project Site along an east-west axis and currently provides a limited amount of riparian vegetation and habitat. In addition, the Project Site encompasses the open water/estuarine communities of Brisbane Lagoon, which is tidally connected to San Francisco Bay, which is located just east of US Highway 101.

One of the most prominent visual elements affecting the Project Site is the Kinder Morgan Energy Tank Farm (Kinder Morgan Energy Partners, L.P. fuel storage facility) (see Figure 4.A-2f), which is surrounded by but not part of the Project Site. Kinder Morgan's large light-colored tanks are visually distinct from the surrounding natural features, such as Icehouse Hill and Brisbane Lagoon. The tank farm is partially screened from Central Brisbane and ridgeline residential development by Icehouse Hill; however, it can be seen from many locations within the Project Site.

The patchwork of current uses within the Project Site, in the context of surrounding development and the larger natural setting of the area, creates a visually incongruent visual atmosphere overall. Older industrial buildings, undeveloped and barren parcels, the Recology facility, soil processing operations and related large soil stockpiles, and the abandoned railyard all contribute to an overall visual character that is in contrast to nearby established urban and suburban communities and the area's scenic resources. Although much of this onsite industrial activity is screened from major roadways along the site periphery (as mentioned above), views across and into the Project Site from higher elevations and more distant vantage points capture many of these elements.

Scenic Resources within the Project Site

Existing scenic resources located within the Project Site include Icehouse Hill, Visitacion Creek, Brisbane Lagoon, and the historic Roundhouse building. The Lazzari Charcoal Building, a warehouse building located about 150 feet north of the Roundhouse, lacks the historical associations and physical integrity to convey historical or architectural significance. As such, it is not considered a significant historic resource (see Section 4.D, *Cultural Resources*, of this EIR) and is therefore not considered to a significant scenic resource. Icehouse Hill, located between the railroad tracks and Bayshore Boulevard at the end of Guadalupe Canyon Parkway, is a natural promontory habitat area and scenic overlook (see **Figure 4.A-2a**). Visitacion Creek is a drainage channel that bisects the Project Site and currently provides a limited amount of riparian vegetation and habitat (see **Figure 4.A-2b**). Brisbane Lagoon (see **Figure 4A-2c**), located in the southern portion of the Project Site, was created when US Highway 101 was constructed. The lagoon shoreline is characterized by low grasses, occasional shrubbery, and the riprap embankment supporting the railroad tracks along the eastern edge. Fishing along the lagoon's eastern shoreline and bird watching are some popular recreational activities, enhanced by scenic views of San Bruno Mountain in the background.

Figure 4.A-2a: Icehouse Hill. *Icehouse Hill provides habitat area for local wildlife, as well as a visual barrier between Central Brisbane and the Kinder Morgan Energy Tank Farm.*

Figure 4.A-2b: Visitacion Creek. *Visitacion Creek is the drainage channel passing through the center of the Project Site.*

Figure 4.A-2c: Brisbane Lagoon. *Brisbane Lagoon was created when US Highway 101 was constructed, occupying the area between the southern extent of the landfill and the highway. Today it is a bird habitat as well as a recreational and aesthetic resource.*

The Roundhouse (see **Figure 4.A-2d**), a historic brick railroad roundhouse, is also considered a valuable visual resource to the Brisbane community; extant railroad buildings are shown in **Figure 4.A-2e**. In addition, as shown in **Figure 4.A-2f**, the historic Machinery & Equipment, Inc. building, a former ice manufacturing plant that served the railroad, is located off Bayshore Boulevard south of Icehouse Hill. The Machinery & Equipment, Inc. building is across the railroad tracks from the Kinder Morgan Energy Tank Farm and is surrounded by but not located within the Project Site. This building, like the Roundhouse, is of unreinforced masonry construction. While it could be maintained as a scenic resource if restored, it presents a seismic hazard until upgraded. Details about historic resources on and adjacent to the Project Site, including the Roundhouse and Machinery & Equipment, Inc. building, can be found in Section 4.D, *Cultural Resources*, of this EIR.

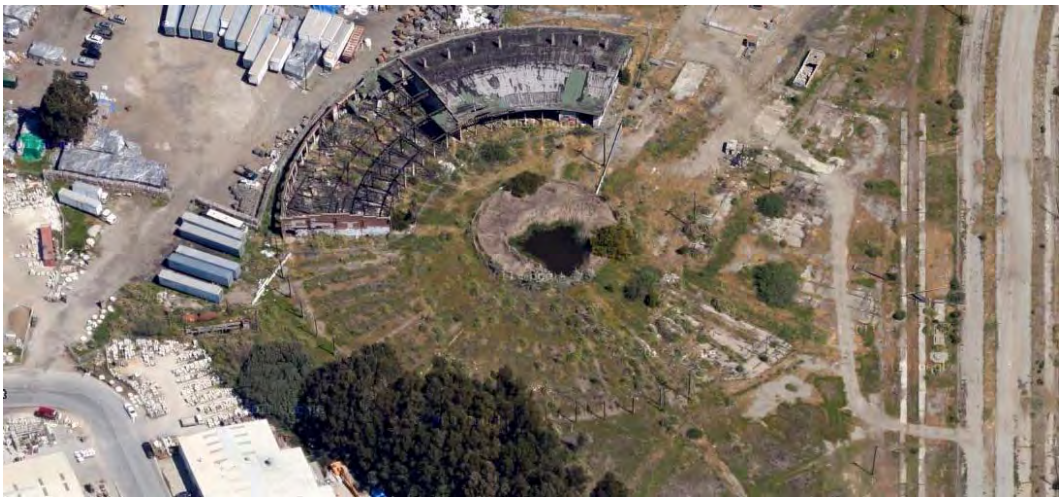


Figure 4.A-2d: Aerial View of the Roundhouse. *The Roundhouse is a historic landmark located east of Bayshore Boulevard.*

Figure 4.A-2e: Extant Historic Railroad Buildings on the Project Site. *Looking northwest (facing away from the Caltrain tracks), the Roundhouse is on the left and the Lazzari Fuel Company building is on the right.*

Figure 4.A-2f: Industrial Structures. *The Project Site surrounds the Kinder Morgan Energy Tank Farm (round tanks) and the Machinery & Equipment, Inc. building (brick building in front of tanks; former ice manufacturing plant). These structures are not a part of the Project Site.*

Scenic Vistas

Scenic vistas represent public viewing opportunities that provide visual access to scenic resources, including views of the Bay, striking or unusual natural terrain, or unique urban or historic features. For purposes of this analysis, a scenic vista includes two components. The first relates to defining what constitutes the "scenic resource" being viewed. Onsite scenic resources are described in the previous subsection. However, there are also a number of "scenic resources" that are offsite but can be viewed either from the Project Site or across the Project Site from offsite locations. These offsite scenic resources include San Francisco Bay, Bayview Park, Candlestick Point, John McLaren Park, San Bruno Mountain, the East Bay hills, and high-rise buildings of the San Francisco financial district. The second component of a scenic vista is the public viewing opportunity, whether onsite or offsite. If a site from which a scenic resource is viewed does not provide a public viewing opportunity it is not considered a scenic vista for purposes of this analysis.

Viewpoints and existing views of the Project Site are identified in Figure 4.A-1 and in Table 4.A-1. Additional views from within the Project Site, which assist in describing the visual character of the Project Site and are included for informational purposes only, are provided in Figures 4.A-3a-3d.

Views from the Project Site

At some higher locations within the Project Site, important visual features can be seen in every direction. These visual features include San Francisco Bay and the East Bay hills to the east (see **Figure 4.A-3a**); John McLaren Park, the San Francisco financial district, and Candlestick Point State Recreation Area to the north (see **Figure 4.A-3b**); and San Bruno Mountain and Central Brisbane to the southwest (see **Figure 4.A-3c**). Views southward across the lagoon from Lagoon Road provide visual access to Sierra Point, Oyster Point, and San Bruno Mountain (see **Figure 4.A-3d**). Visibility of US Highway 101 is limited due to the Project Site's topography and landscaping along the freeway edge. Figure 4.A-3b from Icehouse Hill[1] and Figure 4.A-3d from Lagoon Road also depict views from publicly accessible locations and are therefore defined as scenic vistas.

Views Into and Across the Project Site from Surrounding Areas

As shown in Table 4.A-1, virtually the entire Project Site is visible from surrounding areas. Areas of San Francisco and/or Daly City that offer views of the Project Site include the Sunnydale neighborhood, John McLaren Park, Visitacion Valley, commercial areas along Geneva Avenue, and the Candlestick Point State Recreation Area. Other areas of Brisbane with views of the Project Site include the Northeast Ridge residential neighborhood west of Guadalupe Canyon Parkway, Central Brisbane, and the Bay Trail at Sierra Point. As previously described, the Project Site is partially screened from view along US Highway 101 as well as from Bayshore Boulevard due to vegetative growth along the highway and the boulevard, and the northern approach to the Project Site along US Highway 101 does afford a brief but encompassing view of the Project Site.

[1] While Icehouse Hill is not currently accessible to the general public, and is therefore not considered to be a public viewing area in the baseline case, the proposed development of trails on the hill would provide for public access.

***Figure 4.A-3a: View from Visitacion Creek**, Looking East toward the East Bay Hills*

***Figure 4.A-3b: View from Icehouse Hill**, Looking North toward John McLaren Park, San Francisco, and Candlestick Point*

***Figure 4.A-3c: View from Visitacion Creek**, Looking Southwest toward San Bruno Mountain*

***Figure 4.A-3d: View from Lagoon Road**, Looking South toward Oyster Point*

Important visual features that can be seen across the Project Site from these surrounding areas include San Francisco Bay, Bayview Park, Candlestick Point, John McLaren Park, San Bruno Mountain, the East Bay hills, and high-rise buildings of the San Francisco financial district. While Table 4.A-1 shows numerous viewpoints from publicly accessible locations, not all viewpoints provide significant visual access to important visual features. As such, Viewpoints 4 and 9 are not considered scenic vistas, but are included for informational purposes and to support the analysis of Project Site visual character changes.

Existing Light and Glare

The Project Site, lacking substantial development, generates only minimal glare and nighttime light. Night lighting is limited to the areas around the existing industrial uses in the northern and southwestern portions of the Project Site. This allows for substantial nighttime visibility, including views of the city lights of the East Bay, as seen from residences at higher elevations of the Brisbane hills. The existing lack of nighttime lighting within the Project Site also allows views of the lights of San Francisco in the distance from vantage points to the south. Nighttime views of the Bay are available from higher-elevation neighborhoods in the southern portion of San Francisco due, in part, to the darkness at the Project Site. However, nighttime views from these neighborhoods are affected by existing residential and street lighting and existing reflected light emanating from Daly City, San Francisco, and US Highway 101.

The Project Site currently contains mainly soil cover and vegetation and, as a result, generates little daytime glare relative to neighboring urbanized areas.

4.A.3 Regulatory Setting

Development within the Project Site must comply with federal, state, and local regulations. The requirements listed below will affect the way development may occur with the Project Site development in regard to aesthetics.

State Regulations

State Scenic Highway Program

In 1963, the California legislature established the state's Scenic Highway Program, intended to preserve and protect scenic highway corridors from changes that would diminish the aesthetic value of lands adjacent to highways. The Scenic Highway Program, a provision of the Streets and Highways Code, is administered by the California Department of Transportation (Caltrans). The Scenic Highway Program includes highways that are either eligible for designation as scenic highways or have been designated as such. As noted above, no state Scenic Highways are located in the vicinity of the Project Site.

San Francisco Bay Plan

A portion of the Project Site is within a 100-foot shoreline band that surrounds San Francisco Bay and is under the jurisdiction of the San Francisco Bay Conservation and Development Commission

(BCDC), a state agency. BCDC is the federally designated state coastal management agency for the San Francisco Bay segment of the California Coastal Zone. BCDC's purpose is to protect and enhance San Francisco Bay for public and environmental benefit and to encourage responsible use. BCDC ensures that development within the shoreline band is consistent with the *San Francisco Bay Plan*, which contains policies and findings that guide appearance, design, and scenic views of future development around the Bay and encourage new shoreline development to provide public access to the Bay to the maximum extent feasible. Applicable Bay Plan policies include the following:

- All bayfront development should be designed to enhance the pleasure of the user or viewer of the Bay. Maximum efforts should be made to provide, enhance, or preserve views of the Bay and shoreline, especially from public areas, from the Bay itself, and from the opposite shore. To this end, planning of waterfront development should include participation by professionals who are knowledgeable of the Commission's concerns, such as landscape architects, urban designers, or architects, working in conjunction with engineers and professionals in other fields.

- Structures and facilities that do not take advantage of or visually complement the Bay should be located and designed so as not to impact visually on the Bay and shoreline. In particular, parking areas should be located away from the shoreline. However, some small parking areas for fishing access and Bay viewing may be allowed in exposed locations.

- In order to achieve a high level of design quality, the Commission's Design Review Board, composed of design and planning professionals, should review, evaluate, and advise the Commission on the proposed design of developments that affect the appearance of the Bay in accordance with the Bay Plan findings and policies on Public Access; on Appearance, Design, and Scenic Views; and the Public Access Design Guidelines. City, county, regional, state, and federal agencies should be guided in their evaluation of bayfront projects by the above guidelines.

- Views of the Bay from vista points and from roads should be maintained by appropriate arrangements and heights of all developments and landscaping between the view areas and the water. In this regard, particular attention should be given to all waterfront locations, areas below vista points, and areas along roads that provide good views of the Bay for travelers, particularly areas below roads coming over ridges and providing a "first view" of the Bay (shown in Bay Plan Map No. 8, Natural Resources of the Bay).

Local Regulations

The Project Site is primarily located within the Brisbane city limits and is thus subject to the City of Brisbane's planning, zoning, and subdivision controls, as well as other ordinances.

Brisbane General Plan

The Brisbane General Plan calls for a specific plan to be developed for the Project Site. The specific plan must be fully consistent with the goals and objectives of the General Plan. General Plan policies and programs that specifically pertain to aesthetic and visual resources include the following:

Chapter V: Land Use

Policy 15: Adopt development standards which protect and enhance the quality of life in Brisbane.

Program 15a: When drafting development standards, consider preserving a sense of openness in the design of structures and sites and the access to sky and sunlight for both new construction and renovation projects.

Program 330b: Specific Plans shall address the heights of buildings and building groups to achieve the following:

a. diversity of height within the subarea;

b. creative excellence in architectural and site design;

c. visual acceptability when seen from above;

d. a complementary relationship to the overall topography, especially the Lagoon, San Bruno Mountain and the Bay, and the entrance to Central Brisbane;

e. open space and open areas.

Development south of the Bayshore Basin drainage channel shall maintain a low profile permitting low or mid rise buildings, not to exceed six stories in height, in order to preserve the existing views of San Francisco and San Francisco Bay as seen from Central Brisbane, and to maximize the amount of landscape and open space or open area in this portion of the subarea.

The following design approaches shall not be included in any specific plan or development proposal:

Buildings or building groups that block view corridors to the Bay, or appear as "fortresses" or "walls" lining the Bayfront, the Lagoon or any arterial street.

Section XII.12 of the Brisbane General Plan provides the following policies applicable to the Project Site:

Chapter XII: Policies and Programs by Subarea

Policy 333: Establish a safety buffer around and provide for visual screening of the Tank Farm.

Policy 335: Give aesthetic consideration to views of San Bruno Mountain, the Bay and the Baylands development itself from Central Brisbane as well as views from the Baylands in the design of any development.

Policy 339: Develop design guidelines as a part of every Specific Plan for the subarea. In the design guidelines, incorporate standards for roofs, emphasizing color, materials and screening, so as to consider views from above.

Policy 348: Enhance the natural landform and biotic values of Icehouse Hill and preserve its ability to visually screen the Tank Farm.

Brisbane Municipal Code

Chapter 17.42 of the Brisbane Municipal Code requires a design permit to be obtained "for the construction of any new principal structure…" Prior to the issuance of a design permit, the Planning Commission must make the following findings:

A. The proposal's scale, form and proportion, are harmonious, and the materials and colors used complement the project.

B. The orientation and location of buildings, structures, open spaces and other features integrate well with each other and maintain a compatible relationship to adjacent development.

C. Proposed buildings and structures are designed and located to mitigate potential impacts to adjacent land uses.

D. The project design takes advantage of natural heating and cooling opportunities through building placement, landscaping and building design to the extent practicable, given site constraints, to promote sustainable development and to address long term affordability.

E. For hillside development, the proposal respects the topography of the site and is designed to minimize its visual impact. Significant public views of San Francisco Bay, the Brisbane Lagoon and San Bruno Mountain State and County Park are preserved.

F. The site plan minimizes the effects of traffic on abutting streets through careful layout of the site with respect to location, dimensions of vehicular and pedestrian entrances and exit drives, and through the provision of adequate off-street parking. There is an adequate circulation pattern within the boundaries of the development. Parking facilities are adequately surfaced, landscaped and lit.

G. The proposal encourages alternatives to travel by automobile where appropriate, through the provision of facilities for pedestrians and bicycles, public transit stops and access to other means of transportation.

H. The site provides open areas and landscaping to complement the buildings and structures. Landscaping is also used to separate and screen service and storage areas, break up expanses of paved area and define areas for usability and privacy. Landscaping is generally water conserving and is appropriate to the location. Attention is given to habitat protection and wildland fire hazard as appropriate.

I. The proposal takes reasonable measures to protect against external and internal noise.

J. Consideration has been given to avoiding off-site glare from lighting and reflective building materials.

K. Attention is given to the screening of utility structures, mechanical equipment, trash containers and rooftop equipment.

L. Signage is appropriate in location, scale, type and color, and is effective in enhancing the design concept of the site.

M. Provisions have been made to meet the needs of employees for outdoor space.

In addition, Chapter 15.70 of the Brisbane Municipal Code requires the preparation of a Landscape and Irrigation Design Plan (including a maintenance schedule) be prepared for the Project Site development.

4.A.4 Impacts and Mitigation Measures

Significance Criteria

Criteria outlined in the CEQA Guidelines were used as thresholds in evaluating the significance of identified impacts on aesthetic and visual resources. Appendix G of the CEQA Guidelines indicates that a project would have a significant effect on the environment if it would:

- Have a substantial adverse effect on a scenic vista;
- Substantially damage scenic resources, including but not limited to, trees, rock outcroppings, hillsides, and historic buildings within a state scenic highway;
- Substantially degrade the existing visual character or quality of the site and its surroundings; or
- Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

Impact Assessment Methodology

Aesthetics and visual resources are subjective by nature, and therefore the level of visual impact associated with each Project development scenario is difficult to quantify. For this reason, the visual resources analysis for each development scenario was conducted qualitatively, assessing the aesthetic effects of each scenario, as described below under each criterion.

Project Impacts and Mitigation Measures

Impact 4.A-1: Would the Project have a substantial adverse effect on a scenic vista?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
SM	SM	SM	SM

SU = Significant Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = no impact

Impacts on Scenic Vistas – Assessment Methodology

Establishing the Viewpoints

The analysis of changes to public views of scenic resources is accompanied by a series of photographs and visual simulations for 12 representative public viewpoints from within and surrounding the Project Site (see Figure 4.A-1 and Table 4.A-1). The selected representative viewpoints consist of five viewpoints from Brisbane outside the Project Site (Viewpoints 7, 9, 10, 11, and 12), five viewpoints from San Francisco (Viewpoints 1, 2, 3, 5, and 6), one viewpoint from Daly City (Viewpoint 4), and one viewpoint from within the Project Site (Viewpoint 8). Although Viewpoints 4 and 9 do not provide significant visual access to important visual features and therefore are not classified as scenic vistas, they are included for informational purposes and to support the analysis of Project Site visual character changes. Overall, these viewpoints represent a reasonable range of public viewpoints and include specific views identified in comments received as part of the scoping process for the EIR. As such, the photographs and visual simulations for these viewpoints provide a reasonable basis for evaluating the effects of the Project Site development on scenic vistas.

Building the 3-D Conceptual Models

To evaluate the impacts of the Project Site development scenarios on existing scenic vistas, geo-referenced site photographs from the viewpoints described above were taken with a 35-millimeter (mm) lens at 50-mm focal length. A digital three-dimensional model of the Project Site and surrounding area was constructed, incorporating the proposed grading plan provided in the draft Infrastructure Plan (see **Appendix B** of this EIR), using SketchUp™, a three-dimensional modeling program. The model of the Project Site and the surrounding area was used as a base for conceptual models of the DSP and CPP development scenarios, which were placed in the Project Site and surroundings model using geo-referenced locations per Google™ earth (see discussion of DSP-V and CPP-V development scenarios under "Building the Visual Simulations," below).

The Project Site development scenarios are not development projects but rather land use scenarios with development intensities established for various land uses. This means that numerous allowable variations of specific building massing and locations throughout the Project Site could occur under each development scenario. Thus, each three-dimensional model represents a reasonable outcome of several potential development configurations. The development scenario models were generally built to demonstrate worst-case potential for view obstruction of scenic vistas given applicable development requirements of the various Project Site development scenarios, such as total amount of allowable building area, allowable building heights, setbacks, and floor area ratios (FARs). The DSP and CPP models represent the result of applying assumptions for typical building widths, FARs, and floor level heights, combined with the maximum heights for a few buildings within the same land use districts. It is important to understand that the models do not reflect *maximum* building widths, FARs, and building heights proposed for each possible building site within each development scenario, since maximizing the building width, FAR, and height for each building site would result in building square footages that exceed the maximum overall amount of development permitted under the various Project Site development scenarios (see Tables 3-3 and 3-4 in Chapter 3, *Project Description*, of this EIR).

Moreover, the Project Site development scenario models do not illustrate precise design assumptions, such as building shape, architectural style, articulation, setbacks, fenestration (windows), or cladding materials. This level of design detail cannot be known until site-specific development projects are actually proposed, nor is it pertinent to the assessment of changes to scenic vistas. Similarly, while development of open space areas and parks as proposed in the development scenarios would change the appearance and character of the site, the models do not reflect those changes as they would not affect scenic vistas.

Building the Visual Simulations

The three-dimensional models were used in conjunction with Google™ earth and site photos to create visual simulations of DSP and CPP development scenarios from the selected viewpoints. The visual simulations illustrate changes to the existing setting that would occur as a result of development under the DSP and CPP scenarios. Simulations were not created to show interim changes in visual character, such as site preparation and grading activities during construction and phased development, as such changes would not impair the visibility of existing scenic vistas.

A separate model and associated visual simulations were not created for the DSP-V scenario because the variant would not be substantially different from the conceptual massing of the DSP scenario. Although the DSP-V would include a different building height layout within the northeast portion of the Project Site, including height limits for the arena that would be 25 feet taller than building heights allowed under the DSP (see Table 3-3), the revised height limits would be similar to those of the DSP and the parcels with the maximum height limit of 160 feet would remain unchanged. Overall, while the type, and therefore character, of specific buildings proposed for this area under the DSP-V would differ from the DSP, because impacts on scenic vistas are determined based on the degree to which views are blocked by proposed structures, differences in view blockage between the DSP and DSP-V scenarios would be insubstantial. In addition, the types and character of buildings proposed were not modeled in the visual simulations and would not result in a change in the impact on scenic vistas. Therefore, for the analysis of impacts on scenic vistas, the DSP-V is considered together with the DSP.

Similarly, the CPP-V is considered together with the CPP and relies on the simulations created for the latter. As described in Chapter 3, the CPP-V's proposed land uses and associated development standards would be the same as for the CPP, aside from the proposed southward expansion of the Recology facility, which would replace other uses proposed in the CPP. The Recology expansion contemplated under the CPP-V would include lower building heights and FARs than expected within this same area under the CPP. As such, the CPP-V would not be substantially different from the conceptual massing simulated for the CPP. Further, given that impacts on scenic vistas are determined based on the degree to which views are blocked by proposed structures, subtle differences in massing would not result in different visual impacts. Therefore, for the analysis of impacts on scenic vistas, the CPP-V is considered together with the CPP.

Summary

As stated previously, a scenic vista is defined as a public viewing opportunity providing panoramic view access to important visual features, including views of the Bay, striking or unusual natural terrain, or unique urban or historic features. The level of significance for each Project Site development scenario is determined by assessing the potential for new development to substantially block public views of important visual features, including views of identified scenic resources, as discernible from the representative viewpoints. A Project Site development scenario is considered to have a substantial adverse effect on a scenic vista when visual access to important visual features becomes completely or substantially obstructed to the point where the obstruction diminishes the aesthetic value of the scenic vista. The views analyzed for this EIR are listed and described in **Table 4.A-1** and mapped in **Figure 4.A-1**. Of the 12 viewpoints depicted and analyzed, all are publicly accessible, and all but Viewpoints 4 and 9 are considered scenic vistas.

The scenic vista impact analysis evaluates the four scenarios by overlaying a conceptual model of DSP and CPP development scenarios at buildout over each view. The existing characteristics of each view are described, followed by a description of how the existing condition could be affected by site development proposed under the DSP/DSP-V and CPP/CPP-V scenarios.

TABLE 4.A-1
VIEWPOINTS

Viewpoint 1: Blythedale Avenue at Brookdale Avenue in Sunnydale neighborhood, facing east

Existing View

Higher ground in the Sunnydale neighborhood allows a view of San Francisco Bay and its shoreline. To the north (left), limited views of Bayview Park are available.

DSP/DSP-V

New buildings with maximum heights of 160 feet located near the Project Site's eastern boundary would cover some existing views of the Bay shoreline. However, the majority of the views of the Bay would be preserved.

CPP/CPP-V

Although several high-rise buildings with a maximum height of 80 feet located near the Project Site's eastern boundary would be seen above the Bay shoreline, visual access would be maintained and the shoreline still would be observed.

TABLE 4.A-1 (Continued)
VIEWPOINTS

Viewpoint 2: Overlook point at John McLaren Park, facing east

Existing View

The overlook point at John McLaren Park provides an uninterrupted view of the Bay, Brisbane Lagoon, Bayview Park (not shown in photo), and San Bruno Mountain (right).

DSP/DSP-V

Taller buildings (up to 160 feet in height) along the eastern edge of the Project Site would largely maintain existing views of the Bay shoreline. Although the taller high-rises near the shoreline could alter Bay views, views of the majority of the Bay, Brisbane Lagoon, and San Bruno Mountain would be preserved.

CPP/CPP-V

Buildings near the shoreline (eastern edge of Project Site) would be limited to 80 feet in height, allowing the majority of the Bay to continue to be seen from this vantage point. Views of San Francisco Bay, the Bay shoreline, Brisbane Lagoon, and San Bruno Mountain would be preserved.

TABLE 4.A-1 (Continued)
VIEWPOINTS

Viewpoint 3: Goettingen Street at Wilde Avenue in Visitacion Valley, facing south

Existing View

The higher elevation in Visitacion Valley allows views of the Bay (left) and San Bruno Mountain beyond.

DSP/DSP-V

Potential high-rise building (up to 90 feet to160 feet) along the eastern boundary of the Project Site would block a substantial portion of the view of the Bay and its shoreline. The view to San Bruno Mountain would be preserved. The Project Site could be viewed as a solid mass of buildings

CPP/CPP-V

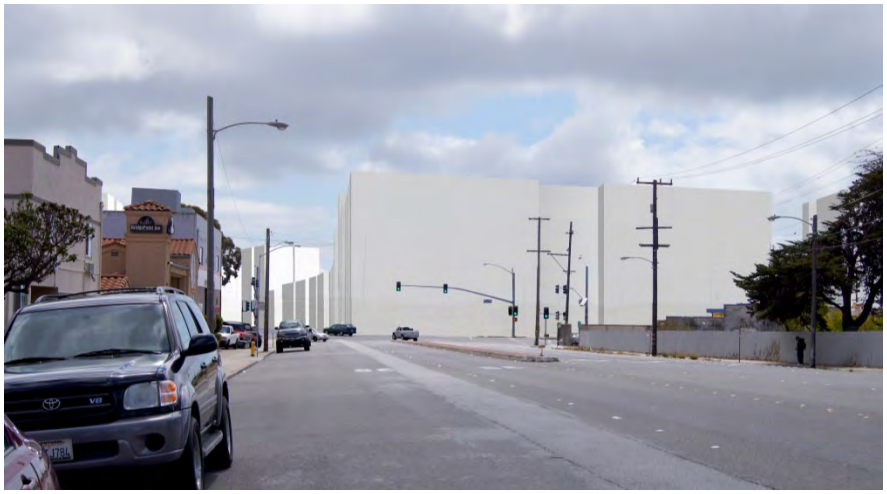
Due to an 80-foot height limit, new R&D buildings located along the Project Site's eastern boundary would not impede the view of the Bay, shoreline, or San Bruno Mountain. With less building area (compared to the DSP/DSP-V), open areas between buildings could be seen.

TABLE 4.A-1 (Continued)
VIEWPOINTS

Viewpoint 4: Geneva Avenue at Talbert Street, facing east

Existing View

Views along Geneva Avenue are limited to one- and two-story residential and commercial buildings along the north side and utility structures along the south side of the street. Views to the East Bay hills can be seen but are too faint to be considered as a scenic vista from this viewpoint.



DSP/DSP-V

At buildout, views into the Project Site would change to include views of tall buildings (shown at approximately 125 feet in height) along the planned Geneva Avenue extension and Bayshore Boulevard. Loss of distant views would occur, but the new buildings would not block views of scenic vistas.

CPP/CPP-V

At buildout, views into the Project Site from Geneva Avenue would be changed to include new tall buildings (with a 160-foot height limit) along the planned Geneva Avenue extension. Loss of distant views would occur, but the new buildings would not block views of scenic vistas.

TABLE 4.A-1 (Continued)
VIEWPOINTS

Viewpoint 5: US Highway 101 at the San Mateo County line, facing south

Existing View

Tall trees along the edge of southbound lanes block views to the east, but near the county line the higher elevation allows a view of San Bruno Mountain.

DSP/DSP-V

A high-rise building (160 feet in height) and mid-rise buildings (90 feet in height) along the eastern edge of the Project Site would block a substantial portion of the views of San Bruno Mountain. Because existing trees are within Caltrans right-of-way, it is assumed they would remain.

CPP/CPP-V

A new R&D campus with an 80-foot maximum height limit would be constructed parallel to the freeway and be visible behind new raised berms and existing trees along US Highway 101. New buildings would largely block views of San Bruno Mountain but would retain views of the majority of the ridgeline.

TABLE 4.A-1 (Continued)
VIEWPOINTS

Viewpoint 6: Candlestick Point State Recreation Area, facing southwest

Existing View

Scenic views from the outlook points of Candlestick Point State Recreation Area include the Bay (foreground) and San Bruno Mountain (background). This photo captures the Project Site north of Visitacion Creek (left) and the Project Site's northern boundary (right).

DSP/DSP-V

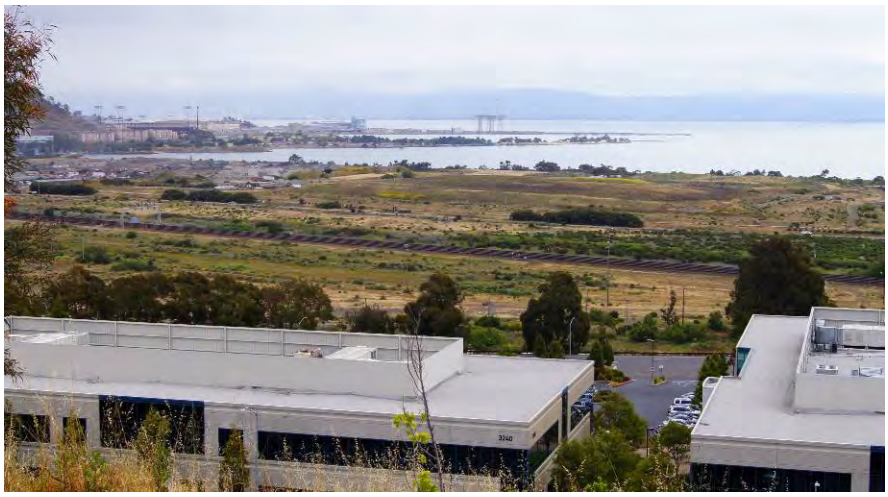
Buildings at a maximum height of 90 feet and 160 feet near the Project Site's eastern boundary (north of Visitacion Creek) would partially block views of the lower portions of San Bruno Mountain. However, the main ridgeline and the majority of the view would be maintained.

CPP/CPP-V

Taller buildings along Geneva Avenue (up to 160 feet in height) would partially block views of residential areas on the lower part of the hills. Views of R&D buildings (mid-rise buildings shown at the left side of the photo) would be limited to 80 feet in height. Views of San Bruno Mountain would be maintained.

TABLE 4.A-1 (Continued)
VIEWPOINTS

Viewpoint 7: Mission Blue Drive off Guadalupe Canyon Parkway (Northeast Ridge), facing east



Existing View

Scenic views from Mission Blue Drive include Bayview Park and Candlestick Point (left), the Bay, and shoreline.

DSP/DSP-V

New buildings, including the high-rise building at the eastern edge of the Project Site, would break uninterrupted views of the Bay and its shoreline. Bayview Park and Candlestick Point would remain visible from this viewpoint.

CPP/CPP-V

The new buildings would not impede views of the Bay and its shoreline, Candlestick Point, or Bayview Park.

TABLE 4.A-1 (Continued)
VIEWPOINTS

Viewpoint 8: Icehouse Hill, facing northeast

Existing View

Scenic vistas from the top of Icehouse Hill include the Bay, Candlestick Point, Bayview Park, high-rise buildings in San Francisco's financial district, and John McLaren Park (not shown in photo).

DSP/DSP-V

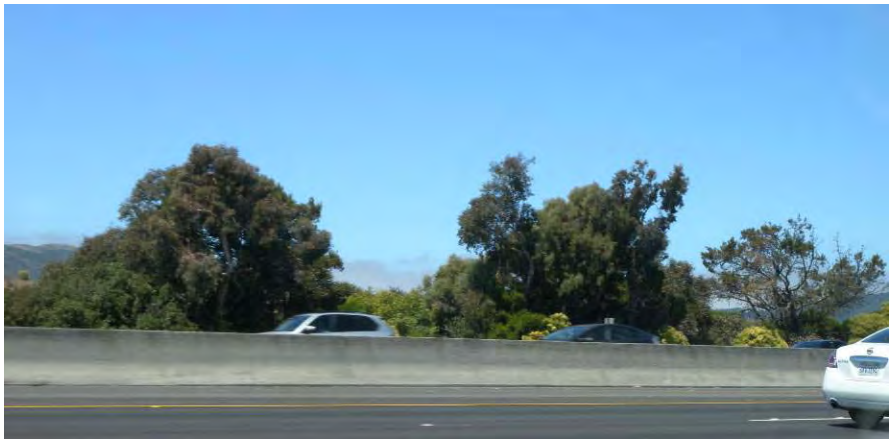
Taller buildings along the Project Site's eastern boundary would block views of portions of the shoreline and Bay. Other scenic views would be maintained.

CPP/CPP-V

New buildings would block a limited portion of the view of the shoreline. Other scenic views would be maintained.

TABLE 4.A-1 (Continued)
VIEWPOINTS

Viewpoint 9: US Highway 101 north of Brisbane Lagoon, facing northwest



Existing View

Views from the US Highway 101 northbound lanes are limited to glimpses of San Bruno Mountain behind street trees. The visual access to San Bruno Mountain is too limited to be considered as a scenic vista from this viewpoint.

DSP/DSP-V

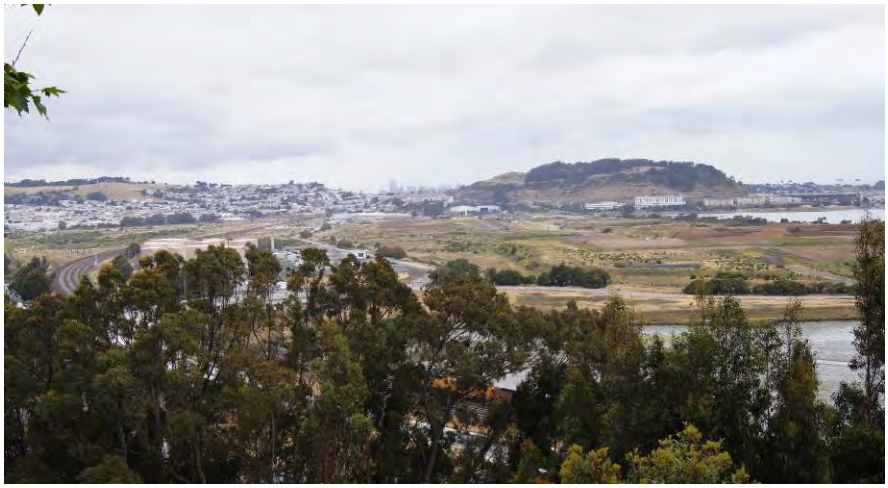
New buildings (middle and right) would block views of San Bruno Mountain. However, existing trees would in the foreground of views of San Bruno Mountain and would partially screen most of the new buildings.

CPP/CPP-V

Near US Highway 101, new buildings would be subject to a 55-foot height limit north of Visitacion Creek and a 25-foot height limit south of Visitacion Creek. Buildings within these height limits would be partially screened from view by existing trees.

TABLE 4.A-1 (Continued)
VIEWPOINTS

Viewpoint 10: Tulare Street off San Bruno Avenue in Brisbane, facing north



Existing View

From the residential areas in Central Brisbane, scenic views include Brisbane Lagoon (foreground), John McLaren Park (left), high-rise buildings in downtown San Francisco (middle background), the Bay, Bayview Park, and Candlestick Point (right).

DSP/DSP-V

New buildings would block views of the lower portion of Bayview Park, but views to Brisbane Lagoon, John McLaren Park (left), high-rise buildings in downtown San Francisco, the Bay, and Candlestick Point would not be affected.

CPP/CPP-V

New buildings would not impede views of existing scenic vistas from this viewpoint.

TABLE 4.A-1 (Continued)
VIEWPOINTS

Viewpoint 11: Kings Road and Beatrice Road in Central Brisbane, facing north

Existing View

Scenic views from Central Brisbane include John McLaren Park (left), Icehouse Hill, high-rise buildings of San Francisco's financial district (middle), Bayview Park and Candlestick Point (right), and the Bay.

DSP/DSP-V

Taller buildings near the eastern edge of the Project Site boundary would block views of the Bay shoreline. However, the majority of the view of the Bay and other scenic resources would be maintained.

CPP/CPP-V

New buildings would block views of a minimal portion of the Bay shoreline. All other scenic views would be maintained.

TABLE 4.A-1 (Continued)
VIEWPOINTS

Viewpoint 12: Bay Trail at Sierra Point, facing west

Existing View

Scenic vistas from the Bay Trail at Sierra Point near the Brisbane Marina include the Bay (foreground) and San Bruno Mountain.

DSP/DSP-V

New taller buildings along the Project Site's eastern boundary would partially block views of distant hillside landforms. However, views of San Bruno Mountain would not be impeded.

CPP/CPP-V

New buildings would be well below the ridgeline and would not impede views of San Bruno Mountain from this viewpoint.

Scenic Vista Impact Analysis – DSP and DSP-V

As demonstrated in Table 4.A-1, new development under the DSP would partially block views of important visual features from Viewpoints 1, 2, 3, 5, 6, 7, 8, 10, 11, and 12. The DSP scenario provides for the development of buildings up to a height of 160 feet along the easternmost edge of the Project Site. These tall buildings would directly affect scenic views of the San Francisco Bay waters and shoreline, specifically from Viewpoints 1, 2, 3, 7, 8, and 11. Moreover, views of San Bruno Mountain from Viewpoint 5 would be reduced, although not completely blocked, by new development along the entire Project Site edge. The DSP scenario would also obstruct views from Viewpoint 10, including a small portion of the view of Bayview Park. Overall, development under the DSP scenario would substantially block visibility of these visual features such that the aesthetic value of the views from these publicly accessible viewpoints would be significantly diminished. Therefore, the DSP scenario would result in a substantial adverse effect on a scenic vista and result in a significant impact in relation to this criterion; however, implementation of **Mitigation Measure 4.A-1**, listed below, would reduce the impact to a less-than-significant level.

The DSP-V includes a building height plan that would be only slightly different from that of the DSP. Like the DSP, the DSP-V would allow for building heights up to 160 feet in the northeast portion of the Project Site. Unlike the DSP, however, the DSP-V would provide for a large-scale arena up to 150 feet in height south of Geneva Avenue and east of the Caltrain tracks. It would also provide for a theater of up to 125 feet in height north of Geneva Avenue and east of the Caltrain tracks. While these taller structures would have slightly different impacts on existing scenic vistas compared to the impacts of the DSP scenario, the overall impact of the DSP-V scenario on scenic vistas from the Sunnydale neighborhood, John McLaren Park, Mission Blue Drive, and Icehouse Hill (as shown in Viewpoints 1, 2, 7, and 8) would remain the same. The adverse effects of the DSP-V scenario would be similar to those of the DSP scenario, as demonstrated by the eight public viewpoints listed above. Thus, the DSP-V scenario would also result in a substantial adverse effect on scenic vistas, and the impact would be significant. However, implementation of **Mitigation Measure 4.A-1a** would reduce the impact to a less-than-significant level.

Conclusion: The impact of the DSP and DSP-V scenarios on scenic vistas would be significant. **Mitigation Measure 4.A-1a** is recommended to decrease building height maximums and thereby reduce the significant impacts of the DSP and DSP-V on scenic views from, and across, the Project Site. Specifically, implementation of this mitigation measure would limit the potential blockage of scenic views of the Bay waters, Bay shoreline, and San Bruno Mountain as seen from the Sunnydale neighborhood, John McLaren, Park, Visitacion Valley, US Highway 101 southbound lanes, and Icehouse Hill.

Mitigation

Mitigation Measure 4.A-1a: Development within 350 feet of the eastern boundary of the Project Site (US Highway 101) shall be designed to avoid blockage of views of the Bay shoreline from Viewpoints 1, 2, 3, 7, 8, and 11. Each specific plan approved for development within the Project Site shall include development standards setting forth this requirement. These standards shall require that buildings within 350 feet of US Highway 101 be no taller than 80 feet in height.

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	-	-
✓ = measure applies - = measure does not apply			

Conclusion with Mitigation: With implementation of **Mitigation Measure 4.A-1a**, building heights in the area where views of the Bay may be blocked would be reduced, providing for preservation of those views. As a result, impacts of the DSP and DSP-V scenarios on scenic vistas would be less than significant.

Scenic Vista Impact Analysis – CPP and CPP-V

As shown in Table 4.A-1, development under the CPP or CPP-V scenario would be visible from each of the 10 viewpoints representing scenic vistas. However, the proposed development would not result in a substantial loss of views of scenic vistas from these viewpoints and would therefore not have an adverse effect as the existing views of important visual features would not be substantially blocked. With a building height maximum of 80 feet along the eastern edge of the Project Site, development would not obstruct the existing scenic views of the San Bruno Mountain ridgeline, the Bay waters, or the Bay shoreline as seen from north, east, or south of the Project Site. The proposed research and development buildings, which would be built to a maximum height of 80 feet and set back from the eastern boundary of the Project Site, would block a small portion of the Bay shoreline visibility as seen from viewpoints to the west and northwest (Viewpoints 1, 2, 8, and 11). However, other scenic resources, including the Bay waters, Bayview Park, Candlestick Point, and John McLaren Park and the high-rise buildings in the San Francisco financial district, still would be visible from these viewpoints. Further, and in particular as seen in Viewpoint 1, several high-rise buildings with a maximum height of 80 feet located near the Project Site's eastern boundary would be seen above the Bay shoreline and obstruct visual access to the shoreline. The CPP and CPP-V scenarios would allow building heights of up to 160 feet in other areas of the Project Site; however, as these buildings would be located away from the eastern border, they would not substantially block scenic vistas.

Under the CPP and CPP-V scenarios, the extension of the San Francisco Bay Trail would bisect the eastern portion of the Project Site and would permit some new development in areas to the east of that extension, potentially obstructing views of the Bay from the trail.

Conclusion: The CPP and CPP-V scenarios would block some views of the Bay shoreline and therefore would have a significant impact. **Mitigation Measures 4.A-1b** is recommended to avoid blockage of scenic views of the Bay shoreline.

Mitigation

Mitigation Measure 4.A-1b: Development within 350 feet of the eastern boundary of the Project Site (US Highway 101) shall be designed to avoid blockage of views of the Bay shoreline from Viewpoints 1, 2, 8, and 11. Each specific plan approved for development within the Project Site shall include development standards setting forth this requirement. These standards shall include a requirement that buildings within 350 feet of US Highway 101 be no greater than 80 feet in height.

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
-	-	✓	✓

✓ = measure applies
- = measure does not apply

Conclusion: With implementation of **Mitigation Measure 4.A-1b**, development in the eastern portion of the Project Site would be sufficiently low in height (maximum 80 feet) as to provide views of the Bay over the buildings, thereby reducing the impact to a less-than-significant level.

Impact 4.A-2: Would the Project substantially damage scenic resources, including but not limited to trees, rock outcroppings, hillsides, and historic buildings?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
LTS	LTS	LTS	LTS

SU = Significant Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = no impact

Impacts on Scenic Resources – Assessment Methodology

Scenic resources within the Project Site are described in Subsection 4.A.2, *Environmental Setting*, above. Scenic resources located within the Project Site include Icehouse Hill, Visitacion Creek, Brisbane Lagoon, the historic Roundhouse building, and views of the Bay from the San Francisco Bay Trail. Scenic resources located outside the Project Site include the historic Machinery & Equipment, Inc. building. The Project Site development was evaluated for its potential to substantially damage these resources.

Scenic Resource Impact Analysis – DSP, DSP-V, CPP, and CPP-V

Development under all four Project Site development scenarios would include both preservation of and improvements to existing scenic resources within the Project Site, including Icehouse Hill, Brisbane Lagoon, Visitacion Creek, the historic Roundhouse, and views of the Bay from the San Francisco Bay Trail. Under all proposed development scenarios, existing historic structures would be rehabilitated and reused; the Visitacion Creek corridor, Icehouse Hill, and the edges of Brisbane Lagoon all would be improved and used for passive recreation; existing wetland and habitat areas would be improved and expanded; and the San Francisco Bay Trail would be extended to provide additional views of the Bay from the Project Site.

Under the DSP and DSP-V scenarios, the extension of the San Francisco Bay Trail would occur along the US Highway 101 frontage road on the east side of the Project Site, turning west and then again east in the northern portion of the Project Site. By comparison, the CPP and CPP-V

scenarios would place the Bay Trail along an alignment that bisects the east side of the Project Site. As shown in Figure 5.1 of the proposed Brisbane Baylands Specific Plan and Figures 3-13 through 3-14 of this EIR (see Chapter 3, *Project Description*), all four proposed development scenarios would allow some new development in areas to the east of the proposed Bay Trail extension in the northern portion of the Project Site, potentially obstructing views of the Bay from the trail; however, preservation of open space areas around the Visitacion Creek corridor and Brisbane Lagoon would include the 100-foot shoreline band areas around these features, which are under the jurisdiction of BCDC to ensure public access – including visual access – to the Bay.

Conclusion: In general, onsite scenic resources would be improved with implementation of any of the proposed development scenarios, as historic and natural scenic resources would be rehabilitated and restored. Also, development proposed for areas between the Bay Trail extension and the Bay would adhere to applicable *San Francisco Bay Plan* policies and findings (discussed above under Subsection 4.A.3, *Regulatory Setting*) intended to ensure that new developments maintain public access to the Bay to the maximum extent feasible. Thus, this impact would be less than significant for the Project Site development.

Impact 4.A-3: Would the Project substantially degrade the existing visual character of the site and its surroundings?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
SM	SM	SM	SM

SU = Significant Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = no impact

Impacts on Visual Character – Assessment Methodology

The analysis compares the visual character of the Project Site development scenarios with the existing visual character of the Project Site. The analysis also includes an evaluation of whether Project Site development under each of the proposed development scenarios would substantially degrade the visual character of the Project Site and surrounding area.

As discussed previously, determinations about aesthetics and visual resources are subjective by nature. Therefore, while it is recognized that one's assessment of whether a change from the existing conditions would be comparatively better (substantially improved) or worse (substantially degraded), this evaluation assumes that while well-designed and well-landscaped urban development that is compatible in scale and appearance with the surroundings may be substantially *different* from the surrounding visual character, it would not necessarily represent an *adverse* change (i.e., resulting in substantial degradation). Moreover, while development proposed within the Project Site would not *directly* affect the visual character of its surroundings, if Project Site development would result in poorly designed buildings or development, Project Site development could detract from nearby existing, relatively well-designed built or natural environments. This would be considered an adverse effect on the surrounding area.

Existing visible conditions on the Project Site include stockpiled and disturbed soils, soil processing operations, and aging, disjointed, existing industrial facilities. When considering

visual changes to the Project Site itself, this evaluation assumes that well-designed urban development of a scale and appearance suitable for the characteristics and context of the site would be quite different from what currently exists onsite. The analysis of visual changes would consider whether the proposed development would be consistent with the visual character of the broader context within observers' range of view.

The following analysis evaluates whether new development under the DSP, DSP-V, CPP, and CPP-V scenarios would substantially degrade the existing visual character of the Project Site, Central Brisbane, and surrounding areas.

Visual Character Impact Analysis – DSP, DSP-V, CPP, and CPP-V

Visual Changes Proposed by Project

As described in greater detail in Chapter 3, *Project Description*, of this EIR, buildout of the Project Site development would result in new buildings and open space amenities throughout the site. Each development scenario would alter the existing visual character of the Project Site by replacing existing undeveloped land, exposed dirt areas and existing uses, such as older industrial buildings, recycling operations and associated earth-moving equipment, holding ponds, and temporary construction-related uses and associated buildings with new street trees, open space and landscaping, and taller buildings that would range from 25 to 160 feet in height. The Project Site development also includes remediation of the former landfill and railyard areas, which would result in visual changes to areas that are either vacant or currently used for interim uses. Project Site development would also provide physical and visual access to new wetlands, open space, and currently inaccessible historical resources.

The Project Site development includes installation and operation of renewable energy uses, which would contribute to changes in the visual character of the Project Site. Under the DSP and DSP-V scenarios, renewable energy uses would include solar photovoltaic panels. These technologies would be installed within areas of the Project Site expressly dedicated for such uses, as well on rooftops and within developed areas such as parking lots. Wind turbine energy production is also proposed at the onsite water reclamation facility. Under the CPP and CPP-V scenarios, these technologies, along with small-scale wind turbines, likely would be installed on rooftops and in areas between buildings and would be of a scale suitable for urban settings. To the extent that their functionality would not be compromised, these technologies (as well as other roof-mounted and visible equipment) would be screened pursuant to existing City design permit and code requirements discussed previously.

Resulting Changes in Visual Character

The Project Site development would result in the urbanization of the Project Site, which would change its visual character as viewed from some of the locations of Central Brisbane and surrounding areas. New development proposed for the Baylands would be substantially more intense than existing development; buildings that would be developed under the Project Site development would be much taller, larger, and more abundant than existing buildings within Central Brisbane and nearby portions of Daly City and San Francisco. As shown in Viewpoint 4

in Table 4.A.1 above, buildings proposed along the Geneva Avenue extension would be larger and taller than existing buildings along Geneva Avenue, especially under the CPP and CPP-V scenarios.

New development pursuant to a specific plan, as required by the Brisbane General Plan, could be considered an aesthetic improvement over the existing visual character of the Project Site. The establishment of permanent open space and additional parklands within areas now devoted to soil stockpiling, as well as adaptive reuse of derelict historic structures as part of redevelopment of the former railyard area, are especially likely to be considered an aesthetic improvement over existing visual conditions. As noted in the methodology discussion above, however, visual improvements would only occur with implementation of development that is well-designed, well-landscaped, and compatible in scale with the surroundings in and around the Project Site. The Brisbane Baylands Specific Plan for the DSP and DSP-V scenarios sets forth design guidelines and landscape plans, along with programs to ensure their implementation (see **Appendix C**, Sections 4.10 and 4.12). Should either the CPP or CPP-V scenario be selected, the specific plan(s) that would be required to be prepared and approved prior to any development would also be required to include design guidelines to ensure Project Site development is well planned and landscaped.

Relevant City Requirements

As a further assurance that future development within the Project Site would be well designed and well landscaped, Brisbane Municipal Code Chapter 17.42 requires a design permit to be obtained for the construction of any new building, including the development proposed under the Project Site development. The Brisbane Planning Commission must make findings, including but not limited to the following: (1) the proposal's scale, form, and proportion are harmonious, and the materials and colors used complement the project; and (2) the orientation and location of buildings, structures, open spaces, and other features integrate well with each other and maintain a compatible relationship to adjacent development. Brisbane Municipal Code Chapter 15.70 also requires the preparation of a Landscape and Irrigation Design Plan (including a maintenance schedule).

The City of Brisbane, through implementation of the Design Review process, ensures that individual project building designs and the siting or relative orientation of groups of buildings do not degrade the visual quality of project sites. The City ensures this by requiring, as conditions of approval for specific development projects, implementation of measures such as adjustments to building height or massing, building treatments, use of decorative building materials or fenestration, and landscaping or other treatments designed to provide visually appealing building façades and streetscapes within the project vicinity. Under current City requirements, a specific project is required to be approved by the City prior to development, and applicants for site-specific development pursuant to an approved specific plan are required to provide a final design to the City prior to approval of a building permit. To further demonstrate the level of detailed review and consideration applied through this process that could reduce potential adverse effects on existing visual character, submittals to the City for design permits for specific development projects are required to include detailed site development and architectural plans.

Application of City Requirements to Project

Approval of a specific plan that is consistent with the Brisbane General Plan, along with implementation of the City's Design Review process, would guide individual project building designs as they are submitted, approved, and built. The process also considers the integration of two or more buildings relative to their surroundings. Overall, this established regulatory review and permitting processes would increase the likelihood for compatible and quality development to occur on the Project Site.

Incremental development consistent with design guidelines and landscape plans, and the City's Design Review process, would ensure that the substantially *different* development types and development intensities within the Project Site would not be visually *adverse* compared to existing conditions. The overall intensity of Project Site development is substantially greater than the development intensity set forth in the Brisbane General Plan, as well as substantially greater than the existing Brisbane community and areas surrounding the Project Site.

As part of the City's Design Review process, the Planning Commission must make findings that include a determination that the orientation and location of buildings, structures, open spaces and other features integrate well with each other and maintain a compatible relationship to adjacent development. The design guidelines set forth in the Brisbane Baylands Specific Plan for the DSP and DSP-V scenarios, and design guidelines required to be provided in the required specific plan(s) for the CPP and CPP-V scenarios, provide a basis for making such a determination in relation to compatible design relationships. The high-intensity character of proposed development and resulting substantial differences in proposed development intensity between the Project Site and surrounding areas do not support a determination of compatibility given currently proposed development intensities and building heights. The result would be an adverse effect due to the visual incompatibilities between Project Site development and its surroundings.

Conclusion: This impact would be significant. In addition to designing Project Site development to be consistent with the requirements described in Subsection 4.A.3, *Regulatory Setting*, above, **Mitigation Measure 4.A-3** is necessary to introduce specific design standards that, when adopted as part of required specific plan(s) for the Project Site and applied to all site-specific development projects, would ensure development of a cohesive urban aesthetic across the site and support a well-designed urban environment and positive visual character. The specific design guidelines, landscape plans, and implementation program outlined in the Brisbane Baylands Specific Plan for the DSP and DSP-V scenarios (see Appendix C, Sections 4.10 and 4.12) would be approved with the Specific Plan and therefore incorporated as guidance for those two development scenarios.

Although there are differences that could occur under the DSP, DSP-V, CPP, and CPP-V scenarios, the following design guidelines address design elements that largely contribute to the overall visual character and continuity of a site as large as the Project Site. Adherence to these specific guidelines, in combination with the City's Design Review process, would reduce the impact of the Project Site development on the visual character of the Project Site and its surroundings to a less-than-significant level.

Mitigation

Mitigation Measure 4.A-3: All site-specific development projects within the Project Site shall be subject to the following minimum standards, which shall be set forth in required specific plan(s) prepared for development of the Project Site:

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	✓	✓
✓ = measure applies - = measure does not apply			

- ***Landscaping/Open Space*:** Landscaping and open space areas shall be designed to provide usable outdoor spaces; to provide a pedestrian orientation within residential (DSP and DSP-V scenarios) and non-residential development areas; and to avoid the appearance of a solid mass of buildings as viewed from within the Project Site, from US Highway 101, from Bayshore Boulevard, and from the representative viewpoints shown in Figure 4.A-1.

- ***Development Intensity, Setbacks, Stepbacks, and Building Heights*:** Variations, including reductions in the development intensity of site-specific development sites within the Project Site from the maximum allowable development intensity, shall be provided to maintain compatibility with the development intensity of surrounding neighborhoods and community areas. Variations in building heights (including reductions from maximum allowable heights), along with appropriate building setbacks and provision of provision of buildings stepbacks in height, shall be employed to maintain a feeling of openness within Project Site open space areas; to maintain compatibility with the scale of historic structures being preserved onsite; and to reduce the perceived intensity of development as viewed from the Geneva Avenue extension, Bayshore Boulevard, and Viewpoints 1, 2, 3, 7, 8, and 11.

- ***Roofs*:** Roof design shall be compatible with the building design and articulation, emphasizing color, form, and materials. Rooftop mechanical equipment shall be screened from visibility from the representative viewpoints shown in Figure 4.A-1. Roofs shall incorporate opportunities for solar panels, which when installed need not be screened from view.

- ***Fenestration*:** Window patterns shall be well proportioned to the building, shall be varied to achieve diversity in architecture, and shall provide adequate light and air to interiors.

- ***Building Articulation*:** Facade articulation of a minimum of five feet shall be required at minimum intervals of 80 feet.

- ***Building Materials*:** Materials shall be high quality with textures and colors that further accentuate building design. Changes in building materials along a building face shall relate to building massing.

- ***Signage*:** Signage shall complement building design in material, scale, lettering, and lighting and enhance the public realm.

- ***Transparency*:** In retail buildings along publicly accessible frontages, 40 to 60 percent of ground-floor wall areas shall be transparent.

- ***Building Facades*:** Building design shall avoid large flat wall areas unbroken by protections, recesses, or other architectural features. Entrances shall be appropriately scaled and easy to find.

- ***Outdoor Storage and Mechanical Equipment*:** Any permitted outdoor storage or mechanical equipment shall be fully screened from view from areas accessible to the general public, as well as from the representative viewpoints shown in Figure 4.A-1.
- ***Parking:*** Podium or structured parking shall be wrapped with active uses at ground level and not exposed to the street. As part of the approval of specific plan(s) for development within the Project Site, the City shall first make the finding that the design standards and guidelines contained in the specific plan set forth, at a minimum, these standards.

  As part of the approval of all subsequent site-specific development within the Project Site, the approving body for such development shall first make the finding that the site-specific development being reviewed meets the standards and guidelines set forth in the applicable specific plan implementing the requirements of this mitigation measure.

Conclusion with Mitigation: With implementation of **Mitigation Measure 4.A-3**, this impact would be less than significant for each Project Site development scenario.

Impact 4.A-4: Would the Project create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
Nighttime Lighting			
SU	SU	SU	SU
Daytime Glare			
SM	SM	SM	SM

SU = Significant Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = no impact

Light and Glare Impacts – Assessment Methodology

This threshold encompasses two distinct issues: nighttime lighting and daytime glare, both of which are considered in this analysis.

Nighttime Lighting

Nighttime lighting is caused by street lighting, building and parking lot lighting for safety, lighting for accent of building features and landscaping, and indoor lighting. Spillover of light onto adjacent properties has the potential to interfere with vision, sleep, privacy, and general enjoyment of the natural nighttime condition. Nighttime lighting can also interfere with the ability to see stars at night (dark night sky). Light-sensitive uses include residential uses, some commercial and institutional uses and, in some situations, open space and natural areas.

The analysis of effects of nighttime lighting considers whether a project's lighting would adversely affect nighttime views by (1) routinely spilling over into adjacent light-sensitive land use areas, (2) substantially reducing nighttime views of distant lights (e.g., across the Bay or in San Francisco), (3) substantially reducing nighttime views of stars in a dark night sky, or (4) reducing the quality of existing habitat for nocturnal species present in the area.

Daytime Glare

Glare results from sharply reflected light caused by sunlight or artificial light reflecting from highly finished surfaces such as paving, roofing, or glass. The level of glare is measured using the albedo concept, which calculates the relative reflectivity of surfaces. For example, soil cover has an albedo of 0.17, which indicates that approximately 17 percent of solar radiation hitting a soil-covered ground would be reflected. Grass cover has an albedo of 0.20, indicating a solar reflectivity of approximately 20 percent, or slightly more glare than soil cover. In general, darker or mirrored glass would have a higher solar reflectivity—or glare—than clear glass.

While solar panels are typically dark in color, they are about half as reflective as standard glass used in residential or commercial applications. Solar panels are comprised of numerous solar cells, which differ from a typical reflective surface in that they have a microscopically irregular surface designed to trap the rays of sunlight for the purposes of energy production. Moreover, the intent of solar technology is to increase efficiency by *absorbing* as much light as possible, which *reduces* its reflection and glare (relative to regular dark or mirrored glass typically observed in common large-scaled residential and commercial development). Solar glass sheets (the glass layer that covers photovoltaic panels) are typically tempered glass that is treated with an anti-reflective or diffusion coating that further diffuses the intensity of glare produced. Solar panels without an anti-reflective coating have a solar reflectivity of approximately five percent; with an anti-reflective coating, the solar reflectivity is reduced to approximately three percent (ESA, 2012).

High albedo or glare can cause daytime interference with activities in sensitive land use areas, as well as public roadways or air travel patterns where automobile and plane operators can be temporarily blinded by glare, thus causing a safety concern. As such, analysis of the effects of daytime glare considers whether new development would result in an adverse effect by creating a new source of substantial glare.

Light and Glare Impact Analysis – DSP, DSP-V, CPP, and CPP-V

Nighttime Lighting

Nighttime lighting on the Project Site is currently minimal, especially compared to adjacent developed areas, given that the site is predominantly undeveloped. Existing nighttime lighting is limited to the areas around the existing industrial uses in the northern and southwestern portions of the Project Site. Project Site development would create new nighttime light resulting from building security and accent lighting, interior building lighting, and street and public space lighting.

Effects on Sensitive Land Uses and Views. The industrial land uses directly abutting the Project Site are not considered sensitive uses with respect to nighttime lighting. However, proposed residential uses under the DSP and DSP-V scenarios are considered sensitive with respect to nighttime lighting, as is the Little Hollywood neighborhood immediately to the north of the Project Site in San Francisco.

Project Site development would add light to the nighttime sky. The addition of nighttime lighting over as broad an area as the Project Site, which is currently largely dark at night, would affect the nighttime views currently available to existing residents of Central Brisbane. The Project Site

development would affect nighttime views across the Bay and toward downtown San Francisco city lights from residential areas north, west, and south of the Project Site by placing a large-scale source of light in the foreground of those views. To the extent that nighttime lighting would not be fully shielded and directed downward, views of stars in the nighttime sky could be affected. The DSP-V proposes entertainment-oriented uses (a sports arena, concert theater, and multiple-screen cinema) that would result in additional nighttime lighting due to building accent lighting and light displays. While the entertainment uses within the Project Site would be located east of the rail corridor and away from sensitive residential land uses in Visitacion Valley and most surrounding residential development, onsite residential development and the Little Hollywood neighborhood (located immediately north of the Project Site in San Francisco) would be significantly affected by Project Site lighting. Light spillage from development under the DSP, DSP-V, CPP, and CPP-V scenarios also would affect surrounding sensitive uses, including the Little Hollywood neighborhood. Additionally, the proposed recreational facility located south of Visitacion Creek in the "Regional Use Area Public Use Envelope" would increase ambient nighttime lighting if nighttime use of the recreational facility is permitted, thereby affecting nighttime views from Central Brisbane.

Effects on Nocturnal Species. Light spillage from nighttime lighting of development within the Project Site into habitat areas would have a negative effect on nocturnal species. Plants and animals are typically attuned to the 24-hour seasonal cycle of light and dark. Mating behaviors, sleep, and predation are all determined by the length of nighttime darkness. Introducing artificial nighttime lighting into habitat areas can disrupt these activities. Artificial nighttime lighting can disrupt an animal's movements. This issue is discussed in Section 4.C, *Biological Resources,* of this EIR. Owls and bats, for example, can lose the advantage of specialized night vision that enables them to hunt without being seen. Nighttime lighting favors other predators, as the nocturnal animals that are their prey lose the cover of darkness to hide.

Migrating birds such as songbirds can be affected by human-built structures because of their propensity to migrate at night, their low flight altitudes, and their tendency to be disoriented by artificial light, making them vulnerable to collision with obstructions. Both tall structures such as wind turbines and windows on buildings provide collision hazards to migrating birds. A majority of bird strikes occur when birds do not recognize windows on buildings. Thus, operation of the wind turbines and tall residential (DSP and DSP-V scenarios) and non-residential buildings would pose collision hazards to migratory birds since effects associated with the lighting of the towers can alter the flight patterns of migratory birds and substantially increase bird strike collisions with the structures. As discussed in Section 4.C, *Biological Resources,* of this EIR, due to the potential for bird strikes at tall buildings associated with construction of dense urban development with many windows adjacent to the Bay and within the Pacific Flyway, an increase in bird strikes would occur. Mitigation measures set forth in Section 4.C, *Biological Resources,* would reduce impacts related to tall structures and increased lighting to less-than-significant levels by incorporating design features that would help minimize bird strikes, including design features making structures, especially glass surfaces, more visible from the outside.

Conclusion: Project Site development would create new sources of substantial nighttime lighting that would adversely affect nighttime views in adjacent residential areas, thereby resulting in a significant impact.

The Brisbane Baylands Specific Plan prepared for the DSP and DSP-V scenarios contains the following nighttime lighting guidelines:

Street and Parking Facility Lighting

- Street lighting should emphasize the use of shorter, pedestrian-scaled fixtures, rather than tall cobra head fixtures; when larger fixtures are required, both pedestrian- and automobile-oriented luminaires should be provided, either separately or on combined poles.
- Light fixtures should be selected that produce a warm light and focus the light downward onto the pedestrian zone.
- Use a consistent style and size of light standards and fixtures along a single street or within a district is recommended (Illuminating Engineering Society of America (IESNA) Guidelines recommended).
- Use minimal foot candle levels acceptable for public safety as a guide for street and parking lot lighting, rather than the upper limits typically recommended.

Accent Lighting

- Sodium lamp types are discouraged in order to preserve color rendition and public safety.
- In-ground up-lights with diverter shields should be used where vandalism is a greater concern.
- Typical building features that benefit from illumination include corner towers, entry façades, arcade columns, gable-type structures, special detailing, and relief. Shadows of trees and structures can also be cast on blank building wall surfaces.
- Special landscape features within entry zones and gathering areas should be emphasized with accent lighting.
- Retail district entry elements, columns, and rows of trees should be lighted. In public and private gathering spaces, special landscape features should be accented at night.

While these guidelines would be helpful in avoiding significant nighttime lighting, they are written in the form of recommendations, rather than requirements. As such, even with these guidelines significant impacts could result.

Because General Plan requirements for concept plans focus on proposed land uses, rather than design issues, and a specific plan has not been prepared for the CPP and CPP-V scenarios, no lighting guidelines for those scenarios are available.

For nighttime lighting, **Mitigation Measure 4.A-4a** is recommended to apply specific guidelines that address lighting of the night sky and to reduce the nighttime lighting effects that would occur under each of the four Project Site development scenarios.

Mitigation

Mitigation Measure 4.A-4a: All development within the Project Site shall comply with the following lighting design standards in order to minimize project lighting to the extent required for safety and comfort only in order to reduce nighttime lighting effects:

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	✓	✓
✓ = measure applies - = measure does not apply			

- Limit light spill across the property lines, such that illumination at the property line of any use within the Project Site that is attributable to the subject property does not exceed 0.1 foot-candles on business properties and 0.05 foot-candles on residential properties and open space areas. Onsite lighting of site-specific development within the Project Site shall result in zero direct-beam illumination leaving the site.
- Street lighting shall be comprised of shorter, pedestrian-scaled fixtures, rather than tall cobra head fixtures.
- Laser source lights and searchlights, and any other high-intensity light for outdoor advertising or entertainment used to attract attention to commercial activities or community events, shall be prohibited.
- Light fixtures that produce a warm light and focus the light downward onto the pedestrian zone shall be selected.
- Exterior lighting shall be kept to the minimum required for safety; purely decorative lighting displays shall be prohibited.
- All parking lot, recreational area, walkway, and trail lighting shall have no light emitted above 90 degrees.
- Project lighting shall be designed to control light energy and ensure that exterior lighting is directed downward and away from adjacent streets and buildings in a manner designed to minimize offsite light spillage.
- A master plan for street and parking lot lighting shall be approved by the City prior to final approval of design plans for roadways within the Brisbane portion of the Project Site.
    - All streets within the Brisbane portion of the Project Site shall have uniform lighting standards with regard to style, colors, and materials in order to ensure consistency with design.
    - Parking lot lighting shall be of the same source of illumination as street lighting so as to ensure uniformity of night lighting color.
    - Due to their high energy efficiency, long life, and spectral characteristics, Narrow-Spectrum Amber LEDs shall be the preferred illumination source throughout the Brisbane portion of the Project Site.

- A photometric analysis and lighting plan shall be prepared for each development project. The photometric analysis shall include an assessment of potential lighting impacts based on the height, location, light fixtures, direction, illumination intensity, and hours of operation. This analysis shall identify any potential light spill beyond the boundary of the specific plan, as well as light spill beyond the boundaries of individual sites within the Project Site Lighting performance standards as described above shall apply. The lighting plan shall demonstrate maintenance, to the maximum extent feasible, of ambient light levels as measured from 100 feet from the individual site. The lighting plan shall be submitted to the Community Development Department and City Engineer for final approval prior to approval of a building permit.

Conclusion with Mitigation: Implementation of **Mitigation Measure 4.A-4a** would not reduce the impact to a less-than-significant level for the Project Site development. The impact would remain significant after mitigation, primarily given the level of nighttime lighting levels typical of the proposed uses (especially the entertainment-oriented uses proposed in the DSP-V scenario that would involve prominent, lighted displays), compared to the minimal nighttime lighting that currently exists on the Project Site, and the existence of nearby surrounding nighttime-light-sensitive uses (residences) that would be affected. Therefore, after implementation of **Mitigation Measure 4.A-4a**, this impact would be significant unavoidable for all four development scenarios.

Daytime Glare

Glare can cause daytime interference with activities at sensitive land use areas. The Project Site currently contains mainly soil cover and vegetation. As a result, the Project Site's albedo, or percent reflectivity, ranges from 0.17 in soil-covered areas to 0.20 in grass-covered areas (see further discussion of the albedo concept under "Assessment Methodology" above).

Project Site development would change the overall solar reflectivity, or glare, of the Project Site and result in new sources of daytime glare. While the new development resulting from the CPP and CPP-V scenarios would be less intense than that proposed under the DSP or DSP-V scenarios, Project Site development would increase daytime glare from new building materials, exterior glass, and roofing materials with a high solar reflectivity index, as discussed below. New materials including asphalt, trees, concrete paving, and buildings (roofing) would replace the existing soil and grass cover. Building and site materials would have the greatest impact on solar reflectivity and ultimate glare from new development. In particular, use of "cool" roofing materials to reduce heat island effect and increase building energy efficiency would result in higher albedo and glare, often up to four times that of grass or soil. For instance, the United States Environmental Protection Agency Energy Star rating for cool roofs is up to 0.65 for slightly sloped surfaces. Exterior building surfaces, including glass, also would increase reflectivity of the sun during daytime hours.

In addition to building and site materials, solar panels can also increase glare during daytime hours compared to existing conditions. However, as previously discussed under "Impact Methodology" above, solar panels on the Project Site would absorb visible light and would not be a substantial source of glare. Moreover, the panels would be located in the middle portion of the

Project Site and would be blocked from visibility from drivers on US Highway 101 by mature trees and other vegetation. The relatively small scale of solar energy development possible on the proposed 19-acre solar farm in the DSP and DSP-V scenarios would not substantially contribute to the increase of daytime glare that could adversely affect daytime views.

Overall, a substantial amount of new development would occur on the Project Site (as illustrated in Table 4.A-1). New buildings and structures would include highly finished surfaces that could be seen from nearby US Highway 101, air traffic, and nearby residential neighborhoods, causing a substantial increase in glare. The glare resulting from Project Site development could adversely affect motorists along US Highway 101 by impairing vision, as well as produce nuisance effects in adjacent residential neighborhoods to the north of the Project Site and (in the DSP and DSP-V scenarios) residential neighborhoods of the Project Site itself.

Conclusion: Project Site development would create new sources of substantial daytime glare in proximity to US Highway 101, residential neighborhoods, and air traffic, impairing the safety of motorists and pilots and resulting in nuisance effects within neighborhoods. Thus, for daytime glare, implementation of design features and locational/orientation review required by **Mitigation Measure 4.A-4b** is recommended.

Mitigation

Mitigation Measure 4.A-4b: All building exteriors within the Project Site shall be composed of textured and other non-reflective materials, including high-performance tinted non-mirrored glass. Reflective materials on building exteriors that have a light reflectivity factor greater than 30 percent shall be limited to less than 50 percent of any wall area.

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	✓	✓

✓ = measure applies
- = measure does not apply

Conclusion with Mitigation: With the inclusion of **Mitigation Measure 4.A-4b**, this impact would be less than significant for all Project development scenarios.

Overall Conclusion

With the inclusion of **Mitigation Measure 4.A-4a**, impacts related to a substantial increase in nighttime lighting would be significant unavoidable under all Project Site development scenarios. With the inclusion of **Mitigation Measure 4.A-4b**, impacts related to a substantial increase in daytime glare would be less than significant under all Project Site development scenarios.

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4.B Air Quality

4.B.1 Introduction

This section describes the existing regulatory framework for air quality management along with existing air quality conditions in the Project Site vicinity. It analyzes the extent to which Project Site development would affect existing air quality conditions, both regionally and locally, from Project Site development-related activities that emit criteria and non-criteria air pollutants. This section also analyzes the types and quantities of emissions that would be generated on a temporary basis due to construction and over the long term due to operation of Project-related development. The section determines whether those emissions are significant in relation to applicable air quality standards. Feasible mitigation measures are identified as necessary to reduce significant impacts.

The analysis in this section includes a review of existing air quality conditions in the region and air quality regulations administered by the United States Environmental Protection Agency (U.S. EPA), the California Air Resources Board (CARB), and the Bay Area Air Quality Management District (BAAQMD), and uses methodologies identified by BAAQMD to evaluate the air pollutant emissions that would result from Project Site development. This section also presents estimates of existing and future emissions based on standard air quality modeling techniques recommended by BAAQMD. In addition to modeling of Project Site development-related air pollutant emissions, a health risk assessment was prepared for Project Site development and is included in **Appendix D**.

Emissions of greenhouse gases resulting from development of the Project Site and their impacts in relation to climate change and the goals of Assembly Bill 32 (AB 32) are presented and discussed in Section 4.F, *Greenhouse Gas Emissions*, of this EIR.

4.B.2 Environmental Setting

Air quality is affected by the rate, amount, and location of pollutant emissions and the associated meteorological conditions that influence pollutant movement and dispersal. Atmospheric conditions, including wind speed, wind direction, and air temperature, in combination with local surface topography (i.e., geographic features such as mountains, valleys, and San Francisco Bay), determine the effect of air pollutant emissions on local air quality.

Climate and Meteorology

The Project Site is located within the boundaries of the San Francisco Bay Area Air Basin (Bay Area Basin). The Bay Area Basin's moderate climate steers storm tracks away from the region for much of the year, although storms generally affect the region from November through April. Brisbane's proximity to the onshore breezes stimulated by the Pacific Ocean provides for generally very good air quality at the Project Site. These winds are the result of the presence of the San Bruno Gap to the west of the Project Site. The San Bruno Gap is oriented northwest to

southeast, the same direction as the prevailing wind with elevations under 200 feet. Consequently, the Project Site receives some of the highest wind speeds along the peninsula. These winds maintain relatively good air quality in the flat valley portions of Brisbane.

Temperatures at the Project Site vicinity average in the mid-50s annually, generally ranging from the low-40s on winter mornings to mid-70s during summer afternoons. Daily and seasonal oscillations of temperature are small because of the moderating effects of the nearby San Francisco Bay. In contrast to the steady temperature regime, rainfall is highly variable and confined almost exclusively to the "rainy" period from November through April. Precipitation may vary widely from year to year as a shift in the annual storm track of a few hundred miles can mean the difference between a very wet year and drought conditions.

The nearest publicly operated meteorological monitoring facility to the Project Site is located at the San Francisco Airport, approximately 5 miles south of the Project Site. The data presented below was provided by the BAAQMD for that monitoring station, and used in the dispersion modeling discussed later in this analysis. While the monitoring facility is not located on the Project Site, both the Project Site and the monitoring site at San Francisco Airport are exposed to westerly wind flow through the San Bruno Gap, and are therefore comparable in terms of ambient air quality. This station has recorded an annual predominant wind speed of 13.4 miles per hour and an annual predominant wind direction of out of the west northwest. Peak annual winds occur during winter storms. South and southeast winds typically also precede weather systems passing through the region. Additionally site-specific wind data has been collected at the Project Site between 2008 and 2010. These data indicate an average wind speed of 10.5 miles per hour, predominantly out of the west (NRG Systems, 2011).

Criteria Air Pollutants

As required by the federal Clean Air Act passed in 1970, the U.S. EPA has identified seven criteria air pollutants that are pervasive in urban environments, and for which state and national health-based ambient air quality standards have been established. The U.S. EPA calls these pollutants "criteria air pollutants" because the agency has regulated them by developing specific public health- and welfare-based criteria as the basis for setting permissible levels. Ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter (PM_{10} and $PM_{2.5}$), and lead are the seven criteria air pollutants.

Ozone

Ozone is a secondary air pollutant produced in the atmosphere through a complex series of photochemical reactions involving reactive organic gases (ROG, also sometimes referred to as volatile organic compounds or VOC by some regulating agencies) and nitrogen oxides (NOx). The main sources of ROG and NOx, often referred to as ozone precursors, are combustion processes (including motor vehicle engines) and the evaporation of solvents, paints, and fuels. In the Bay Area Basin, automobiles are the single largest source of ozone precursors. Ozone is referred to as a regional air pollutant because its precursors are transported and diffused by wind concurrently with ozone production through the photochemical reaction process. Ozone causes

eye irritation, airway constriction, and shortness of breath and can aggravate existing respiratory diseases such as asthma, bronchitis, and emphysema.

BAAQMD and the CARB operate a regional air quality monitoring network that measures the ambient concentrations of the seven criteria air pollutants. Data from these stations record existing air pollutant levels. Probable future levels of air quality in the Project Site area can generally be inferred from ambient air quality measurements conducted by BAAQMD at its nearest monitoring stations by examining trends over time. The nearest air quality monitoring station to the Project Site is located on Arkansas Street in San Francisco, approximately 4.2 miles northeast of the Project Site.[1] **Table 4.B-1** shows that, according to published data, the most stringent applicable standards (state 1-hour standard of 9 parts per hundred million (pphm) and the federal 8-hour standard of 8 pphm) were not exceeded in San Francisco between 2006 and 2010. While the San Francisco data may not fully reflect the unique meteorological environment of Brisbane nor the proximity of site-specific stationary and roadway sources, they do present the nearest available benchmark that is most applicable to regional pollutants such as ozone. This data thus presents a reference point to what the pollutants of greatest concern are in the region and the degree to which the area is out of attainment with specific air quality standards. In addition, BAAQMD guidance focuses on the contribution of a project's emissions, both in terms of mass thresholds and, for $PM_{2.5}$, concentration thresholds and does not require addition of background values to project emissions to determine the significance of impacts.

Carbon Monoxide

CO is an odorless, colorless gas usually formed as the result of the incomplete combustion of fuels. The single largest source of CO is motor vehicles; the highest emissions occur during low travel speeds, stop-and-go driving, cold starts, and hard acceleration. Exposure to high concentrations of CO reduces the oxygen-carrying capacity of the blood and can cause headaches, nausea, dizziness, and fatigue, impair central nervous system function, and induce angina (chest pain) in persons with serious heart disease. Very high levels of CO can be fatal. As shown in Table 4.B-1, the more stringent state CO standards were not exceeded between 2006 and 2010. Measurements of CO indicate hourly maximums ranging between 15 to 25 percent of the more stringent state standard, and maximum 8-hour CO levels that are approximately 30 percent of the allowable 8-hour standard.

Particulate Matter (PM_{10} and $PM_{2.5}$)

Particulate matter is a class of air pollutants that consists of heterogeneous solid and liquid airborne particles from manmade and natural sources. Particulate matter is measured in two size ranges: PM_{10} for particles less than 10 microns in diameter, and $PM_{2.5}$ for particles less than 2.5 microns in diameter. In the Bay Area Basin, motor vehicles generate about one-half of the air basin's particulates, through tailpipe emissions as well as brake pad and tire wear. Wood burning in fireplaces and stoves, industrial facilities, and ground-disturbing activities such as construction

[1] While BAAQMD did operate a monitoring station in Hunters Point, this station only operated for a single year beginning in 2004 and its data would not reflect recent regulatory efforts to improve air quality over the past eight years.

TABLE 4.B-1
SUMMARY OF SAN FRANCISCO AIR QUALITY MONITORING DATA (2006–2010)

Pollutant	Most Stringent Applicable Standard	Number of Days Standards Were Exceeded and Maximum Concentrations Measured[a]				
		2006	2007	2008	2009	2010
Ozone						
- Days 1-hour Std. Exceeded		0	0	0	0	0
- Max. 1-hour Conc. (pphm)	>9 pphm[b]	5	6	8	7	8
- Days 8-hour Std. Exceeded		0	0	0	0	0
- Max. 8-hour Conc. (pphm)	>7 pphm[c]	5	5	7	6	5
Carbon Monoxide (CO)						
- Days 1-hour Std. Exceeded		0	0	0	0	ND
- Max. 1-hour Conc. (ppm)	>20 ppm[b]	2.9	2.7	5.7	4.3	ND
- Days 8-hour Std. Exceeded		0	0	0	0	0
- Max. 8-hour Conc. (ppm)	>9 ppm[b]	2.1	1.6	2.3	2.9	1.4
Suspended Particulates (PM_{10})						
- Days 24-hour Std. Exceeded[d]		3	2	0	0	0
- Max. 24-hour Conc. (µg/m^3)	>50 µg/m^3 [b]	**61**	**70**	41	36	39
Suspended Particulates ($PM_{2.5}$)						
- Days 24-hour Std. Exceeded[e]		3	5	0	1	3
- Max. 24-hour Conc. (µg/m^3)	>35 µg/m^3 [c]	**54**	**45**	29	**36**	**45**
- Annual Average (µg/m^3)	>12 µg/m^3 [b]	9.7	8.7	9.8	9.7	10.5
Nitrogen Dioxide (NO_2)						
- Days 1-hour Std. Exceeded		0	0	0	0	0
- Max. 1-hour Conc. (pphm)	>25 pphm[b]	11	7	6	6	9
Sulfur Dioxide (SO_2)						
- Days 24-hour Std. Exceeded		0	0	0	ND	ND
- Max. 24-hour Conc. (ppb)	>40 ppb[b]	6	6	4	ND	ND

NOTES:
Bold values are in excess of applicable standard. "NA" indicates that data is not available.
conc. = concentration; ppm = parts per million; pphm = parts per hundred million; ppb=parts per billion;
µg/m3 = micrograms per cubic meter
ND = No data or insufficient data.

a Number of days exceeded is for all days in a given year, except for particulate matter. PM10 and PM2.5 are monitored every six days and therefore the number of days exceeded is out of approximately 60 annual samples.
b State standard, not to be exceeded.
c Federal standard, not to be exceeded.
d Based on a sampling schedule of one out of every six days, for a total of approximately 60 samples per year.
e Federal standard was reduced from 65 µg/m3 to 35 µg/m3 in 2006.

SOURCE: BAAQMD, 2012a.

are other sources of such fine particulates. These fine particulates are small enough to be inhaled into the deepest parts of the human lung and can cause adverse health effects. According to the CARB, studies in the United States and elsewhere "have demonstrated a strong link between elevated particulate levels and premature deaths, hospital admissions, emergency room visits, and asthma attacks," and studies of children's health in California have demonstrated that particle pollution "may significantly reduce lung function growth in children." The CARB also reports

that statewide attainment of particulate matter standards could prevent thousands of premature deaths, lower hospital admissions for cardiovascular and respiratory disease and asthma-related emergency room visits, and avoid hundreds of thousands of episodes of respiratory illness in California (CARB, 2007).

Among the criteria pollutants that are regulated, particulates represent a serious ongoing health hazard. As long ago as 1999, BAAQMD was reporting, in its *CEQA Guidelines*, that studies had shown that elevated particulate levels contribute to the death of approximately 200 to 500 people per year in the Bay Area Basin. Compelling evidence suggests that $PM_{2.5}$ is by far the most harmful air pollutant in the Bay Area Basin in terms of the associated impact on public health. A large body of scientific evidence indicates that both long-term and short-term exposure to $PM_{2.5}$ can cause a wide range of health effects (e.g., aggravating asthma and bronchitis, causing visits to the hospital for respiratory and cardiovascular symptoms, and contributing to heart attacks and deaths) (BAAQMD, 2012b).

Table 4.B-1 shows that exceedances of the state PM_{10} standard have routinely occurred in San Francisco. It is estimated that the state 24-hour PM_{10} standard of 50 micrograms per cubic meter ($\mu g/m^3$) was exceeded on up to 30 days per year between 2006 and 2010.[2] BAAQMD began monitoring $PM_{2.5}$ concentrations in San Francisco in 2002. The federal 24-hour $PM_{2.5}$ standard was not exceeded until 2006, when the standard was lowered from 65 $\mu g/m^3$ to 35 $\mu g/m^3$. It is estimated that the state 24-hour $PM_{2.5}$ standard was exceeded on up to 72 days per year between 2006 and 2010. The state annual average standard was not exceeded between 2005 and 2009.

Nitrogen Dioxide (NO_2)

NO_2 is a reddish brown gas that is a byproduct of combustion processes. Automobiles and industrial operations are the main sources of NO_2. Aside from its contribution to ozone formation, NO_2 can increase the risk of acute and chronic respiratory disease and reduce visibility. NO_2 may be visible as a coloring component on high pollution days, especially in conjunction with high ozone levels. Table 4.B-1 shows that the standard for NO_2 is being met in the Bay Area Basin, and pollutant trends suggest that the air basin will continue to meet these standards for the foreseeable future. In 2010, the U.S. EPA implemented a new 1-hour NO_2 standard presented in **Table 4.B-2** (U.S. EPA, 2010).

Sulfur Dioxide (SO_2)

SO_2 is a colorless acidic gas with a strong odor. It is produced by the combustion of sulfur-containing fuels such as oil, coal, and diesel. SO_2 has the potential to damage materials and can cause health effects at high concentrations. It can irritate lung tissue and increase the risk of acute and chronic respiratory disease (BAAQMD, 2012b). Table 4.B-1 shows that the standard for SO_2 is being met in the Bay Area Basin, and pollutant trends suggest that the air basin will continue to meet these standards for the foreseeable future. In 2010, the U.S. EPA implemented a new 1-hour SO_2 standard presented in Table 4.B-2.

[2] PM_{10} is sampled every sixth day; therefore, actual days over the standard can be estimated to be six times the numbers listed in the table.

TABLE 4.B-2
STATE AND FEDERAL AMBIENT AIR QUALITY STANDARDS AND ATTAINMENT STATUS

Pollutant	Averaging Time	State SAAQS[a]		(Federal) NAAQS[b]	
		Standard	Attainment Status	Standard	Attainment Status
Ozone	1 hour	0.09 ppm	N	NA	See Note c
	8 hour	0.07 ppm	U[d]	0.075 ppm	N/Marginal
Carbon Monoxide (CO)	1 hour	20 ppm	A	35 ppm	A
	8 hour	9 ppm	A	9 ppm	A
Nitrogen Dioxide (NO2)	1 hour	0.18 ppm	A	0.100 ppm	U
	Annual	0.030 ppm	NA	0.053 ppm	A
Sulfur Dioxide (SO2)	1 hour	0.25 ppm	A	0.075	A
	24 hour	0.04 ppm	A	0.14	A
	Annual	NA	NA	0.03 ppm	A
Particulate Matter (PM_{10})	24 hour	50 µg/m3	N	150 µg/m3	U
	Annual	20 µg/m3[f]	N	NA	NA
Fine Particulate Matter ($PM_{2.5}$)	24 hour	NA	NA	35 µg/m3	N
	Annual	12 µg/m3	N	15 µg/m3	A
Sulfates	24 hour	25 µg/m3	A	NA	NA
Lead	30 day	1.5 µg/m3	A	NA	NA
	Cal. Quarter	NA	NA	1.5 µg/m3	A
Hydrogen Sulfide	1 hour	0.03 ppm	U	NA	NA
Visibility-Reducing Particles	8 hour	See Note g	A	NA	NA

NOTES:
A = Attainment; N = Nonattainment; U = Unclassified; NA = Not Applicable, no applicable standard; ppm = parts per million; $\mu g/m^3$ = micrograms per cubic meter.

[a] SAAQs = state ambient air quality standards (California). SAAQS for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1-hour and 24-hour), nitrogen dioxide, particulate matter, and visibility-reducing particles are values that are not to be exceeded. All other state standards shown are values not to be equaled or exceeded.

[b] NAAQs = national ambient air quality standards. NAAQS, other than ozone and particulates, and those based on annual averages or annual arithmetic means, are not to be exceeded more than once a year. The 8-hour ozone standard is attained when the three-year average of the fourth highest daily concentration is 0.08 ppm or less. The 24-hour PM_{10} standard is attained when the three-year average of the 99th percentile of monitored concentrations is less than the standard. The 24-hour $PM_{2.5}$ standard is attained when the three-year average of the 98th percentile is less than the standard.

[c] The U.S. EPA revoked the national 1-hour ozone standard on June 15, 2005.

[d] This state 8-hour ozone standard was approved in April 2005 and became effective in May 2006.

[e] State standard = annual geometric mean; national standard = annual arithmetic mean.

[f] In June 2002, the CARB established new annual standards for $PM_{2.5}$ and PM_{10}.

[g] Statewide visibility reducing particle standard (except Lake Tahoe Air Basin): Particles in sufficient amount to produce an extinction coefficient of 0.23 per kilometer when the relative humidity is less than 70 percent. This standard is intended to limit the frequency and severity of visibility impairment due to regional haze and is equivalent to a 10-mile nominal visual range.

SOURCE: BAAQMD, 2010; U.S. EPA, 2010.

Lead

Leaded gasoline (phased out in the United States beginning in 1973), paint (on older houses, cars), smelters (metal refineries), and manufacture of lead storage batteries have been the primary sources of lead released into the atmosphere. Lead has a range of adverse neurotoxic health effects, which puts children at special risk. Some lead-containing chemicals cause cancer in animals. Lead levels in the air have decreased substantially since leaded gasoline was eliminated. Ambient lead concentrations are only monitored on an as-warranted, site-specific basis in California. On October 15, 2008, the U.S. EPA strengthened the National Ambient Air Quality Standard for lead by lowering it from1.5 $\mu g/m^3$ to 0.15 $\mu g/m^3$. The U.S. EPA revised the

monitoring requirements for lead in December 2010. These requirements focus on airports and large urban areas resulting in an increase in 76 monitors nationally (U.S. EPA, 2012a).

Toxic Air Contaminants (TACs)

TACs are air pollutants that may lead to serious illness or increased mortality, even when present in relatively low concentrations. Potential human health effects of TACs include birth defects, neurological damage, cancer, and death. There are hundreds of different types of TACs with varying degrees of toxicity. Individual TACs vary greatly in the health risk they present; at a given level of exposure, one TAC may pose a hazard that is many times greater than another.

TACs do not have ambient air quality standards, but are regulated by BAAQMD using a risk-based approach. This approach uses a health risk assessment to determine what sources and pollutants to control as well as the degree of control. A health risk assessment is an analysis in which human health exposure to toxic substances is estimated and considered together with information regarding the toxic potency of the substances, to provide quantitative estimates of health risks.[3]

In addition to monitoring criteria pollutants, both BAAQMD and the CARB operate TAC monitoring networks in the San Francisco Bay Area. The nearest BAAQMD ambient TAC monitoring station to the Project Site is the station at 16th and Arkansas Streets in San Francisco. When TAC measurements at this station are compared to ambient concentrations of various TACs for the Bay Area Basin as a whole, the cancer risks associated with mean TAC concentrations in San Francisco are similar to those for the Bay Area Basin as a whole. Therefore, the estimated average lifetime cancer risk resulting from exposure to TAC concentrations monitored at the San Francisco station do not appear to be any greater than for the Bay Area Basin as a region.

BAAQMD provides two public source inventories of TAC emissions sources within its jurisdiction. The first is its TAC Annual Report, the most recent of which was published in 2007. The most recent source is its recently released (May 2012) Google Earth-based inventory of stationary source risks and hazards. This latter source indicates six permitted TAC sources within the Project Site and nine sources within 1,000 feet of the Project Site boundary. These sources and their BAAQMD-identified cancer risks are presented in **Table 4.B-3**.

Diesel Particulate Matter (DPM)

The CARB identified DPM as a toxic air contaminant in 1998, primarily based on evidence demonstrating cancer effects in humans. The exhaust from diesel engines includes hundreds of different gaseous and particulate components, many of which are toxic. Mobile sources such as trucks and buses are among the primary sources of diesel emissions, and concentrations of DPM are higher near heavily traveled highways and rail lines with diesel locomotive operations. The

[3] In general, a health risk assessment is required if BAAQMD concludes that projected emissions of a specific air toxic compound from a proposed new or modified source suggest a potential public health risk, then the applicant is subject to a health risk assessment for the source in question. Such an assessment generally evaluates chronic, long-term effects, calculating the increased risk of cancer as a result of exposure to one or more TACs.

TABLE 4.B-3
STATIONARY SOURCES OF TACS WITHIN 1,000 FEET OF THE PROJECT SITE

	Name of Source	Address	Cancer Risk (in one million)	Chronic Health Index[a] (Unit less ratio value)	$PM_{2.5}$ Concentration (micrograms/ cubic meter)
Sources on the Project Site					
1	Sunquest Properties	Brisbane Landfill	54.50	0.103	0.479
2	Kinder Morgan Tank Farm (Permit operator name: Santa Fe Pacific Pipeline)	950 Tunnel Avenue	26.38	0.0	0.007
3	Brisbane Recycling	5 Beatty Avenue	0	0	4.88
4	Tiger's Auto Body and Paint	23 Industrial Way	0	0	0
5	Super Tech Body Shop	370 Industrial Way	0	0.003	0
6	Sunquest Properties (Brisbane Landfill)	Bayshore Boulevard. and Sunnydale Avenue	0	0	0
7	Recology Sunset Scavenger	Beatty Road	0	0.001	0
8	SF Recycling & Disposal	Beatty Rd and Tunnel Avenue			
9	Recology Sunset Scavenger	501 Tunnel Avenue	47.83	0.017	92.100
Sources off the Project Site					
10	InterMune	3260 Bayshore Boulevard	23.50	0.008	0.005
11	PG&E Martin	3150 Geneva Avenue	0	0	0
12	View Rite	455 Allen Street	0	0.001	0
13	Bayshore Chevron	2690 Bayshore Boulevard	0.26	0.004	0
14	7-11	2700 Bayshore Boulevard	0.55	0.009	0.001
15	Leland Cleaners	151 Leland Avenue	37.50	0.100	0

NOTE:

[a] Chronic non-cancer risk is determined by dividing the estimated annual average concentration of a pollutant by the Reference exposure level assigned to that pollutant by the California Office of Environmental Health Hazard Assessment. For one pollutant this ratio is referred to as the Hazard Quotient (HQ). HQs for pollutants targeting the same organ system are added to determine the total Hazard Index (HI).

estimated cancer risk from exposure to diesel exhaust is much higher than the risk associated with any other toxic air pollutant routinely measured in the region. The risk from diesel particulate matter as determined by the CARB declined from 750 in one million in 1990 to 570 in one million in 1995; by 2000, the CARB estimated the average statewide cancer risk from DPM at 540 in one million (CARB, 2009; American Cancer Society, 2009).

Recent air pollution studies have shown an association between respiratory and other non-cancer health effects and proximity to high traffic roadways. The CARB community health risk assessments and regulatory programs have produced air quality information about certain types of facilities for consideration by local authorities when siting new residences, schools, day care centers, parks and playgrounds, and medical facilities (i.e., sensitive land uses). Sensitive land uses deserve special attention because children, pregnant women, the elderly, and those with existing

health problems are especially vulnerable to the non-cancer effects of air pollution. There is also substantial evidence that children are more sensitive to cancer-causing chemicals (CARB, 2005).

In 2000, the CARB approved a comprehensive Diesel Risk Reduction Plan to reduce diesel emissions from both new and existing diesel-fueled vehicles and engines. The regulation is anticipated to result in an 80 percent decrease in statewide diesel health risk in 2020 as compared with the diesel risk in 2000. Additional regulations apply to new trucks and to diesel fuel. Subsequent regulation of diesel emission by the CARB include the On-Road Heavy Duty Diesel Vehicle (In-Use) Regulation, the On-Road Heavy Duty (New) Vehicle Program, the In-Use Offroad Diesel Vehicle Regulation and the New Offroad Compression Ignition Diesel Engines and Equipment Program. All of these regulations and programs have timetables by which manufacturers must comply and existing operators must upgrade their diesel powered equipment. Despite these reduction efforts, the CARB recommends that proximity to sources of DPM emissions be considered in the siting of new sensitive land uses. The CARB notes that these recommendations are advisory and should not be interpreted as defined "buffer zones," and that local agencies must balance other considerations, including transportation needs, the benefits of urban infill, community economic development priorities, and other quality of life issues. With careful evaluation of exposure, health risks, and affirmative steps to reduce risk where necessary the CARB's position is that infill development, mixed use, higher density, transit-oriented development, and other concepts that benefit regional air quality can be compatible with protecting the health of individuals at the neighborhood level (CARB, 2005).

Odor Emissions

Facilities that are typically identified as sources of odor emissions in the Project Site vicinity would include the former landfill on the Project Site itself and the Recology (Sanitary Fill) solid waste transfer station. In a recent presentation for a conference of the California Integrated Waste Management Board, BAAQMD identified the status of odor complaints from active and inactive landfills. The Brisbane Landfill was not listed as having been a source of odor complaints within the last five years. The Recology transfer station receives and temporarily holds solid waste before the waste is disposed outside the county. Wastes are stored within an enclosed building. The operator employs a misting system with a chemical product for odor control.

BAAQMD was contacted to review the odor complaint history of the following facilities in the Project site vicinity: Recology/Sunset Scavenger; Sunquest Properties/Brisbane Landfill; SF Recycling and Disposal; and Brisbane Recycling. According to BAAQMD records, these facilities have received no odor complaints within the last three years (BAAQMD, 2011a).

Sensitive Receptors

Air quality does not affect every individual in the population in the same way, and some groups are more sensitive to adverse health effects than others. Population subgroups sensitive to the health effects of air pollutants include the elderly and the young, those with higher rates of respiratory disease such as asthma and chronic obstructive pulmonary disease, and with other environmental or occupational health exposures (e.g., indoor air quality) that affect cardiovascular or respiratory

diseases. Land uses such as schools, hospitals, and nursing and convalescent homes are considered to be more sensitive than the general public to poor air quality because the population groups associated with these uses have increased susceptibility to respiratory distress. Parks and playgrounds are considered moderately sensitive to poor air quality because persons engaged in strenuous work or exercise also have increased sensitivity to poor air quality; however, exposure times are generally far shorter in parks and playgrounds than in residential locations and schools, which typically reduces overall exposure to pollutants. Residential areas are considered more sensitive to air quality conditions compared to commercial and industrial areas because people generally spend longer periods of time at their residences, with associated greater exposure to ambient air quality conditions.[4]

BAAQMD defines sensitive receptors as children, adults and seniors occupying or residing in residential dwellings, schools, colleges and universities, daycares, hospitals, and senior-care facilities. Workers are not considered sensitive receptors because all employers must follow regulations set forth by the Occupation Safety and Health Administration (OSHA) to ensure the health and well-being of their employees (BAAQMD, 2011b).

Sensitive land uses surrounding the Project Site include residences, parks, and schools, and are presented in **Figure 4.B-1**. Single-family homes within the Northeast Ridge development are located 0.5 mile west of the proposed recycled water plant and 1,000 feet west of the existing and proposed research and development uses. Single-family residences on Santa Clara Street are located 1,700 feet southwest of Lagoon Road and the Project Site boundary.

Single-family homes on Linda Vista Drive and Bayshore Child Care Service in Daly City are located approximately 1,000 feet west of the proposed institutional/civic/cultural land uses. Single-family homes on Wheeler and Tocoloma Avenues in San Francisco are located approximately 800 feet northeast of proposed residential and retail land uses and 500 feet north of proposed retail uses and the Recology expansion area.

4.B.3 Regulatory Setting

Project Site development must comply with federal, state, regional, and local regulations. This section discusses these requirements to the extent that they will affect the way development occurs with the Project Site.

Federal Regulations

The 1970 Clean Air Act (last amended in 1990) required that regional planning and air pollution control agencies prepare a regional air quality plan to outline the measures by which both stationary and mobile sources of pollutants will be controlled in order to achieve all standards by the deadlines specified in the Clean Air Act. These ambient air quality standards are intended to protect the public health and welfare, and they specify the concentration of pollutants (with an

[4] The factors responsible for variation in exposure are also often similar to factors associated with greater susceptibility to air quality health effects. For example, poorer residents may be more likely to live in crowded substandard housing and be more likely to live near industrial or roadway sources of air pollution.

Insert Figure 4.B-1
Sensitive Receptor Locations

adequate margin of safety) to which the public can be exposed without adverse health effects. They are designed to protect those segments of the public most susceptible to respiratory distress, including asthmatics, the very young, the elderly, people weak from other illness or disease, or persons engaged in strenuous work or exercise. Healthy adults can tolerate occasional exposure to air pollution levels that are somewhat above ambient air quality standards before adverse health effects are observed.

The current attainment status for the San Francisco Bay Area Air Basin, with respect to federal standards, is summarized in Table 4.B-2. In general, the Bay Area Basin experiences low concentrations of most pollutants when compared to federal standards, except for ozone and particulate matter (PM_{10} and $PM_{2.5}$), for which standards are exceeded periodically.

In June 2004, the Bay Area Basin was designated as a marginal nonattainment area of the national 8-hour ozone standard.[5] The U.S. EPA lowered the national 8-hour ozone standard from 0.80 to 0.75 parts per million (ppm) effective May 27, 2008. In April 2012, the U.S. EPA designated the Bay Area Basin as a marginal nonattainment region for the 2008 0.75 ppm ozone standard (U.S. EPA, 2012b). The Bay Area Basin is in attainment for other criteria pollutants, with the exception of the 24-hour standards for PM_{10} and $PM_{2.5}$, for which the Bay Area Basin is designated as "Unclassified." "Unclassified" is defined by the Clean Air Act Amendments as any area that cannot be classified, on the basis of available information, as meeting or not meeting the national primary or secondary ambient air quality standard for the pollutant.

State Regulations

Although the federal Clean Air Act established national ambient air quality standards, individual states retained the option to adopt more stringent standards and to include other pollution sources. California had already established its own air quality standards when federal standards were established, and because of the unique meteorological problems in California, there is considerable diversity between the state and national ambient air quality standards, as shown in Table 4.B-2. California ambient standards tend to be at least as protective as national ambient standards and are often more stringent.

In 1988, California passed the California Clean Air Act (California Health and Safety Code Sections 39600 et seq.), which, like its federal counterpart, called for the designation of areas as attainment or nonattainment, but based on state ambient air quality standards rather than the federal standards. As indicated in Table 4.B-2, the Bay Area Basin is designated as "nonattainment" for state ozone, PM_{10}, and $PM_{2.5}$ standards. For other pollutants, the Bay Area Basin is either unclassified or designated as being in "attainment."

The California Clean Air Act requires each air district in which state air quality standards are exceeded to prepare a plan that documents reasonable progress towards attainment. A three-year update is required. In the Bay Area Basin, this planning process is incorporated into its Clean Air Plan.

5 "Marginal nonattainment area" means an area designated marginal nonattainment for the 1-hour national ambient air quality standard for ozone.

Regional Regulations

BAAQMD is the regional agency responsible for air quality regulation within the San Francisco Bay Area Basin. BAAQMD regulates air quality through its planning and review activities. BAAQMD has permit authority over most types of stationary emission sources and can require stationary sources to obtain permits, and can impose emission limits, set fuel or material specifications, or establish operational limits to reduce air emissions. BAAQMD regulates new or expanding stationary sources of toxic air contaminants.

For state air quality planning purposes, the Bay Area Basin is classified as a serious non-attainment area for ozone. The "serious" classification triggers various plan submittal requirements and transportation performance standards. One such requirement is that the Bay Area Basin update the *Clean Air Plan* every three years to reflect progress in meeting the air quality standards and to incorporate new information regarding the feasibility of control measures and new emission inventory data. The Bay Area Basin's record of progress in implementing previous measures must also be reviewed. On September 15, 2010, BAAQMD adopted the most recent revision to the Clean Air Plan. The goals of the 2010 Clean Air Plan are:

- Update the Bay Area 2005 Ozone Strategy in accordance with the requirements of the California Clean Air Act to implement "all feasible measures" to reduce ozone;
- Consider the impacts of ozone control measures on PM_{10} and $PM_{2.5}$, TACs, and GHGs, in a single, integrated plan;
- Review progress in improving air quality in recent years; and
- Establish emission control measures to be adopted or implemented in the 2009−2012 timeframe.

In December 1999, BAAQMD adopted its *CEQA Guidelines – Assessing the Air Quality Impacts of Projects and Plans,* as a guidance document to provide lead government agencies, consultants, and project proponents with uniform procedures for assessing air quality impacts and preparing the air quality sections of environmental documents for projects subject to CEQA. The *BAAQMD CEQA Guidelines* is an advisory document and local jurisdictions are not required to utilize the methodology outlined therein. The document describes the criteria that BAAQMD uses when reviewing and commenting on the adequacy of environmental documents. It recommends thresholds for use in determining whether projects would have significant adverse environmental impacts, identifies methodologies for predicting project emissions and impacts, and identifies measures that can be used to avoid or reduce air quality impacts. BAAQMD adopted new thresholds of significance (BAAQMD thresholds) on June 2, 2010, to assist lead agencies in determining when potential air quality impacts would be considered significant under CEQA. BAAQMD also released new *CEQA Guidelines* in May 2011, which advise lead agencies on how to evaluate potential air quality impacts with the adopted new thresholds of significance.

On March 5, 2012, the Alameda County Superior Court issued a judgment finding that BAAQMD had failed to comply with CEQA when it adopted its 2010 thresholds of significance. While the court did not determine whether or not the thresholds were valid, it did find that the adoption of the

thresholds was a project under CEQA, and therefore that BAAQMD should have conducted environmental review. As a result, the court set aside the thresholds and ordered BAAQMD to cease dissemination of them until it had complied with CEQA. BAAQMD has appealed the court's decision and the appeal is currently pending.

In compliance with the court's order, BAAQMD is no longer recommending that the thresholds be used as a generally applicable measure of a project's significant air quality impacts, and lead agencies are not required to use these thresholds in their environmental documents. However, nothing in the court's decision prohibits an agency's use of the thresholds to assess the significance of a project's air quality impacts. Therefore, based on substantial evidence, the analysis herein uses the BAAQMD thresholds and the methodologies in its 2012 *Air Quality CEQA Guidelines* (updated in May 2012) to determine the significance of Project Site development-related impacts with respect to air pollutant emissions.

Local Regulations

The Community Health and Safety Element of the City of Brisbane 1994 General Plan contains 16 policies related to air quality. Eight of these policies concern the City's relationship with BAAQMD and other county and state agencies and/or do not relate directly to the City's consideration of local development projects**.** The remaining eight policies and associated programs are as follows:

Policy 193: As a part of land use development analysis, consider the impacts on air resources that will be generated by a project through mobile sources.

Program 193a: Consider the design of roadways, transit facilities, bikeways and pedestrian access in all subdivisions, specific plans and other land use proposals to evaluate whether and to what extent the design addresses air quality issues.

Program 193b: In conjunction with land use development applications and CEQA review, evaluate whether a proposal may have a significant effect on air quality because of mobile emissions. Require environmental impact analysis and mitigation plans and monitoring, as appropriate.

Program 193c: Discourage drive-up service windows and similar uses that generally result in vehicle idling.

Policy 194: Attempt to minimize dependence on automobile travel by encouraging transit, bicycle and pedestrian alternatives and incorporating alternatives to the automobile in land use planning and project design.

Program 194a: Provide park-and-ride facilities to facilitate use of transit.

Program 194b: Provide bicycle and pedestrian access to all areas of the City to provide alternatives to automobile use.

Program 194c: Require all new development to include design principles that are transit oriented and otherwise reduce dependence on the automobile.

Policy 197: Continue to improve existing roadways to reduce congestion in order to reduce emissions generated by "stop-and-go" driving.

Program 197a: Use traffic management systems, such as signage and timed signals, to facilitate traffic flow and reduce congestion.

Policy 198: Actively participate in and support the development and implementation of transportation system management plans (TSMs) and transportation demand management measures (TDMs).

Program 198a: Support the implementation of transportation demand management measures by private businesses, such as transit and carpool subsidies, preferential carpool/vanpool parking, flexible work schedules and ride matching services.

Program 198b: Encourage the installation of bicycle lockers, changing rooms and showers, guaranteed ride home, the provision of onsite support services in private businesses and other measures to reduce vehicular trips by employees.

Program 198c: Consider providing incentives as a part of land use development permit approvals for the use of TSM and TDM measures.

Policy 199: Encourage County and regional transportation agencies to improve transit and transportation systems in ways that reduce mobile source emissions.

Policy 202: Incorporate emissions control practices into City ordinances as appropriate.

Program 202a: Strictly enforce the City's Grading Ordinance provisions for dust control.

Program 202b: Require that demolition and construction projects conform to the BAAQMD recommended dust control measures.

Program 202c: On a periodic basis, review the City's ordinance requirements to assure conformance with BAAQMD standards.

Policy 203: Consider issues of stationary emissions in land use planning and project review.

Program 203a: As part of land use planning, establish buffer zones between sensitive receptors and significant emissions sources, including uses that cause offensive odors or dust.

Program 203b: In conjunction with any surface mining, oil and gas operation or industrial development land use permit, place strict conditions for compliance with best management practices for control of dust, odors and other emissions that have air quality impacts.

4.B.4 Impacts and Mitigation Measures

Significance Criteria

Appendix G of the CEQA Guidelines indicates that a project would have a significant effect on the environment if it were to:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation;

- Result in cumulatively considerable net increase of any criteria pollutant for which the region is in non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors);
- Expose sensitive receptors to substantial pollutant concentrations; or
- Create objectionable odors affecting a substantial number of people.

The above five thresholds contained in the Appendix G checklist of the state CEQA Guidelines are applied to both construction-related activities and operational activities of the proposed project, as well as to cumulative impact assessment, as suggested by BAAQMD's *CEQA Air Quality Guidelines*. Consequently, while there are five discrete thresholds set forth in CEQA Appendix G, because they are applied to multiple scenarios, eleven significance criteria are used in this analysis. These criteria were developed by BAAQMD in its *2012 CEQA Air Quality Guidelines* and include separate methodologies for assessing criteria air pollutants, toxic air contaminants, and localized pollutants (CO and $PM_{2.5}$). Thus, Project Site development would have a significant air quality impact if any of the components described in Table 1-1 would:

- Result in localized construction dust-related air quality impacts;
- Generate construction emissions that would result in a considerable net increase of criteria pollutants and precursors for which the air basin is in nonattainment under an applicable federal or state ambient air quality standard;
- Expose sensitive receptors to substantial concentrations of toxic air contaminants or respirable particulate matter (PM2.5) during construction;
- Generate operational emissions that would result in a considerable net increase of criteria pollutants and precursors for which the air basin is in nonattainment under an applicable federal or state ambient air quality standard;
- Expose sensitive receptors to substantial concentrations of toxic air contaminants or respirable particulate matter (PM2.5) during Project operation;
- Expose persons (new receptors) to substantial levels of TACs, which may lead to adverse health;
- Expose sensitive receptors to substantial carbon monoxide (CO) concentrations;
- Create objectionable odors affecting a substantial number of people;
- Conflict with or obstruct implementation of the applicable air quality plan or lead to adverse health effects;
- Together with anticipated cumulative development in the Bay Area Basin, contribute to regional criteria pollutants; or
- Cumulatively expose persons to substantial levels of toxic air contaminants (TACs), which may lead to adverse health effects.

Impact Assessment Methodology

As described above, BAAQMD issued *CEQA Air Quality Guidelines*, including Air Quality CEQA Thresholds of Significance, in June 2010 and updated in May 2011. These Guidelines (*CEQA Air Quality Guidelines* were updated in May 2012) provide significance thresholds for considering whether a project would have a significant air quality impact. The Guidelines, published for assessing impacts relative to these thresholds, also provide recommended procedures for evaluating potential air quality impacts during the environmental review process. Additionally, in its 2011 update to the significance thresholds, BAAQMD had adopted new risk and hazard exposure thresholds for the siting of new sensitive receptors. Although the 2010 and 2011 BAAQMD significance thresholds have been set aside (see discussion in Subsection 4.B.3, above), these thresholds are based on substantial evidence identified in the 2009 *Draft Options and Justification Report for CEQA Thresholds of Significance* and are therefore used within this document. Methodologies used for analysis of air quality impacts follow the guidance contained in the BAAQMD *CEQA Air Quality Guidelines* updated in May 2012 (BAAQMD, 2012b).

Health Risks and Hazards

A health risk assessment (HRA)[6] was conducted to evaluate the cancer risks and non-cancer related health effects associated with exposure to TACs emitted as a result of Project Site development, and is included in Appendix D. Cancer risks[7] are evaluated based on 70-year exposure, pursuant to BAAQMD's *Health Risk Screening Analysis Guidelines* (BAAQMD, 2005). Non-cancer health risks[8] include adverse health effects from both acute (highest 1-hour) and chronic (average annual) exposure. BAAQMD also requires the analysis of $PM_{2.5}$ concentrations.[9] The HRA methods are designed to estimate the highest possible, or "upper bound" risks to the most sensitive members of the population (i.e., children, elderly, infirm), as well as those that are potentially exposed to TACs on a routine and prolonged basis (i.e., residents). Air toxics associated with the various Project components set forth in Table 1-1 include diesel particulate matter (DPM) emissions from construction and operations of Project components. The results of the HRA are used in the analysis of TAC impacts.

The HRA was conducted in accordance with technical guidelines developed by federal, state, and regional agencies, including California Environmental Protection Agency (CalEPA), California Office of Environmental Health Hazard Assessment (OEHHA) *Air Toxics Hot Spots Program Guidance* (2003), and the BAAQMD *Health Risk Screening Analysis Guidelines* (BAAQMD, 2005).

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6 An analysis designed to predict the generation and dispersion of air toxics in the outdoor environment, evaluate the potential for exposure of human populations, and to assess and quantify both the individual and population-wide health risks associated with those levels of exposure.

7 Cancer risk is defined as the lifetime probability of developing cancer from exposure to carcinogenic substances. Cancer risks are expressed as the chances in one million of contracting cancer, for example, 10 cancer cases among one million people exposed.

8 Non-cancer adverse health risks are measured against a hazard index, which is defined as the ratio of the predicted incremental exposure concentrations of the various non-carcinogens from the Project to published reference exposure levels (RELs) that can cause adverse health effects.

9 The BAAQMD guidance stipulates inclusion of $PM_{2.5}$ exhaust emissions only in this analysis (i.e., fugitive dust emissions are addressed through employing BAAQMD's *Best Management Practices* found under the discussion of Impact 4.B-1.

The HRA is based on estimated TAC emissions from development of the Project Site and the length of time those living, working, and recreating in the vicinity of the Project Site could be exposed to TAC emissions. Actual exposures are not measured, but rather are modeled using sophisticated software that uses local meteorology and topography to predict the dispersion of TACs from their source and the resulting concentrations at receptors. The models tend to be conservative, both in terms of the estimated exposure, and the toxic effects of the substances to which people are exposed; thus, the models tend to overestimate the adverse health effect.

For this EIR, the HRA focused on the health impacts that operation of Project site development components identified in Table 1-1 would have on the new residences proposed as part of the DSP and DSP-V scenarios, as well as impacts on the existing residences, hospitals, and schools that would result for each of the four Project Site development scenarios. The methodology, calculations, and supporting data for the HRA are included in Appendix D.

According to CalEPA, a HRA should not be interpreted as actual expected rates of cancer or other potential health effects, but rather as estimates of potential risk or likelihood of adverse effects based on current knowledge, under a number of highly conservative assumptions and the best assessment tools currently available.

Construction-related impacts associated with implementation of Project site development-related infrastructure improvements described in the Chapter 3, *Project Description*, are included in the analysis below.

Significance Thresholds Applied in the Analysis of Criteria Pollutants and TACs

Construction Impacts

- *Construction-related emissions of fugitive dust, including PM_{10} that would not be addressed or controlled by Best Management Practices would be considered to be a significant criteria pollutant impact.*

BAAQMD's recommended approach to addressing localized construction dust-related air quality impacts (fugitive PM_{10} dust emissions) is a best management practices (BMP) approach. This approach is identified both in the 1999 BAAQMD *CEQA Guidelines*, as well as in the 2009 Justification Report. If BAAQMD-recommended BMPs, which are tiered based on the size of the construction site (less than or greater than four acres), are incorporated into project construction, the resulting impacts are determined to be less than significant.

- *Construction-related emissions of 54 pounds per day of ROG, NOx, or $PM_{2.5}$ and 82 pounds per day of PM_{10} would be considered to be a significant criteria pollutant impact.*

Project Site development-related construction emissions would be considered to result in a considerable net increase of a criteria pollutant and have a significant air quality impact if average daily construction-related emissions would exceed 54 pounds (25 kilograms) of ROG, NOx, or

$PM_{2.5}$ (non-inclusive of fugitive dust[10]) or exceed 82 pounds (37 kilograms) of PM_{10} (non-inclusive of fugitive dust[11]). The thresholds for PM_{10} and $PM_{2.5}$ are inclusive only of construction exhaust emissions. BAAQMD guidance regarding construction-related emission of fugitive dust identifies implementation of BMPs as its threshold of significance (as discussed above).

- *Construction activities that would increase cancer risk exposure by 10 in one million, contribute hazard indices by a ratio of 1.0 or increase local concentrations of $PM_{2.5}$ by 0.3 micrograms per cubic meter would be considered to result in a significant construction-related impact with regard to risks and hazards.*

The 2010 BAAQMD *CEQA Thresholds* state that a project would have a significant air quality impact if construction activities would result in an incremental increase in localized annual average concentrations of $PM_{2.5}$ exceeding 0.3 micrograms per cubic meter ($\mu g/m^3$) within a 1,000-foot radius from the property line of the construction area or a receptor. A project would also have a significant air quality impact if it would expose persons to substantial levels of TACs (including DPM), such that the probability of contracting cancer for the Maximally Exposed Individual (MEI)[12] exceeds 10 in one million or if it would expose persons to TACs such that a non-cancer Hazard Index of 1.0 would be exceeded. A Hazard Index (HI) is a summation of the non-cancer hazard quotients for all chemicals to which an individual is exposed.

Project-Level Operational Impacts

- *Operational emissions of 54 pounds per day of ROG, NOx, or $PM_{2.5}$, 82 pounds per day of PM_{10}, or CO emission leading or contributing to an exceedance of the State Ambient Air Quality Standard would be considered to be a significant criteria pollutant impact.*

For project-level impact operational analyses, the BAAQMD 2009 Justification Report identifies various thresholds and tests of significance. For ROG, NOx and $PM_{2.5}$, a net increase equal to or greater than 10 tons per year (maximum annual) or 54 pounds average daily emissions is considered significant, while for PM_{10} a net increase equal to or greater than 15 tons per year (maximum annual) or 82 pounds average daily emissions is considered significant.

For CO emissions, an increase would be considered to be significant if it leads to or contributes to CO concentrations exceeding the State Ambient Air Quality Standard.

- *A project that would increase an existing receptor or expose a new receptor to a cancer risk exposure by 10 in one million, contribute hazard indices by a ratio of 1.0 or increase local concentrations of $PM_{2.5}$ by 0.3 micrograms per cubic meter would be considered to result in a significant construction-related impact with regard to risks and hazards.*

Under the thresholds identified in the BAAQMD Justification Report, a project would also be considered to have a significant air quality impact if it would result in an incremental increase in localized annual average concentrations of $PM_{2.5}$ exceeding 0.3 micrograms per cubic meter from project operations. A project would also be considered to have a significant air quality impact if

10 Fugitive dust consists of very small liquid and solid particulate matter that is suspended in the air by the wind and human activities. Fugitive dust originates primarily from the soil.
11 Fugitive dust is PM suspended in the air by the wind and human activities. It originates primarily from the soil and is not emitted from exhaust pipes, vents, or stacks.
12 The MEI is the person with the highest exposure in a given population.

project operations would expose persons to substantial levels of TACs, such that the probability of contracting cancer for the MEI exceeds 10 in one million or if would expose persons to TACs such that a non-cancer Hazard Index of 1.0 would be exceeded.

Cumulative Impacts

The BAAQMD Justification Report states that if the individual emissions of a project results in an increase in ROG, NOx, $PM_{2.5}$, or PM_{10} of exceeding the project-level significance criteria, then it would also be considered to contribute considerably to a significant cumulative effect.

With regard to cumulative impacts from $PM_{2.5}$, a significant cumulative air quality impact would be considered to occur if localized annual average concentrations of $PM_{2.5}$ would exceed 0.8 micrograms per cubic meter at any receptor from project operations in addition to existing emission sources and cumulative emissions sources within a 1,000-foot radius of the property line of the source or receptor.

With regard to cumulative impacts from TACs, a significant cumulative air quality impact would be considered to occur if the probability of contracting cancer for the MEI would exceed 100 in 1 million or if the project would expose persons to TACs such that a non-cancer chronic HI of 10.0 would be exceeded at any receptor as a result of project operations, in addition to existing emission sources and cumulative emissions sources within a 1,000 foot radius of the project site. However, a project's construction or operational impacts would be considered to result in a considerable contribution to an identified cumulative health risk impact if the project's construction or operation activities would exceed the project-level health risk significance thresholds identified above.

Cumulative air quality impacts are also addressed in Chapter 6, *Significant Unavoidable Impacts, Growth Inducement, Cumulative Impacts, and Other CEQA Considerations*, of this EIR.

Project Impacts and Mitigation Measures

Impact 4.B-1: Would the Project result in localized construction dust-related air quality impacts?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
SM	SM	SM	SM

SU = Significant and Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = no impact

DSP, DSP-V, CPP, and CPP-V

As described in Chapter 3, *Project Description*, Project Site development includes demolition of numerous structures in preparation for construction of the new structures. Project related demolition, soil transport, remediation, grading and other construction activities at the Project Site would cause wind-blown dust that would generate particulate matter releases into the atmosphere. Fugitive dust includes not only PM_{10} and $PM_{2.5}$, but also larger particles that can represent a nuisance impact. Dust can be an irritant and cause watering eyes or irritation to the lungs, nose and throat. Demolition, excavation and other construction activities can cause wind-blown dust to add to particulate matter in the local atmosphere. Although there are federal standards for air pollutants and state and regional air quality

control plans, air pollutants continue to have impacts on human health throughout the country. CalEPA has found that particulate matter exposure can cause health effects at levels lower than national standards. The current health burden of particulate matter demands that, where possible, public agencies take feasible available actions to reduce sources of particulate matter exposure.

For mitigation of fugitive dust emissions, the BAAQMD *CEQA Air Quality Guidelines* recommend following the current BMP approach, which has been a pragmatic and effective approach to control fugitive dust emissions. The guidelines note that individual measures have been shown to reduce fugitive dust by anywhere from 30 percent to more than 90 percent and conclude that projects that implement construction BMPs would reduce fugitive dust emissions to a less than significant level. BMPs for controlling fugitive dust from construction are identified in **Mitigation Measure 4.B-1**.

Mitigation

Mitigation Measure 4.B-1: To reduce fugitive dust emissions, the following provisions shall be incorporated into construction specifications for all site-specific development projects within the Project Site. These measures would reduce fugitive dust emissions primarily during soil movement, grading and demolition activities but also during vehicle and equipment movement on unpaved project sites.

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	✓	✓
✓ = measure applies - = measure does not apply			

Basic Controls that Apply to All Construction Sites

1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
2. All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
3. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
4. All vehicle speeds on unpaved roads shall be limited to 15 mph.
5. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
6. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations). Clear signage shall be provided for construction workers at all access points.
7. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
8. A publicly visible sign shall be posted with the telephone number and person to contact at the Lead Agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. BAAQMD's phone number shall also be visible to ensure compliance with applicable regulations.

Conclusion: For fugitive dust emissions, the BMP approach has been a pragmatic and effective approach to the control of fugitive dust emissions. Studies have demonstrated (Western Regional Air Partnership, U.S.EPA) that the application of BMPs at construction sites have significantly controlled fugitive dust emissions. Individual measures have been shown to reduce fugitive dust by anywhere from 30 percent to more than 90 percent. In the aggregate, BMPs substantially reduce fugitive dust emissions from construction sites. These studies support BAAQMD recommendations that projects implementing construction BMPs reduce fugitive dust emissions to a less than significant level (BAAQMD, 2009). As a result, BAAQMD *CEQA Guidelines* dating back to before 1999 require implementation of these BMPs for determinations that impacts would be less than significant. Thus, implementation of these BMPs for construction impacts of development as extensive as that required for the Project Site would result in the same less than significant level of impacts as a large number of smaller projects that cumulatively represent the same amount of development as is proposed for the Project Site. Because BAAQMD BMPs for fugitive dust control would be required for all construction activities and implementation of those practices, Project Site development would not result in fugitive dust impacts. Therefore, this impact is less than significant with mitigation.

Impact 4.B-2: Would the Project generate construction emissions that would result in a cumulatively considerable net increase of criteria pollutants and precursors for which the air basin is in nonattainment under an applicable federal or state ambient air quality standard?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
SU	SU	SU	SU

SU = Significant and Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = no impact

DSP, DSP-V, CPP, and CPP-V

Project Site development-related construction would generate air emissions through the use of heavy-duty construction equipment, from vehicle trips hauling materials, and from construction workers traveling to and from the Project Site. Mobile source emissions, primarily NO_X, would be generated from the use of construction equipment such as excavators, bulldozers, wheeled loaders, and cranes. During the finishing phase, paving operations and the application of asphalt, architectural coatings (i.e., paints) and other building materials would release ROG. The assessment of construction air quality impacts considers each of these sources, and recognizes that construction emissions can vary substantially from day to day, depending on the level of activity, the specific type of operation, and for dust, the prevailing weather conditions.

Project Site development would occur over 20 years. The timing and sequence of development would depend upon numerous factors, including future market conditions, public investment, and private initiative and investment. Development of the Project Site is anticipated to generally occur starting in the western portion of the site (between Bayshore Boulevard and the Caltrain railroad tracks) because of the availability of existing roadways and infrastructure systems adjacent to the west side of the Project Site. Development of the eastern portion of the Project Site (between Caltrain tracks and US Highway 101) would follow initial increments of development to

the west as roadway improvements increase connectivity across the Project Site and access to US Highway 101.

Construction activities are assumed to occur over a minimum 20-year period, beginning generally in 2015. Preparation of the site for Phase 1 development is projected to occur by 2020 and this is what was assumed in the estimation of construction related emissions for the western portion of the Project Site. Timing of development within the eastern portion of the Project Site has not yet been determined, but for the purposes of estimating air quality emissions was assumed to occur between 2020 and 2026.

Site preparation would include site remediation, infrastructure backbone and geotechnical stabilization required for the first phase of development as well as remediation and infrastructure work required for development of the Project Site. Remediation of contaminated soil and groundwater at the site would begin prior to grading of the site. Additionally, approximately 1,130,000 cubic yards of soil would be trucked to off-site locations; another 2,600,000 cubic yards of soils materials would be moved within the Project Site.

Construction emissions from Project Site development were estimated using the URBEMIS2007 emissions inventory model, which separates the construction process into stages: demolition, grading, trenching, asphalt work, structural building, and architectural coating. The demolition phase considered the demolition and debris off-haul of 16 warehouses along Industrial Way in the western portion of the Project Site and six lumber yard buildings in the northeastern portion of the Project Site. Post-processing of URBEMIS2007 construction emission estimates was conducted to account for recently updated vehicle (EMFAC2011) and equipment (OFFROAD) emission factors and load factors now available.

The grading phase is separated into emissions from fugitive dust, emissions from off-road equipment, emissions from on-road trucks off-hauling soil, and worker vehicle trips. Calculations for the grading phase of development within the western portion of the Project Site assumed export of approximately 2.6 million cubic yards of fill being from the landfill area to the railyard area by truck (although conveyor over the Caltrain tracks is another option being explored), while development of the eastern portion of the Project Site assumed off-site export of 1,130,000 cubic yards of soil to Ox Mountain Landfill. The trenching phase of Project Site development consists of worker vehicle trips and off-road equipment emissions. The asphalt application phase estimates emissions from off-road equipment, on-road trucks worker vehicle trips, as well as off-gassing[13] of ROG emissions from asphalt (primarily parking lot and roadway surfaces). Emissions from the structural building phase would consist of off-road equipment emissions, worker vehicle trips and vendor vehicle trips. Grading and remediation activities were assumed to have been conducted prior to these other activities. Trenching activities were assumed to occur simultaneously with the earliest portion of building construction. Asphalt application and architectural coating application were assumed to occur simultaneously at the end of the building construction. The equipment mix and construction duration for each stage and scenario are

13 "Off gassing" refers to the release of gaseous compounds from a solid material such as asphalt.

detailed in URBEMIS2007 printout sheets, which are included in Appendix D. Additionally spreadsheets for truck transport emissions using EMFAC2011 emission factors and post-processing of URBEMIS construction emissions are also in Appendix D.

Daily construction-related criteria pollutant emissions for development within the western portion of the Project Site are presented in **Table 4.B-4** and in **Table 4.B-5** for the eastern portion of the Project Site. Construction activities in the western portion of the Project Site would be the same for the DSP and DSP-V scenarios which would therefore have the same emissions in the early portion of Project Site development. The same conclusion holds true for the CPP and CPP-V scenarios. As shown in the tables, the DSP and DSP-V scenarios would have greater construction related NOx emissions than the CPP and CPP-V scenarios. This difference is the result of the residential component of the DSP and DSP-V scenarios which require substantially more materials and associated vendor trips and construction workers than non-residential construction.

As shown, maximum regional emissions would exceed the BAAQMD daily significance thresholds for ROG and NOx during throughout Project Site construction. For ROG, the predominant construction activity associated with the significant emissions would be application of architectural coatings. For NOx, the predominant construction activity associated with the significant emissions would be off road diesel equipment and on-road haul trucks during demolition, and grading and vendor trucks during building construction.

TABLE 4.B-4
AVERAGE DAILY CONSTRUCTION-RELATED EMISSIONS
WESTERN PORTION OF PROJECT SITE

	Average Daily Construction Emissions (lb/day)			
	ROG	**NOx**	**PM_{10}**	**$PM_{2.5}$**
Developer Sponsored Plan (and Entertainment Variant) Construction				
2014	4.19	47.66	1.86	1.70
2015	16.87	**95.28**	1.50	1.36
2016	15.31	**85.54**	1.34	1.27
2017	**134.59**	**62.76**	0.56	0.49
2018	**120.65**	13.11	0.58	0.54
2019	**121.00**	8.24	0.30	0.28
BAAQMD Threshold	54	54	82	54
Exceeds Threshold?	Yes	Yes	No	No
Community Proposed Plan (and Recology Variant) Construction				
2014	4.74	53.92	2.09	1.91
2015	11.07	**61.41**	1.01	0.92
2016	10.04	**55.45**	0.90	0.85
2017	**82.54**	**57.76**	1.39	1.26
2018	**73.56**	12.49	0.59	0.54
2019	4.24	8.24	0.30	0.28
BAAQMD Threshold	54	54	82	54
Exceeds Threshold?	Yes	Yes	No	No

SOURCE: ESA, 2012.

TABLE 4.B-5
AVERAGE DAILY CONSTRUCTION-RELATED EMISSIONS
EASTERN PORTION OF PROJECT SITE

	Average Daily Construction Emissions (lb/day)			
	ROG	**NOx**	**PM_{10}**	**$PM_{2.5}$**
Developer Sponsored Plan (DSP) Construction				
2020	3.11	45.80	0.98	0.91
2021	10.81	**82.36**	1.15	1.05
2022	10.77	**82.12**	1.15	1.05
2023	**137.74**	**87.46**	1.62	1.48
2024	**67.51**	23.98	0.64	0.58
2025	**67.25**	23.96	0.63	0.58
2026	0.93	21.15	0.41	0.38
BAAQMD Threshold	54	54	82	54
Exceeds Threshold?	Yes	Yes	No	No
Developer Sponsored Plan Entertainment Variant (DSP-V) Construction				
2020	4.03	**55.06**	1.20	1.12
2021	18.02	**201.22**	2.66	2.47
2022	17.96	**200.52**	2.65	2.46
2023	**347.92**	**217.79**	4.03	3.66
2024	**168.15**	24.12	0.64	0.59
2025	**167.51**	24.10	0.64	0.59
2026	0.99	21.19	0.42	0.38
BAAQMD Threshold	54	54	82	54
Exceeds Threshold?	Yes	Yes	No	No
Community Proposed Plan (CPP) Construction				
2020	3.11	45.80	0.98	3.41
2021	5.78	**73.23**	0.92	0.86
2022	5.76	**73.02**	0.92	0.85
2023	**88.02**	**84.10**	1.48	1.36
2024	42.14	23.94	0.63	0.58
2025	41.98	23.92	0.63	0.58
2026	0.92	21.14	0.41	0.38
BAAQMD Threshold	54	54	82	54
Exceeds Threshold?	Yes	Yes	No	No
Community Proposed Plan Recology Variant (CPP-V) Construction				
2020	3.11	45.801	0.98	0.86
2021	5.61	**70.69**	0.90	0.83
2022	5.59	**70.49**	0.89	0.83
2023	**91.37**	**81.46**	1.45	1.33
2024	44.01	23.95	0.63	0.58
2025	43.84	23.92	0.63	0.58
2026	0.92	21.14	0.41	0.38
BAAQMD Threshold	54	54	82	54
Exceeds Threshold?	Yes	Yes	No	No

SOURCE: ESA, 2012.

Conclusion: Each scenario would have a significant impact in relation to regional construction impacts. Implementation of **Mitigation Measures 4.B-2a** and **4.B-2b** is recommended to reduce the significance of the impact.

Mitigation

Mitigation Measure 4.B-2a: To reduce construction vehicle emissions, the following provisions shall be incorporated into construction specifications for all projects on the Baylands:

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	✓	✓
✓ = measure applies - = measure does not apply			

- Idling times shall be minimized either by shutting diesel-powered or gasoline-powered equipment off when not in use or reducing the maximum idling time of diesel-powered equipment to five minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.

- All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. It shall be the contractor's responsibility to ensure that all equipment has been checked by a certified mechanic and determined to be running in proper condition prior to operation.

- All construction contract specifications shall include a requirement that on-road diesel trucks used to transport spoils consist of 2007 or newer model-year trucks with factory built engines. All on-road diesel trucks shall be required to have emission control labels as specified in 13 CCR 2183(c) or any subsequent updates to this CARB regulation, whichever is more stringent. The construction contract specifications shall require that the contractor submit to the City a comprehensive inventory of all on-road trucks used to haul spoils. The inventory shall include each vehicle's license plate number, the engine production year, and a notation of whether the truck is in possession of an emission control label as defined in 13 CCR. The contractor shall update the inventory and submit it monthly to the City throughout the duration of the project.

Mitigation Measure 4.B-2b: All construction contract specifications shall include a requirement that off-road construction equipment used for site improvements shall be equipped with Tier 3 (Tier 2 if greater than 750 hp) diesel engines or better. All diesel generators used for project construction must meet Tier 4 emissions standards. If new emissions standards are adopted by U.S. EPA during project construction, construction contract specifications shall incorporate whichever standard is more stringent.

Conclusion with Mitigation: Even with the inclusion of **Mitigation Measures 4.B-2a and 4.B-2b**, implementation of Project Site development would continue to result in significant air quality impacts from construction-related ROG and NOx emissions. Therefore, this impact would be significant and unavoidable. The following discussion provides an explanation for this conclusion.

The U.S. EPA has established a schedule for emission improvements to new non-road (or off-road) diesel engines in 1994 for engines over 37 kW (50 hp). The resulting 1998 regulation

introduced Tier 1 standards for equipment under 37 kW and increasingly more stringent Tier 2 and Tier 3 standards for all equipment with phase-in schedules from 2000 to 2008. The Tier 1-3 standards are met through advanced engine design, with no or only limited use of exhaust gas after treatment (oxidation catalysts). Tier 3 standards for NOx and TOG are similar in stringency to the 2004 standards for highway engines; however Tier 3 standards for PM were never adopted.

The Tier 4 standards require that emissions of PM and NOx be further reduced by about 90 percent. Such emission reductions can be achieved through the use of control technologies—including advanced exhaust gas after treatment—similar to those required by the 2007-2010 standards for highway engines. Construction emissions estimated in Impact 4.B-2 assume a statewide average fleet mix of construction equipment that includes a relatively small percentage of Tiered construction equipment, reflecting the recent implementation schedule of the rule and the existing fleet of non-Tiered equipment.

To the extent that the above listed types of equipment are used for project construction, those equipment types would be required to meet NOx emission standards equivalent to Tier 3 (Tier 2 if greater than 750 hp) engines, if equipment meeting those standards is available in the subcontractor's fleet, or is available as rental equipment. It should be noted that for specialty equipment types (e.g., impact and vibratory pile drivers and cranes), newer equipment meeting these standards might not be available, and it may not be feasible for construction contractors to modify their current, older equipment. Therefore, this mitigation measure may be infeasible for these specialty equipment types. Sources of NOx emissions vary by construction activity and during the building phase emissions are primarily from vendor truck trips which would not be under the control of the applicant to mitigate. Tier 3 reductions in NOx emissions are reported to be approximately 40 percent depending on engine size. Tier 4 equipment, which would reduce NOx emissions by 90 percent, is not yet widely available for off-road equipment as the CARB has delayed implementation, but likely could be available for construction activities late in the 20-year buildout of the Project Site.

Tables 4.B-6 and **4.B-7** present construction emissions after implementation of **Mitigation Measures 4.B-2a** and **4.B-2b**. As can be seen from these tables, mitigation measures would reduce significant ROG emissions to a less-than-significant level for all scenarios except for the eastern portion of the Project Site in the DSP-V scenario. For ROG, the predominant construction activity associated with the significant emissions would be application of architectural coatings. While NOx emissions from off-road construction equipment would be reduced by up to 40 percent, post-mitigation construction-related emissions of NOx would remain above BAAQMD thresholds and represent a significant and unavoidable air quality impact for Project Site development. For NOx, the predominant construction sources associated with the significant emissions would be off-road diesel equipment and on-road haul trucks during demolition, and grading and vendor trucks during building construction. As shown in the tables, the DSP and DSP-V scenarios would have greater construction related NOx emissions than the CPP and CPP-V scenarios. This difference is the result of the residential component of the DSP and DSP-V scenarios, which require substantially more materials and associated vendor trips and construction workers that non-residential construction.

TABLE 4.B-6
MITIGATED AVERAGE DAILY CONSTRUCTION-RELATED EMISSIONS WESTERN PORTION OF SITE

	Average Daily Construction Emissions (lb/day)			
	ROG	**NOx**	**PM_{10}**	**$PM_{2.5}$**
Developer Sponsored Plan (and Entertainment Variant) Construction				
2014	4.19	36.10	0.74	0.68
2015	16.87	**89.90**	1.25	1.13
2016	15.31	**80.66**	1.13	1.06
2017	49.18	**56.75**	0.42	0.37
2018	37.37	10.04	0.16	0.14
2019	36.91	7.08	0.11	0.10
BAAQMD Threshold	54	54	82	54
Exceeds Threshold?	No	Yes	No	No
Community Proposed Plan (and Recology Variant) Construction				
2014	4.74	40.82	0.85	0.78
2015	11.07	**56.03**	0.76	0.68
2016	10.04	50.57	0.69	0.65
2017	30.96	49.63	0.85	0.76
2018	23.27	12.49	0.16	0.15
2019	2.64	7.08	0.11	0.10
BAAQMD Threshold	54	54	82	54
Exceeds Threshold?	No	No	No	No

SOURCE: ESA, 2012.

TABLE 4.B-7
MITIGATED AVERAGE DAILY CONSTRUCTION-RELATED EMISSIONS WESTERN PORTION OF SITE

	Average Daily Construction Emissions (lb/day)			
	ROG	**NOx**	**PM_{10}**	**$PM_{2.5}$**
Developer Sponsored Plan (DSP) Construction				
2020	3.11	38.66	0.54	0.50
2021	10.81	**78.80**	1.06	0.96
2022	10.77	**78.57**	1.05	0.96
2023	48.81	**80.72**	1.31	1.18
2024	21.22	21.80	0.27	0.25
2025	21.06	21.79	0.27	0.25
2026	0.93	21.79	0.27	0.25
BAAQMD Threshold	54	54	82	54
Exceeds Threshold?	No	Yes	No	No
Developer Sponsored Plan Entertainment Variant (DSP-V) Construction				
2020	4.03	43.40	0.51	0.47
2021	18.02	**197.99**	2.58	2.39
2022	17.96	**197.30**	2.57	2.39
2023	**123.99**	**211.05**	3.71	3.37
2024	51.58	21.94	0.28	0.26
2025	51.20	21.93	0.28	0.26
2026	0.99	21.93	0.24	0.22
BAAQMD Threshold	54	54	82	54
Exceeds Threshold?	Yes	Yes	No	No

TABLE 4.B-7 (Continued)
MITIGATED AVERAGE DAILY CONSTRUCTION-RELATED EMISSIONS WESTERN PORTION OF SITE

	Average Daily Construction Emissions (lb/day)			
	ROG	**NOx**	**PM_{10}**	**$PM_{2.5}$**
Community Proposed Plan (CPP) Construction				
2020	3.11	37.84	0.47	0.44
2021	5.78	**73.23**	0.92	0.86
2022	5.76	**73.02**	0.92	0.86
2023	33.12	**80.72**	1.29	1.18
2024	13.56	21.77	0.27	0.25
2025	13.47	21.76	0.27	0.25
2026	0.92	20.07	0.23	0.21
BAAQMD Threshold	54	54	82	54
Exceeds Threshold?	No	Yes	No	No
Community Proposed Plan Recology Variant (CPP-V) Construction				
2020	3.11	37.84	0.47	0.44
2021	5.61	**67.47**	0.81	0.75
2022	5.59	**67.28**	0.81	0.75
2023	33.96	**74.72**	1.13	1.03
2024	14.13	21.77	0.27	0.25
2025	14.03	21.76	0.27	0.25
2026	0.92	20.07	0.23	0.21
BAAQMD Threshold	54	54	82	54
Exceeds Threshold?	No	Yes	No	No

SOURCE: ESA, 2012.

Impact 4.B-3: Would construction of the Project expose sensitive receptors to substantial concentrations of toxic air contaminants or respirable particulate matter ($PM_{2.5}$)?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
LTS	LTS	LTS	LTS

SU = Significant and Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = no impact

DSP, DSP-V, CPP, CPP-V

Project construction activities would produce DPM and $PM_{2.5}$ emissions due to combustion equipment such as loaders, backhoes, and cranes, as well as haul truck trips. These emissions result in elevated concentrations of DPM and $PM_{2.5}$ at nearby receptors (both new and existing residences). These elevated concentrations could lead to an increase in the risk of cancer or other health impacts. Consequently, a health risk assessment was performed to determine the extent of increased cancer risks and hazard indices at the maximally exposed receptors. The health risk assessment was based on recommended methodology of the state Office of Environmental Health Hazard Assessment and adopted by BAAQMD. The cancer risk to residential receptors assumes exposure occurs 24-hours per day for 350 days per year. For children at school sites, exposure is assumed to occur 10-hours per day for 180 days (or 36 weeks) per year. Cancer risk to residential receptors based on exposure duration of the construction period.

Additionally, cancer risk estimates also incorporate age sensitivity factors. This approach provides updated calculation procedures that factor in the increased susceptibility of infants and children to carcinogens as compared to adults. For estimating cancer risks for residential receptors over a 70 year lifetime, the incorporation of the ASFs results in a cancer risk adjustment factor of 1.7.

The following health risk assessment results are based on Project Site development emissions without implementation of **Mitigation Measure 4.B-1a**. Health impacts related to Project Site development, while already less than significant, would be even less with the incorporation of **Mitigation Measure 4.B-1a** which would reduce prolonged idling of diesel equipment. Detailed assumptions and methodology for the HRA are included in Appendix D**.**

DSP

A summary of the health impacts related to construction of the DSP is found in **Table 4.B-8**.

TABLE 4.B-8
CONSTRUCTION-RELATED HEALTH IMPACTS
DEVELOPER-SPONSORED PLAN

Receptor Type	Cancer Risk (persons per million)	Chronic Impact	Acute Impact	$PM_{2.5}$ Concentration (µg/m3)
New Residence (adult/child)	0.10/0.42	<0.01	0.01	<0.01
School Children	0.03	<0.01	0.01	0.01
Existing Residence (adult/child)	0.27/2.10	<0.01	0.01	0.02
BAAQMD Significance Criteria	10	1	1	0.3
Significant Impact?	No	No	No	No

SOURCE: KBE, 2012 (provided in Appendix D).

As shown in Table 4.B-8, the maximum cancer risk for the new residence-adult and residence-child associated with development of the Project Site (located within the western portion of the Project Site) would be 0.1 and 0.4 persons per million, respectively. The cancer risk associated with the maximum exposed new residences is due to construction activities in the eastern portion of the Project Site.

The maximum cancer risk for an existing adult or child in a residential dwelling unit (residence-adult and residence-child receptors, respectively) (located to the north-northeast of the Project Site near Little Hollywood Park) would be 0.3 and 2.1 persons per million, respectively. The cancer risk associated with the maximum exposed existing residence (the residence experiencing the greatest cancer risk) is mostly due to construction activities in the western portion of the Project Site and as a result of the prevailing wind direction. The maximum cancer risk for a child at school (school-child receptor) would be less than 0.1 persons per million. Thus, the cancer risk due to construction activities alone would be below the BAAQMD threshold of 10 per million and would be less than significant.

The chronic HI would be less than 0.1 at all receptors. The chronic HI would be below the BAAQMD threshold of 1 and the impact of development of the Project Site would be less than significant. The acute HI would be less than 0.1 at all receptors, and would be below the BAAQMD threshold of 1.0. Therefore, the impact of Project Site development would be less than significant.

The maximum annual $PM_{2.5}$concentrations would be less than 0.1 $\mu g/m^3$ for the new residences associated with the development of the Project Site under the DSP scenario, school children at proposed onsite schools, and the existing residences. The construction-related annual $PM_{2.5}$ concentration would be below the BAAQMD threshold of 0.3 $\mu g/m^3$, and therefore is considered less than significant. No mitigation is required.

DSP-V

A summary of the health impacts related to construction of the DSP-V scenario is found in **Table 4.B-9**.

TABLE 4.B-9
CONSTRUCTION-RELATED HEALTH IMPACTS
DEVELOPER-SPONSORED PLAN WITH ENTERTAINMENT VARIANT

Receptor Type	Cancer Risk (persons per million)	Chronic Impact	Acute Impact	$PM_{2.5}$ Concentration (µg/m3)
New Residence (adult/child)	0.24/1.03	0.01	0.02	0.03
School Children	0.04	<0.01	0.01	0.01
Existing Residence (adult/child)	0.31/2.10	<0.01	0.03	0.02
BAAQMD Significance Criteria	10	1	1	0.3
Significant Impact?	No	No	No	No

SOURCE: KBE, 2012 (provided in Appendix D).

As shown in Table 4.B-9, the maximum cancer risk for the new residence-adult and residence-child associated with the DSP-V scenario (located within the Phase I area) would be 0.2 and 1.0 persons per million, respectively. The cancer risk associated with the maximum exposed new residence is due to Phase II construction activities.

The maximum cancer risk for an existing residence-adult and residence-child (located to the north-northeast of the Project Site near Little Hollywood Park) would be 0.3 and 2.1 persons per million, respectively. The cancer risk associated with the maximum exposed existing residence is mostly due to construction activities in the western portion of the Project Site and as a result of the prevailing wind direction. The maximum cancer risk for a school-child receptor would be less than 0.1 persons per million. Thus, the cancer risk due to construction activities alone would be below the BAAQMD threshold of 10 per million and would be less than significant.

The chronic HI would be less than 0.1 at all receptors. The chronic HI would be below the BAAQMD threshold of 1 and the impact of Project Site development under the DSP-V scenario would be less than significant. The acute HI would be less than 0.1 at all receptors. The acute HI

would be below the BAAQMD threshold of 1 and the impact of the Project Site development would be less than significant.

The maximum annual $PM_{2.5}$ concentrations would be less than 0.1 $\mu g/m^3$ for the proposed residences associated with Project Site development, as well as for school children, and existing residences. The construction-related annual $PM_{2.5}$ concentration would be below the BAAQMD threshold of 0.3 $\mu g/m^3$ and hence is considered to be less than significant. No mitigation is required.

CPP

A summary of the health impacts related to construction of the CPP scenario is found in **Table 4.B-10**.

TABLE 4.B-10
CONSTRUCTION-RELATED HEALTH IMPACTS
COMMUNITY PROPOSED PLAN

Receptor Type	Cancer Risk (persons per million)	Chronic Impact	Acute Impact	$PM_{2.5}$ Concentration (µg/m3)
School Children	0.03	<0.01	0.01	<0.01
Existing Residence (adult/child)	0.34/2.70	<0.01	0.01	0.02
BAAQMD Significance Criteria	10	1	1	0.3
Significant Impact?	No	No	No	No

SOURCE: KBE, 2012 (provided in Appendix D).

As shown in Table 4.B-10, the maximum cancer risk for an existing residence-adult and residence-child (located to the north-northeast of the Project Site near Little Hollywood) would be 0.3 and 2.7 persons per million, respectively. The cancer risk associated with the maximum exposed existing residence is mostly due to construction activities in the western portion of the Project Site and as a result of the prevailing wind direction. The maximum cancer risk for a school-child receptor would be less than 0.1 persons per million. Thus, the cancer risk due to construction activities alone would be below the BAAQMD threshold of 10 per million and would be less than significant.

The chronic HI would be less than 0.1 at all receptors. The chronic HI would be below the BAAQMD threshold of 1 and the impact of Project Site development would be less than significant. The acute HI would be less than 0.1 at all receptors. The acute HI would be below the BAAQMD threshold of 1 and the impact of the Project Site development would be less than significant.

The maximum annual $PM_{2.5}$ concentrations would be less than 0.1 $\mu g/m^3$ for school children and existing residences. The construction-related annual $PM_{2.5}$ concentration would be below the BAAQMD threshold of 0.3 $\mu g/m^3$ and therefore is considered less than significant. No mitigation is required.

CPP-V

A summary of the health impacts related to construction of the CPP-V scenario is found in **Table 4.B-11**.

TABLE 4.B-11
CONSTRUCTION-RELATED HEALTH IMPACTS
COMMUNITY PROPOSED PLAN WITH RECOLOGY VARIANT

Receptor Type	Cancer Risk (persons per million)	Chronic Impact	Acute Impact	$PM_{2.5}$ Concentration (µg/m3)
School Children	0.03	<0.01	0.01	<0.01
Existing Residence (adult/child)	0.34/2.70	<0.01	0.01	0.02
BAAQMD Significance Criteria	10	1	1	0.3
Significant Impact?	No	No	No	No

SOURCE: KBE, 2012 (provided in Appendix D).

As shown in Table 4.B-11, the maximum cancer risk for an existing residence-adult and residence-child (located to the north-northeast of the Project Site near Little Hollywood) would be 0.3 and 2.7 persons per million, respectively. The cancer risk associated with the maximum exposed existing residence is mostly due to construction activities in the western portion of the Project Site and as a result of the prevailing wind direction. The maximum cancer risk for a school-child receptor would be less than 0.1 persons per million. Thus, the cancer risk due to construction activities alone would be below the BAAQMD threshold of 10 per million and would be less than significant.

The chronic HI would be less than 0.1 at all receptors. The chronic HI would be below the BAAQMD threshold of 1 and the impact of the Project Site development would be less than significant. The acute HI would be less than 0.1 at all receptors. The acute HI would be below the BAAQMD threshold of 1 and the impact of the Project Site development would be less than significant.

The maximum annual $PM_{2.5}$ concentrations would be less than 0.1 $\mu g/m^3$ for school children and existing residences. The construction-related annual $PM_{2.5}$ concentration would be below the BAAQMD threshold of 0.3 $\mu g/m^3$, and therefore is considered less than significant. No mitigation is required.

Summary of Construction-Related Impacts for All Scenarios

A summary of the cancer risks related to Project Site development is found in **Table 4.B-12**.

Conclusion: Project Site development would have a less-than-significant impact in relation to this criterion. No mitigation is required.

TABLE 4.B-12
CONSTRUCTION-RELATED CANCER RISKS FOR THE FOUR SCENARIOS

Scenario	New Receptor	School	Existing Receptor (adult/child)	BAAQMD Threshold	Significant?
Developer-Sponsored Plan (DSP)	0.10/0.42	0.03	0.27/2.10	10	No
Developer-Sponsored Plan with Entertainment Variant (DSP-V)	0.24/1.03	0.04	0.31/2.10	10	No
Community Proposed Plan (CPP)	-	0.03	0.34/2.70	10	No
Community Proposed Plan with Recology Variant (CPP-V)	-	0.03	0.34/2.70	10	No

SOURCE: KBE, 2012 (provided in Appendix D).

Impact 4.B-4: Would the Project generate operational emissions that would result in a considerable net increase of criteria pollutants and precursors for which the air basin is in nonattainment under an applicable federal or state ambient air quality standard?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
SU	SU	SU	SU

S = Significant and Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = no impact

DSP, DSP-V, CPP, and CPP-V

Project Site development would result in an increase in criteria air pollutant and precursor emissions, including ROG, NOx, PM_{10} and $PM_{2.5}$ from a variety of emissions sources, including onsite area sources (e.g., natural gas combustion for space and water heating, landscape maintenance, use of consumer products such as hairsprays, deodorants, cleaning products, etc.) and mobile on-road sources. Exhaust emissions from on-road vehicle traffic associated with Project Site development were initially calculated by using the URBEMIS2007 program, as recommended by the May 2011 version of the BAAQMD *CEQA Guidelines*. URBEMIS2007 calculates area source emissions based on the size and types of land uses. In September of 2011, the CARB released updated emission factors (EMFAC2011) that are an update to those embedded in the URBEMIS2007 model. The URBEMIS2007 model does not allow the user to manipulate emission factors internally. Consequently, a post-processing adjustment was made to the URBEMIS2007 calculations to account for the recent availability of EMFAC2011 emission factors.

Table 4.N-12 of the transportation analysis estimates that development of the Project Site would result in approximately 44,985 net new vehicle trips per day for the DSP scenario, approximately 42,446 net new vehicle trips per day for the DSP-V scenario, approximately 82,176 net new vehicle trips per day for the CPP scenario, and approximately 79,196 net new vehicle trips per day for the CPP-V scenario.

As discussed in Section *4.N Transportation*, a Transportation Demand Management (TDM) program would be developed and implemented under each scenario to reduce use of single-occupant vehicles and to increase the use of rideshare, transit, bicycle and walk modes for trips to and from, as well as within the Project Site. Due to uncertainty pertaining to quantifying the effectiveness of implementing TDM strategies, the travel demand analysis used as a basis for calculating vehicle emissions does not assume additional trip reduction due to specific TDM strategies beyond those associated with internal, pass-by, and diverted linked trips.

Because development of the Project Site would generate more than 100 vehicle trips during both the AM and PM peak hours and, per San Mateo City/County Association of Governments (C/CAG) guidelines, preparation and implementation of a TDM plan is required. Conformance with the C/CAG requirement would be met within the Project Site by developing and implementing a TDM Program (see **Mitigation Measure 4.N-13** of the Transportation Section in this document) designed to reduce use of single-occupant vehicles and to increase the use of rideshare, transit, bicycle and walk modes for trips to and from, as well as within the Project Site. TDM plans would be prepared for each applicable site-specific development project within the Project Site (generating 100 trips or more) as it undergoes development review. Each site-specific development project within the Project Site would be required to mitigate the impacts of net increases in trip generation, including, if required, development of a TDM program.

C/CAG has identified acceptable TDM measures with equivalent numbers of peak-hour trip credits that will be granted with implementation of each measure, including, but not limited to, a shuttle program, employee parking cash out, infill development, and a guaranteed ride home program. Measures can be mixed and matched so that the total number of trip credits is equal to or greater than the new peak-hour trips generated by the project. These programs, once implemented, must be on-going for the occupied life of the development. Programs may be substituted, with prior approval of C/CAG, as long as the number of reduced trips remains the same.

Table 4.B-13 summarizes daily mobile and onsite area emissions of criteria pollutants that will be generated by Project Site development in 2040 assuming buildout vehicle trip generation and compares them with BAAQMD significance thresholds. As indicated in Table 4.B-13, Project Site development-related operational emissions of ROG, NOx, PM_{10} and $PM_{2.5}$ would exceed the BAAQMD significance threshold. Consequently, mitigation measures are required.

Table 4.B-14 summarizes Project Site development-generated daily maximum annual mobile and onsite area emissions of criteria pollutants for each of the development scenarios in 2040. As indicated in Table 4.B-14, Project Site development-related operational emissions of ROG, NOx, PM_{10}, and $PM_{2.5}$ would exceed the BAAQMD significance threshold. Consequently, mitigation measures are required.

Conclusion: Project Site development would have a significant impact in relation to this criterion. Implementation of **Mitigation Measure 4.B-4** is recommended for Project Site development to reduce the significance of this impact.

TABLE 4.B-13
AVERAGE DAILY OPERATIONAL EMISSIONS

	Average Daily Operational Emissions (lb/day)			
	ROG	**NOx**	**PM_{10}**	**$PM_{2.5}$**
Developer Sponsored Plan (DSP) Operations				
Area Sources	292.82	86.28	2.10	2.07
Mobile Sources	117.99	101.06	596.60	102.54
Total Emissions	**410.81**	**187.34**	**598.70**	**108.61**
BAAQMD Threshold	54	54	82	54
Exceeds Threshold?	Yes	Yes	Yes	Yes
Developer Sponsored Plan Entertainment Variant (DSP-V) Operations				
Area Sources	289.94	88.24	2.10	2.08
Mobile Sources	111.80	94.88	559.98	96.23
Total Emissions	**401.74**	**183.12**	**562.08**	**98.31**
BAAQMD Threshold	54	54	82	54
Exceeds Threshold?	Yes	Yes	Yes	Yes
Community Proposed Plan (CPP) Operations				
Area Sources	48.57	52.68	0.09	0.09
Mobile Sources	173.21	173.60	1021.56	175.53
Total Emissions	**221.78**	**226.28**	**1021.65**	**175.62**
BAAQMD Threshold	54	54	82	54
Exceeds Threshold?	Yes	Yes	Yes	Yes
Community Proposed Plan Recology Variant (CPP-V) Operations				
Area Sources	44.90	48.76	0.09	0.09
Mobile Sources (non-Recology)	165.41	165.77	975.48	167.59
Mobile emissions (Recology)	0.37	4.98	1.50	0.10
Total Emissions	**210.68**	**219.51**	**977.07**	**167.78**
BAAQMD Threshold	54	54	82	54
Exceeds Threshold?	Yes	Yes	Yes	Yes

SOURCE: ESA, 2012.

TABLE 4.B-14
MAXIMUM ANNUAL OPERATIONAL EMISSIONS

	Maximum Annual Operational Emissions (ton/year)			
	ROG	**NOx**	**PM_{10}**	**$PM_{2.5}$**
Developer Sponsored Plan (DSP) Operations				
Area Sources	53.36	11.30	0.02	0.02
Mobile Sources	20.50	14.12	108.89	18.70
Total Emissions	**73.86**	**25.42**	**108.91**	**18.72**
BAAQMD Threshold	10	10	15	10
Exceeds Threshold?	Yes	Yes	Yes	Yes
Developer Sponsored Plan Entertainment Variant (DSP-V) Operations				
Area Sources	52.81	11.66	0.03	0.03
Mobile Sources	19.38	13.25	102.18	17.57
Total Emissions	**72.19**	**24.91**	**102.21**	**17.60**
BAAQMD Threshold	10	10	15	10
Exceeds Threshold?	Yes	Yes	Yes	Yes

TABLE 4.B-14 (Continued)
MAXIMUM ANNUAL OPERATIONAL EMISSIONS

	Maximum Annual Operational Emissions (ton/year)			
	ROG	**NOx**	**PM_{10}**	**$PM_{2.5}$**
Community Proposed Plan (CPP) Operations				
Area Sources	8.95	9.62	0.02	0.02
Mobile Sources	30.80	24.27	186.45	32.04
Total Emissions	**39.75**	**33.89**	**186.47**	**32.06**
BAAQMD Threshold	10	10	15	10
Exceeds Threshold?	Yes	Yes	Yes	Yes
Community Proposed Plan Recology Variant (CPP-V) Operations				
Area Sources	8.28	8.91	0.02	0.02
Mobile Sources (Non-Recology)	29.28	**23.18**	178.02	30.58
Mobile Sources (Recology)	0.07	0.91	0.27	0.02
Total Emissions	**37.63**	**33.00**	**178.31**	**30.62**
BAAQMD Threshold	10	10	15	10
Exceeds Threshold?	Yes	Yes	Yes	Yes

SOURCE: ESA, 2012.

Mitigation

Mitigation Measure 4.B-4: The following measures identified in the 2012 BAAQMD *CEQA Guidelines* shall be implemented for site-specific development projects within the Project Site and shall be included, as applicable, into commercial leases, as well as Covenants, Codes, and Restrictions (CC&Rs) within the Project Site:

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	✓	✓

✓ = measure applies
- = measure does not apply

- Provide free transit passes (e.g., Clipper Card for use on Caltrain, San Francisco Municipal Railway [Muni], and SAMTrans) to employees (for employers of 100 or more employees);
- Provide and maintain secure bike parking for commercial and industrial uses (at least one space per 20 vehicle spaces) as a condition of occupancy permit/tenancy contract;
- Provide and maintain showers and changing facilities for employees as a condition of final building permit;
- Provide information on transportation alternatives to employees as a condition of occupancy permit/tenancy contract;
- Establish a dedicated employee transportation coordinator for each site-specific development as a condition of occupancy permit/tenancy contract;
- Provide and maintain preferential carpool and vanpool parking for non-residential uses;
- Increase building energy efficiency by 20 percent beyond Title 24 (reduces NOx related to natural gas combustion);

- Require use of electrically powered landscape equipment through CC&Rs;
- Require only natural gas hearths in residential units as a condition of final building permit;
- Use low VOC architectural coatings in maintaining buildings through CC&Rs;
- Require smart meters and programmable thermostats;
- Meet Green Building Code standards in all new construction (reduces NOx related to natural gas combustion); and
- Install solar water heaters for all uses as feasible.

A majority of these measures could be included in the TDM plan that would be required of all project scenarios. Refer to **Mitigation Measure 4.N-13** of the Section 4.N, *Traffic and Circulation*, of this EIR.

Conclusion with Mitigation: Trip generation estimates for development of the Project Site used in this analysis included adjustments for development scale, density, and diversity of uses, distance to transit and design of the Project Site, as well as a robust number of alternative transportation trips (walk, bike, and transit) and carpooling. Therefore, many key elements of alternative mode strategies have been incorporated into the trip generation assumptions.

Mitigation Measure 4.B-4 would not result in the 86 to 92 percent reductions necessary (for PM_{10}) or 60 to 86 percent (for NOx and ROG) to reduce the impact to a less-than-significant level. This amount of traffic reduction exceeds the best reduction estimates for TDM programs (BAAQMD, 2012b). Consequently, implementation of Project Site development would still result in significant environmental effects on air quality and contribute substantially to an existing air quality violation (ozone precursors and particulate matter). Therefore, even with implementation of **Mitigation Measure 4.B-4**, this impact would remain significant and unavoidable for emissions of ROG NOX, PM_{10} and $PM_{2.5}$.

Impact 4.B-5: Would operation of the Project expose sensitive receptors to substantial concentrations of toxic air contaminants or respirable particulate matter ($PM_{2.5}$)?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
LTS	LTS	LTS	LTS

SU = Significant and Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = no impact

DSP, DSP-V, CPP, and CPP-V

Operation of proposed Project Site development would produce DPM and $PM_{2.5}$ emissions due to motor vehicle traffic including employees, customers, deliveries, and new residences. These emissions would result in elevated concentrations of DPM and $PM_{2.5}$. These elevated concentrations could lead to an increase in the risk of cancer or other health impacts. A health risk assessment was performed to calculate the risks and hazards generated at the maximally exposed sensitive receptor, in accordance with technical guidelines developed by

federal, state, and regional agencies, including CalEPA, OEHHA *Air Toxics Hot Spots Program Guidance* (2003), and the BAAQMD *Health Risk Screening Analysis Guidelines* (2005).

The emissions associated with the HRA were based on the air quality calculations using URBEMIS2007 (version 9.2.4) and the information within the project description regarding project operations. The HRA used the AERMOD dispersion model and local meteorological data from San Francisco and Oakland which were provided by BAAQMD. Localized concentrations of DPM and $PM_{2.5}$ were modeled for the sensitive receptors presented in Figure 4.B-1. The concentrations of $PM_{2.5}$ are reported while the concentrations of DPM are used to estimate increased cancer risk and hazard indices based on exposure. Based on OEHHA recommendations, the cancer risk to residential receptors assumes exposure occurs 24 hours per day for 350 days per year. For children at school sites, exposure is assumed to occur 10 hours per day for 180 days (or 36 weeks) per year. Cancer risk to residential receptors based on a 70-year lifetime exposure. Cancer risk estimates for children at school sites are calculated based on 9 year exposure duration. Additionally, cancer risk estimates also incorporate age sensitivity factors. This approach provides updated calculation procedures that factor in the increased susceptibility of infants and children to carcinogens as compared to adults. For estimating cancer risks for residential receptors over a 70 year lifetime, the incorporation of the ASFs results in a cancer risk adjustment factor of 1.7.The impacts of Project Site development would be less than significant in relation to the criteria of BAAQMD.

DSP

A summary of the health impacts related to operations of the DSP scenario is found in **Table 4.B-15**.

TABLE 4.B-15
TRANSPORTATION-RELATED HEALTH IMPACTS
DEVELOPER-SPONSORED PLAN

Receptor Type	Cancer Risk (persons per million)	Chronic Impact	Acute Impact	$PM_{2.5}$ Concentration (µg/m3)
New Residence (adult/child)	4.20/2.04	<0.01	<0.01	0.01
School Children	0.14	<0.01	<0.01	<0.01
Existing Residence (adult/child)	3.21/1.56	<0.01	<0.01	0.01
BAAQMD Significance Criteria	10	1	1	0.3
Significant Impact?	No	No	No	No

SOURCE: KBE, 2012 (provided in Appendix D).

As shown above in Table 4.B-15, the maximum cancer risk for the new residence-adult and residence-child at the Project Site would be 4.2 and 2.0 persons per million, respectively. The maximum cancer risk for an existing residence-adult and residence-child (located to the north of the Project Site along Bayshore Boulevard) would be 3.2 and 1.6 persons per million, respectively. The maximum cancer risk for a school-child receptor would be 0.1 persons per million. Thus, the cancer risk would be below the BAAQMD threshold of 10 per million and would be less than significant.

The chronic HI would be less than 0.1 at all receptors. The chronic HI would be well below the BAAQMD threshold of 1 and the impact of Project Site development would be less than significant. The acute HI would be less than 0.1 at all receptors. The acute HI would be below the BAAQMD threshold of 1 and the impact of Project Site development would be less than significant.

Maximum annual $PM_{2.5}$ concentrations would be 0.01 $\mu g/m^3$ for new residences proposed under this scenario, school children, and existing residences. The operation-related annual $PM_{2.5}$ concentration would be below the BAAQMD threshold of 0.3 $\mu g/m^3$ and therefore is considered less than significant. No mitigation is required.

DSP-V

A summary of the health impacts related to operations of the DSP-V scenario is found in **Table 4.B-16**.

TABLE 4.B-16
TRANSPORTATION-RELATED HEALTH IMPACTS
DEVELOPER-SPONSORED PLAN WITH ENTERTAINMENT VARIANT

Receptor Type	Cancer Risk (persons per million)	Chronic Impact	Acute Impact	$PM_{2.5}$ Concentration (µg/m3)
New Residence (adult/child)	4.01/1.94	<0.01	<0.01	0.01
School Children	0.13	<0.01	<0.01	<0.01
Existing Residence (adult/child)	3.07/1.49	<0.01	<0.01	0.01
BAAQMD Significance Criteria	10	1	1	0.3
Significant Impact?	No	No	No	No

SOURCE: KBE, 2012 (provided in Appendix D).

As shown above in Table 4.B-16, the maximum cancer risk for the new residence-adult and residence-child at the Project Site would be 4.0 and 1.9 persons per million, respectively. The maximum cancer risk for an existing residence-adult and residence-child (located to the north of the Project Site along Bayshore Boulevard) would be 3.1 and 1.5 persons per million, respectively. The maximum cancer risk for a school-child receptor would be 0.1 persons per million. Thus, the cancer risk would be below the BAAQMD threshold of 10 per million and would be less than significant.

The chronic HI would be less than 0.1 at all receptors. The chronic HI would be well below the BAAQMD threshold of 1 and the impact of Project Site development would be less than significant. The acute HI would be less than 0.1 at all receptors. The acute HI would be below the BAAQMD threshold of 1 and the impact of Project Site development would be less than significant.

Maximum annual $PM_{2.5}$ concentrations would be 0.01 $\mu g/m^3$ for new residences proposed under this scenario, school children, and existing residences. The operation-related annual $PM_{2.5}$ concentration would be below the BAAQMD threshold of 0.3 $\mu g/m^3$ and hence is considered less than significant. No mitigation is required.

CPP

A summary of the health impacts related to operations of the CPP scenario is found in **Table 4.B-17**.

TABLE 4.B-17
TRANSPORTATION-RELATED HEALTH IMPACTS
COMMUNITY PROPOSED PLAN

Receptor Type	Cancer Risk (persons per million)	Chronic Impact	Acute Impact	$PM_{2.5}$ Concentration (µg/m3)
School Children	0.25	<0.01	<0.01	<0.01
Existing Residence (adult/child)	5.85/2.84	<0.01	<0.01	0.02
BAAQMD Significance Criteria	10	1	1	0.3
Significant Impact?	No	No	No	No

SOURCE: KBE, 2012 (provided in Appendix D).

As shown above in Table 4.B-17, the maximum cancer risk for an existing residence-adult and residence-child (located to the north of the Project Site along Bayshore Boulevard) would be 5.9 and 2.8 persons per million, respectively. The maximum cancer risk for a school-child receptor would be 0.3 persons per million. Thus, the cancer risk due to operations of Project site development components set forth in Table 1-1 would be below the BAAQMD threshold of 10 per million and would be less than significant.

The chronic HI would be less than 0.1 at all receptors. The chronic HI would be well below the BAAQMD threshold of 1 and the impact of Project Site development would be less than significant. The acute HI would be less than 0.1 at all receptors. The acute HI would be below the BAAQMD threshold of 1 and the impact of Project Site development would be less than significant.

Maximum annual $PM_{2.5}$ concentrations would be 0.01 $\mu g/m^3$ for school children and for existing residences. The operation-related annual $PM_{2.5}$ concentration would be below the BAAQMD threshold of 0.3 $\mu g/m^3$ and therefore is considered less than significant. No mitigation is required.

CPP-V

A summary of the health impacts related to operations of the CPP-V scenario is found in **Table 4.B-18**.

As shown above in Table 4.B-18, the maximum cancer risk for an existing residence-adult and residence-child (located to the north of the Project Site along Bayshore Boulevard) would be 5.8 and 2.7 persons per million, respectively. The maximum cancer risk for a school-child receptor would be 0.2 persons per million. Thus, the cancer risk due to operations of Project Site development alone would be below the BAAQMD threshold of 10 per million and would be less than significant.

TABLE 4.B-18
TRANSPORTATION-RELATED HEALTH IMPACTS
COMMUNITY-PROPOSED PLAN WITH RECOLOGY VARIANT

Receptor Type	Cancer Risk (persons per million)	Chronic Impact	Acute Impact	$PM_{2.5}$ Concentration (µg/m3)
School Children	0.24	<0.01	<0.01	<0.01
Existing Residence (adult/child)	5.75/2.71	<0.01	<0.01	0.02
BAAQMD Significance Criteria	10	1	1	0.3
Significant Impact?	No	No	No	No

SOURCE: KBE, 2012 (provided in Appendix D).

The chronic HI would be less than 0.1 at all receptors. The chronic HI would be below the BAAQMD threshold of 1 and the impact of Project Site development would be less than significant. The acute HI would be less than 0.1 at all receptors. The acute HI would be below the BAAQMD threshold of 1 and the impact of Project Site development would be less than significant.

The maximum annual $PM_{2.5}$ concentrations would be 0.01 µg/m^3 for school children and existing residences. The operation-related annual $PM_{2.5}$ concentration would be below the BAAQMD threshold of 0.3 µg/m^3 and hence is considered less than significant. No mitigation is required.

Summary of Impacts for All Scenarios

A summary of the cancer risks related to operations for each of the four scenarios is found in **Table 4.B-19**.

TABLE 4.B-19
TRANSPORTATION-RELATED CANCER RISKS FOR THE FOUR SCENARIOS

Scenario	New Receptor	School	Existing Receptor (adult/child)
Developer-Sponsored Plan	4.20/2.04	0.14	3.21/1.56
Developer-Sponsored Plan with Entertainment Variant	4.01/1.94	0.13	3.07/1.49
Community-Proposed Plan	-	0.25	5.85/2.84
Community-Proposed Plan with Recology Variant	-	0.24	5.75/2.71

SOURCE: KBE, 2012 (provided in Appendix D).

Conclusion: Operation of development within the Project site would not expose existing sensitive receptors to substantial concentrations of toxic air contaminants or respirable particulate matter ($PM_{2.5}$) or significant cancer risk. Therefore, each scenario would have a less-than-significant impact in relation to this criterion. No mitigation is required.

Impact 4.B-6: Would the Project expose persons (new receptors) to substantial levels of toxic air contaminants (TACs), which may lead to adverse health?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
LTS	LTS	LTS	LTS

SU = Significant and Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = no impact

DSP, DSP-V, CPP, and CPP-V

The BAAQMD *CEQA Guidelines* include standards and methods for determining the significance of health risk impacts for new receptors resulting from Project Site development. BAAQMD suggests that if a project is a place where people live, play or convalesce for extended periods of time, it should be considered a sensitive receptor. Examples include residences, schools, school yards, parks and playgrounds, daycare centers, nursing homes, and medical facilities. The method for determining health risk requires the review of health risk from permitted sources and major roadways in the vicinity of a project (i.e., within a 1,000-foot radius of the source), and comparing the risks from each of those sources individually to significance criteria to determine whether the health risk thresholds for new receptors are exceeded.

BAAQMD has developed a geo-referenced database of permitted emissions sources throughout the San Francisco Bay Area, and has developed the Stationary Source Risk & Hazard Analysis Tool (May 2011) for estimating cumulative health risks from permitted sources. Eight permitted sources are located within 1,000 feet of new residences associated with the Project Site and included in the cumulative analysis.

BAAQMD has also developed a geo-referenced database of major roadways throughout the San Francisco Bay Area and has developed the *Highway Screening Analysis Tool (*dated May 2011*)* for estimating cumulative health risks from roadways. US Highway 101 is located approximately 1,500 feet to the east to the proposed sensitive land uses of the Project Site. Thus, the health impacts from this roadway were not included in the cumulative analysis, consistent with BAAQMD methodology.

BAAQMD *CEQA Guidelines* also recommend the inclusion of surface streets with annual average daily traffic (AADT) of 10,000 or greater within 1,000 feet of a given project (BAAQMD, 2012b). Upon review the health impacts from Geneva Avenue with 18,900 AADT and located within 150 feet of the sensitive receptors (residences and schools) proposed for the Project Site in the DSP and DSP-V scenarios was included. Bayshore Boulevard with 25,800 AADT and located within 150 feet of the sensitive receptors proposed for the Project Site was also included in the analysis in the DSP and DSP-V scenarios. This analysis also addresses impacts related to the location of the proposed charter school under the CPP and CPP-V scenarios, as the location of the proposed charter school is the same as that proposed for school location south of Icehouse Hill under the DSP and DSP-V scenarios.

Operational impacts from Caltrain passing through the Project Site and use of the Bayshore Station were included. Emissions were based on the U.S. EPA's *Emission Factors for Locomotives* (December 1997). The health impacts were based on 96 trips per day for an existing total of 32 tons per year of DPM emissions and two tons per year by 2035 within the Caltrain route (approximately 52 miles) (Caltrain, 2009).

A summary of the health impacts for the new residences under the DSP and DSP-V scenarios is found in **Table 4.B-20**.

TABLE 4.B-20
HEALTH IMPACTS FROM STATIONARY, ROADWAY AND RAIL SOURCES FOR NEW RECEPTORS

Site #	Facility Type	Address	Cancer Risk (persons per million)	Hazard Impact	$PM_{2.5}$ Concentration (µg/m3)
2902	View Rite	455 Allan Street	0	0.001	0
G10024	Bayshore Chevron	2690 Bayshore Boulevard	4.07	0.0067	0
17835	PG&E - Martin	3150 Geneva Avenue	0	0	0
G2818	Seven Eleven	2700 Bayshore Boulevard	7.32	0.0121	0
4021	SFPP (Kinder Morgan)	950 Tunnel Avenue	0.17	0.011	0.0005
3520	Leland Cleaners	151 Leland Avenue	6.38	0.10	0
18394	InterMune	3260 Bayshore Boulevard	1.88	0.001	0.001
		Roadway Sources			
		Geneva Avenue	2.74	0.02	0.09
		Bayshore Boulevard	3.17	0.02	0.16
		Caltrain	<0.10	<0.01	<0.01
		Proposed Project (adult/child)	3.72/2.04	<0.01	0.01
		Highest Single Source Impact	7.32	0.10	0.16
		BAAQMD Significance Criteria (new receptor)	10	1	0.3
		Significant Impact?	No	No	No

SOURCE: KBE, 2012 (provided in Appendix D).

Notably, for individual projects/new receptors, the threshold of significance is based on the individual source with the highest cancer risk, $PM_{2.5}$ concentration, or hazard in comparison to other sources within the 1,000 foot radius of the receptor (BAAQMD, 2012b). Analysis of the cumulative impact of all sources on proposed new receptors is addressed in Impact 4.B-11.

The health risks from nearby sources in the area would have an impact on new residences associated with the DSP and DSP-V scenarios. The highest cancer risk from any of the nearby sources would be 7.32 persons per million (due to a nearby service station). Thus, the cancer risk for new receptors is below the BAAQMD threshold of 10 per million and would be less than significant.

The highest hazard index from nearby sources would be 0.10, below the BAAQMD threshold of 1.0, and the impact of the proposed residences within the Project Site would be less than significant. The highest annual $PM_{2.5}$ concentrations would be 0.16 $\mu g/m^3$ as a result of roadway traffic on Bayshore Boulevard. This $PM_{2.5}$ concentration at new residences would be below the BAAQMD threshold of 0.3 $\mu g/m^3$ and hence is considered less than significant.

Conclusion: Health impacts on sensitive receptors would be less than significant for Project Site development. No mitigation is required.

Impact 4.B-7: Would the Project expose sensitive receptors to substantial carbon monoxide concentrations?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
LTS	LTS	LTS	LTS

SU = Significant and Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = no impact

DSP, DSP-V, CPP, and CPP-V

Project Site development under each scenario would be consistent with the guidelines of the 2011 Congestion Management Program established by the City and County Association of Governments of San Mateo County (refer to Impact 4.N-1 in Section 4.N, *Traffic and Circulation*, of this EIR).

CO concentrations have declined substantially over the past decade, largely due to wintertime gasoline formulation requirements and no violations of the state or federal standard have been recorded in the Bay Area Basin for over 15 years. As a worst-case analysis, roadside CO concentrations were modeled for the intersection of Geneva Avenue and Bayshore Boulevard during cumulative conditions during the PM peak hour for the DSP-V scenario and event conditions. These roadways have the largest volumes of vehicle traffic in the vicinity of the Project Site while being within 1,000 feet of existing and proposed receptors. This modeling assumed a worst case background CO concentration of 5.7 ppm, the highest reading recorded at the San Francisco station in the past five years. Modeling also assumed worst case meteorology (wind speed of 0.5 meters per second and stability class G). Resultant roadside CO concentrations ranged from 5.7 ppm to 5.9 ppm, well below the state 1-hour standard of 20 ppm.

Worst-case Project Site development-related traffic would not lead to violations of the carbon monoxide standards, and therefore no further analysis was conducted for carbon monoxide impacts of development of the Project site at other intersections.

Conclusion: This impact would be less than significant for Project Site development. No mitigation is required.

Impact 4.B-8: Would the Project create objectionable odors affecting a substantial number of people?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
LTS	LTS	LTS	SM

SU = Significant and Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = no impact

DSP, DSP-V, CPP, and CPP-V

Odors are generally regarded as an annoyance rather than a health hazard, but objectionable odors affecting a substantial number of people are considered to be a significant impact under CEQA. Odors generated from landfills and composting facilities are typically associated with methane production from the anaerobic decomposition of waste. BAAQMD identifies landfills as an example of a land use that has a potential to generate considerable odors and establishes a screening distance of one mile from a sensitive receptor as one indicator of a potential odor impact that should be further examined. BAAQMD considers a substantial number of odor complaints, specifically,

more than five confirmed complaints per year averaged over the past three years[14] as the indication of an odor impact (BAAQMD, 2009). The Project Site is surrounded on three sides by residential uses. The eastern side of the Project Site is a former landfill, which was not listed as having been a source of odor complaints within the last three years by Cal Recycle (formerly the Integrated Waste Management Board). Additionally, BAAQMD was contacted to identify the odor complaint history of the existing Recology transfer station, and no records of complaints have been received for the past three years (BAAQMD, 2011a). Therefore, these two potential sources of odors are not documented as having generated objectionable odors affecting a substantial number of people. Since the DSP, DSP-V, and CPP scenarios do not include the proposed Recology expansion, the impact under these scenarios would be less than significant.

An onsite recycled water plant is proposed to be constructed to supply recycled water to Project Site development and discharge sewage in excess of the Baylands recycled water demand to a 78-inch San Francisco Public Utilities Commission sewer line along Sunnydale Avenue. Odor control using activated carbon canister is proposed to be provided for all air vented from lift stations. For treatment units all odor control systems are proposed to be two stage—biological technology such as bulk media bio-filtration followed by activated carbon. Screens and screening cleaning equipment would be enclosed in a building with negative pressure and air exhausted through a two-stage odor scrubbing system. Because of the potential for this project component to generate odors that may affect a substantial number of people (receptors would be as close as 400 feet to proposed residential units and about one-half mile from the nearest existing residential receptor), **Mitigation Measure 4.B-8** would require implementation of a Recycled Water Plant Odor Control Plan to reduce odor impacts.

Recology Expansion (CPP-V Scenario)

As noted in Chapter 3, *Project Description*, the CPP-V scenario includes a proposed modernization and expansion of the existing Recology facility which entails organics processing and anaerobic digestion. Consequently, depending on the proximity of these organics handling facilities, and the degree to which they are within an enclosed building and implement odor control strategies, objectionable odors could affect a substantial number of people. However, Recology has noted that organics throughput would not be increased as the result of proposed modernization and expansion. As a result, there would be no increase in odorous sources from the Recology facility.

The storage and transfer of green waste and food waste materials during anaerobic digestion and composting processes of Project Site development would be potential sources of odor at the adjacent land uses. BAAQMD maintains several rules regarding odors such as Regulation 1-301 (Public Nuisance) and Regulation 7 (Odorous Substances) that Project Site development, including the Recology expansion, must meet.

[14] A three-year time frame is used in relation to odor complaints consistent with BAAQMD recommendations.

Conclusion: Because Project Site uses, including the Recology expansion proposed as part of the CPP-V scenario, this impact would be less than significant under the DSP, DSP-V and CPP scenarios. **Mitigation Measure 4.B-8** is recommended to ensure that the impacts of the proposed recycled water plant are reduced to a less- than-significant level.

Mitigation

Mitigation Measure 4.B-8: Recycled Water Plant Odor Management Plan. Prior to the start of operation pursuant to issuance of a permit to operate from San Francisco Public Utilities Commission or RWQCB, the recycled water plant shall formulate and implement a progressive Odor Management Plan for review and comment by BAAQMD prior to review and approval by the City. The Odor Management Plan shall select a sufficient number of control measures from the following menu of options identified by BAAQMD to attain a performance standard which meets the odor detection thresholds of BAAQMD Regulation 7 as achieved and verified by the BAAQMD inspector.

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	✓	✓

✓ = measure applies
- = measure does not apply

- Activated carbon filter/carbon adsorption
- Biofiltration/bio trickling filters
- Fine bubble aerator
- Hooded enclosures
- Wet and dry scrubbers
- Caustic and hypochlorite chemical scrubbers
- Ammonia scrubber
- Energy efficient blower system
- Thermal oxidizer
- Capping/covering storage basins and anaerobic ponds
- Mixed flow exhaust
- Wastewater circulation technology
- Exhaust stack and vent location with respect to receptors

Conclusion with Mitigation: With implementation of **Mitigation Measure 4.B-8**, impacts related to objectionable odors would be reduced to a less-than-significant level under the CPP-V. Therefore, impacts related to objectionable odors would be less than significant for Project Site development.

Impact 4.B-9: Would the Project conflict with or obstruct implementation of the applicable air quality plan?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
SU	SU	SU	SU

S = Significant and Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = no impact

DSP, DSP-V, CCP, and CPP-V

The most recently adopted air quality plan in the San Francisco Bay Area Basin is the *2010 Clean Air Plan*. The *2010 Clean Air Plan* is a roadmap showing how the San Francisco Bay Area will achieve compliance with the state's 1-hour ozone standard as expeditiously as practicable, and how the region will reduce transport of ozone and ozone precursors to neighboring air basins. The control strategy includes stationary source control measures to be implemented through BAAQMD regulations; mobile source control measures to be implemented through incentive programs and other activities; and transportation control measures to be implemented through transportation programs in cooperation with the MTC, local governments, transit agencies, and others. The *2010 Clean Air Plan* also represents the Bay Area Basin's most recent triennial assessment of the region's strategy to attain the state 1-hour ozone standard. In this, the *2010 Clean Air Plan* replaces the *2005 Ozone Strategy*. Under BAAQMD's updated 2012 methodology, a determination of consistency with the most recently adopted Clean Air Plan, currently the 2010 Clean Air Plan, must demonstrate that a (1) plan or project supports the primary goals of the Clean Air Plan, (2) includes applicable control measures of the Clean Air Plan, and (3) would not disrupt or hinder implementation of any control measures of the Clean Air Plan.

Criterion 1: Project Support of the Primary Goals of the 2010 Clean Air Plan

BAAQMD guidance indicates that any project (i.e., project or plan) that does not support the three primary goals of the Clean Air Plan would not be considered consistent with the Clean Air Plan. Specifically, if approval of a project would not result in significant and unavoidable air quality impacts, after application of all feasible mitigation, the project may be considered consistent with the Clean Air Plan.

As discussed in Impacts 4.B-2 and 4.B-4, Project Site development would result in significant and unavoidable emissions of criteria pollutants during both construction and operations. Consequently, applying methodology recently updated by BAAQMD, Project Site development would not support the primary goals of the Clean Air Plan.

Criterion 2: Plan Consistency with Control Measures Contained in the Clean Air Plan

Air pollutant emissions are a function of human activity. The 1988 California Clean Air Act, Section 40919(d) requires regions to implement "transportation control measures to substantially reduce the rate of increase in passenger vehicle trips and miles traveled."

The *Bay Area 2010 Clean Air Plan* contains 59 control measures aimed at reducing air pollution in the Bay Area Basin. Many (18) of these measures address stationary sources and will be implemented by BAAQMD using its permit authority and are therefore not suited to implementation through local planning efforts. Sixteen other measures are a draft list of measures

for further study and are not yet identified as feasible for implementation under the 2010 Clean Air Plan. The remaining 25 measures are identified in **Table 4.B-21**. This table identifies each Control Strategy and correlates it to specific elements of each Project Site scenario or explains why the Strategy does or does not apply to the Project Site development. This table shows that the Project Site development would be consistent with the Control Strategies contained in the 2010 Clean Air Plan for the San Francisco Bay Area Air Basin.

Criterion 3: Disruption or Hindrance of Applicable Control Measures

Table 4.B-21 shows that the Project Site development would not disrupt or hinder implementation of any Clean Air Plan control measures with the exception of not addressing Mobile Source Control Measures A-1 and A-2 which are identified to be added to Project Site development as mitigation.

BAAQMD has identified examples of how a plan may cause the disruption or delay of control measures, such as a project that may preclude an extension of a transit line or bike path or proposes excessive parking beyond parking requirements. Project Site development would include accommodation of new and improved bus and transit service and an intermodal transit station. Project Site development would also include improved pedestrian and bicycle facilities, and would also accommodate transit extensions. These elements of Project Site development demonstrate that control measure disruption or delay would not occur.

Trip generation estimates for Project Site development used in this analysis included adjustments for development scale, density, diversity of uses, distance to transit and design of Project development-related development, as well as a robust number of alternative transportation trips (walk, bike, and transit) and carpooling. Therefore, many key elements of alternative mode strategies have been incorporated into the trip generation assumptions. This amount of traffic reduction exceeds the best reduction estimates for TDM programs (BAAQMD, 2012b).

Conclusion: This impact would be significant under all four proposed development scenarios. **Mitigation Measure 4.B-9** is proposed to minimize conflicts with the Clean Air Plan.

Mitigation

Mitigation Measure 4.B-9: The following TDM measures shall be implemented:

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	✓	✓
✓ = measure applies - = measure does not apply			

- Promote use of clean fuel-efficient vehicles through preferential parking and/or installation of charging stations.
- Promote zero-emission vehicles by providing a neighborhood electric vehicle program to reduce the need to have a car or second car vehicles as one potential element of a TDM program that would be required of all new developments.

TABLE 4.B-21
CONTROL STRATEGIES OF THE 2010 CLEAN AIR PLAN

2010 Clean Air Plan Control Strategy	Elements of Proposed Project Site Development Consistent with the Strategy or Explanation of Non-applicability
Transportation Control Measures	
TCM A: Improve Transit Services	Project Site development would support transit services including accommodation of bus rapid transit service and increasing Caltrain service at an intermodal transit station.
TCM B: Improve System Efficiency	Not Applicable: This measure addresses infrastructure improvements to increase operational efficiencies on freeways and transit service (such as common fare payment systems) and are geared toward regional transit agencies and Caltrans and not local government.
TCM C: Encourage Sustainable Travel Behavior (i.e., voluntary employer-based trip reduction program)	Project development under all four scenarios would require new site-specific development projects within the Project site that generate more than 100 peak our trips to establish a TDM program or pay an in-lieu impact fee. Developers may choose from a menu of TDM strategies including subsidies for site users who use transit or alternative modes of transportation.
TCM D: Support Focused Growth (Bicycle and Pedestrian friendliness)	Pedestrian and bicycle transportation modes will be facilitated by Project Site development. Provisions for alternative transportation modes include bicycle and pedestrian facilities for internal roadways as part of a comprehensive bicycle network for the area.
TCM E: Implement Pricing Strategies	Parking strategies would be included as part of TDM programs.
Mobile Source Control Measures	
MSM A-1: Promote Clean Fuel Efficient Vehicles	Not part of proposed Project Site development. **Mitigation Measure 4.B-9** added to address by identifying, as a TDM, preferential parking for alternative fueled vehicles as one potential element of a TDM program that would be required of all new developments.
MSM A-2: Zero Emission Vehicles	Not part of proposed Project Site development. **Mitigation Measure 4.B-9** added to address by identifying, as a TDM neighborhood electric vehicle programs to reduce the need to have a car or second car vehicles as one potential element of a TDM program that would be required of all new developments.
MSM A-3: Green Fleets	Not Applicable: Development of the Project Site would generally be retail, commercial or residential (DSP and DSP-V scenarios) in nature and unlikely to accommodate a land use requiring a fleet of vehicles. However, a green fleet could be used by a developer as a TDM program required under the Congestion Management Program. Recology currently operates 60 percent of its fleet with alternative fuels and its expansion would increase this percentage.
MSM A-4: Replacement or Repair of High-emitting Vehicles	Not Applicable: This Strategy addresses vehicle buy-back programs implemented by BAAQMD.
MSM B-1: Fleet Modernization for Medium and Heavy-Duty Trucks	Not Applicable: This Strategy addresses incentive programs for truck modernization which are implemented by BAAQMD or CARB.
MSM B-2: Low NOx retrofits in Heavy-Duty Trucks	Not Applicable: This Strategy addresses cash incentives for retrofits which are implemented by BAAQMD or CARB.
MSM B-3: Efficient Drive Trains	Not Applicable: This Strategy addresses development and demonstration programs in partnership with CARB and the California Energy Commission.
MSM C-1: Construction and Farming Equipment	Not Applicable: This Strategy addresses cash incentives for retrofits which are implemented by BAAQMD or CARB.
MSM C-2: Lawn & Garden Equipment	Not Applicable: This Strategy addresses voluntary exchange programs implemented by BAAQMD.
MSM C-3: Recreational Vessels	Not Applicable: This Strategy addresses voluntary exchange programs implemented by BAAQMD.

TABLE 4.B-21 (Continued)
CONTROL STRATEGIES OF THE 2010 CLEAN AIR PLAN

2010 Clean Air Plan Control Strategy	Elements of the Proposed Project Consistent with the Strategy or Explanation of Non-applicability
Land Use & Local Impact Measures	
LUM 1: Goods Movement	Project Site development would locate warehousing and industrial uses on the east side of the Project Site adjacent to the US Highway 101, allowing for direct freeway access of shipping trucks and avoiding truck routes through congested or sensitive areas.
LUM 2: Indirect Source Review Rule	Not Applicable: This Strategy addresses implementation of an indirect source Rule by BAAQMD.
LUM 3: Updated CEQA Guidelines	This Strategy addresses updating of the *CEQA Guidelines* by BAAQMD. These Guidelines were most recently updated in May of 2012, removing any recommendation of significance thresholds.
LUM 4: Land Use Guidance	This strategy addresses updating land use planning documents such as the proposed development scenarios and demonstrating consistency with air quality protection guidance such as the new BAAQMD *CEQA Guidelines* that are applied in this analysis.
LUM 5: Reduce Health Risk in Impacted Communities	The nearest "impacted community" identified in Figure 5-1 of the BAAQMD *CEQA Guidelines* would be single-family homes on Wheeler and Tocoloma Avenues in San Francisco are located approximately 800 feet northeast of proposed residential and retail land uses and 500 feet north of the proposed retail/Recology expansion area. As indicated in Impacts 4.B-3 and 4.B-5, health risk impacts of the Project Site development would be less than significant.
LUM 6: Enhanced Air Quality Monitoring	Not Applicable: This Strategy addresses air quality monitoring that is the purview of BAAQMD and/or CARB.
Energy & Climate Measures	
ECM 1: Energy Efficiency	Project Site development includes a Sustainable Framework Plan that includes building strategies to be incorporated into future development including LEED certification and guidelines addressing solar access, storm water and wastewater management, landscaping, lighting and green building materials.
ECM 2: Renewable Energy	See Measure ECM-1 above. Additionally, the DSP and DSP-V scenarios would allot 25 acres to renewable energy generation, while the CPP and CPP-V scenarios would also include renewable energy components.
ECM 3: Urban Heat Island Mitigation	Project Site development includes provision of a substantial amount of open space and would be required to provide substantial landscape improvements. Distribution of this open space as currently proposed along with the landscaping requirements that would be imposed for site-specific development projects within the Project Site would implement measure ECM-3.
ECM 4: Shade Tree Planting	The overall Landscape Guidelines of the Specific Plan prepared for the DSP and DSP-V scenarios provide for substantial tree planting throughout the Project Site's developed and open areas in order to enhance the area's visual quality and identity, visually buffer new development, and provide environmental benefits such as micro-climate control. The CPP and CPP-V scenarios are intended at a minimum to provide equivalent landscaping including tree planting.

SOURCE: ESA, 2012.

Conclusion with Mitigation: As discussed under Criterion 1, above, BAAQMD guidance indicates that if approval of a project would not result in significant and unavoidable air quality impacts, after application of all feasible mitigation, project site development may be considered consistent with the Clean Air Plan. Because all four of the proposed development scenarios would result in significant construction or operational emission impacts even with implementation of all feasible mitigation measures (**Mitigation Measures 4.B-2, 4.B-4,** and **4.B-9**), Project Site development would be considered to be inconsistent with *2010 Clean Air Plan*, and the resulting impact would be considered to be significant and unavoidable.

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4.C Biological Resources

4.C.1 Introduction

This section identifies the existing biological resources at the Project Site; describes the federal, state, and local regulations pertaining to biological resources; and describes the impacts on biological resources associated with development of the Project Site. Feasible mitigation measures are identified to reduce significant impacts.

In addition to the surveys of the Project Site described below, information used in the preparation of this section was obtained from reconnaissance-level field surveys and existing documents pertaining to all or portions of the Project Site including the *Brisbane Baylands Wetland Delineation Report* (Burns and McDonnell, 2003); the *Brisbane Baylands Wetland Mitigation Plan* (Burns and McDonnell, 2004); the *Biological Assessment of Sunquest Properties, Inc, Brisbane, California* (WRA, 2003); the *Habitat Assessment for the California Red-legged Frog and San Francisco Garter Snake on the Former Southern Pacific Rail Yard, Brisbane, San Mateo County, California* (WRA, 2001); the *San Francisco Estuary Invasive Spartina Project Treatment Report for 2008-2009* (ISP, 2009); and the *California Clapper Rail Surveys for the San Francisco Estuary Invasive Spartina Project* (ISP, 2010). Additional information was obtained from the California Natural Diversity Database (CNDDB) (CDFW, 2013), California Native Plant Society Electronic Inventory (CNPS, 2013), United States Fish and Wildlife Service (USFWS, 2013), Natural Resources Conservation Service Soil Survey (NRCS, 2007), National Wetlands Inventory (USFWS, 2012), and standard biological literature.

On March 2, 2007, June 20, 2007, April 20, 2011, and April 19, 2013 reconnaissance-level field surveys covering the entire Project Site were conducted by ESA biologists. The 2011 survey confirmed that site conditions in terms of biological resources remain consistent with no appreciable changes in distribution or condition of existing habitats between 2007 conditions and 2011, and also consistent with the earlier site surveys described above.

The surveys described above were timed during the various calendar years to maximize the potential for observations of special-status plant species to be in flower, and to maximize opportunities to observe wildlife species that may be present and using the Project Site for breeding and rearing purposes. The combination of existing sources and first hand observations of the Project Site form the body of data used by qualified biologists to develop an accurate description of existing conditions for biological resources. While numerous plant and wildlife species were observed during these reconnaissance surveys, some species may not have been identifiable at the time of the surveys. In such cases, the likelihood for such species to occur has been determined based on the presence or absence of suitable habitat, and is provided in the analysis below. A significant effect was assumed to exist and appropriate mitigation measures have been provided where Project Site development would result in impacts to species with at least a moderate likelihood of occurring onsite. Species characterized as having a low potential to occur are included in **Table 4.C-1**. Species identified as having low potential may occur within a 5-mile radius of the Project Site but the specific habitat type required to support low-potential-to-occur species is absent from the site.

For example those plant species that require serpentine, coastal dune, chaparral, adobe soils, or other species-specific micro habitat as stated would not be expected to occur and/or have a low potential for occurrence. Similarly, those animal species that have specialized breeding habitat requirements that are not present within the Project Site were determined to have a low potential for occurrence. In some cases both the lack of specific micro habitat and the notation that the CNDDB record for the species was recorded outside a five-mile radius from site from the Project Site contributed to a determination of low potential for occurrence determination.

4.C.2 Environmental Setting

Regional Setting

The Project Site is located in the Bay Area-Delta Bioregion, as defined by the California Environmental Resources Evaluation System. This bioregion supports a variety of natural communities that range from the open waters of the San Francisco Bay and Delta to salt and brackish marshes to chaparral and oak woodlands. The temperate climate of this bioregion is Mediterranean in nature, with relatively mild, wet winters and warm, dry summers.

Project Site Setting

The Project Site is located primarily in Brisbane, south of the City and County of San Francisco, adjacent to San Francisco Bay. The Project Site is adjoined by US Highway 101 and the current shoreline of San Francisco Bay to the east. San Bruno Mountain and central Brisbane are located to the west. The Project Site was originally an estuarine ecosystem supporting tidal marshes, tidal mud flats, and open Bay waters. The estuarine habitat was filled in with debris and refuse, beginning with the advent of the railroad and the need to dispose of debris from the 1906 earthquake, to create upland elevations and accommodate development of the roads, rail facilities, and industrial uses in the area today (see Section 4.G, *Hazards and Hazardous Materials*, of this EIR, for historical information regarding Bay fill at the Project Site). The process of filling the Bay eventually completely removed or substantially altered much of the natural habitat areas (marshes, tidal mudflats, open Bay waters) that formerly occurred on the Project Site.

Historically, the Project Site was occupied by intertidal mudflats with tidal salt-to-brackish marshes located at the mouth of Visitacion Valley. There were also small areas of sandy beach at the foot of what is now Icehouse Hill and areas to the north that may have supported dune habitat (USGS, 1899; SFEI, 1998a). The terrestrial portions of the Project Site are located nearly entirely on fill over Bay mud, with the exception of Icehouse Hill, which represents a segment of the historical bay margin and is composed of sandstones (NRCS, 2007; see Section 4.E, *Geology, Soils, and Seismicity,* of this EIR for further details on Project Site soils).

The site is dominated by non-native ruderal and grassland species, with landscaped areas along roadways and adjacent to US Highway 101 containing non-native trees and shrubs. Native vegetation types, including coastal scrub and perennial grasslands, are confined to relatively small areas on Icehouse Hill in the western portion of the Project Site.

Tidal and freshwater wetlands occur along the edges of drainage channels and in the portion of the Project Site that was formerly a rail yard. The drainage channels on the site are man-made and were to provide site drainage. Brisbane Lagoon, which is tidally influenced, supports open water habitat and small patches of mudflats, while the perimeter supports remnant tidal marsh habitat. Two large concrete box culverts allow tidal waters from the Bay to enter the lagoon. These box culverts measure 12 feet long by 12 feet wide, with concrete bottoms, and are unobstructed for a length of 300 feet. Approximate tidal range in the portion of the Bay directly adjacent to the Project Site is 6.5 feet and is expected to be less than this within the lagoon. Within the culverts tidal range between mean high water and mean low is likely to be consistent with Bay conditions. Vegetation and habitat types observed on the Project Site are described below and illustrated in **Figure 4.C-1**. Vegetation communities are described below.

Vegetation Communities and Wildlife Habitats

Vegetation communities described below are based on the classification scheme presented in Preliminary Descriptions of the Terrestrial Natural Communities of California (Holland, 1986). Additionally, descriptions of wildlife habitats included in A Guide to Wildlife Habitats of California (Mayer and Laudenslayer, 1988) were also referenced to better assess wildlife species that vegetation communities could potentially support. Adaptations to the habitat classifications were used where necessary to accurately describe site specific conditions when the vegetation community did not strictly fall within the classification schemes. These sources are considered to be the classic reference materials for baseline evaluations and are recognized and accepted by regulatory agencies and are often used, along with onsite surveys, to evaluate habitat types and the species that would potentially use or are associated with those habitats and therefore might occur at a Project Site. A description of the habitat types beginning with terrestrial habitats, and concluding with wetland habitats provides species specific details for each habitat type including both botanical and wildlife species. Figure 4.C-1 depicts the location and distribution of the habitat types that occur at the Project Site.

Terrestrial Communities

Non-Native Annual Grassland. Within the Project Site, non-native annual grassland occurs along the south side of Lagoon Way and on the slopes of Icehouse Hill. Non-native annual grassland habitat is also associated with the soil cuts on Icehouse Hill where the eastern slope was graded to accommodate the rail lines, where the western slope was graded to construct Bayshore Boulevard, and on the southern toe where various non-specific excavations for fill was conducted. In these locations, the steep slopes may be only sparsely vegetated with annual grasses and can contain portions of bare ground. The herbaceous species found within non-native annual grassland may also be observed within the interior portions of the Project Site as part of the understory to the Ruderal habitat.

Non-native annual grasslands are dominated by introduced grasses and forbs, including wild oat (*Avena* sp.), Italian ryegrass (*Festuca perenne*), ripgut brome (*Bromus diandrus*), Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*), and velvet grass (*Holcus lanatus*). Ruderal (broadleaf) herbaceous species, including Italian thistle (*Carduus pycnocephalus*), black mustard

(*Brassica nigra*), wild radish (*Raphanus sativus*), yellow starthistle (*Centaurea solstitialis*), fennel (*Foeniculum vulgare*), pampas grass (*Cordateria jubata*), bristly ox-tongue (*Helminthotheca echioides*), and English plantain (*Plantago lanceolata*) are also found throughout the non-native grasslands.

Portions of Icehouse Hill that are regularly grazed by horses are also mapped as non-native grasslands, but support limited patches of native annual and perennial grass and forb species. The variety of native grasses and forbs on Icehouse Hill include lupine (*Lupinus* sp.), Douglas iris (*Iris douglasiana*), toad rush (*Juncus bufonius*), California goldfields (*Lasthenia californica*), purple needlegrass (*Stipa pulchra*), buckwheat (*Eriogonum* sp.), California buttercup (*Ranunculus californicus*), suncup (*Taraxia* sp.), two species of checkerbloom (*Sidalcea* spp.), western blue-eyed grass (*Sisyrinchium bellum*), soap plant (*Chlorogalum pomeridianum*), Coast Range mule ears (*Wyethia glabra*), and dotseed plantain (*Plantago erecta*). Johnny jump-up (*Viola pedunculata*), the host plant for the federally listed endangered callippe silverspot butterfly (*Speyeria callippe callippe*), was observed in a patchy but relatively abundant distribution. Even though biologists observed that the Johnny jump-up plants had been grazed by herbivores such as deer, these plants represent a potential host for the callippe silverspot butterflies.

Ruderal. Ruderal communities are found throughout the state of California and vary dramatically in vegetation assemblage, depending upon soil types, rainfall, and disturbance frequency. In summary, ruderal habitats are dominated by non-native broad leaf plants (dicots). With the dominance of broadleaf species this habitat is can appear shrubby and form thick barriers in some cases. In contrast, non-native annual grassland habitats are generally shorter in height, falling below two or three feet at the end of the growing season. Plant species found in non-native annual grassland habitat, as described above, may also be found as a component of the ruderal habitat type. The biggest differentiation between the ruderal community and non-native annual grassland is the prevalence of dicots in opposition to grass species domination.

Within the Project Site, ruderal vegetation is found across the former railyard and the lands to the north and south of Visitacion Creek where the non-native dicots are dominant to the non-native grasses. The lands are vegetated with a mosaic of invasive forbs including fennel, Italian thistle, black mustard, wild radish, yellow starthistle, bristly ox tongue, red valerian (*Centranthus ruber*), crown daisy (*Glebionis coronaria*), and pampas grass, and shrubs such as French broom (*Genista monspessulana*), and cotoneaster (*Cotoneaster* sp.), and pyrocantha (*Pyrocantha crenato-serrata*). Coyote brush (*Baccharis pilularis*) and toyon (*Heteromeles arbutifolia*), native pioneer shrub species, can also be found interspersed among the non-natives but in fewer numbers than the invasive shrub species. A few sapling gum trees (*Eucalyptus* sp.) are also found growing in some regions where ruderal vegetation is dominant.

Wildlife in Non-Native Annual Grassland and Ruderal Habitat. With the overlap in vegetative species between these two habitat types the common resident and migratory animals that could potentially use these areas can be evaluated together. Non-native annual grasslands and ruderal habitat can provide refuge for reptiles such as western fence lizard *(Sceloporus occidentalis),* alligator lizard (*Elgaria sp.)*, western yellow-bellied racer (*Coluber mormon*), and

Figure 4.C-1
Vegetation and Habitat Types
11 x 17

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gopher snake (*Pituophis catenifer)* as well as grassland birds such as mourning dove (*Zenaida macroura*), red-winged blackbird (*Agelaius phoeniceus*), and golden-crowned sparrow (*Zonotrichia atricapilla*). Killdeer (*Charadrius vociferus*) commonly forage and nest on gravel or bare ground, including open dirt and fractured pavement. Grasslands also serve as important foraging grounds for aerial and ground-foraging insect eaters such as *Myotis* bat species. Mammals such as Botta's pocket gopher (*Thomomys bottae*), California ground squirrel (*Spermophilus beecheyi)*, and western harvest mouse *(Reithrodontomys megalotis*) commonly forage within both native and non-native grasslands. These small rodents may attract raptors, including red-tailed hawk (*Buteo jamaicensis*) and American kestrel (*Falco sparverius*), both of which have been observed foraging over several areas of the Project Site. Evidence of coyote (*Canis latrans*) on Icehouse Hill and black-tailed jackrabbit (*Lepus californicus*) were also observed. The Project Site is open and devoid of buildings for the most part, and may provide wildlife movement corridors for common species such as skunks (*Mephitis mephitis*) and raccoons (*Procyon lotor*), and avian species moving down slope toward the Bay shore during foraging or to find water.

Landscaped. The following descriptions apply to the unit mapped within the Project Site as Landscaped (see Figure 4.C-1). This habitat type includes minor landscaped areas associated with some buildings and the plantings of trees such as lollipop tree (*Myoporum laetum*) and pine (*Pinus* ssp.) on the edges of Tunnel Avenue, the north side of Lagoon Way, adjacent to the west side of US Highway 101 between the highway and the former landfill area, as well as on the eastern edge of the Brisbane Lagoon.

Landscaped areas provide foraging or nesting habitat for generalist,[1] and sometimes non-native, wildlife species that can tolerate human presence and activities. Although higher human activity levels in these areas are not often compatible with native wildlife, they may support native wildlife species habituated to human presence including birds and small mammals such as western scrub jay (*Aphelocoma californica*), California towhee (*Melozone crissalis*), house finch (*Carpodacus mexicanus*), raccoon (*Procyon lotor*), and house mouse (*Mus musculus*).

Eucalyptus. Several groves of gum trees (*Eucalyptus* sp.) were observed to form a contiguous habitat type on the western side of the Project Site along Bayshore Boulevard. Gum trees were also established between Bayshore Boulevard and the former railyard property on Bayshore Boulevard to the north.

Even with high traffic levels on Bayshore Boulevard and human activity associated with businesses along Industrial Way, mature blue gum eucalyptus may provide nesting habitat for a number of raptors such as red-tailed hawk, red-shouldered hawk (*Buteo lineatus*), and great horned owl (*Bubo virginianus*). During ESA's reconnaissance site visit in April 2011, the operator of a horse stable on Icehouse Hill described previously observing red-tailed hawks nesting in the small eucalyptus grove north of Icehouse Hill. Eucalyptus may also provide roosting and nursery sites for several bat species, including fringed myotis and long-eared myotis.

1 "Generalist" species can occupy and thrive in a variety of natural or developed areas.

Coastal Scrub and Invasive Scrub. Coastal scrub is the closest vegetation community classification that may be used to describe the invasive scrub habitat within the Project Site. Invasive scrub is found in small isolated patches on uplands surrounding Brisbane Lagoon and adjacent to the eastern side of Bayshore Boulevard. These two vegetation types are mapped separately on Figure 4.C-1 as coastal scrub and invasive scrub accordingly.

Coastal scrub is a highly variable plant community and is described with a native shrub or a combination of native shrubs as the dominant anchor species; however, in the case of the Project Site the scrub community is dominated by non-native species such as French broom (*Genista monspessulana*), pampas grass, tobacco tree (*Nicotiana glauca*), wattle (*Acacia* sp.), and escaped ornamental fruit trees (*Prunus* sp.). On San Bruno Mountain and in the region, gorse (*Ulex europaeus*), Portuguese broom (*Cytisus striatus*), and cotoneaster (*Cotoneaster* ssp.) are commonly found as dominants in the invasive shrubland areas and are also found interspersed within the Project Site. Active management and elimination of the invasive shrubs is conducted on San Bruno Mountain to prevent the extirpation of true coastal scrub habitat. Where left uncontrolled native species disappear, as observed on the Project Site where the non-native shrubs have become the dominant species. Few natives remain in the invasive scrub community and consist of the "tree-like" specimens or the larger shrubs which were well established prior to the invasion of non-native shrubs. The native shrubs toyon (*Heteromeles arbutifolia*), buckeye (*Aesculus californica*), and coyote brush are still present in the invasive shrub community.

Coastal scrub habitat is located on the northeastern slope of Icehouse Hill where a relatively small patch of habitat on a steep slope has remained undisturbed. Perennial grasses occur in association with the coastal scrub habitat and are a component of the understory. Covering approximately 0.5 acre, this habitat patch on Icehouse Hill is the most diverse native plant assemblage within the Project Site and represents a relatively intact fragment of the natural landscape before extensive development of Brisbane occurred in the 19th century.

The coastal scrub overstory is dominated by coyote brush and poison oak (*Toxicodendron diversilobum*), with toyon and elderberry (*Sambucus nigra* ssp. *caerulea*) also occurring as secondary species. The understory is dominated by the native perennial bunchgrasses California melic grass (*Melica californica*) and blue wildrye (*Elymus glaucus*), which occur in association with non-native annuals such as quaking grass (*Briza maxima*) and velvet grass. In addition, the understory contains herbaceous forb species such as goldenback fern (*Pentagramma triangularis*), soap plant, elegant brodiaea (*Brodiaea elegans)* two-tone everlasting (*Pseudognaphalium biolettii*), yarrow (*Achillea millefolium*), and Ithuriel's spear (*Triteleia laxa*).

Coastal scrub, especially where it occurs in larger patches such as on Icehouse Hill, may provide nesting and foraging habitat for various birds, including California towhee, common bushtit (*Psaltriparus minimus*), and western scrub jay. A continuous vegetation corridor is lacking for passerines between the Project Site and better quality habitat to the west on San Bruno Mountain. Connectivity of this patch to coastal scrub habitat to habitat on the west at San Bruno Mountain may be possible, but Bayshore Boulevard represents a barrier to movement for mammals. Raptors may forage over such areas and prey upon some of these small birds, as well as upon small

mammals and reptiles such as California ground squirrel, brush rabbit (*Sylvilagus bachmani*), and western fence lizard.

Wetland Communities

The following descriptions apply to units mapped in Figure 4.C-1 within the Project Site as Freshwater Emergent Wetlands, Willow Scrub, Tidal Wetland Drainage, Freshwater Drainage, and Tidal Marsh.

Freshwater Emergent Wetlands. Freshwater emergent wetland habitat is found within the former rail yard area in the middle of the property and at the center of the roundhouse structure where the turntable once operated. The depression within which the turntable would have rotated accumulates water runoff and has developed wetland vegetation. Freshwater emergent wetlands also occur adjacent and to the west of the Caltrain tracks in the vicinity of Icehouse Hill and supports willow scrub habitat. One small patch of freshwater emergent wetland also was identified in the north eastern corner of the soil processing facility near Beatty and US Highway 101.

The freshwater emergent wetlands on the Project Site typically lose surface water or completely dry up during the summer months, but contain water through the winter and late spring. These seasonally inundated wetlands support hydrophytic vegetation including rabbit's foot grass, nut-sedge (*Cyperus eragrostis*), cattails (*Typha* latifolia), arroyo willow, brownhead rush (*Juncus phaeocephalus*), and cutleaf plantain (*Plantago coronopus*). Due to past disturbance and the nature of these wetlands (small size and, in some cases, isolation), it is highly unlikely that they would support special-status plants or wildlife.

Freshwater emergent wetlands that are dominated by perennial vegetation such as cattails or bulrush may provide nesting and foraging opportunities, as well as cover, for a number of bird species and small mammals. Species commonly associated with freshwater emergent wetland and which are assumed to be present on the site at least occasionally, include great blue heron (*Ardea herodias*), great egret (*Ardea alba*), black phoebe, red-winged blackbird, raccoon, and California vole (*Microtus californicus*). Greater yellowlegs (*Tringa melanoleuca*) and mallards (*Anas platyrhynchos*) were also observed foraging in the shallow standing waters of freshwater emergent wetland habitats during a reconnaissance survey of the Project Site conducted on April 20, 2011.

Willow Scrub. Willow scrub habitat is characterized by thickets of arroyo willow (*Salix lasiolepis*), which have grown in association with wetland hydrology in several locations within the Project Site. The willow scrub habitat can be found just north of the Kinder Morgan tank farm, at the south toe of Icehouse Hill, and at the northwestern corner of Brisbane Lagoon. This habitat is densely composed with many multi-trunked or multi-stemmed arroyo willow trees forming thicket-like conditions.

Willow scrub habitat provides nesting and foraging habitat Wilson's warbler, Hutton;s vireo and Townsend's warbler.

Freshwater Drainage. Freshwater drainages occur in the northern portion of the Project Site and consist of artificially created channels that support herbaceous wetland vegetation. Vegetation

within the freshwater drainage habitat can consist of the same species as observed in the freshwater emergent wetland, but in some areas the freshwater drainages do not support vegetation where the channels are lined with concrete. The freshwater drainages can either flow to San Francisco Bay or appear to be isolated from a receiving body.

Wildlife that could potentially use the habitat within freshwater drainage habitat common yellow throat, white-crowned sparrow, and small mammal species such as raccoons use this habitat for foraging and as movement corridors.

Tidal Marsh and Tidal Wetland Drainage. Tidal marsh habitat at the Project Site is found around Brisbane Lagoon and along the length of Visitacion Creek. In both areas the dominant plant species is pickleweed (*Salicornia virginica*) which generally forms a dense mat across the silty or muddy shoreline substrates that have a saline influence or an association with a bay or the ocean (see Figure 4.C-1).

The tidal marsh located around the perimeter of Brisbane Lagoon occurs where soils and/or sediments are present to support vegetation growth (large stretches of the lagoon are armored with riprap which does not support vegetation growth). The soils within the lagoon and the influx of brackish water from San Francisco Bay (box culvert connection described below under open water) promote the growth of halophytes such as pickleweed and its associates. These plants possess morphological adaptations that allow them to inhabit saline soils. The largest area of tidal marsh is located on the southern end of Brisbane Lagoon where a silt fan from a small tributary has formed from sediments. Smaller patches of tidal marsh occur at the northwest corner in conjunction with a drainage fan and along the northern and eastern edges of the lagoon where other patches of sediment have accumulated. A shell beach also exists along the edge of pickleweed habitat in the southeastern side of the lagoon.

Visitacion Creek is connected directly to San Francisco Bay through a culvert beneath US Highway 101 and is also tidally influenced. Visitacion Creek is lined with a wetland fringe dominated by pickleweed for most of its length; and therefore is mapped as a tidal wetland drainage, a type of tidal marsh present along a defined drainage channel.

The tidal marsh and tidal wetland drainage habitat is dominated primarily by pickleweed but other common tidal salt marsh species are found as associates such as saltgrass (*Distichlis spicata*), alkali heath (*Frankenia* grandiflora), fathen (*Atriplex prostrata*), and gumplant (*Grindelia* sp.).

Tidal marsh and tidal marsh drainage habitat at the Project Site may provide nesting and foraging opportunities and cover for water birds and small mammals, including mallard, green-winged teal (*Anas crecca*), great blue heron, great egret, marsh wren, Alameda song sparrow (*Melospiza melodia pusillula*), and California vole. Raptors that typically use marsh habitats for foraging include the northern harrier (*Circus cyaneus*), red-tailed hawk, white-tailed kite (*Elanus leucurus*), and American kestrel.

It is possible that the Brisbane marshes once were inhabited by what are now special-status species. However, it is unlikely that any of these species would currently be found in the tidal

marsh or tidal marsh drainage due to the relatively small size and longstanding fragmentation and isolation of the remaining habitat. For example, salt marsh harvest mouse (*Reithrodontomys raviventris)* occur in high-quality tidal marsh with larger acreage of pickleweed habitat that occurs adjacent to upland environments, but are not expected to occur at the Brisbane Baylands due to the relatively small size of the marshes, the fact that they have been fragmented by roads crossing them, and their longstanding isolation from other similar habitat (USFWS, 1984[2]). Protocol-level surveys for California clapper rail were carried out throughout marshes in San Francisco Bay, San Pablo Bay, and Suisun Bay in connection with the Invasive Spartina Project. Clapper rail was not detected during surveys at saltwater marshes associated with Brisbane Lagoon as recently as 2010 (ISP, 2010), and is not expected to occur on the Project Site. There are no known occurrences in the vicinity and the marsh habitat at the site does not include channels preferred by the species. California black rail (*Laterallus jamaicensis coturniculus*) do not generally occur in smaller marshes close to urban uses (PRBO, 2002). This species is not expected to occur at the site and is not known to occur in the vicinity.

Cordgrass (not observed within Project Area May 2013). Stands of invasive hybrid cordgrass (*Spartina foliosa* X *S. alterniflora*) (also referred to as spartina) were removed from the northwest corner and the northern and eastern periphery of Brisbane Lagoon by the Invasive Spartina Project. Hybrid cordgrass can provide cover and nesting habitat for birds such as marsh wren and California clapper rail (*Rallus longirostris obsoletus*); however, its ecosystem-altering characteristics have led to it being considered a noxious weed in California and elsewhere. Therefore, the Invasive Spartina Project coordinates an ongoing control program to eradicate non-native and hybrid cordgrass throughout the San Francisco Estuary. Treatment was carried out within Brisbane Lagoon in 2008 and 2009, when 0.58 and 0.65 acres of cordgrass was sprayed with the herbicide Imazapyr using trucks and amphibious vehicles (ISP, 2009). During site visits in May 2013, no spartina was observed in the lagoon and it may have been eradicated from this area in the short term. While not observed, it is possible that this species could be found within the Brisbane Lagoon in the future and if its presence is detected it would be managed and/or removed through the Invasive Spartina Project.

Open Water Estuarine Habitat

The following discussion and description applies to units mapped in Figure 4.C-1 as Tidal Lagoon and associated mudflat.

Brisbane Lagoon is a tidal lagoon feature composed of approximately 119 acres of open water subject to muted tidal influence, located at the southern end of the Project Site. The lagoon's shorelines contain little beach during high tides and most of the shoreline exposed during low tides is protected by riprap.

Box culverts flow beneath US Highway 101 to allow water exchange between Brisbane Lagoon and San Francisco Bay. Floodwater runoff is able to reach the San Francisco Bay through the pair of box culverts located on the east side of the lagoon. Fresh water runoff into the lagoon from its

[2] This represents the most recent recovery plan for the species.

two tributaries located to the west can flow through the box culvert such that localized flooding upstream does not occur under storm conditions. With the presence of the box culverts water within Brisbane Lagoon is directly influenced by tidal action through its connection to the waters of San Francisco Bay.

Potentially Jurisdictional Waters within the Project Site

Wetlands and Jurisdictional Waters are regulated by both the United States Army Corps of Engineers (Corps) and Regional Water Quality Control Board (RWQCB) under the Clean Water Act (CWA) regulations (see Figure 4.C-1 for locations of these potentially jurisdictional features). The California Department of Fish and Wildlife (CDFW) also asserts jurisdiction over lakes and streambeds under Fish and Game Code Section 1602.

A formal wetland delineation pursuant to Section 404 of the CWA was conducted at the Project Site in July 2003 and was subsequently verified by the Corps in August 2003. The delineation included identification of 27 wetland features for a total of approximately 5.93 acres of wetlands within the Project Site. Because the 2003 delineation expired in 2008, its conclusions relative to the precise location and acreage of wetlands existing on the Project Site may no longer be valid for purposes of a formal jurisdictional wetland delineation, However, 2011 reconnaissance-level surveys confirmed that the information contained in the 2003 delineation remains a valid source of information regarding the location and distribution of wetland features on the site, and thus descriptive of the 2010 baseline year used for analysis in this EIR. The 2011 reconnaissance-level surveys were therefore used as a source to characterize and quantify existing conditions for wetland habitat areas on the Project Site. Figure 4.C-1 depicts the wetland habitat existing on the Project Site based on 2011 observations. Approximate acreages of existing wetlands are shown in Table 4C-1.Formal wetland delineations would be required for portions of the Project Site prior to grading, remediation, or other ground-disturbing activities.

Special-Status Species

In this analysis, special-status species are defined as:

- Plant and wildlife species listed as rare, threatened, or endangered under the federal or state endangered species acts;
- Species that are candidates for listing under either federal or state law;
- Species formerly designated by the United States Fish and Wildlife Service (USFWS) as Species of Concern or designated by CDFW as Species of Special Concern;
- Fully protected species identified in California Fish and Game Code Sections 3511 [birds], 4700 [mammals], 5050 [reptiles and amphibians], and 5515 [fish]);
- Species protected by the federal Migratory Bird Treaty Act (16 U.S.C. 703-711); and/or
- Species such as candidate species that may be considered rare or endangered pursuant to Section 15380(b) of the CEQA Guidelines.

Appendix E of this EIR provides comprehensive lists of the special-status species that have been documented or have some potential to occur on the Project Site based on data collected and contained in several databases. These lists were obtained from the CNDDB (CDFW, 2013), the California Rare Plant Rank (CRPR) maintained online by the California Native Plant Society (CNPS) (2013), and the USFWS (2013). These lists identify species that have been documented in the region at some point in time and includes species documented many miles away from the Project Site. These lists are considered to be a broad starting point for assessing a site, and were used in the design of survey methods and as guides to evaluation of habitat suitability.

In order to refine the list in Appendix E of this EIR to be focused to the Project Site, biologists conducted a review of the biological literature of the region and previous EIR documents. Those documents record observations of previous biologists of species occurrences directly on site or adjacent to the site. In addition, ESA biologists conducted surveys of the Project Site and evaluated the condition of the habitats that occur. Based on the professional judgment of qualified biologists, many of the species included in Appendix E were eliminated from further evaluation because (1) the Project Site or the immediate area does not provide suitable habitat, or (2) the Project Site is not located with the known range for the particular species, the species is believed to be extirpated and no longer occur in the vicinity. The special-status species list presented in Table 4.C-1 includes species for which potential habitat (i.e., general habitat types) occurs on or in the vicinity of the Project Site (Table 4.C-1 is included at the end of this chapter). Species determined to have low potential to occur on the Project Site were considered and are addressed in Table 4.C-1; however, they are not likely to be present onsite, and therefore more detailed analysis was not needed. This table also provides the rationale for each potential-to-occur determination. Species observed or with a moderate to high potential to occur at the Project Site are discussed in further detail in the text below and in the impacts analysis.

Species Assessed in Detail

Of the special-status plants and animals included in Table 4.C-1 the following species were determined to have a moderate to high potential to occur within the Project Site and are carried forward in the impact analysis:

- Bent-flowered fiddleneck
- Bristly sedge
- San Francisco collinsia
- Choris' popcorn-flower
- San Francisco campion
- Mission blue butterfly
- Callippe silverspot butterfly
- Central California coast steelhead
- Sacramento River winter-run Chinook salmon
- Central Valley spring-run Chinook salmon
- Central Valley fall/late fall-run Chinook salmon
- California least tern
- Great horned owl
- Red-tailed hawk
- Red-shouldered hawk
- Northern harrier
- American kestrel
- Salt-marsh common yellowthroat
- Alameda song sparrow
- Allen's hummingbird
- Barn owl
- Burrowing owl
- Pallid bat
- Townsend's Pacific big-eared bat
- Long-eared myotis
- Fringed myotis
- Hoary bat
- Yuma myotis

Special-Status Invertebrates

Mission blue butterfly (*Plebejus icariodes missionensis*) **Federally Endangered.** This federally listed endangered butterfly is found in grassland and coastal scrub habitat on San Bruno Mountain, where its distribution is closely tied to that of its larval host plants. Protection from wind seems to be another important habitat component for Mission blue butterflies. The primary larval host plants for this butterfly are two species of perennial lupine: silver lupine (*Lupinus albifrons* var. *collinus*) and summer lupine (*L. formosus* var. *formosus*). Varied lupine (*L. variicolor*) is also used on San Bruno Mountain as a host plant, but not as frequently. Adult Mission blues use a variety of plant species for nectaring, including non-native Italian thistle and wild radish, which are found throughout the Project Site. Mission blues can move up to approximately 0.25 mile between habitat patches and the species is likely to move farther, during multiple movements between habitat areas. Multiple occurrences of Mission blues have been documented near the Project Site, in open space scrub and grassland habitat located within 0.25 mile and immediately west of Icehouse Hill (San Mateo County, 2007).

Icehouse Hill is the only location on the Project Site where the substrate is suitable to support these three lupine species. None of these larval host plants have, however, been documented as occurring on the Project Site and individual plants were not observed during reconnaissance surveys.

Callippe silverspot butterfly (*Speyeria callippe callippe*) **Federally Endangered.** The callippe silverspot is listed by the USFWS as endangered. Callippe silverspot distribution on San Bruno Mountain is similar to that of the Mission blue. *Viola pedunculata*, the host plant for the callippe silverspot, was found on Icehouse Hill during a reconnaissance survey of the Project Site in 2011. Similar to the Mission blue, callippe silverspots use a variety of native and non-native species for nectar sources. Callippe silverspots use ridgelines and hilltops within grassland habitats for mating, a phenomenon referred to as hilltopping behavior. Icehouse Hill provides this important habitat component. The callippe silverspot is capable of moving at least 0.75 mile between habitat patches and likely can move farther in multiple movements (San Mateo County, 2007). Because this species is known to occur within 0.25 mile of Icehouse Hill and its larval host plants are also present there, there is a fairly high potential that this species occurs on Icehouse Hill.

Special-Status Fish

The special-status fish species discussed below are assumed to be present in the Brisbane Lagoon, although species-specific surveys were not conducted, based on their known presence in the adjacent Bay waters and the lack of barriers between the lagoon and the Bay. It is plausible that individuals of the species could freely move between these two water bodies. The two large sized concrete box culverts located at the northeastern corner of the lagoon are tidally influenced with brackish conditions prevailing within the water body.

Central California coast steelhead trout (*Oncorhynchus mykiss*) **Federally Threatened, California Species of Special Concern.** Steelhead populations in what is known as the Central California Coast "evolutionarily significant unit" are listed as threatened under the Federal Endangered Species Act (FESA). Anadromous rainbow trout, or steelhead, occur in California

from the Smith River in Del Norte County south along the coast to San Mateo Creek, San Diego County, and in streams of the San Francisco Estuary and Central Valley (Moyle, 2002).

The "headwaters" of Visitacion Creek terminate in the former railyard area to the east of the round house and consist of shallow stagnant drainages which are dry during approximately half of the year. The drainage channels in this vicinity are not suitable for spawning steelhead due to the lack of appropriate spawning substrates and absence of sufficient attracting water flows for steelhead.

Spawning habitat for anadromous fish does not exist within Brisbane Lagoon or within the tributary channels to the lagoon. Guadelupe Creek does not provide spawning habitat because it is located underground within culverts for significant portions of its length to the west of the outfall at the northwest corner of the lagoon. The unnamed drainage that enters the southern corner of the lagoon likewise runs through underground storm drain culverts which have eliminated the potential for spawning habitat to occur upstream from the lagoon.

Although species-specific surveys for steelhead were not conducted and there have been no documented occurrences of this species in the vicinity of the Project Site, individuals of the species could gain access to the lagoon via the box culvert that connects the Project Site to the Bay. These individuals could potentially use the lagoon for foraging. Therefore, for the purposes of this analysis the species is presumed to be present at least on an occasional basis.

Sacramento River winter-run, Central Valley spring-run, and Central Valley fall/late fall-run Chinook salmon (*Oncorhynchus tshawytscha*) **Federally Endangered, California Endangered.** The population of Chinook salmon in San Francisco Bay consists of three distinct races: winter-run, spring-run, and fall/late fall-run. Sacramento River winter-run Chinook salmon, listed as endangered by both the state and the federal government, migrate through San Francisco Bay from December through July with a peak in March (Moyle, 2002). These races are distinguished by the seasonal differences in adult upstream migration, spawning, and juvenile downstream migration. Chinook salmon are anadromous fish, spending three to five years at sea before returning to fresh water to spawn. These fish pass through San Francisco Bay waters to reach their upstream spawning grounds. In addition, juvenile salmon migrate through the Bay en route to the Pacific Ocean.

The steelhead and chinook typically occur in the Bay waters east of the Project Site during in-migration to spawning sites in the South Bay and during out-migrations of anadromous juveniles heading from freshwater to ocean habitat. It is possible that individuals of these species could occasionally enter Brisbane Lagoon via the box culvert that connects the Project Site with the Bay therefore the analysis in this section is based on presumed occurrence. Smolts and juveniles would not be prevented from entering the Project Site as part of their known behavior to remain in estuarine habitats before migrating to the ocean.

Longfin Smelt (*Spirinchus thaleichthys*) **California Threatened**. Longfin smelt listed as a California threatened species in 2009, is a small schooling fish that inhabits the freshwater section of the lower Delta and has been observed from south San Francisco Bay to the Delta, with the

bulk of the San Francisco Bay population occupying the region between the Carquinez Straight and the Delta (CDFW, 2009; Miller and Lea, 1972). They have been collected in large numbers in Montezuma slough, Suisun Bay and near the Pittsburg and Contra Costa power plants. In the fall, adults from San Francisco and San Pablo Bays migrate to fresher water in the Delta to spawn. The spawning habits of longfin smelt are similar to the delta smelt and both species are known to school together. Larval stages are known to inhabit Suisun Bay and move south within the Bay-Delta as they grow larger in April and May (CDFW, 2009; Ganssle 1966). The larvae are pelagic and found in the upper layers of the water column. Data (CDFW, 2006) indicate that longfin smelt are present to a small extent in the Central Bay and are may be seasonally transient within the Brisbane Lagoon and shoreline of San Francisco Bay.

Green Sturgeon (*Acipenser medirostris*) **Federally Threatened.** The southern Distinct Population Segment of the green sturgeon has federal threatened status, with the only known spawning habitat available in the upper Sacramento River. The green sturgeon is the most widely distributed member of the sturgeon family and the most marine-oriented of the sturgeon species. Green sturgeons use nearshore areas from Mexico to the Bering Sea and are common occupants of bays and estuaries along the western coast of the United States (Moyle et al., 1995). Adults in the San Joaquin Delta are reported to feed on benthic invertebrates including shrimp, amphipods and occasionally small fish while juveniles have been reported to feed on opossum shrimp and amphipods (Moyle et al., 1995). Adult green sturgeons migrate into freshwater beginning in late February with spawning occurring in March through July, and peak activity in April and June. After spawning, juveniles remain in fresh and estuarine waters for one to four years and then begin to migrate out to the sea (Moyle et al., 1995). Although green sturgeon are caught and observed in the lower San Joaquin River, spawning is not known to occur within that river. Green sturgeons are uncommon in the Central Bay, and therefore would uncommonly occur in the Brisbane Lagoon or shoreline areas in San Francisco Bay adjacent to the Project Site (NMFS, 2008).

Special-Status Birds

California least tern (*Sterna antillarum browni*) **Federally Endangered.** The California least tern is a small tern, about nine inches long, with a 20-inch wingspan. This migratory bird winters in Latin America, but its winter range and habitats are unknown. The species nests along the Pacific coast from southern Baja California to San Francisco Bay. Least terns usually arrive in California in April and depart in August. They nest colonially on bare or sparsely vegetated flat substrates near the coast. Typical nesting sites are on isolated or specially protected sand beaches or on natural or artificial open areas in remnant coastal wetlands. These sites are typically near estuaries, bays, or harbors where small fish are abundant. The former Alameda Naval Air Station is one of the largest and most successful breeding colonies in the state, and the only established colony in the Bay Area. The California least tern has been observed foraging at Brisbane Lagoon; however, there is only a small amount of potential nesting habitat (a sandy/shell beach) at the southern end of Brisbane Lagoon and a nesting colony would have been observed if terns were to breed there. There are no documented occurrences of this species nesting at the Project Site.

Great horned owl *(Bubo virginianus)***.** This species, like other raptors and birds in general, is protected under the Migratory Bird Treaty Act at the federal level, and California Fish and Game

Code Sections 3503 and 3503.5 at the state level. Section 3503 prohibits the needless destruction of nests or eggs of any bird, and Section 3503.5 prohibits the taking or destroying of any bird, nest or eggs in the order of Falconiformes (falcons, kites, and hawks) and Strigiformes (owls). Great horned owls occur throughout North America and are found in a variety of wooded habitats. These large raptors prey on small to medium-sized mammals such as voles, rabbits, skunks, and squirrels. Great horned owls can often be seen and heard at dusk, perched in large trees. They roost and nest in large trees such as pines or eucalyptus. They often use the abandoned nests of crows, ravens, or sometimes squirrels (Ehrlich et al., 1988; Sibley, 2000). Great horned owls may use large eucalyptus trees north of Icehouse Hill or along the western boundary of the Project Site for roosting or nesting and may forage over grassland and ruderal habitat for voles and other small mammals.

Red-tailed hawk (*Buteo jamaicensis*)**.** Red-tailed hawks are commonly found in woodlands and open country with scattered trees. These large hawks feed primarily on small mammals, but will also prey on other small vertebrates, such as snakes and lizards, as well as on small birds and invertebrates. Red-tailed hawks nest in a variety of trees in urban, woodland, and agricultural habitats. Red-tailed hawks were observed foraging over the Project Site during 2011 reconnaissance surveys. Large eucalyptus trees north of Icehouse Hill or along the western boundary of the Project Site may be used by red-tailed hawks for nesting.

Red-shouldered hawk (*Buteo lineatus*)**.** Red-shouldered hawks are relatively common in both rural and urban locations and can be found in residential neighborhoods and along riparian corridors or other water bodies. These hawks hunt primarily for mammals, reptiles, and amphibians (Sibley, 2001). Large eucalyptus trees north of Icehouse Hill or along the western boundary of the Project Site provide potential nesting habitat for this species.

Northern harrier (*Circus cyaneus*) **California Species of Special Concern.** Northern harrier nest and forage along wet meadows, sloughs, savanna, prairie, and marshes, feeding on small mammals such as California vole and mice. Destruction of marsh habitat is the primary reason for the decline of this species. Northern harrier may use wetlands and grasslands in the Project Site for foraging and nesting.

American kestrel (*Falco sparverius*)**.** American kestrels have been observed foraging from perches near grassland and ruderal habitats within the Project Site. This relatively small member of the falcon family preys on small birds and on mammals, lizards, and insects. The kestrel is most common in open habitats, such as grasslands or pastures. American kestrels usually nest in tree cavities (Sibley, 2001; Ehrlich et al., 1988); large eucalyptus trees north of Icehouse Hill or along the western boundary of the Project Site may provide this species with nesting habitat.

Burrowing Owl (*Athene cunicularia*) **California Species of Special Concern.** Burrowing owls are ground-nesting owls that occur in annual and perennial grasslands, deserts, and scrublands characterized by low-growing vegetation (Zarn, 1974). Suitable owl habitat may also include trees and shrubs if the canopy covers less than 30 percent of the ground surface. Burrows are the essential component of burrowing owl habitat: both natural and artificial burrows provide protection, shelter, and nests for burrowing owls (Henny and Blus, 1981). Burrowing owls

typically use burrows made by small mammals, such as ground squirrels or badgers, but also may use man-made structures, such as cement culverts; cement, asphalt, or wood debris piles; or openings beneath cement or asphalt pavement. Burrowing owls may use a site for breeding, wintering, foraging, and/or migration stopovers.

Occupancy of suitable burrowing owl habitat can be verified at a site by an observation of at least one burrowing owl, or, alternatively, its molted feathers, cast pellets, prey remains, eggshell fragments, or excrement at or near a burrow entrance. Burrowing owls exhibit high site fidelity, reusing burrows year after year (Rich 1984, Feeney, 1992). A site is assumed to be occupied if at least one burrowing owl has been observed occupying a burrow there within the last three years (Rich, 1984).

The nearest CNDDB record for burrowing owl is 1.5 miles south of Coyote Point at the restored area within the San Mateo landfill located approximately 9.5 miles south of the Project Site. A burrowing owl was observed to use the grassland at this location during the two successive winters between 2002 and 2003, but was not observed nesting. Potential foraging habitat for burrowing owl is present in the grasslands and ruderal portions of the Project Site; however, burrowing owls were not observed during reconnaissance surveys.

Salt-marsh common yellowthroat (*Geothlypis trichas sinuosa*) **California Species of Special Concern.** The common yellowthroat is a small warbler with a complex of subspecies. The salt-marsh subspecies is recognized as a distinct breeding population, with geographic distribution, habitats, and subtle differences in morphological traits that distinguish it from other subspecies. It inhabits tidal salt and brackish marshes in winter, but breeds in freshwater to brackish marshes and riparian woodlands during spring to early summer. Nests are placed on or near the ground in dense emergent vegetation or shrubs. The subspecies is a state species of concern due to major decline of both habitat and populations in the past decade, but it is not currently listed as endangered or threatened. The common yellowthroat is also protected under the Migratory Bird Treaty Act. Saltmarsh common yellowthroat could potentially occur within tidal marsh habitats associated with Brisbane Lagoon and Visitacion Creek, or in freshwater wetlands within the former railyard area.

Alameda song sparrow (*Melospiza melodia pusillula*) **California Species of Special Concern.** The Alameda song sparrow is one of three morphologically distinct song sparrow subspecies that occur in the San Francisco Bay region. This particular subspecies is endemic to the marshes bordering the Central Bay and is a state species of concern. Intermixed stands of bulrush (*Scirpus* spp.), cattail (*Typha* spp.), and other emergent vegetation provide suitable habitat in brackish marshes. Alameda song sparrows nest in tall tules with local pickleweed. They also frequent tall vegetation along the edges of tidal marshes and forage on mudflats and channel beds exposed at low tide. Alameda song sparrow may use tidal marsh habitat in Brisbane Lagoon and along Visitacion Creek for nesting and foraging.

Allen's hummingbird (*Selasphorus sasin*)**.** Allen's hummingbirds inhabit chaparral, scrub, riparian, and woodland habitats that support nectar-producing plants. Allen's hummingbirds

primarily feed on nectar, but consume insects and spiders as well. Coastal scrub on Icehouse Hill on the Project Site may provide potential nesting and foraging habitat for Allen's hummingbird.

Barn owl *(Tyto alba*)**.** The barn owl is one of the most widespread of all terrestrial birds and can be found in a number of open habitats, including grassland and farmland. Barn owls specialize in hunting small mammals, and the majority of their food consists of small rodents, including voles, pocket gophers, shrews, mice, and rats. The species will nest in buildings as well as in tree cavities or nest boxes, and has been observed at the Project Site (WRA, 2003). The entire Project Site provides foraging habitat, and potential nesting habitat is available in abandoned and underused buildings in the former railyard area and mature eucalyptus trees north of Icehouse Hill or along the western boundary of the Project Site.

Special-Status Mammals (Bat Species)

The Project Site provides potential foraging and roosting habitat for several special-status bat species. The pallid bat (*Antrozous pallidus*) is a California species of concern present in most low elevations in California. Preferred habitats for this species include rocky outcrops with crevices and access to open areas. Day roosts can be found in crevices, caves, mines, and occasionally buildings and hollow trees, while night roosts can be found in more open areas such as open buildings or porches (Zeiner et al, 1990).The Townsend's Pacific big-eared bat (*Corynorhinus townsendii townsendii)* occurs in a variety of habitats and uses caves, mines, tunnels, buildings, or other human-made structures for roosting. The long-eared myotis (*Myotis evotis*) inhabits brushlands, woodlands, and forests, seeming to prefer coniferous forests and woodlands. Roosts include caves, buildings, snags, and crevices in tree bark. This species is highly maneuverable in its forays for arthropods over water and open terrain and in habitat edges. The fringed myotis (*Myotis thysanodes*) occurs throughout California and is most frequent in coastal and montane forests and near mountain meadows (Jameson and Peeters, 1988). This species uses echolocation to find moths, beetles, and other prey and forms nursery colonies in caves and old buildings (Jameson and Peeters, 1988). The hoary bat *(Lasiurus cinereus)* is a California species of concern and can be found at nearly any location in California. Maternity roosts of this species are typically found in woodlands with medium to large trees and dense foliage cover (Zeiner et al., 1990). This species prefers open habitats or habitat mosaics for insect foraging. These bat species may use buildings, especially in the western portions of the Project Site, or trees of nearly any species for roosting throughout the Project Site. The Yuma myotis occurs in a variety of habitats, including riparian areas, arid scrublands, deserts, and forests. This species roosts on bridges, buildings, cliff crevices, caves, mines, and trees, and forages on aquatic insects. Within the Project Site, Yuma myotis could potentially roost in large trees or abandoned buildings, or in nearby highway structures.

Special Status Reptiles

San Francisco Garter Snake (*Thamnophis sirtalis tetrataenia*) **Federally Endangered, State Endangered.** The San Francisco garter snakes' preferred habitat is densely vegetated freshwater ponds near an open hillside where they can sun themselves and find their preferred prey, California red-legged frogs (USFWS, 2003). In 2001, Wetlands Research Associates, Inc. (WRA) assessed San Francisco garter snake habitat using a procedure developed by Dr. Sam McGinnis, a

recognized expert on the San Francisco garter snake. The procedure determines a level of probable occurrence of the snake based on habitat characteristics. The approach, as outlined in the WRA habitat assessment, ranks habitat quality based on four characteristics: availability of impounded fresh water (marshes, farm ponds, vernal pools), vegetation cover, available food, and the presence of competitive garter snake species. Ideal San Francisco garter snake habitat, according to the McGinnis approach used by WRA, has impounded fresh water with a large shallow inshore zone present all year; dense reed-shrub cover throughout a marsh or in a wide band around entire pond edge; small fish and pacific treefrog and red-legged frog adults and larvae; and no other garter snake species present.

The aquatic habitat encountered by WRA during their survey of the railyard in 2001 and by Burns & McDonnell biologists during the May 2003 survey of the railyard and landfill had almost none of the characteristics ideal for the San Francisco garter snake. The available aquatic habitat was contaminated with oil, appeared to be only shallow winter-spring surface water, had dense reed-shrub cover in only small clumps along one-half or less of the shoreline, and western toad tadpoles were the only species found in the aquatic environments. As for the last requirement, the presence of competitive garter snake species, the presence of other garter snake species is unlikely because no prey species were found in the ditches and central drainage channel and the ditches are only seasonally inundated with water.

San Francisco garter snakes have been found in Sharp Park and in the vicinity of San Francisco International Airport, which are both approximately five miles from the Project site (CDFW, 2003). San Francisco garter snake dispersal to the Project Site is unlikely because of the disturbed nature of the railyard and landfill and the urban development between these parks and the Project Site creates a significant barrier. It is highly unlikely that the Project Site would support a population of San Francisco garter snake at in 2013, due to the lack of suitable habitat (no significant changes to the habitats have occurred on site since the last specific analysis in 2003), and the geographic isolation of the site from extant populations.

Special-Status Plants

Bent-flowered fiddleneck (*Amsinckia lunaris*) **CNPS 1B.2.** Bent-flowered fiddleneck is a member of the borage family (Boraginaceae). This herbaceous annual has small orange tubular-shaped flowers held in a coiling inflorescence and blooms from March through June. The species can be found in a variety of habitats, including valley and foothill grassland and coastal scrub. Bent-flowered fiddleneck is known to occur on San Bruno Mountain, and this Rank 1B.2 species may occur in coastal scrub or grassland habitat on Icehouse Hill.

San Francisco collinsia (*Collinsia multicolor*) **CNPS 1B.2.** This member of the figwort family (Scrophulariaceae) is an herbaceous annual that favors coastal scrub and moist, shady woodlands and can tolerate serpentine[3] soils. Stems are loosely branched, weak, and sometimes trailing. Lavender and white flowers can be seen from March to May. This Rank 1B.2 species is known to occur near the Project Site on Bayview Hill located approximately 0.5 mile north of the Project

[3] A specific mineral found in soils which results in reduced plant nutrients, but often supports rare plants specifically adapted for such conditions.

Site, and also on San Bruno Mountain southwest of the Project Site. San Francisco collinsia may also occur in coastal scrub habitat on Icehouse Hill.

Choris' popcorn-flower (*Plagiobothrys chorisianus* var. *chorisianus*)**CNPS 1B.2.** This Rank 1B.2 herbaceous annual prefers moist, grassy areas in coastal scrub and chaparral. Unlike many popcorn-flower species, Choris' popcorn-flower has no basal rosette of leaves. This species blooms from March to June and has white flowers that are 6 to 10 millimeters wide. Choris' popcorn flower could occur in scrub communities on Icehouse Hill.

San Francisco Campion (*Silene verecunda*) **CNPS 1B.** This member of the pink family (Caryophyllaceae) is a Rank 1B species. It is a multi-stemmed perennial with dense gland-tipped hairs and ranges between 4 to 20 inches in height. This species produces white to pink or rose to purple tubular-shaped flowers from March to June. San Francisco Campion prefers sandy or rocky soils and can be found in scrub communities and grasslands, but is know from fewer than 20 occurrences. The species in known from San Bruno Mountain and may occur on Icehouse Hill.

4.C.3 Regulatory Setting

Development within the Project Site must comply with federal, state, regional, and local regulations. This section discusses these requirements to the extent that they affect the way that development would occur with the Project Site.

This subsection briefly describes federal, state, and local regulations, permits, and policies pertaining to biological resources and wetlands as they apply to proposed development of the Project Site.

Federal and State Regulations Regarding Special-Status Species

Federal Endangered Species Act

The USFWS (which has jurisdiction over plants, wildlife, and most freshwater fish) and the National Marine Fisheries Service (NMFS) (which has jurisdiction over anadromous fish, marine fish, and mammals) oversee implementation of the FESA. Section 7 of the FESA mandates that all federal agencies consult with the USFWS and NMFS to ensure that federal agency actions do not jeopardize the continued existence of a listed species or destroy or adversely modify critical habitat for listed species. A federal agency is required to consult with the USFWS and NMFS if it determines a "may affect" situation will occur in association with a proposed project. The FESA prohibits the "take"[4] of any fish or wildlife species listed as threatened or endangered, including the destruction of habitat that could hinder species recovery.

[4] "Take," as defined in Section 9 of the FESA, is broadly defined to include intentional or accidental "harassment" or "harm" to wildlife. "Harass" is further defined by the USFWS as an intentional or negligent act or omission that creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns that include, but are not limited to, breeding, feeding, and sheltering. "Harm" is defined as an act that actually kills or injures wildlife. This may include significant habitat modification or degradation that actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering.

Under Section 9 of the FESA, the take prohibition applies only to wildlife and fish species. However, Section 9 prohibits the removal, possession, damage, or destruction of any endangered plant from federal land. Section 9 also prohibits acts to remove, cut, dig up, damage, or destroy an endangered plant species in nonfederal areas in knowing violation of any state law or in the course of criminal trespass. Candidate species and species that are proposed or under petition for listing receive no protection under Section 9 of the FESA.

Section 10 of the FESA requires the issuance of an "incidental take" permit before any public or private action may be taken that would potentially harm, harass, injure, kill, capture, collect, or otherwise hurt (i.e., take) any individual of an endangered or threatened species. To offset the take of individuals that may occur incidental to implementation of a project, the permit requires preparation and implementation of a habitat conservation plan that provides for the overall preservation of the affected species through specific mitigation measures.

Federal Migratory Bird Treaty Act

The federal Migratory Bird Treaty Act (16 USC, Section 703, Supplement I, 1989) prohibits killing, possessing, or trading in migratory birds, except in accordance with regulations prescribed by the Secretary of the Interior. This act encompasses whole birds, parts of birds, and bird nests and eggs.

Federal Marine Mammal Protection Act

The Marine Mammal Protection Act (MMPA) is the principal federal legislation that guides marine mammal species protection and conservation policy. The MMPA delegates authority for oceanic marine mammals to the Secretary of Commerce, the parent agency of the National Oceanic and Atmospheric Administration. Species of the order Cetacea (whales and dolphins) and species, other than walrus, of the order Carnivora, suborder Pinnipedia (seals and sea lions), are the responsibility of NMFS. The USFWS is responsible for the dugong, manatee, polar bear, sea otter, and walrus. Marine mammals that are already managed under international agreements are exempt as long as the agreements further the purposes of the MMPA.

The MMPA prohibits, with certain exceptions, the take of marine mammals in U.S. waters and by U.S. citizens on the high seas, and the importation of marine mammals and marine mammal products into the U.S.

Federal Essential Fish Habitat Requirements

The Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) establishes requirements for Essential Fish Habitat (EFH) descriptions in federal Fisheries Management Plans and requires federal agencies to consult with the National Marine Fisheries Service (NMFS) on activities that may adversely affect EFH. The NMFS strongly encourages efforts to streamline EFH consultation and other federal consultation processes. EFH consultation can be consolidated, where appropriate, with interagency consultation, coordination, and environmental review procedures required by other statutes such as the National Environmental Policy Act, Fish and Wildlife Coordination Act, CWA, FESA, and Federal Power Act. EFH

consultation requirements can be satisfied using existing review procedures if they provide the NMFS with timely notification of actions that may adversely affect EFH and the notification meets requirements for EFH Assessments (i.e., a description of the proposed action, an analysis of the effects, and the federal agency's views regarding the effects of the action on EFH and proposed mitigation, if applicable). Brisbane Lagoon is considered EFH for groundfish species including the Pacific herring, as well as steelhead, chinook salmon, and coho salmon.

California Endangered Species Act

Under the California Endangered Species Act (CESA), CDFW has the responsibility for maintaining a list of threatened and endangered species (California Fish and Game Code Section 2070). CDFW also maintains a list of "candidate species," which are species formally noticed as being under review for addition to either the list of endangered species or the list of threatened species. In addition, CDFW maintains lists of "species of special concern," which serve as "watch lists." Pursuant to the requirements of the CESA, an agency reviewing a proposed project within its jurisdiction must determine whether any state-listed endangered or threatened species could be present on the project site and determine whether the proposed project could have a potentially significant impact on such species. In addition, CDFW encourages informal consultation on any proposed project that may affect a candidate species.

California Environmental Quality Act

The intent of the California Environmental Quality Act (CEQA) is to maintain "high-quality ecological systems and the general welfare of the people of the state" (CEQA Section 21000). It is the policy of the state to "prevent the elimination of fish or wildlife species due to man's activities, ensure that fish and wildlife populations do not drop below self-perpetuating levels, and preserve for future generations representations of all plant and animal communities and examples of the major periods of California history" (CEQA Section 21001).

CEQA requires consultation with CDFW on any project an agency initiates that is not statutorily or categorically exempt from CEQA. The CEQA Guidelines (Section 15065a) indicate that impacts on state- and federal-listed rare, threatened, or endangered plants or animals are significant.

Although rare, threatened, and endangered species are protected by specific federal and state statutes, CEQA Guidelines Section 15380(b) provides that a species not listed on federal or state protected species lists may be considered rare, threatened, or endangered if the species can be shown to meet certain criteria (e.g., it can be shown that the species' survival in the wild is in jeopardy or the species is at risk of becoming endangered in the near future). These criteria have been modeled after the definition in the FESA and the section of the California Fish and Game Code dealing with rare or endangered plants or animals. This section was included in the CEQA Guidelines primarily to deal with situations in which a public agency is reviewing a project that may have a significant effect on, for example, a "species of concern" that has not yet been listed by either the USFWS or CDFW. Thus, CEQA requires an agency to consider a project's potential impacts on species which meet the definition of endangered, rare, or threatened under CEQA, but

have not been officially listed under either the federal or state endangered species acts, but leaves it to the discretion of the lead agency to determine whether a species not formally listed meets the definition. For example, CDFW interprets Lists 1A, 1B, and 2 of the California Native Plant Society's *Inventory of Rare and Endangered Vascular Plants of California* to consist of plants that, in a majority of cases, would qualify for listing as rare, threatened, or endangered. Further, the determination of whether an impact is significant is a function of the lead agency. In making these determinations, the lead agency may be guided by the protections and standards of other laws and regulations, such as those discussed in this EIR. Projects subject to CEQA review must specifically address potential impacts on endangered, rare, or threatened species and provide mitigation measures if the impact is determined to be significant.

California Native Plant Protection Act

State listing of plant species began in 1977 with the passage of the California Native Plant Protection Act (NPPA), which directed CDFW to carry out the legislature's intent to "preserve, protect, and enhance endangered plants in this state." The NPPA gave the California Fish and Game Commission the power to designate native plants as endangered or rare and to require permits for collecting, transporting, or selling such plants. CESA expanded upon the original NPPA and enhanced legal protection for plants. The CESA established threatened and endangered species categories and grandfathered all rare animals—but not rare plants—into the act as threatened species. There are three listing categories for plants in California: rare, threatened, and endangered.

California Fish and Game Code

Under Section 3503 of the California Fish and Game Code, it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by the code or any regulation made pursuant thereto. Section 3503.3 of the California Fish and Game Code prohibits take, possession, or destruction of any birds in the orders Falconiformes (hawks) or Strigiformes (owls), or of their nests and eggs.

The California Fish and Game Code (Sections 3511 [birds], 4700 [mammals], 5050 [reptiles and amphibians], and 5515 [fish]) allows the designation of a species as Fully Protected. CDFW may authorize incidental "take" of Fully Protected species if the species is covered under an approved Natural Community Conservation Plan (2835).

Federal and State Regulations Regarding Jurisdictional Waters (Including Wetlands and Coastal Wetlands)

Potentially Jurisdictional Waters within the Project Site

Wetlands and Waters are regulated by both the Corps and RWQCB under the CWA regulations (see Figure 4.C-1 for locations of these potentially jurisdictional features).

Definitions

"Waters of the United States." The term "waters of the United States," as defined in the Code of Federal Regulations (33 C.F.R. § 328.3[a]; 40 C.F.R. § 230.3[s]), refers to:

1. All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
2. All interstate waters including interstate wetlands;
3. All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation, or destruction of which could affect interstate or foreign commerce including any such waters:
   - which are or could be used by interstate or foreign travelers for recreational or other purposes; or
   - from which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
   - which are used or could be used for industrial purposes by industries in interstate commerce.
4. All impoundments of waters otherwise defined as waters of the United States under the definition;
5. Tributaries of waters identified in paragraphs (1) through (4);
6. Territorial seas; and
7. Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (1) through (6).

The Code of Federal Regulations further provides that "waters of the United States" do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the CWA, the final authority regarding CWA jurisdiction remains with the United States Environmental Protection Agency (33 CFR 328.3[a][8]).

Definitions of Wetlands. Wetlands are ecologically productive habitats that support a rich variety of both plant and animal life. The importance of wetlands has increased due to their value as recharge areas and filters for water supplies and to their widespread filling and destruction to enable urban and agricultural development. Examples of wetlands may include freshwater marsh, seasonal wetlands, and vernal pool complexes that are adjacent to "waters of the United States." In a jurisdictional sense, there are two commonly used wetland definitions: (1) a definition adopted by the United States Environmental Protection Agency and Corps, and (2) a separate definition, originally developed by the USFWS, that has been adopted by agencies in the State of California that have regulatory authority over wetlands. Both definitions are presented below.

Federal Wetland Definition. Under federal law, wetlands are a subset of "waters of the United States" and receive protection under Section 404 of the CWA. Wetlands are defined as those areas that are inundated or saturated by surface or ground water at a frequency and duration that are sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetland determination under the federal wetland definition adopted by the Corps requires the presence of three factors: (1) wetland hydrology, (2) plants adapted to wet conditions, and (3) soils that are routinely wet or flooded [33 C.F.R. 328.3(b)]. In January 2001, the Supreme Court of the United States ruled that certain isolated wetlands do not fall under the jurisdiction of the CWA (*Solid Waste Agency of Northwestern Cook County v. United States Army Corps of Engineers et al.*).

State of California Wetland Definition. The CDFW and the California Coastal Commission have adopted the USFWS Cowardin (1979) definition of wetlands. While the federal definition of wetlands requires three wetland identification parameters to be met, the Cowardin definition can be satisfied under some circumstances with the presence of only one parameter. Thus, identification of wetlands by state agencies may include areas that are permanently or periodically inundated or saturated and without wetland vegetation or soils, such as rocky shores, or areas that presume wetland hydrology based on the presence of at least one of the following: (1) a seasonal or perennial dominance by hydrophytes,[5] *or* (2) the presence of hydric[6] soils. The California Coastal Act also defines "wetlands" as "lands within the coastal zone which may be covered periodically or permanently with shallow water and include saltwater marshes, freshwater marshes, open or closed brackish water marshes, swamps, mudflats, and fens" (Public Resources Code Section30121). CDFW does not normally assert jurisdiction over wetlands unless they are subject to Streambed Alteration Agreements (California Fish and Game Code Sections 1600–1616) or they support state-listed endangered species. However, the Fish and Game Commission policy (amended in 2005) regarding wetlands resources is to seek to provide for the protection, preservation, restoration, enhancement and expansion of wetland habitat in California, and to discourage development in or conversion of wetlands. Under this policy, the Commission does not support wetland development proposals unless project mitigation assures there will be 'no net loss' of either wetland habitat values or acreage, and prefers mitigation which would expand wetland acreage and enhance wetland habitat values.

"Other Waters of the U.S." "Other waters of the U.S." refers to additional features that are regulated under the CWA but are not wetlands (33 CFR 328.4). To be considered jurisdictional, these features must exhibit a defined bed and bank and an ordinary high water mark. The term "ordinary high water mark" refers to a line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other means appropriate to the characteristics of the surrounding areas. Examples of other waters of the U.S. include rivers, creeks, ponds, and lakes.

5 A "hydrophyte" is, literally, a water-loving plant, i.e., one that is adapted to growing in conditions where the soil lacks oxygen, at least periodically during the year, due to saturation with water.

6 A "hydric" soil is one that is saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper part of the soil profile.

State Policies and Regulations for Waters and Wetlands

State regulation of activities in waters and wetlands resides primarily with CDFW and the State Water Resources Control Board (SWRCB). In addition, the California Coastal Commission has review authority for wetland permits within its planning jurisdiction. CDFW provides comment on Corps permit actions under the Fish and Wildlife Coordination Act. CDFW is also authorized under the California Fish and Game Code, Sections 1600–1616, to enter into a Streambed Alteration Agreement with applicants and to develop mitigation measures when a proposed project would obstruct the flow or alter the bed, channel, or bank of a river or stream in which there is a fish or wildlife resource, including intermittent and ephemeral streams. CDFW has interpreted the term "streambed" to extend laterally to the upland edge of riparian vegetation. The SWRCB, acting through the nine RWQCBs, must certify that a Corps permit action meets state water quality objectives (CWA Section 401). California Fish and Game Code defines "waters of the state" and "state waters" as having the same meaning as "waters of the state" in California Water Code §13050(e) (" 'Waters of the state' means any surface water or groundwater, including saline waters, within the boundaries of the state." *Id*.).

Bay Conservation and Development Commission Regulations

The Bay Conservation and Development Commission (BCDC) is authorized by the McAteer Petris Act to analyze, plan, and regulate San Francisco Bay and its shoreline. BCDC implements the San Francisco Bay Plan and regulates filling and dredging in the Bay, its sloughs and marshes, and certain creeks and their tributaries. BCDC jurisdiction includes the waters of the Bay as well as a shoreline band that extends inland 100 feet from the high tide line. Any fill, excavation of material, or substantial change in use within BCDC jurisdiction requires a permit from BCDC.

Local Regulations

City of Brisbane General Plan

The Open Space and Conservation Elements of the City of Brisbane General Plan present a number of policies and programs relating to the protection of the City's natural resources. The following are relevant to the Project and are summarized in this EIR section:

> ***Policy 81:*** The City shall conduct an on-going effort to identify sites or portions of sites having particular value as open space, wildlife habitat, wetlands, or other environmental qualities that should be preserved and protected. In such cases, the City shall explore the feasibility of acquisition of these areas by the City or by other public or private agencies that are engaged in the ownership and preservation of open space, and, when legally possible, imposing a requirement that such areas be dedicated by the owner to the public for open space purposes.
>
> ***Policy 81.1:*** Work to preserve open space lands to protect the natural environment and to provide outdoor educational and recreational opportunities consistent with the sensitivity of the resource.
>
> ***Policy 82:*** Encourage the preservation, conservation and restoration of open space to retain existing biotic communities, including rare and endangered species habitat, wetlands, watercourses and woodlands.

Policy 85: Encourage the preservation and conservation of aquatic resources in Brisbane: the Lagoon, the Bayfront and the Marsh.

Program 85a: Seek opportunities to utilize aquatic areas for recreational and educational activities consistent with the sensitivity of the resource.

Program 85b: Develop provisions in the Zoning Ordinance, including setback requirements, to protect the natural ecology of aquatic resources.

Program 85c: Provide information to citizens on the eco-systems of the Bay, the Lagoon and the Wetland Marsh and how citizens can participate in respecting and conserving these resources.

Program 85d: Work with responsible agencies, property owners and environmental and conservation groups to ensure preservation of aquatic eco-systems.

Policy 118: Preserve areas containing rare and endangered species habitat to the extent allowed by law and available resources.

Policy 120: Cooperate with local, State and Federal agencies in conservation efforts for biological resources.

Policy 122: Cooperate with other agencies in conservation efforts.

Program 122a: Work with the Habitat Conservation Plan Operator, the State Department of Fish and Game, the U. S Fish and Wildlife Service, and other agencies as appropriate regarding plans and programs that may affect biological resources in the planning area.

Program 122b: Consult the maps in the technical background reports and information supplied by responsible agencies to determine potential for environmental impacts to biological resources and take appropriate action.

Program 122c: Consult with local, State and Federal agencies to determine when field studies are required to supplement or update existing data.

Program 122e: Encourage applicants to initiate early CEQA consultation on conservation issues.

Policy 123: Conserve important biological communities through sensitive project design.

Program 123a: In land use development applications, consider the siting of structures and utilities so as to conserve identified biological communities.

Program 125a: Refine the ordinance that establishes requirements for protection of heritage trees in the urban setting.

Policy 127: Encourage the use of plants that are compatible with the natural flora in landscape programs.

Policy 128: Encourage the use of native plants in landscape programs that provide food and shelter to indigenous wildlife.

Program 128a: Encourage conservation groups to provide public information on plant materials.

Open Space Plan for the City of Brisbane

To aid in the implementation of selected programs and policies of Brisbane's 1994 General Plan, the Brisbane Open Space and Ecology Committee developed the Open Space Plan for the City of Brisbane, which contains open space inventory, analysis, and policy recommendations. The Open Space Plan was approved by the City Council in August 2001, and "offers a vision for a comprehensive and integrated open space system for the city and is intended to be a flexible, working tool to guide the City Council in implementing specific environmental policies and programs from the 1994 Brisbane General Plan," including Program 93h of the 1994 Brisbane General Plan which states, "for reference and assistance in establishing open space priorities, prepare a comprehensive map of vacant lands on the planning area and update the map annually." The recommendations within this plan reflect the most significant natural and open space resources in the City, and establish overall guidelines and/or criteria for decision making. The Open Space Plan addresses the possibility of land acquisition or preservation based on identification and evaluation of natural resources and amenities within the jurisdictional boundaries of the City.

Open Space Resources Evaluation and Priorities

The Open Space Plan includes open space and resource protection recommendations for the Baylands. The area north of Visitation Creeks envisioned for new development with "substantial" open space (minimum or 25 percent of developed areas to be devoted to open space). The area east of the tank farm between Visitation Creek and Brisbane Lagoon is envisioned for "maximized open areas" (recreational or other use with open character), while the lagoon area is envisioned as open space to be dedicated to a public agencies for permanent preservation. Figure 4.M-1 (see section 4.M, *Recreational Resources*, of this EIR) also shows the proposed Bay Trail extension, as well as other local trails within the Baylands.

The Brisbane Lagoon occupies the southern portion of the subarea and is a valuable aquatic resource that contains tidal wetlands. There is a fishing area, locally known as Fisherman's Park, located on the lagoon's northeastern perimeter. The Open Space Plan recommends that the lagoon and its environs be conserved as open space, and that a public pathway be developed around the lagoon perimeter, linking with the future Bay Trail and Tunnel Avenue trail. Additionally, the Open Space Plan recommends that the area along the entire shoreline at the northern end of the lagoon, between the lagoon and Lagoon Way, be preserved as open space as it provides significant recreational opportunities, noting that this "would be a very high priority open space area."

Open Space Preservation Strategies

The Open Space Plan identified specific open space preservation strategies for each Subarea. The following preservation strategies apply to the Northeast Bayshore, Baylands, and Beatty Subareas:

a. Refer to this Open Space Plan and use it as a guide in reviewing development proposals and city-sponsored plans for use of the land in these subareas;

b. Share this Open Space Plan and coordinate with local and regional agencies involved in reviewing and permitting development in the city and on adjacent sites, such as partners in the Habitat Conservation Plan, the San Francisco Bay Conservation and Development Commission, Corps of Engineers, Regional Water Quality Control Board, Department of Toxic Substance Control, the Integrated Waste Management Board, the State Lands Commission, and Caltrans;

c. Share this Open Space Plan and coordinate with local and regional agencies involved in planning and implementing trails (primarily the San Francisco Bay Trail Project);

d. Pursue the dedication of easements, where applicable, for trails and the Wetland River Park; and;

e. Incorporate open space dedication and open area planning as part of the specific planning portion of the planned development process, when applications are made to the City, utilizing this Plan as the guiding principles.

Use and Management Policies

The following general and site-specific policies are relevant to development of the Project Site.

General Management Policies

a. Open space is to be maintained in a natural condition as much as possible, except in redeveloped areas where trail corridors and open space may be tied in to the overall development landscape theme.

b. New open space acquisitions, major open space restoration or management, trail construction or any significant trail alterations or improvements should be consistent with this plan. The City Council, Planning and PB&R Commissions and City staff may refer these matters to the Open Space and Ecology Committee for review and recommendation.

c. Ongoing staff support should be provided for the open space planning and acquisition program and staffing the Open Space and Ecology Committee.

d. Native habitat restoration efforts should be undertaken where practical, in conjunction with the RCP operators, and consistent with other City policies.

e. The City Council and City Manager should assign responsibility among City departments for coordinating open space and trail use information and trail and resource management activities as well as for trail improvement and maintenance. Volunteer labor can be used to augment City resources.

f. The City will take responsibility for monitoring open space or trail easements and conditions of approval on private open areas.

g. Smoking and fires are prohibited in open space lands having fire danger. This includes city-owned open space in the Brisbane Acres subarea, Northeast Ridge and Northwest Bayshore subareas, and other areas as designated and posted by the city.

h. No plants, animals, or other resources are to be collected or disturbed except in conjunction with a city approved and coordinated resource management project.

i. The city recognizes that restoration, maintenance and management of natural or improved open space areas can be a significant initial and ongoing expense.

j. Public and private open spaces and open areas have been demonstrated to add significant direct and indirect value to properties adjacent and in the region.

k. The city will make every effort to secure funding and direct aid for open space protection and management in accordance with development entitlements, environmental impacts and the values provided to properties.

l. The Parks, Beaches, and Recreation Committee is the chief advisory body for the City on trails. The Open Space and Ecology Committee shall provide guidance for trail planning and management, to help protect sensitive resources in accordance with ecological principles.

Baylands and Beatty Subareas Open Space and Trails

a. Open space land may be acquired or dedicated in these subareas in conjunction with future commercial development. Planning and implementation of resource protection and restoration will be part of the scope of the development projects.

b. New trails may be planned and constructed in these subareas in conjunction with future commercial development, including portions of the San Francisco Bay Trail. Planning and construction of these trails and related improvements will be part of the scope of the development projects.

c. The design and use and management arrangements for trails in these areas will be determined in conjunction with future planning for commercial development.

d. Assessments will be placed on future developments to help pay for ongoing maintenance and management of the open space in these areas that will provide benefit to the properties subject to assessment.

e. These lands include areas with toxic contamination. Reclamation of natural landscapes will require planning and implementation of cleanup and restoration by qualified scientists and contractors.

f. The city will coordinate volunteer efforts to maintain trails and open space in these subareas to augment major restoration and ongoing professional monitoring and management efforts.

City of Brisbane Tree Ordinance

Under Title 12, Chapter 12.12 of the City's Municipal Code, the City of Brisbane requires a permit for removal of protected trees, or any other tree having a trunk that is greater than 30 inches in diameter at a height of 24 inches above grade. Pursuant to the provisions of Section 12.12.040 B of the Municipal Code, the following do not require tree removal permits:

1. Emergencies. If the condition of a protected tree presents an immediate hazard to life or property, it may be removed without a permit on order of the city manager, the city engineer, the planning director, the chief of police, or the fire chief.

2. City Employees. This chapter shall not apply to the removal of any trees on city-owned property by city employees or any person retained by the city for the purpose of removing such trees.

3. Public Utilities. Public utilities subject to the jurisdiction of the State Public Utilities Commission may without a permit take such action as may be necessary to comply with the

safety regulations of the commission and as may be necessary to remove a direct and immediate hazard to their facilities within the public utility lands or easement areas in which the same may be located.

4. Project Approval. Where removal of a protected tree has been authorized as part of a development approval granted by the city, no permit shall be required under this chapter for removal of such tree.

A tree, as defined by the Municipal Code Section 12.12.020, is "…. a woody perennial plant characterized by having a main stem or trunk, or a multi-stemmed trunk system with a more or less definitely formed crown, and [that] is usually over ten (10) feet high at maturity." Protected trees, as defined by the Municipal Code, are any of the following:

1. Any California Bay (*Umbellularia californica*), Coast Live Oak (*Quercus agrifolia*), or California Buckeye (*Aesculus californica*) having a main stem or trunk which measures thirty (30) inches or greater in circumference at a height of twenty-four (24) inches above natural grade.

2. Any species of native or nonnative tree, in addition to those identified in subsection (1) above, designated as a protected tree on recommendation of the parks, beaches and recreation commission as adopted by resolution of the city council, based upon its finding and determination that such species uniquely contributes to the scenic beauty of the city or provides special benefits to the natural environment or wildlife.

3. Any tree designated as a protected tree by resolution of the city council.

4. Any tree, regardless of size, originally required by the city to be planted as a condition for the granting of a permit, license, or other approval, or any tree that existed at the time of the granting of such permit, license, or other approval and required by the city to be preserved as part of such approval.

5. Any tree, regardless of size, required by the city to be planted as a replacement for an unlawfully removed tree.

6. Any tree, regardless of size, planted or maintained by the city.

7. Any street tree which is not otherwise described in subsections (1) through (6) above, having a main stem or trunk which measures thirty (30) inches or greater in circumference at a height of twenty-four (24) inches above natural grade.

The Municipal Code further provides that, where three or more trees of any one or more species, each having a main stem or trunk that measures 30 inches or greater in circumference at a height of 24 inches above natural grade, are proposed to be removed at the same time from the same property or from contiguous properties under common ownership, such trees shall collectively be regarded as a protected tree (Section 12.12.020).

The Municipal Code requires that an application for a tree removal permit be made to the city manager and contain the number and location of each tree to be removed, the type and approximate size of each tree, the reason for removal, and additional information that the City Manager may require. Removal permits may granted subject to conditions including, but not limited to, requiring planting one or more replacement trees (Section 12.12.050 F).

San Mateo County Trails Plan

This document provides guidelines for trail planning, design, and trail management in cities and parks within San Mateo County. The trail design and management guidelines primarily pertain to the construction of new trails. However, the guidelines are also relevant to ongoing or long-term management activities for existing trails. Policies relevant to protection of biological resources are as follows:

> **6.4.1** – Locate, design and develop trail routes with sensitivity to their potential environmental, recreational and other impacts on adjacent lands, private property, and utilities.
>
> **6.4.2** – Levels-of-use and types-of-use on trails shall be controlled to avoid unsafe use conditions or risk severe environmental degradation.
>
> **6.4.7** – Locate trails to recognize the resources and hazards of the areas they traverse, and to be protective of sensitive habitat areas such as estuaries, wetlands, riparian corridors, erodable soils and other areas where sensitive species may be adversely affected.
>
> **6.4.8** – Develop design guidelines to ensure that sensitive species and the habitats they rely on shall be protected, and where possible, enhanced by trail development and trail use.
>
> **6.29.4** – Develop a monitoring program for use by the lead agency in evaluating current conditions and determining whether or not new trails or trail management programs (including maintenance, reconstruction, education, and use regulations) are effective in addressing user conflicts, safety issues, and environmental impacts.

San Bruno Mountain Habitat Conservation Plan

The San Bruno Mountain Habitat Conservation Plan (SBMHCP) was adopted in 1983 to protect and improve habitat for several species of endangered butterflies. The SBMHCP is an effort to address the problem of potential extinction of these endangered butterflies while enabling private landowners to develop their land.

While the Project Site is not within the SBMHCP planning area, Icehouse Hill is directly adjacent to the eastern boundary of the planning area, and the SBMHCP is biologically relevant to Mission blue and callippe silverspot butterflies potentially present on Icehouse Hill. Management recommendations are presented by plan area parcel, and three parcels adjacent to Bayshore Boulevard are in close proximity to Icehouse Hill and the Project Site. SBMHCP recommendations for these parcels include the following:

1. Assessment of freshwater seep wetland habitats for San Francisco garter snake;
2. Consideration of parcels for upgrade of habitat quality;
3. Enhancement of habitat corridors with butterfly host plant species to attract butterflies and facilitate movement to larger habitat areas;
4. Elimination of dense patches of exotic plants and brush to expand usable habitat area for butterflies;
5. Creation of a reclamation plan to prevent erosion after development; and
6. Monitoring of habitat characteristics.

4.C.4 Impacts and Mitigation Measures

Significance Criteria

For the purposes of this analysis, this EIR uses the questions provided in Appendix G of the CEQA Guidelines. The project would have a significant effect on the biological resource if it were to:

- Have a substantial adverse effect, either directly or indirectly (including through habitat modification) on any species identified as a candidate, sensitive, or special-status species (including those likely to become endangered in the foreseeable future) in local or regional plans, policies, or regulations, or by the [CDFW]or USFWS, including species which meet the definition of endangered, rare or threatened in CEQA Guidelines Section 15380;
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFW or USFWS;
- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or
- Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan.

Impact Assessment Methodology

Build out of the Project Site development would result in impacts associated with removal and overall redistribution of habitats and land uses compared to existing conditions. One impact mechanism shared by all Project Site development is the site remediation effort required prior to any proposed development. The footprint of Project Site development remediation would be the same for all Project Site development, although specific remediation technologies would differ based on the land uses that are ultimately approved within the Project Site.

The trail development proposed for Icehouse Hill is also an impact mechanism shared by all concept scenarios. Therefore impacts associated with these two aspects of the site build out are described and addressed such that they can be tracked independently in terms of disclosure of impacts and mitigation commitments as build out proceeds.

Changes to the natural environment are anticipated to occur as a result of grading, construction and changes in land uses at the Project Site compared to existing conditions. If build out of the Project Site would include a direct take or direct loss of a special status species or habitat for special status species it would be considered substantial and per the significance criteria is

identified below as a significant impact. Indirect impacts would be considered substantial if special status species, their habitats, or any sensitive natural communities would also be harassed or removed through either removal or changes in land use that result in habitat avoidance by a special status species.

The impacts are presented below as direct statements consistent with the CEQA Guidelines Appendix G. Each impact statement is followed by a description of the impact mechanism, a direct reference to the proposed mitigation measure(s) intended to off-set the Project Site development impacts, and a conclusion regarding the level of impact remaining after implementation of mitigation.

Project Impacts and Mitigation Measures

Impact 4.C-1: Would the Project have a substantial adverse effect, either directly or indirectly, on any species identified as a candidate, sensitive, or special-status plant and wildlife species, including species which meet the definition of endangered, rare or threatened in CEQA Guidelines Section 15380, either through direct injury or mortality, harassment, or elimination of plant or wildlife communities?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
SU	SU	SU	SU

SU = Significant Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = no impact

DSP, DSP-V, CPP, and CPP-V

Direct mortality or harm to special-status plants or animals potentially occurring at the Project Site and/or loss or degradation of habitat for special-status plants and animals would occur as a result of development permitted under each of the concept scenarios. Impact mechanisms include removal and redistribution of existing habitats during Project Site construction, and increased human presence and disturbance to existing habitats.

Build out of the Project Site development would result in significant impacts to special status plants and animals and their habitats as discussed below. With implementation of **Mitigation Measures 4.C-1a, 4.C.-1b,** and **4.C-1c**, these impacts would be reduced to a less-than-significant level.

Impacts on Special-Status Plants

Suitable habitat for special status plants occurs at the western edge of the Project Site on Icehouse Hill. Bent-flowered fiddleneck, San Francisco collinsia, Choris' popcorn flower, and San Francisco campion have the potential to occur in the annual grasslands and coastal scrub habitats since this portion of the Project Site consists of native soil/substrate. For all Project Site development, Icehouse hill would be preserved as open space for passive recreational uses including a pedestrian trail providing access to the top of the hill and linked to open space corridors and Visitation Creek area.

Construction of trails on Icehouse Hill would occur with Project Site development. Post construction impacts include subsequent increase in recreational use compared to existing

conditions, which could damage or permanently destroy individual plants or populations of the species on Icehouse Hill as a result of trail users making off-trail use of the area. Indirect impacts would occur if changes to drainage or surface runoff that supplies water to the plants on Icehouse Hill. Additional impact would include increased use of the area by horses, which might eat the host plants if they occur adjacent or near the trail. The CPP/CPP-V scenarios envision equestrian uses occurring as part of the Group Use Area proposed adjacent to Icehouse Hill.

Conclusions: Special status plant species occur within the Project Site only on Icehouse Hill. Damage to or mortality of special-status plants caused by construction of trails on Icehouse Hill and an anticipated post-construction increase in recreation-related activities including equestrian uses would be a significant impact. Adherence to performance standards during construction and operation of the proposed trails set forth in **Mitigation Measures 4.C-1a** and **4.C-1b** would reduce the impacts on special-status plants to a less-than-significant level.

Mitigation

Mitigation Measure 4.C-1a: Prior to construction, or any other Project Site development-related ground disturbance activities on Icehouse Hill, the applicant shall conduct pre-construction presence/absence surveys for special-status plants.

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	✓	✓
✓ = measure applies - = measure does not apply			

Initial surveys at Icehouse Hill shall be carried out in conjunction with surveys for endangered butterfly host plants as described in **Mitigation Measure 4.C-1c**. Surveys would be implemented to determine if a special-status plant species has colonized the site in the interim between the determination of baseline conditions for this EIR, and project initiation, as well as to provide site-specific direction for final trail routing and design to avoid sensitive plant species (see **Mitigation Measures 4.C-1b** and **4.C-1c**).

Surveys shall be conducted in accordance with CNPS and CDFW rare plant survey guidelines and shall be conducted during the flowering period when each species is most readily identifiable.

In order to capture variability of special-status plant species distribution, three special-status plant surveys shall be conducted at two-week intervals during the appropriate flowering period (April to June), before commencement of any development activities on Icehouse Hill.

Any special-status plant populations shall be mapped in the field (see **Mitigation Measure 4.C-1b**). If the presence of any special-status plant species is confirmed, a copy of the survey results shall be forwarded to CDFW, and **Mitigation Measure 4.C-1b** shall be implemented.

In the event that special-status plants are not identified within development areas, including areas used for construction, the additional mitigation identified in **Mitigation Measure 4.C-1b** is not required.

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	✓	✓
✓ = measure applies - = measure does not apply			

Mitigation Measure 4.C-1b: Documented plant occurrences on Icehouse Hill shall be avoided by establishing a buffer zone of no less than 25 feet prior to Project trail construction, or other ground-disturbing activities having the potential to disturb or result in mortality of special-status plant populations. This buffer zone shall be demarcated using flagging, orange fencing, or any other visual barrier between plant populations and the active disturbance footprint. Buffer distances may be increased if hydrology features would be altered as a result of train construction.

If the City determines that disturbance or mortality is unavoidable, special-status plants shall be restored onsite in either the annual grassland or coastal scrub habitat located on Ice House Hill. Restoration would be at a 1:1 ratio consistent with typical CDFW requirements in areas that are to remain as post-development open space, as is Icehouse Hill. The 1:1 replacement ratio shall be met at the end of five years, and may therefore require initial plantings at a greater than 1:1 ratio, as determined by a qualified botantist. If feasible, special-status plants and/or seeds shall be salvaged from on-site plants and used for any replacement plantings.

To reduce impacts from off-trail use, and increased horse use, trail head signage shall be required to educate the public regarding sensitive resources and restoration that would be affected by off-trail use. Mitigation areas shall be fenced or marked for three years. Trail use rules shall be developed prior to construction, and in addition to limiting use to identified trails, may include other requirements to limit the possibility that sensitive species would be impacted.

To avoid indirect impacts to special status plant species that could occur if slope drainage or surface hydrology is modified as a result of trail construction **Mitigation Measure 4.C1-g** shall also be applied.

Prior to issuance of project approvals, and in coordination with state and federal permitting requirements, a five-year restoration mitigation and monitoring program shall be developed and implemented for any planting areas established to mitigate impacts to special-status species plants. Restoration success criteria shall include:

1) Establishment of mitigation site(s) at or near the location of impacts where plant restoration will occur.

2) A qualified botanist shall identify an appropriate plant palette and restoration methodology compatible with the specific impacted special status species. Mitigation sites could include existing annual grassland or coastal scrub habitat areas on Icehouse Hill, depending on site conditions and locations of special status plants found.

3) No loss in total number of individual plants in a special status plant population found on Project Site shall be verified at the end of the five-year monitoring period established in coordination with state and federal agencies with jurisdiction over these resources.

Conclusion with Mitigation: Mitigation Measures 4.C-1a and **4.C-1b** require identification of sensitive plant species prior to construction and operation of the proposed trails on Icehouse Hill, and compensate for direct loss of individual special status plants. **Mitigation Measure 4.C-1b** requires mitigation sites with appropriate plant palettes, helping to ensure that mitigation sites and populations of sensitive plant species would be self-sustaining. **Mitigation Measure 4.C-1b** also requires development of a trail use plan prior to construction, trail head signage to inform the public, and requires mitigation areas to be fenced and marked while they are becoming established. With mitigation, no net loss of occupied suitable habitat would occur. Impacts on special-status plants would therefore be less than significant with implementation of **Mitigation Measures 4.C-1a** and **4.C-1b**.

Impacts on Special-Status Animals

Impact to Federally Listed Butterfly Species. Potential habitat for endangered butterflies includes Johnny jump-up (*Viola pedunculata*) the host species for the callippe silverspot, and three species of lupine: *Lupinus albifrons, L. formosus*, and *L. versicolor*. host plants for the Mission blue butterfly. These plants have the potential to support the callippe silverspot or Mission blue butterfly species, respectively. Within the Project Site, Icehouse Hill represents the only suitable habitat for the host plants for this listed species. Construction and use of proposed trails, would result in direct loss or indirect removal or damage to suitable habitat for listed butterflies on Icehouse Hill. Recreational use of trails constructed on Icehouse Hill would also result in indirect impacts related to the disturbance of host plant populations, as well as direct impacts on the callippe silverspot butterfly and Mission blue butterfly if trail users disturb, injure, or kill individual butterflies and their eggs or larvae. Additionally, trail construction in any area often results in the establishment of additional informal trails over time, which would result in potential loss or damage to butterfly host plants, or direct mortality of listed butterflies. Indirect impacts would include changes to drainage patterns or in the vicinity of the host plants that would deprive the plants of needed water.

Conclusion: Direct loss or damage to the Mission blue and callipe silverspot butterfly species as a result of habitat removal, harassment, direct injury, or mortality associated with trail construction and off-trail use of the open area on Icehouse Hill after trails are open to the public would be considered significant. Therefore, **Mitigation Measure4.C-1c** has been included to reduce impacts to less than significant.

Mitigation

Mitigation Measure 4.C-1c: Prior to any trail-related construction, vegetation management, development, or any other ground disturbing activities taking place on Icehouse Hill, pre-construction surveys for butterfly larval host plants (*Viola pedunculata*, *Lupinus albifrons*, *L. formosus*, and *L. versicolor*) shall be conducted by a qualified invertebrate biologist with demonstrated experience working with the species to ensure avoidance of such host plants. Required surveys may be conducted

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	✓	✓
✓ = measure applies - = measure does not apply			

in conjunction with the rare plant surveys required under **Mitigation Measure 4.C-1a**. The timing for these preconstruction surveys is further specified, below.

All populations of butterfly host plants located on Icehouse Hill shall be mapped and trails shall be designed to avoid them, whether or not they are being used by butterflies at the time of the initial surveys. All populations of butterfly host plants located on Icehouse Hill shall be inspected by a qualified invertebrate biologist, at an appropriate time of year, to determine whether or not they are being used by endangered butterflies for reproduction. If it is determined that they are being used for reproductive purposes by endangered butterflies, the specific project applicant shall contact USFWS to identify the appropriate consultation process prior to proceeding further with any activities on Icehouse Hill. Consultation may indicate that an Incidental Take Permit is required pursuant to the FESA.

If populations of callippe silverspot or Mission blue butterflies are determined to be reproducing on Icehouse Hill, the property owner shall prepare and implement a Butterfly Protection Plan in coordination with the USFWS and the habitat managers for the SBMHCP prior to any ground-disturbing activities on or adjacent to Icehouse Hill. The plan shall include, but not be limited to, the following elements:

- Pre-construction surveys shall be conducted during the period of identification for larval host plants and butterfly larvae in the flowering and/or breeding season immediately prior to trail construction or any other work scheduled to occur on Icehouse Hill.
- Trail construction on Icehouse Hill shall avoid populations of larval host plants.
- All trails, or alternately, sensitive habitats, shall be fenced to minimize the establishment of "informal" trails through habitats supporting special-status plants.
- Dogs shall be allowed on Icehouse Hill trails on leash only.
- Interpretative signage shall be posted at trailheads explaining the presence of endangered butterflies and/or their habitat and the importance of preserving Icehouse Hill as habitat for endangered species.
- Grassland habitat on Icehouse Hill shall be restored and enhanced to maintain and expand healthy populations of butterfly host plants. This shall include regular and ongoing management of non-native invasive species, such as French broom and fennel, as well as revegetation with native grassland species and establishment of new populations of butterfly host plants for callippe silverspot and Mission blue butterfly species, particularly lupine host species and Veolia species. These efforts shall be planned in coordination with similar SBMHCP efforts and according to the butterfly habitat restoration and vegetation management guidelines that have been established for the SBMHCP (San Mateo County, 2007). The criteria for successful implementation of habitat restoration shall be no loss of butterfly habitat and at least 50 percent cover (includes at least two of the lupine species used by butterflies) in restored areas after five years.

Conclusion with Mitigation: With implementation of **Mitigation Measure 4.C-1c**, impacts on endangered Mission blue and callipe silverspot butterflies and their habitat as a result of habitat degradation would be avoided and the impacts of site development would be less than significant.

Impacts on Raptors and Avian Species

Raptor Foraging Habitat. Undeveloped land presents potential foraging opportunities for a number of raptors, including red-tailed hawk, red-shouldered hawk, American kestrel, northern harrier, great horned owl, and barn owl, burrowing owl and all of which are known to occur in the vicinity and may utilize the site for foraging. All of these species are protected under the Migratory Bird Treaty Act, and California Fish and Game Code Section 3503.5. Northern harrier is also a California Species of Special Concern and a California Bird Species of Special Concern (breeding). Burrowing owl (breeding) is also a California Bird Species of Special Concern.

Build out of Project Site development would result in grading and developing existing ruderal, and non-native annual grassland habitats as well as remediation of the unpaved, non-vegetated developed areas under current commercial use (i.e. the landfill area). Resident and migratory raptors currently use ruderal, non-native annual grassland and land fill areas for foraging. Initial loss of these habitats would occur during site remediation and grading as the existing substrates will be modified. Over time the newly graded and developed site would be used by raptors species and although the total overall amount of foraging area would be reduced by approximately one third under the CPP/CPP-V scenarios and approximately one half under the DSP/DSP-V scenarios, raptors would continue to use open space areas within the Project Site for foraging after Project Site development build out is complete. The CPP/CPP-V scenarios would result in approximately 203 acres of habitat enhancement and open space areas that would provide potential foraging habitat for raptors after site build out is complete. The DSP/DSP-V scenarios would include approximately 150 acres of open space, habitat areas and promenades that would provide potential foraging habitat for raptors.

In the vicinity of the Project Site, San Bruno Mountain State and County Park provides more than 2,000 acres of significantly higher-quality foraging habitats that are protected in perpetuity. Therefore, large areas of existing foraging habitat would remain available in the vicinity even after Project Site development concludes. Removal of existing unpaved areas under any of Project Site development would not represent a substantial reduction in available foraging habitat and thus would not have a substantial effect on local populations of raptors.

Raptor Nesting Habitat. Large trees at the Project Site occur primarily adjacent to existing roadways along the perimeter of the project footprint for all Project Site development. These trees represent potential nesting habitat for raptors and other species. All of the species listed above are protected under the Migratory Bird Treaty Act and California Fish and Game Code. Removal or trimming of any of the existing trees during the breeding season (January 1 through September 15th) would result in impacts to breeding raptors and avian species if an active nest is present. Removal of active nests or the trees the nests occupy would result in harassment or mortality of the young either through direct impact or as a result of abandonment by the adult bird.

Ground nesting species including western burrowing owls, and Northern harriers, both identified as a California Bird Species of Special Concern, are recognized as declining in numbers and distribution in the Bay Area region. Burrowing owls nest in burrows created by ground squirrels and as the squirrels are present on the site is considered suitable nesting habitat for the owls.

Northern harriers are not likely to nest at the Project Site. Although limited suitable nesting habitat for northern harrier occurs at the southern end of the lagoon, no development would occur in this location. Further, northern harriers appear to prefer patches of dense, often tall vegetation in undisturbed areas for nesting, and the all areas of the Project Site would experience disturbance. The species forages in a variety of habitats, including wet meadows and coastal inland marshes, however the species is known to use annual grasslands near the Bay for foraging.

Damage to or disturbance to occupied burrowing owl nests as a result of construction activities associated with pre-development remediation activities common to all Project Site development would be considered a significant impact. Construction of trails on Icehouse Hill would have the potential to impact active burrowing owl nests if existing burrows are occupied and nesting is in process. Damage to occupied natal burrows or disturbance of active burrows such that adults abandon the young would be considered a significant impact under CEQA.

Conclusion: Removal of trees at the Project Site would result in significant impacts to nesting raptor species that may use the existing trees at the Project Site for nesting. Grading and site preparation prior to Project Site development would result in significant impacts to ground-nesting protected species including burrowing owls.

Because performance standards as set forth in **Mitigation Measure 4.C-1d** for tree removal activity and ground-disturbance such as grading include no loss of nesting habitat during the raptor breeding season and the standards would be applied to all Project Site development, the impact would be considered less than significant.

Mitigation

Mitigation Measure 4.C-1d: The following steps shall be taken to avoid direct losses of nests, eggs, and nestlings and indirect impacts to special status avian species.

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	✓	✓
✓ = measure applies - = measure does not apply			

Vegetation removal including removal of trees and shrubs as part of site development shall be confined to the non-breeding season, except as provided for below. Grading or ground disturbance activities associated with site development including site remediation activities shall occur after pre-construction protocol burrowing owl surveys are conducted as described below and in the 2012 CDFW Staff Report on Burrowing Owls.

- If removal of trees and shrubs or disturbance to trees and shrubs (i.e., tree removal, tree trimming) is proposed to occur between January 1 and September 15, a qualified avian biologist shall survey any trees proposed to be removed or trimmed during the nesting season (i.e., January 1 through September 15) to determine if active nests are present. Surveys shall occur not more than 14 days prior to tree removal or trimming. If active nests are found, tree removal and/or tree trimming shall be conducted only after the young have left the nest and the nest is no longer in use. Confirmation that the nest is no longer in use shall be provided by a qualified biologist familiar with the species.

If the qualified avian biologist identifies active nests, a no disturbance buffer of 150 feet shall be established and monitored by a qualified avian biologist, with authority to stop work in the event construction activities encroach within the disturbance buffer thus ensuring that impacts to nesting birds would not occur.

Survey and monitoring reports shall be submitted to City staff for review: preconstruction survey reports shall be submitted prior to initiating construction activities; monitoring reports shall be submitted weekly until activities associated with nest habitat removal or disturbance activities are completed.

- Prior to initiating ***grading or ground disturbance activities*** associated with remediation activities required prior to site development, the following shall occur:

  - Not less than 45 days prior to site grading, a qualified biologist shall survey the site to determine the presence of active burrowing owl nests. If active nests are found passive relocation of the individuals would be accomplished according to the CDFW standards in effect at the time of the survey including the 2012 CDFW Staff Report on Burrowing Owls.

  - Results of the burrowing owl survey will be forwarded to CDFW.

  - Should the results of the survey include positive finding for occupied burrows, the location and condition of the burrows shall be reported to the CDFW and an on-site mitigation plan shall be prepared for review and approval by the CDFW. Onsite mitigation shall include construction of artificial burrows at a ratio of not less than 1:1 with the burrows located away from areas permitted for use by dogs and hikers. Following construction of the artificial burrows, the existing owls shall be passively removed from their burrows using one-way trap doors. The artificial burrows shall be monitored for a period of five years to confirm occupation by the species. Monitoring reports shall be forwarded to the CDFW to document compliance with this mitigation measure.

Conclusion with Mitigation: Because performance standards as set forth in **Mitigation Measure 4.C-1d** that would occur prior to removal of trees or shrubs and ground-disturbance such as grading include no loss of nesting habitat during the raptor breeding season and the standards will be applied for all Project Site development, the impact would be considered less than significant.

Implementation of **Mitigation Measure 4.C-1d** would reduce or avoid significant impacts on breeding birds and raptors, including ground-nesting raptors, by limiting construction activities within the general avian breeding season. With implementation of this mitigation measure, significant environmental effects on breeding birds would be reduced to less-than-significant levels. Furthermore, trees and plants proposed to be planted as part of Project Site development would include native species and habitat assemblages that over time would result in higher quality nesting habitat for tree, shrub and ground-nesting birds compared to existing landscape trees and non-native eucalyptus trees at the site currently.

Although burrowing owls are dependent on burrows at all times of the year, eviction may also result in significant impacts. However, **Mitigation Measure 4.C-1d** also requires that replacement, artificial burrows be provided if burrowing owls are found and the approved burrow

exclusion techniques are implemented; this requirement would ensure that impacts to burrowing owls are reduced to less than significant.

Impacts to Raptors and Bats as a Result of Operation of Onsite Wind Power Generation

Wind energy facilities have been demonstrated to cause a variety of impacts to raptors and bats including direct mortality through turbine collision. The level of collision risk is highly dependent upon the specific location and design of wind turbines. Raptors including the species discussed in this document such as burrowing owls, red-tailed hawks are harmed when they either attempt to perch on turbines or collide with them if the turbines are placed in migratory pathways or foraging areas. Or, the species avoid areas where turbines have been located and are effectively displaced from foraging habitat. Very little data is available pertaining to bats and wind turbines, compared to the knowledge of avian species in this regard. Existing information about bat migration and habitat use is limited in California (CBWG, 2006), so there is no corollary data set to the detailed level of knowledge that has emerged about turbine micrositing in relationship to raptor use of the landscape. However, attempts are being made to model and predict effects on bats (CBWG, 2006; CEC, 2007).

The DSP and DSP-V scenarios would include construction and operation of a free-standing wind turbine located within the developed portions of the site, away from the open space and habitat areas. However, because raptors forage at the site and bats forage in the vicinity of wetlands and waters at the site, impacts to these species cannot be ruled out under the DSP and DSP-V scenarios. The CPP and CPP-V scenarios includes rooftop wind turbines which depending on the rooftop elevation and the turbine design can pose collision risk for foraging bats and raptors.

The turbines located in areas of high raptor use or in the vicinity of bat roosts have a greater chance to impact bats and raptors. The contemporary strategy for reducing potential impacts of wind energy facilities on avian species is to include micrositing of individual turbines in areas or orientations that are less risky for raptors and other species, burying electrical collector cables underground, avoiding use of guy wires, and using solid tower/support structures rather than lattice towers to avoid providing birds with potential perching sites. Also, using turbines with rotor speeds of approximately 20 rpm (slower than earlier generations of wind turbines), and located turbines away from any major habitat areas that could act as attractants to raptors further minimizes the potential for bird collisions.

Conclusion: Micrositing is believed to avoid or reduce the effects of wind turbines on bats and raptors, but does not ensure that the impact would be reduced to a less than significant level. Therefore, because raptor and bat mortality from collisions with wind turbines cannot be ruled out in association with operation of wind turbines, their operation would be considered a significant impact.

Mitigation

Mitigation Measure 4.C-1e: Prior to construction of any wind turbines within the Project Site, the applicant for such wind turbines shall prepare a site-specific micrositing report in designing the proposed turbine layout that incorporates modeling of raptor species' flight patterns, hovering or kiting patterns, bat roosting habitat areas and foraging areas. The report shall provide micrositing recommendations to reduce avian collision and impacts to bat species that shall be implemented in the final design and placement of wind turbines. Utilization data; digital elevation modeling; slope attributes; techniques to identify saddles, notches, and benches; and associations between bird utilization and topography may be included, for example. The report shall include adaptive management during and after Project Site construction using information gathered in the pre-construction assessment to guide possible Project modifications, mitigation, or the need for and design of post-construction studies; post-construction studies can test design modifications and operational activities to determine their effectiveness in avoiding or minimizing significant adverse impacts (USFWS, 2010b). The design of wind turbines shall minimize the use of above ground electrical cabling; be designed with solid surfaces that are not conducive to perching; not run when visibility is poor, such as at night and during periods of heavy fog; and be designed with low rotor speeds (20 rpm maximum).

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	✓	✓
✓ = measure applies - = measure does not apply			

Mitigation Measure 4.C-1f: Prior to construction or operation of wind turbines within the Project Site, the applicant shall implement the following mitigation measure, which is based upon the California Bat Working Group *Guidelines for Assessing and Minimizing Impacts to Bats at Wind Energy Development Sites in California* (CBWG, 2006). These measures will help to mitigate the Project's effects on bats by addressing the data gaps that prevent adequate assessment of the Project's effects on bats, such as what bat species are using the site and how they are using the Project area.

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	✓	✓
✓ = measure applies - = measure does not apply			

a. The applicant shall contribute to the body of knowledge on bat/turbine interactions by performing pre-construction and post-construction surveys, and post-construction monitoring within the Project area at each discrete location of a wind turbine or solar facility.

Conclusion with Mitigation: Implementation of **Mitigation Measures 4.C-1e** and **4.C-1f** would reduce or avoid impacts to bat species. With implementation of these mitigation measures impacts to raptors and bats would be avoided, but due to the lack of knowledge and the current uncertainty of the effectiveness of micrositing efforts for these species, impacts to raptors and bats are considered significant.

Impacts on Special-Status Fish

Impacts to special-status fish species would occur during construction and operation of open space facilities and trails adjacent to the lagoon shoreline and Visitation Creek banks. Construction-related

impacts would result from water quality degradation associated with siltation and storm water run-off, and operational impacts would result from increased human presence adjacent to these two water bodies onsite, due to recreational uses associated with Project Site development. These include sports fields, meadows, rest rooms and parking areas directly north and upslope from the lagoon. The DSP and DSP-V scenarios also include a perimeter trail around the eastern edge of the lagoon.

Any special-status fish species present in Brisbane Lagoon or Visitation Creek during construction of Project recreational facilities, including trails, directly adjacent to the lagoon and creek could be harassed, injured, or temporarily displaced from lagoon waters during construction and would be affected by pollutants from urban runoff into the lagoon during operation. Accelerated erosion rates resulting from construction activities would have a negative impact on fish habitat if excessive soil sediment clouds waters, changes water temperature or limits oxygen levels and access to cover. Introduction of debris including trash and refuse would also displace existing habitat for special status fish. Recreational use would introduce more people to the area, and litter from recreational users would be a source of additional debris on the trails and in lagoon waters.

Performance standards for all work proposed adjacent to the lagoon under all concept scenarios will include implementation of erosion control and other best management practices to avoid and minimize introduction of run-off or sediment into the lagoon. Such standards would be consistent with National Pollution Discharge Elimination System (NPDES) permit conditions (see Section 4.N, *Hydrology and Water Quality*, of this EIR, for a detailed discussion of the permit requirements), construction regulations, and applicable state and federal requirements for Project construction adjacent to sensitive habitats, including water bodies that may support special status fish. In addition, performance standards would apply to the operation of the open space areas and trail use areas including implementation of maintenance and trails, trash removals and monitoring to ensure environmental quality is not degraded adjacent to and encroaching upon habitat for special status fish in the lagoon and Visitation Creek.

Conclusion: Impacts to habitat for special status fish species that would occur at the lagoon or Visitation Creek areas would occur as a result of introduction of sediment or materials generated during Project Site construction and operation. Impacts would result from Project construction and grading activities undertaken as part of trail construction or establishment of park facilities, and would temporarily increase exposure of disturbed surface soils to runoff, causing erosion and entrainment of sediment. Operational impacts would include introduction of materials such as litter or refuse into the water column as a result of increased human presence and recreational use, or an increase in runoff introduced as a result of recreational uses.

Mitigation

Mitigation Measure 4.C-1g: Construction and operation of proposed recreational and open space areas along Visitation Creek or adjacent to the northern lagoon edge shall include implementation of erosion control and water pollution control measures consistent with Storm Water Pollution Prevention Program (SWPPP) requirements, and implementation of an on-going maintenance plan to ensure no reduction in water and environmental quality as a result of recreational uses adjacent to the Creek and lagoon.

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	✓	✓
✓ = measure applies - = measure does not apply			

Project applicants shall provide the City with proof that appropriate stormwater permits have been obtained pursuant to the City of Brisbane's NPDES stormwater discharge permit, the San Francisco Regional MS4 Permit. This shall include construction site inspection and control programs at all construction sites, with follow-up and enforcement consistent with each Permittee's respective Enforcement Response Plan, to prevent construction site discharges of pollutants and impacts on beneficial uses of receiving waters. The goal of Provision C.3 of the MS4 Permit is for the Permittee, such as the City of Brisbane, to use their planning authorities to include appropriate source control, site design, and stormwater treatment measures in new development and redevelopment projects to address both soluble and insoluble stormwater runoff pollutant discharges and prevent increases in runoff flows from new development and redevelopment projects. This goal is to be accomplished primarily through the implementation of low impact development techniques.

Project applicants shall comply with local municipal requirements and the local storm water program as mandated under the Municipal Stormwater Permit, including, at minimum, the following measures:

- Plan the development to fit the topography, soils, drainage pattern and natural vegetation of the Project Site.
- Delineate clearing limits, easements, setbacks, sensitive or critical areas, trees, drainage courses, and buffer zones to prevent excessive or unnecessary disturbances and exposure.
- Phase grading operations to reduce disturbed areas and time of exposure.
- Avoid excavation and grading during wet weather.
- Limit on-site construction routes and stabilize construction entrance(s) and exit(s).
- Any increase in impervious surface area shall include establishment of vegetated swales, permeable pavement materials, preserve vegetation, re-plant with native vegetation and appropriate measures should be evaluated and implemented where appropriate.
- Whenever practicable, native vegetation buffer areas shall be provided as part of a project to control pollutants from entering the Bay, and vegetation shall be substituted for rock riprap, concrete, or other hard surface shoreline and bank erosion control methods where appropriate and practicable.
- Construct diversion dikes and drainage swales to channel runoff around the site and away from bodies of water.

- Use berms and drainage ditches to divert runoff around exposed areas.
- Place diversion ditches across the top of cut slopes.
- No use of fertilizers or pesticides.

Applicants shall prepare a maintenance program for approval by the City that includes maintenance of water quality pollution-control features such as swales, sediment traps or other passive applications of pollution-prevention measures required as part of NPDES permitting. The maintenance program shall address the management of open space adjacent to the Brisbane lagoon and Visitation Creek and, at minimum, shall include the following requirements, to be performed to the satisfaction of the City:

- Identify the entity responsible for ongoing maintenance of the lagoon perimeter and recreational facilities within the perimeter area (e.g., property owners' association, landscape maintenance district), along with provisions permitting the City to enforce maintenance requirements and recoup costs for such enforcement.
- Provide trash receptacles at appropriate locations and regular litter removal.
- Maintain all improvements within the lagoon perimeter in a safe and working condition.
- Identify a funding mechanism to ensure site maintenance and implementation of environmental quality monitoring at the creek and lagoon as part of the open space interpretive center. Monitoring parameters may include but would not be limited to water quality monitoring, vegetation monitoring, and passive observation and recording of fish species present.

Conclusion with Mitigation: Compliance with local municipal requirements and the local storm water program as mandated under the Municipal Stormwater Permit would prevent introduction of sediments and materials into the lagoon during construction. A required plan and funding for regular litter removal and maintenance of vegetative swales or technology to prevent runoff would ensure that use of the recreational areas in and near the Lagoon would result in less than significant impacts to special status fish. Therefore, implementation of **Mitigation Measure 4.C-1g,** in addition to implementation of **Mitigation Measures 4.H-1a, 4.H-1b and 4.H-4** (See Section 4.H, *Hydrology and Water Quality*, of this EIR) would reduce impacts to special status fish to a less than significant level.

Impact 4.C-2: Would the Project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFW or USFWS?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
SM	SM	SM	SM

SU = Significant Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = no impact

DSP, DSP-V, CPP, and CPP-V

Development of the Project Site would be preceded by remediation activities including removal of soils and importation

and placement of clean fill to achieve clean-up goals and required levels of safety for future uses. Remediation activities associated with cleanup of the former landfill area including cleanup within and along the Visitation Creek channel would impact sensitive natural communities including tidally influenced banks of Visitation Creek either by temporary removal of tidal habitats during remediation, or through indirect effects such as increase in storm water runoff into sensitive habitats while work is occurring within or adjacent to the creek channel. Remediation actions taken at the former railyard would require removal of contaminated soils and placement of clean fill to achieve clean-up goals and required levels of safety for future uses. Remediation actions in the former railyard would impact and displace sensitive natural communities including freshwater emergent wetlands that have formed on the existing fill material that is the current substrate at the site, and the Visitation Creek channel. A 2004 wetland mitigation plan was prepared to address impacts to sensitive natural communities including 404 wetlands and provided for creating two types of wetland habitats to offset impacts and restore functions and values. One acre of saltwater marsh wetlands and three acres of freshwater marsh wetlands, including a shallow water shoreline zone, a deep water zone and an open water zone, were included in the mitigation plan and were to be implemented along Visitation Creek. A permit for the restoration work was issued in 2006 but has since lapsed with no action taken.

Prior to implementation of remediation actions and as part of the approvals process overseen by the California Department of Toxic Substances Control and the RWQCB, total area and extent of natural communities would be delineated using methods and standards mandated by federal and state agencies with jurisdiction over natural communities including the Corps, CDFW, USFWS and the RWQCB. Figure 4.C-1 depicts the approximate distribution and locations of natural communities on site currently, but formal delineation(s) would be required to support acquisition of permits required prior to implementation of the remediation process.

Remediation would result in a beneficial outcome in terms of biological resources because the amount and quality of sensitive natural communities created onsite as part of development of proposed passive storm water treatment systems, proposed creek and natural area improvements such as contouring and re-vegetation at Visitation Creek, and reconstruction of railyard wetlands onsite. Overall the restored wetlands would exceed the ecological functions-and-values currently present. Improved functions and values would occur because restoration designs and planting plans would incorporate native species and result in natural assemblages and structural components of sensitive natural communities that are consistent with the regional conditions and the specific conditions at the Project Site. Such conditions, incorporated herein as performance standards for site development, would be established in detail during coordination with state and regulatory agencies with jurisdiction over natural communities including CDFW, USFWS, and the Corps, among others. The regulatory permitting processes referenced above establishes criteria for restoration of functions and values that would be incorporated into design, implementation and long term monitoring and adaptive management of restored habitats to ensure that impacts to sensitive natural communities would not result in a loss of total amount of or functions and values associated with those communities.

Conclusion: Site remediation activities would impact sensitive natural communities within the landfill and rail yard area footprints.

Conclusion with Mitigation: Although the long term results of remediation would be beneficial, impacts to existing sensitive natural communities would be significant. With implementation of **Mitigation Measures 4.C-2a, 4.C-2b,** and **4.C-2c** this impact would be considered less than significant.

Because performance standards for remediation activities include no overall loss of either total area/amount or functions and values of sensitive natural communities, impacts as a result of remediation would be less than significant. With implementation of mitigation measures including compliance with regulatory requirements, post remediation site conditions are likely to result in greater quantity and higher overall quality than what exists at the site currently.

Impacts on Sensitive Natural Communities as a result of post-remediation site development activities

After remediation has been completed build out of Project Site development would proceed. Build out of Project Site would include implementation of a water transfer agreement as discussed in relation to project site utilities in *Section 4.O, Utilities, Service Systems and Water Supply*, of this EIR. As a result of the proposed IOD-Brisbane water transfer agreement a change could be needed in the amount of water released from Hetch Hetchy Reservoir flowing down the segment of the Tuolumne River between Hetch Hetchy Reservoir and New Don Pedro Reservoir. The water transfer would contribute to potential impacts on the Tuolumne River that may occur as a result of required changes to the reservoir release pattern from Hetch Hetchy Reservoir that, in some years, could prevent groundwater recharge and could adversely affect streamside meadows and other alluvial deposits. Assuming a conservative approach to this analysis, the impact is considered to be significant but mitigable for the OID-Brisbane water transfer element of the Project through implementation of mitigation measure 4.O-1b included in Section 4.O of this EIR.

Depending on timing of site-specific development approvals and the overall pace of build out at the site, Project construction activities could impact adjacent sensitive natural communities. Impacts would include runoff from development construction areas and increased human presence and noise. Construction actions such as earthwork and construction of roads, infrastructure, and residential (DSP, DSP-V scenarios) and commercial areas in the vicinity of restored sensitive natural areas including wetlands constructed as mitigation for remediation impacts would temporarily disturb adjacent habitat areas as the result of construction. This impact is common to all Project Site development.

Conclusion: Mitigation Measure 4.C-4a is recommended to avoid impacts to natural communities after remediation and before mitigation/habitat restoration. **Mitigation Measure 4.C-4b** is recommended to reduce impacts on marsh wildlife and habitat to a less-than-significant level; and **Mitigation Measure 4.C-4c** is recommended to reduce predation on local wildlife by

domestic pets and feral dogs and cats and reduce impacts on undeveloped areas that support restored natural communities to a less-than-significant level.

Mitigation

Mitigation Measure 4.C-2a: The applicant shall avoid or minimize adverse effects on sensitive natural communities and restored wetland mitigation areas created to comply with remediation permit requirements or any restored habitat that may have been created as part of site clean-up actions. After Project Site remediation has concluded, measures shall be implemented to avoid impacts to sensitive natural communities or restored habitat areas, including the installation of silt fencing, straw wattles, or other appropriate erosion and sediment control methods or devices to prevent runoff and construction debris from entering these areas. Such measures shall also be employed where pre-construction grading and post-remediation development may require work adjacent to sensitive natural communities, either prior to or after restoration of those areas occurs. Where construction activities occur in the vicinity of sensitive natural communities onsite, the following shall be implemented to ensure no loss of restored mitigation sites:

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	✓	✓
✓ = measure applies - = measure does not apply			

- Fencing shall be erected adjacent to the areas where construction is occurring to avoid unintended impacts to sensitive natural area that occur just outside the construction area. Construction workers will be educated about local resources and instructed to avoid sensitive habitats during construction including limiting any human intrusion into natural areas.

- If work in the vicinity of natural communities cannot be avoided, work within these areas shall be conducted during the dry season, typically between May 1 and October 15, and shall occur under permit authority of CDFW, Corps and RWQCB pursuant to the CWA Section 404 requirements for avoidance, mitigation and monitoring. **Mitigation Measures 4.2-2b** and **4.C-2c** shall also apply if work cannot be avoided in or directly adjacent to sensitive natural areas or restored habitats created as part of site cleanup actions.

Mitigation Measure 4.C-2b: The measures described below shall be employed to avoid degradation of natural communities or sensitive natural communities by maintaining water quality and controlling erosion and sedimentation during construction as required by compliance with the National Pollutant Discharge Elimination System (NPDES) General Permit for Construction Activities and as established by **Mitigation Measures 4.H-1a** and **4.H-1b** (see Section 4.H, *Hydrology and Water Quality*, of this EIR) to address impacts on water quality. In addition, measures shall include, but not be limited to, the following:

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	✓	✓
✓ = measure applies - = measure does not apply			

- Installing silt fencing between aquatic sensitive natural communities and Project-related activities;
- Locating fueling stations away from potentially jurisdictional areas and features; and
- Otherwise isolating construction work areas from any identified jurisdictional features.

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	✓	✓
✓ = measure applies - = measure does not apply			

Mitigation Measure 4.C-2c: Where disturbance to sensitive natural communities cannot be avoided, compensation shall be provided for temporary impacts and permanent loss to ensure that there is no overall loss of sensitive natural communities as a result of Project Site development. Onsite, in kind replacement of sensitive natural communities including coastal scrub, willow scrub, tidal marsh, freshwater emergent wetlands, and lined manmade drainages that have developed bed and bank characteristics shall be a condition of development. Compensation shall be detailed on an impact-specific basis and shall include development of an onsite wetland mitigation and monitoring plan, which shall be developed prior to Project Site development or in coordination with permit applications and/or conditions. Alternately, offsite mitigation may be pursued through an approved mitigation bank, although this option may result in a higher ratio for compensation. At a minimum, such plans shall include:

- Baseline information, including a summary of findings for the most recent wetland delineation conducted at the Project Site;
- Anticipated habitat enhancements to be achieved through compensatory actions, including mitigation site location (onsite enhancement or offsite habitat creation) and hydrology;
- Performance and success criteria for wetland creation or enhancement including, but not limited to, the following:
  - At least 70 percent survival of installed plants for each of the first three years following planting.
  - Performance criteria for vegetation percent cover in Years 1-4 as follows: at least 10 percent cover of installed plants in Year 1; at least 20 percent cover in Year 2; at least 30 percent cover in Year 3; at least 40 percent cover in Year 4.
  - Performance criteria for hydrology in Years 1-5 as follows: 14 or more consecutive days of flooding, ponding, or a water table 12 inches or less below the soil surface during the growing season at a minimum frequency of three of the five monitoring years; OR establishment of a prevalence of wetland obligate plant species.
  - Invasive plant species that threaten the success of created or enhanced wetlands should not contribute relative cover greater than 35 percent in Year 1, 20 percent in Years 2 and 3, 15 percent in Year 4, and 10 percent in Year 5.
  - If necessary, supplemental water shall be provided by a water truck for the first two years following installation. Any supplemental water must be removed or turned off for a minimum of two consecutive years prior to the end of the monitoring period, and the wetland must meet all other criteria during this period. At the end of the five-year monitoring period, the wetland must be self-sufficient and capable of persistence without supplemental water.
  - At least 75 percent cover by hydrophytic vegetation at the end of the five-year monitoring period. In addition, wetland hydrology and hydric soils must be present and defined as follows:
    - *Hydrophytic vegetation* – A plant community occurring in areas where the frequency and duration of inundation or soil saturation produce

permanently or periodically saturated soils of sufficient duration to exert a controlling influence on the plant species present.

- *Wetland hydrology* – Identified by indicators such as sediment deposits, water stains on vegetation, and oxidized rhizospheres along living roots in the upper 12 inches of the soil, or satisfaction of the hydrology performance criteria listed above.
- *Hydric soils* – Soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions, which are often characterized by features such as redox concentrations, which form by the reduction, translocation, and/or oxidation of iron and manganese oxides. Hydric soils may lack hydric indicators for a number of reasons. In such cases, the same standard used to determine wetland hydrology when indicators are lacking can be used.

- Five years after any wetland creation, a wetland delineation shall be performed to determine whether created wetlands are developing according to the success criteria outlined in the project permits. If they are not, remedial measures such as re-planting and or re-design and construction of the created wetland shall be taken to ensure that the Project's mitigation obligations are met.

- Monitoring and reporting requirements. If permanent and temporary impacts on jurisdictional waters cannot be compensated onsite through the restoration or enhancement of wetland features incorporated within proposed open space areas, the specific project applicant shall provide additional compensatory mitigation for these habitat losses. Potential options include the creation of additional wetland acreage onsite or the purchase of offsite mitigation. Offsite compensatory mitigation would be required to fulfill the performance standards described above.

Conclusion with Mitigation: Implementation of **Mitigation Measures 4.C-2a, 4.C-2b**, and **4.C-2c** would reduce impacts on natural communities including natural communities that occur as a result of restoration and mitigation for impacts associated with pre-development site remediation to a less-than-significant level under Project Site development.

Impact 4.C-3: Would the Project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA through direct removal, filling, hydrologic interruption, or other means?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
SM	SM	SM	SM

SU = Significant Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = no impact

DSP, DSP-V, CPP, and CPP-V

Impacts on Wetlands and Other Waters of the United States

Remediation activities, would result in substantial adverse effects on wetlands and waters of the United States as defined by Section 404 of the CWA, and Waters of the State,[7] as defined by the Porter-Cologne Water Quality Act, overseen by the RWQCB pursuant to Section 401 of the CWA. Significant impacts

[7] Waters and wetlands under the jurisdiction of CDFW and/or RWQCB.

include permanent fill of freshwater emergent wetlands and manmade drainages occurring on the former railyard; permanent fill of un-vegetated manmade drainage ditches, freshwater emergent wetlands, and tidally influenced wetlands at Visitation Creek within the landfill footprint. The fill of jurisdictional waters as a result of remediation activities would result in loss of wetland area to create appropriate soil elevations for the purpose of containment of contaminants required prior to Project Site development. Remediation activities would occur within the landfill and railyard footprints prior to Project Site development build out. Implementation of **Mitigation Measures 4.C-2a, 4.C-2b,** and **4.C-2c** would reduce impacts on wetlands, to a less-than-significant level for fill of wetlands associated with site remediation activities.

Because performance standards for remediation activities as set forth in **Mitigation Measure 4.C-2c** include ensuring that the total area and or overall functions and values of jurisdictional wetlands or waters of the U.S. would apply to site development, impacts associated with filling jurisdictional wetlands during site remediation would be less than significant.

Post-Remediation Build Out of the Project Site Outside Landfill and Railyard Areas

Implementation of **Mitigation Measures 4.C-2a, 4.C-2b**, and **4.C-2c** would reduce impacts on wetlands to a less-than-significant level under all four proposed development scenarios.

Because performance standards would be applied to Project Site development including no net loss of jurisdictional wetlands as defined by the CWA, impacts associated with build out of Project Site development would be less than significant.

Conclusion: Project Site development would comply with all applicable federal and state permitting requirements, as discussed above. Implementation of **Mitigation Measures 4.C-2a, 4.C-2b,** and **4.C-2c** would ensure that the significant impact on jurisdictional wetlands or waters of the United States would be reduced to a less-than-significant level.

Impact 4.C-4: Would the Project affect movement of wildlife species, active wildlife corridors, and wildlife nursery sites supporting breeding?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
SM	SM	SM	SM

SU = Significant Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = no impact

DSP, DSP-V, CPP, and CPP-V

Impact on Wildlife Corridors and Bird Migration Navigation

Contiguous undeveloped areas, stream or drainage channels, and other linear arrangements of open space within urban habitats, such as Visitation Creek, constitute important movement corridors for local wildlife species. Utilizing cover along vegetated channels and contiguous undeveloped vegetated areas, local ground-dwelling and avian wildlife species are able to maneuver from place to place within a given environment without encountering barriers to their movement patterns. Studies of wildlife corridors have shown that contiguous open space areas

function to provide connectivity between local populations of species and increase the viability of those populations (Beier and Noss, 1998).

Open space areas in the vicinity of the Project Site that support wildlife populations and attract wildlife movement include the San Bruno Mountain area to the west of the Project Site, and wetland and aquatic habitats in San Francisco Bay located to the east of the site. Currently, suitable wildlife habitat at the site is limited to Icehouse Hill, which could attract butterfly species present in the San Bruno Mountain area, and aquatic habitat in the lagoon which may attract fish species present in San Francisco Bay. Butterflies would be attracted by host species that could colonize Icehouse Hill, and fish would potentially be attracted to open water lagoon habitats at the site. Within the interior of the site currently much of the area is open, but habitat quality is low with large expanses of compacted bare ground and not likely to attract or facilitate animal movements.

Wildlife Movement. Build out of Project Site development will result in establishment and maintenance of contiguous open areas under each of the development scenarios, including the Visitation Creek area that would increase habitat quality onsite compared to existing conditions and would maintain connectivity within the Project Site. Development of the Project Site would not create barriers to site access for species present in the vicinity and would not inhibit on-site animal movement corridors. Project Site development includes contiguous open space areas of sufficient width to facilitate animal movement onsite. Therefore, development of the Project Site would not result in significant impacts to animal movements onsite or onto the site from nearby open space areas. In addition, to aid in implementing select programs and policies of the City's 1994 General Plan, the City Council approved the Open Space Plan. The Open Space Plan includes Preservation Strategies and General Management Policies, which, in turn, direct that open space dedication and open area planning should be incorporated as part of the specific planning portion of the planned development process, and that native habitat restoration efforts should be undertaken, where practical. However, Open Space Plan policies do not specify how the goals expressed in these policies should be achieved, and thus, standing alone, do not ensure that impacts to wildlife movement would be less than significant.

Site development would not reduce access compared to existing conditions for animals from adjacent areas, for instance the including the watershed of Guadalupe Creek which is a natural channel in San Bruno Mountain State and Regional Park that flows through the community of Brisbane in subsurface culverts and terminates at a concrete outfall into Brisbane Lagoon. Additional potential access points for wildlife would include the southern tip of the Brisbane Lagoon area which is in close proximity to the toe of the San Bruno Mountain feature, where it meets the Bay shore at US Highway 101. Project Site development would not change the existing use or condition of the southern tip of the lagoon and no change in site access for resident or local animals would occur.

Migration Birds. Migrating birds such as songbirds including special status species can be affected by human-built structures because of their propensity to migrate at night, their low flight altitudes, and their tendency to be disoriented by artificial light, making them vulnerable to collision with obstructions. Both tall structures and residential windows provide collision hazards

to migrating birds. A majority of bird strikes occur when birds do not recognize windows on buildings. Under Project Site development, the highest densities and the tallest buildings would be concentrated in the northern portion of the Project Site, which is already developed for urban or industrial uses. Building heights under Project Site development range from 25 feet to 160 feet in height. Highest densities for buildings and light-producing structures are included in the DSP and DSP-V scenarios. Thus, operation of the towers and stadium included in the DSP and the DSP-V scenarios, and the commercial buildings proposed under the CPP and CPP-V scenarios would pose collision hazards to migratory birds as effects associated with the lighting of the towers can alter the flight patterns of migratory birds and substantially increase bird strike collisions with the structures. Since the CPP and CPP-V scenarios do not include residences and proposed reduced density for commercial and urban uses, these scenarios would result in a smaller increase in light and collision hazards as a result of Project Site development.

Large- scale avian injury or mortality due to bird strikes have not been documented at buildings on the West Coast as it has in eastern and midwestern North America. However, due to the potential for individuals of special status bird species to collide with windows and reflective surfaces on tall buildings associated with development of the site, this would be a potentially significant impact.

Wildlife Movement. Because Project Site development, even though consistent with the Open Space Plan would not ensure that impacts to wildlife movement would be less than significant, build out of Project Site development would result in significant impacts to wildlife movements onsite or onto the site from nearby open space areas. **Mitigation Measure 4.C-4a** requires a Project wide Open Space Plan be prepared by a landscape architect in coordination with a qualified habitat restoration biologist to ensure avoidance of impacts to wildlife movement. **Mitigation Measures 4.C-4b** and **4.C-4c** would also serve to reduce impacts to wildlife movement corridors onsite through avoidance of marsh habitats and restrictions on pets associated with occupation of the site which would occur in the DSP and DSP-V scenarios.

Conclusion with Mitigation: Performance standards applied to site development include compliance with General Plan Open Space Planning requirements including a requirement for a project wide Open Space Plan to be prepared by a landscape architect in coordination with a qualified habitat restoration biologist to ensure avoidance of impacts to wildlife movement. **Mitigation Measure 4.C-4a** is recommended to enhance existing and coordinate connections between proposed open space areas such that they would also function as animal movement corridors.

Potential impacts to migratory birds associated with increased collision with mid-rise and high-rise buildings would mitigated to a level that is considered less than significant with application of **Mitigation Measures 4.C-4d** and **4.C-4.e**.

Mitigation

Mitigation Measure 4.C-4a: Development in the Baylands shall be subject to a requirement for a Project wide Open Space Plan to be prepared by a landscape architect in coordination with a qualified habitat restoration biologist and included as a component of the Specific Plan. The Plan shall incorporate designs to provide for wildlife movement corridors and to enhance habitat for native wildlife species. Specific requirements shall include the following:

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	✓	✓
✓ = measure applies - = measure does not apply			

- Landscaped areas shall contain a mosaic of native habitat types that support fauna of the surrounding area, including coastal scrub, grassland, and willow scrub habitats. Tree plantings shall be limited to native species whenever possible, as these species could create more nesting and roosting habitat for native birds and bats.
- Landscape plans shall incorporate both east-west and north-south open space areas, to promote both linkages between upland habitats and San Francisco Bay and linkages between upland habitats along the Bay shoreline.
- Removed trees shall be replaced at a minimum ratio of 1:1 (native trees shall be substituted for non-native trees whenever possible). The minimum ratio of 1:1 shall be met five years after planting; initial plantings may require greater than 1:1 ratio to achieve this standard.
- Nest boxes for bats and cavity-nesting bird species shall be installed in passive recreational areas.

Mitigation Measure 4.C-4b: Development in the Baylands shall be subject to a requirement for a Marsh Wildlife and Habitat Protection Plan for the Project to be prepared as part of the specific plan process prior to approval of any development projects. The Habitat Protection Plan shall be prepared by a qualified biologist and subject to approval by the Brisbane Community Development Department. The Plan shall include (but not be limited to), the following components:

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	✓	✓
✓ = measure applies - = measure does not apply			

- To minimize the effect of night lighting on wetland habitats adjacent to Project Site development, the following shall apply in the vicinity of wetlands located north of the lagoon, development north and south of the Visitacion Creek channel, and any development adjacent to freshwater wetlands in the western portion of the Project Site:
  - Street lighting shall be provided only at intersections.
  - Low-intensity street lamps and low elevation lighting poles shall be provided.
  - Internal silvering of the globe or external opaque reflectors shall be provided to direct light away from preserved wetland or open water habitats.
  - In addition, private sources of illumination around homes (**for DSP and DSP-V only**) shall also be directed and/or shaded to minimize glare into these habitats.

- Residential and commercial leases within the Project Site shall prohibit building occupants from creating outdoor feeding stations for feral cats to prevent feral cat colonies from establishing and to prevent the attraction of other predatory wildlife such as red fox, raccoon, or opossums. Such restrictions shall be monitored by a property owners association which shall have the right to impose fines for violation of this requirement.

- If a buffer cannot be accommodated between development and habitat areas, cyclone fencing with vinyl slats (or an equivalent screening barrier) at a minimum height of three feet for screening shall be installed outside of wetland habitat and between any preserved wetland or open water habitat and all residential or commercial development. Appropriate native vegetation shall be planted both inside and outside of the fence to provide further screening. This fencing would provide a barrier to exclude cats, dogs, and other household pets, which are not effectively deterred by buffers.

- An education program for residents shall be developed including posted interpretive signs and informational materials regarding the sensitivity of preserved habitats, the dangers of unleashed domestic animals in this area. Such restrictions shall be monitored by a property owners association which shall have the right to impose fines for violation of the pet policy. Such information shall be provided in the vicinity of onsite marshes where public access is provided.

Mitigation Measure 4.C-4c: All development on the Baylands that includes a residential component shall include a pet policy that requires residents to adhere to the measures of this policy to prevent impacts on wildlife from domestic animals. The policy shall become a part of the Covenants, Conditions, and Restrictions (CC&Rs) attached to each property deed for for-sale residential properties and enforced through the homeowners association or other entity specified in the CC&Rs, and made part of leases for residential rental properties and commercial leases within the Project Site. The pet policy shall limit the number of animals per residence and require adult cats, dogs, and rabbits to be spayed or neutered. Cats and dogs shall be required to be kept inside the residences and allowed outside residences only if on a leash and under the tenant's control and supervision, except within areas specifically designed as dog parks. To provide effective predator control, feral animal trapping may be necessary.

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	-	-
✓ = measure applies - = measure does not apply			

Conclusion with Mitigation: Implementation of **Mitigation Measures 4.C-1a, 4.C-1b, 4.C-1c, 4.C-1d, 4.C-1e, 4.C-1f, 4.C-1g, 4.C-4a, 4.C-4b**, and **4.C-4c** would reduce impacts on wildlife corridors to a less-than-significant level.

Mitigation Measure 4.C-4d: During design of any building greater than 100 feet tall, the applicant and architect shall consult with a qualified biologist experienced building/lighting design issues (as approved by the City of Brisbane Planning Department) to identify lighting related measures to minimize the effects of the building's lighting on birds. Such measures, which may include the following and/or other measures, shall be incorporated into the building's design and operation.

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	✓	✓
✓ = measure applies - = measure does not apply			

- Use strobe or flashing lights in place of continuously burning lights for obstruction lighting. Use flashing white lights rather than continuous light, red light, or rotating beams.
- Install shields onto light sources not necessary for air traffic to direct light towards the ground.
- Extinguish all exterior lighting (i.e., rooftop floods, perimeter spots) not required for public safety.
- When interior or exterior lights must be left on at night, the operator of the buildings shall examine and adopt alternatives to bright, all-night, floor-wide lighting, which may include:
  - Installing motion-sensitive lighting.
  - Using desk lamps and task lighting.
  - Reprogramming timers.
  - Use of lower-intensity lighting.
- Windows or window treatments that reduce transmission of light out of the building will be implemented to the extent feasible.
- Educational materials will be provided to building occupants encouraging them to minimize light transmission from windows, especially during peak spring and fall migratory periods, by turning off unnecessary lighting and/or closing drapes and blinds at night.
- A report of the lighting alternatives considered and adopted shall be provided to the City of Brisbane Planning Department for review and approval prior to construction. The City of Brisbane Planning Department shall ensure that lighting-related measures to reduce the risk of bird collisions have been incorporated into the design of such buildings to the extent practicable.

Mitigation Measure 4.C-4e: During design of any building greater than 100 feet tall, the applicant and architect shall consult with a qualified biologist experienced with urban building bird strikes design issues (as approved by the City of Brisbane Planning Department) to identify measures related to the external appearance of the building to minimize the risk of bird strikes. Such measures, which may include the following and/or other measures, shall be incorporated into the building's design:

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	✓	✓
✓ = measure applies - = measure does not apply			

- Use non-reflective tinted glass.
- Use window films to make windows visible to birds from the outside.
- Use external surfaces/designs that break up reflective surfaces.
- Place bird attractants, such as bird feeders and baths, at least three feet and preferably 30 feet or more from windows in order to reduce collision mortality.

- A report of the design measures considered and adopted shall be provided to the City of Brisbane Planning Department for review and approval prior to construction. The City of Brisbane Planning Department shall ensure that building design related measures to reduce the risk of bird collisions have been incorporated to the extent practicable.

Impact on Breeding Birds

Although the existing high ambient levels of noise and disturbance at the Project Site likely preclude nesting activities for many special-status birds, potential nesting habitat occurs on or adjacent to the Project Site. Limited nesting habitat for northern harrier occurs in the marshes at the southern end of Brisbane Lagoon. Red-tailed hawks, red-shouldered hawks, and great horned owls could use larger eucalyptus trees located along the western perimeter of the site as well as on Icehouse Hill for nesting. Common passerine species such as house finches, white-crowned sparrows, and Anna's hummingbirds might also utilize shrub habitats within the site, which would be lost as part of site construction. The western portion of the Project Site is subject to lower ongoing noise levels due to the greater distance from US Highway 101 and the attenuation of noise levels associated with the highway.

Increased noise and activity resulting from remediation activities or development construction, were it to exceed ambient levels, could cause nest abandonment and death of young or loss of reproductive potential at active nests in the Project Site. In addition, while some trees may be retained during implementation of the Project, grading and removal of trees or other vegetation would result in direct losses of nests, eggs, or nestlings, if present.

Conclusion: Such impacts on breeding birds, including special-status birds, would be significant. **Mitigation Measure 4.C-4f** is recommended to reduce the impact to a less-than-significant level. **Mitigation Measure 4.A-4a** in Section 4.A, *Aesthetics*, of this EIR applies specific guidelines that address lighting of the night sky and the reduction of nighttime lighting effects.

Mitigation

Mitigation Measure 4.C-4f: Prior to tree removal, trimming of trees or shrubs or soil disturbance for site grading, a survey of suitable nesting habitat shall be conducted by a avian biologist familiar with Bay Area species and habitats to map the location of vegetation that could support avian species. If ground-disturbing activities or vegetation removal are proposed during the breeding bird season (January 1 through September 15), to avoid direct losses of nests, eggs, and nestlings and indirect impacts on avian breeding success, a qualified avian biologist shall survey active sites for nesting raptors and passerine birds not more than 14 days prior to the ground-disturbing activity or vegetation removal. Surveys shall include all trees in line-of-sight and within 500 feet of construction for raptors, and all vegetation (including bare ground within 250 feet) for all other species. If active nests are found, tree removal or tree trimming and construction activities, including soil disturbance, construction noise, increased human

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	✓	✓
✓ = measure applies - = measure does not apply			

presence, would be halted and the nest would be monitored by a qualified biologist who shall verify when the nestlings have fledged and left the nest.

Conclusion with Mitigation: Implementation of **Mitigation Measure 4.C-d** would reduce or avoid impacts on breeding birds by limiting construction activities within the general avian breeding season. With implementation of this mitigation measure, significant environmental effects on breeding birds would be reduced to less-than-significant levels.

Impact on Roosting Bats

Bats may roost in abandoned or underused buildings, as well as trees, and may use such structures or larger eucalyptus trees located north of Icehouse Hill and along Bayshore Boulevard as nurseries or winter hibernacula. Several special-status bat species, including pallid bat, Townsend's Pacific big-eared bat, long-eared myotis, fringed myotis, hoary bat, and Yuma myotis, could potentially roost and breed in eucalyptus trees or vacant buildings within the Project Site.

Landfill reclamation and subsequent development activities resulting in the demolition of abandoned or underused buildings or tree removal within the western portion of the Project Site would adversely affect special-status bat species. Construction activities could destroy maternity roosts were they to be located in large trees or abandoned buildings and thereby adversely affect reproductive success. Construction could likewise adversely affect winter hibernacula.[8] Finally, tree removal and building demolition could result in the direct mortality of special-status bats if present.

Conclusion: This impact would be significant. **Mitigation Measure 4.C-4g** is recommended to reduce the impact to a less-than-significant level.

Mitigation

Mitigation Measure 4.C-4g: Applicants for site specific development projects pursuant to an approved specific plan within the Project Site shall take the following measures to avoid direct mortality of roosting special-status bats and disturbance of maternity roosts or winter hibernacula:

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	✓	✓
✓ = measure applies - = measure does not apply			

- A bat biologist familiar with Bay Area species shall conduct surveys of all potential bat habitat, including areas suitable for maternity roosts and/or winter hibernacula within a site proposed for development prior to initiation of construction activities, including initial grading. Surveys shall be conducted within one year prior to construction to capture current bat habitats at the site, as presence of bats could vary yearly and survey results several years before impacts occur could be inaccurate. Potentially suitable habitat shall be located visually. Bat emergence counts shall be made at dusk as the bats depart from any suitable habitat. In addition, an acoustic detector shall be used to determine any areas of bat activity. At least four nighttime emergence counts shall be undertaken on nights that are warm enough for bats to be active. The bat

[8] A location where wildlife can become dormant for some period of time, that provides refuge and cover.

biologist shall determine the type of each active roost (i.e., maternity, winter hibernacula, day or night).

- Removal or trimming of trees or demolition of buildings showing evidence of bat activity shall occur during the period least likely to affect the bats as determined by a qualified bat biologist (generally between February 15 and October 15 for winter hibernacula and between August 15 and April 15 for maternity roosts). If active day or night (non-maternity) roosts are found, the bat biologist shall take action to allow individual bats to depart prior to tree removal or building demolition.
- During construction, a no-disturbance buffer shall be created around active bat roosts being used for maternity or hibernation purposes at a distance to be determined in consultation with CDFW. Bat roosts initiated during construction are presumed to be unaffected, and no buffer is necessary.

Conclusion with Mitigation: With the implementation of **Mitigation Measure 4C-4g,** significant impacts on roosting bats under each of the four proposed development scenarios would be reduced to a less-than-significant level.

Overall Conclusion

For the reasons discussed above, implementation of **Mitigation Measures 4.C-1a, 4.C-1b, 4.C-1c, 4.C-1d, 4.C-1e, 4.C-1f, 4.C-1g, 4.C-4a, 4.C-4b, 4.C-4c, 4.C-4d, 4.C-4e, 4.C-4f** and **4.C-4g** would reduce the significant impacts resulting from Project Site Development on wildlife corridors, movement of wildlife species, and active nursery sites to less-than-significant levels.

Impact 4.C-5: Would the Project result in impacts on trees protected by the City of Brisbane Tree Ordinance?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
LTS	LTS	LTS	LTS

SU = Significant Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = no impact

DSP, DSP-V, CPP, and CPP-V

Implementation of Project Site development has the potential to result in the removal of trees protected under the City's Tree Ordinance. Unauthorized tree removal (i.e., without authorization under a development approval or a permit from the City) would be considered a significant impact, since such removal would frustrate the purposes of the City's Tree Ordinance which include protecting native tree species, maintaining trees planted as conditions of development approval, protecting against erosion, land instability and flooding. Performance standards for all scenarios would include compliance with the City's Tree Ordinance and replacement of impacted trees with at least a 1:1 ratio.

Conclusion: Project Site development would be required to comply with the City's Tree Ordinance. Tree removals would be authorized and conditioned through development approvals and/or tree removal permits, and would not conflict with local plans or policies. This impact would be less than significant and no mitigation is required.

Impact 4.C-6: Would the Project conflict with any adopted habitat conservation plans or natural community conservation plans?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
LTS	LTS	LTS	LTS

SU = Significant Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = no impact

DSP, DSP-V, CPP, and CPP-V

There are no adopted habitat conservation plans, natural community conservation plans, or other approved local, regional, or state habitat conservation plans that apply to the Project Site. The SBMHCP extends from San Bruno Mountain west of the site to Bayshore Boulevard, and does not extend east of Bayshore Boulevard into the Baylands. Icehouse Hill is east of Bayshore Boulevard and thus is not included in the SBMHCP. However, the Project Site is immediately north of several management units of the SBMHCP, and Icehouse Hill is known to support *Viola pedunculata*, the larval host plant for the callippe silverspot butterfly, which is a species of concern under the SBMHCP. Icehouse Hill may also support larval host plants for the Mission blue butterfly, which is also an endangered species addressed in the SBMHCP. Because Icehouse Hill is planned as open space under Project Site development, conflicts with the SBMHCP are not anticipated to occur (see also discussion and mitigation measures relating to endangered butterflies under Impact 4.C-1 above).

Conclusion: While the Project is not required to comply with the SBMHCP, Icehouse Hill would remain as open space, and therefore development would not conflict with the SBMHCP. This impact is less than significant and no mitigation is required.

TABLE 4.C-1
SPECIAL-STATUS SPECIES POTENTIALLY OCCURRING WITHIN THE PROJECT SITE

Common Name *Scientific Name*	Listing Status USFWS/ CDFW/CNPS[a]	General Habitat	Potential for Species Occurrence Within Project Site	Period of Identification
SPECIES LISTED OR PROPOSED FOR LISTING				
Animals				
Invertebrates				
San Bruno elfin butterfly *Callophrys mossii bayensis*	FE/--	Inhabits rocky outcrops and cliffs on north-facing, often shady slopes in coastal scrub and relatively undisturbed grasslands. Larval host plant is *Sedum spathulifolium*.	**Low.** Host plant not observed to date and not expected to occur on Project Site due to lack of suitable habitat. Species occurs on San Bruno Mountain.	February–April
Bay checkerspot butterfly *Euphydras editha bayensis*	FT/--	Restricted to native grasslands on outcrops of serpentine, with dwarf plantain and owl's clover as host plants.	**Low.** No suitable habitat. Project Site. Critical habitat is located on San Bruno Mountain but not within Project Site.	February–May
Mission blue butterfly *Plebejus icarioides missionensis*	FE/--	Coastal scrub and grassland habitat. Requires *Lupinus albifrons, L. variicolor*, *or L. formosus* as larval host plant.	**Moderate.** One unidentified lupine species,(i.e. *Lupinus* sp. not keyed to the species level) was observed on Icehouse Hill during ESA's 2011 reconnaissance site visit, and multiple occurrences of mission blue butterfly are documented on lands within 0.25 mile west of the Project Site and on San Bruno Mountain.	March–July
Callippe silverspot butterfly *Speyeria callippe callippe*	FE/--	Occurs in grasslands with a native component. Host plant is *Viola pedunculata.*	**High.** Host plant is present on Icehouse Hill where grasses are grazed by horses, and individual plants show signs of insect herbivory. Multiple occurrences are documented on lands within 0.25 mile of the Project Site and on San Bruno Mountain.	May–July
Myrtle's silverspot butterfly *Speyeria zerene myrtleae*	FE/--	Coastal dune and coastal prairie habitat. Larval food plant is *Viola adunca*.	**Low.** Dune habitat is not present. Type locality is given as "San Mateo County," but no location is given**.** Historic reference.	June–September
Fish				
Central California coast steelhead *Oncorhynchus mykiss*	FT/CSC	Spawns and rears in coastal streams between the Russian River and Aptos Creek, as well as drainages tributary to San Francisco Bay, where gravelly substrate and shaded riparian habitat occur.	**Moderate.** No spawning habitat available, but may occasionally stray into Brisbane Lagoon or Visitacion Creek. Juveniles are known to spend time in San Francisco Bay.	Year-round
Green sturgeon *Acipenser medirostris*	FT/--	Spawns in upper Sacramento River, adults feed in Delta. Uncommon in Central Bay.	**Low.** No spawning habitat within Project Area. Uncommon in Central Bay based on CDFW trawling data. Unlikely within Brisbane Lagoon or in near shore areas of Bay.	

TABLE 4.C-1 (Continued)
SPECIAL-STATUS SPECIES POTENTIALLY OCCURRING WITHIN THE PROJECT SITE

Common Name *Scientific Name*	Listing Status USFWS/ CDFW/CNPS[a]	General Habitat	Potential for Species Occurrence Within Project Site	Period of Identification
SPECIES LISTED OR PROPOSED FOR LISTING (cont.)				
Animals (cont.)				
Fish (cont.)				
Sacramento winter-run Chinook salmon *Oncorhynchus tshawytscha*	FE/CE	Spawns and rears in Sacramento River and tributaries where gravelly substrate and shaded riparian habitat occur.	**Moderate.** Migrates through San Francisco Estuary. May occasionally stray into Brisbane Lagoon or Visitacion Creek, but no spawning habitat present.	Year-round
Central Valley spring-run Chinook salmon *Oncorhynchus tshawytscha*	FT/CT	Spawns and rears in Sacramento River and tributaries where gravelly substrate and shaded riparian habitat occur.	**Moderate.** Migrates through San Francisco Estuary. May occasionally stray into Brisbane Lagoon or Visitacion Creek for brief stay. No spawning habitat present.	Year-round
Longfin Smelt *Spirinchus thaleichthys*	--/CT	Occurs in freshwater section of lower Delta between Carquinez Straight and Delta. Also in San Francisco bay but move to Delta for spawning.	**Low.** Spawning habitat absent from tributaries to Brisbane Lagoon. No historic presence in lagoon. Larvae are pelagic so low potential for transient presence in Central Bay.	
Amphibians				
California red-legged frog *Rana draytonii*	FT/CSC	Breeds in stock ponds, pools, and slow-moving streams.	**Low.** Aquatic habitat exists in freshwater wetlands in the old railyard, in the Roundhouse wetland and the westernmost drainage and associated wetlands; however, these wetlands are contaminated with hazardous materials that are potentially damaging to amphibians. Extant upstream populations are absent on San Bruno Mountain, and habitat fragmentation that would prevent access to the Project Site from other potentially suitable habitat; extant populations (Lake Merced and San Francisco Airport, both six miles away.),	May–August
Reptiles				
San Francisco garter snake *Thamnophis sirtalis tetrataenia*	FE/CE/CFP	Most often observed in the vicinity of standing water; ponds, lakes, marshes, and sloughs. Temporary ponds and seasonal bodies of water are also used. Banks with emergent and bankside vegetation are preferred and used for cover.	**Low.** Marginally suitable habitat exists west of the Project Site. However, lack of habitat historically on the Project Site, distance from extant documented populations (Pacifica and San Francisco Airport, seven and six miles away, respectively), absence of extant upstream populations on San Bruno Mountain make the likelihood of occurrence extremely low.	March–November

TABLE 4.C-1 (Continued)
SPECIAL-STATUS SPECIES POTENTIALLY OCCURRING WITHIN THE PROJECT SITE

Common Name *Scientific Name*	Listing Status USFWS/ CDFW/CNPS[a]	General Habitat	Potential for Species Occurrence Within Project Site	Period of Identification
SPECIES LISTED OR PROPOSED FOR LISTING (cont.)				
Animals (cont.)				
Birds				
Western snowy plover *Charadrius alexandrinus nivosus*	FT/CSC	Sandy coastal beaches, salt pans, coastal dredged spoils sites, dry salt ponds, salt pond levees, and gravel bars. Nests in sandy substrate and forages in sandy marine and estuarine bodies.	**Low.** Marginal (small in area) nesting habitat on shell beach at southern end of Brisbane Lagoon on Project Site. Potential foraging habitat along tidal areas of San Francisco Bay. No documented nesting. Nearest nesting occurs in Monterrey Bay.	Year-round
California black rail *Laterallus jamaicensis coturniculus*	--/CT/CFP	Salt marshes along large bays, also freshwater marshes.	**Low.** Marginally suitable habitat present. Not expected to inhabit smaller marshes in proximity to urban uses (PRBO, 2002). Nearest population locations south of San Francisco Airport (greater than five miles away).	Year-round
California brown pelican *Pelecanus occidentalis californicus*	DL/CFP	Nests on protected islets near freshwater lakes.	**Low.** No suitable nesting habitat present. May forage in bay adjacent to Project Site and in Brisbane Lagoon on Project Site where project activities are limited to trails so not likely to impact foraging habitat for the species.	May–July
California clapper rail *Rallus longirostrus obsoletus*	FE/CE/CFP	Salt-water and brackish marshes with tidal sloughs.	**Low.** Marginally suitable breeding and foraging habitat present. However, not detected during recent protocol-level surveys (ISP, 2010).	Year-round
Bank swallow *Riparia riparia*	--/CT	Largely found in riparian ecosystems, particularly rivers in the larger lowland valleys of northern California. Nesting colonies are located in vertical banks or bluffs in friable soils.	**Low.** No banks suitable for nesting colonies exist within the Project Site	March-August
California least tern *Sternula antillarum browni*	FE/--	Feeds in relatively shallow, near-shore waters, coastal freshwater ponds, channels, and lakes occupied by small fish. Colonial nesters on sand, gravel, or shell beaches where visibility is good.	**Observed.** Noted foraging at Brisbane Lagoon on Project Site, but potential for breeding is low due to lack of suitable habitat. Nearest extant breeding colony in San Francisco Bay is located at the former Alameda Naval Air Station greater than five miles away to the east across San Francisco Bay.	April–August
Mammals				
Salt marsh harvest mouse *Reithrodontomys raviventris*	FE/CP	Dense pickleweed marsh habitat with adjacent to uplands vegetated with salt tolerant vegetation for escape during high tides.	**None.** Tidal marsh in the Project Site is small in size, confined, and has no connectivity to larger-sized habitat. Project Site has abrupt transitions to rocky shoreline and uplands with lack of suitable refuge vegetation during high tides.	Resident

TABLE 4.C-1 (Continued)
SPECIAL-STATUS SPECIES POTENTIALLY OCCURRING WITHIN THE PROJECT SITE

Common Name *Scientific Name*	Listing Status USFWS/ CDFW/CNPS[a]	General Habitat	Potential for Species Occurrence Within Project Site	Period of Identification
SPECIES LISTED OR PROPOSED FOR LISTING (cont.)				
Plants				
Franciscan manzanita *Arctostaphylos franciscana*	FE/--/1B.1	Coastal scrub on serpentine soils.	**Low.** Only one plant (not located on the Project Site) believed to exist in the wild. No serpentine soils present on the Project Site. Project Site not within critical habitat proposed for the species.	February–April
San Bruno Mountain manzanita *Arctostaphylos imbricata*	--/CE/1B.1	Restricted to chaparral and coastal scrub habitats on San Bruno Mountain.	**Low.** No chaparral present on the Project Site. No manzanita observed in coastal scrub on the Project Site.	February–May
Presidio manzanita *Arctostaphylos montana* ssp. *ravenii*	FE/CE/1B.1	Chaparral, coastal prairie, and serpentinite outcrops of coastal scrub.	**Low.** No chaparral or serpentinite outcrops present on the Project Site. No manzanita observed in coastal scrub on the Project Site.	February–March
Pacific Manzanita *Arctostaphylos pacifica*	--/CE/1B.2	Chaparral, coastal scrub	**Low.** No manzanita observed in coastal scrub on the Project Site.	February-April
Robust spineflower *Chorizanthe robusta* var. *robusta*	FE/--/1B.1	Sandy or gravelly soils in coastal scrub, cismontane woodland, or coastal dunes.	**Low.** Although coastal scrub is present on Icehouse Hill, a dense understory of grasses is present that likely precludes establishment of this annual species.	April-September
Beach layia *Layia carnosa*	FE/C/1B.1	Occurs in openings in coastal sand dunes ranging in elevation from 0-100 feet, where it colonizes sparsely vegetated, semi-stabilized dunes and areas of recent wind erosion.	**Low.** Coastal dune habitat does not exist on the Project Site and this species is not expected to be found based on lack of suitable habitat.	March-July
San Francisco lessingia *Lessingia germanorum*	FE/CE/1B.1	Remnant dunes in coastal scrub.	**Low.** Although coastal scrub is present on the Project Site, there is no evidence of remnant dune habitat.	(June) August–November
White-rayed pentachaeta *Pentachaeta bellidiflora*	FE/CE/1B.1	Grasslands, usually dry rocky or grassy slopes with serpentine soils.	**Low.** Limited grasslands provide only marginal habitat. Serpentine soils not present within the Project Site.	March–May
Showy 66ancheria clover *Trifolium amoenum*	FE/--/1B.1	Coastal bluff scrub, valley and foothill grassland, sometimes on serpentinite.	**Low.** Limited grasslands provide only marginal habitat. Serpentine soils not present within the Project Site.	April-June
OTHER SPECIAL-STATUS SPECIES				
Animals				
Invertebrates				
Incredible harvestman *Banksula incredula*	--/*	Known only at San Bruno Mountain.	**Low.** Restricted to type locality on San Bruno Mountain.	Year-round
Tomales isopod *Caecidotea tomalensis*	--/*	Localized freshwater ponds or streams with still or near-still water.	**Low.** Nearest occurrences are from Pacifica, approximately 5 miles away from Project Site. Little information is available for this species.	Year-round

TABLE 4.C-1 (Continued)
SPECIAL-STATUS SPECIES POTENTIALLY OCCURRING WITHIN THE PROJECT SITE

Common Name *Scientific Name*	Listing Status USFWS/ CDFW/CNPS[a]	General Habitat	Potential for Species Occurrence Within Project Site	Period of Identification
OTHER SPECIAL-STATUS SPECIES (cont.)				
Animals (cont.)				
Invertebrates (cont.)				
Sandy beach tiger beetle *Cicindela hirticollis gravida*	--/*	California coastlines in clean, light-colored sand above wave action; larvae prefer moist sand.	**Low.** Nearest records in San Francisco are historical (1906, 1922) and have since been extirpated.	Year-round
Stage's durfourine bee *Dufourea stagei*	--/*	San Bruno Mountain.	**Low.** Little information exists regarding this species; only known from San Bruno Mountain.	Year-round
Leech's skyline diving beetle *Hydroporus leechi*	--/*	Sag ponds on the San Francisco peninsula.	**Low.** Only known occurrences are from Pacifica, approximately 5 miles away from Project Site. Little information is available for this species.	Year-round
San Francisco forktail damselfly *Ischnura gemina*	--/*	Sag ponds on the San Francisco peninsula.	**Low.** Only known occurrences are from Pacifica, approximately 5 miles away from Project Site. Little information is available for this species.	Year-round
Bumblebee scarab beetle *Lichnanthe ursina*	--/*	Coastal sand dunes, typically flying close to sand surface near the crest of the dunes.	**Low.** No sand dune habitat is present in the vicinity of the Project Site.	Year-round
Reptiles				
Western pond turtle *Emys marmorata*	--/CSC	Freshwater ponds and slow streams edged with sandy soils for laying eggs.	**Low.** Freshwater aquatic habitat at the Project Site is not large enough to support this species.	Year-round
Fish				
Pacific herring *Clupea pallasii*	CDFW-regulated fishery	San Francisco Bay has been a major spawning ground for species. Preferred spawning substrate is eelgrass (which was not observed onsite) and algae, but the species will also use pier pilings, riprap, and other rigid, smooth structures within Bay waters. Recent spawning areas include Oyster Point and Hunters Point.	**Low.** Aquatic habitat in Brisbane Lagoon is marginal for this species. Spawns in large schools that are unlikely to move from bay to lagoon through culverts.	November–March
Hardhead *Mylopharodo concephalus*	--/CSC	Clear, deep pools with sand, gravel, or boulder bottoms and slow water velocity.	**Low.** Freshwater habitats on the Project Site are small and isolated without rocky substrate; nearest occurrence is from Lake Merced, a much larger water body more than 3 miles west of the Project Site.	Year-round
Central Valley fall/late fall-run Chinook salmon *Oncorhynchus tshawytscha*	--/CSC	Spawns and rears in Sacramento River and tributaries where gravelly substrate and shaded riparian habitat occur.	**Moderate.** Migrates through San Francisco Bay. May occasionally stray into Brisbane Lagoon or Visitacion Creek, but no spawning habitat available.	Year-round

TABLE 4.C-1 (Continued)
SPECIAL-STATUS SPECIES POTENTIALLY OCCURRING WITHIN THE PROJECT SITE

Common Name *Scientific Name*	Listing Status USFWS/ CDFW/CNPS[a]	General Habitat	Potential for Species Occurrence Within Project Site	Period of Identification
OTHER SPECIAL-STATUS SPECIES (cont.)				
Animals (cont.)				
Birds				
Cooper's hawk *Accipiter cooperi*	--/CSC	Nests in conifers or deciduous stands near riparian areas; also nests in urban areas near riparian corridors.	**Low.** Suitable nesting habitat occurs in larger eucalyptus within the Project Site. However, species is closely tied to riparian corridors, which are lacking at the Project Site.	March–August
White-tailed kite *Elanus leucurus*	--/CP	Forages in grasslands and ruderal habitats. Nests in small to large size trees in riparian or savanna and can use trees in various grasslands. Can nest and forage in ruderal and agricultural settings.	**Moderate.** Trees surrounding edges of Project Site are suitable for nesting. Foraging habitat is present across ruderal and grassland habitat within Project Site.	Resident
Sharp-shinned hawk *Accipiter striatus*	--/CSC	Nests in forest canopy.	**Low.** Do not generally breed in the region. May winter in the area.	Winter
Great egret *Ardea alba*	--/* Rookeries only	Nests colonially in groves of trees. Rookery sites located near marshes, tide-flats, irrigated pastures, and margins of rivers and lakes.	**Low.** Potential nesting habitat is not available on the site and rookerie formation is unlikely. Individual birds likely to forage in wetland habitat and at Brisbane Lagoon. Large eucalyptus are present at margins of Project Site representing potential nesting locations, but high levels of disturbance preclude nesting activity. No rookeries were observed or are recorded in the immediate vicinity.	Year-round
Great blue heron *Ardea herodias*	--/* Rookeries only	Nests colonially in groves of trees. Rookery sites located near marshes, tide-flats, irrigated pastures, and margins of rivers and lakes.	**Low.** Potential nesting habitat is not available on the site and rookerie formation is unlikely. Individual birds have been observed foraging in the former landfill portion of the Project Site. Large eucalyptus at margins of Project Site represent potential nesting sites, but high levels of disturbance preclude nesting activity. No rookeries were observed or are recorded in the immediate vicinity.	Year-round
Short-eared owl *Asio flammeus*	--/CSC	Nests in fresh and salt marshes with tules or tall grasses, in depression on ground concealed by vegetation.	**Low.** Potentially suitable foraging habitat present in marshes at northern end of Project Site. Not expected to nest in the region.	Winter
Great horned owl *Bubo virginianus*	--/3503.5	Often uses abandoned nests of corvids or squirrels; nests in large oaks, conifers, eucalyptus.	**Moderate.** Suitable nesting habitat occurs in mature eucalyptus within the Project Site.	Year-round

TABLE 4.C-1 (Continued)
SPECIAL-STATUS SPECIES POTENTIALLY OCCURRING WITHIN THE PROJECT SITE

Common Name *Scientific Name*	Listing Status USFWS/ CDFW/CNPS[a]	General Habitat	Potential for Species Occurrence Within Project Site	Period of Identification
OTHER SPECIAL-STATUS SPECIES (cont.)				
Animals (cont.)				
Birds (cont.)				
Red-shouldered hawk *Buteo lineatus*	--/3503.5	Usually nests in large trees, often in woodland or riparian deciduous habitats. Forages over open grasslands and woodlands.	**Observed.** Suitable nesting habitat occurs in mature eucalyptus within the Project Site.	Year-round
Red-tailed hawk *Buteo jamaicensis*	--/3503.5	Usually nests in large trees, often in woodland or riparian deciduous habitats.	**Observed.** Suitable nesting habitat occurs in mature eucalyptus within the Project Site. Observed foraging over the Project Site and roosting in eucalyptus along Bayshore Boulevard.	Year-round
Northern harrier *Circus cyaneus*	--/CSC	Mostly nests in emergent vegetation, wet meadows, or near rivers and lakes, but may nest in grasslands away from water.	**Moderate.** Potentially suitable nesting and foraging habitat present at Project Site.	Year-round
American kestrel *Falco sparverius*	--/3503.5	Nests in cavities in large trees near open areas.	**Observed**. Forages over the Project Site. May nest in cavities of mature eucalyptus within the Project Site.	Year-round
Salt-marsh common yellowthroat *Geothlypis trichas sinuosa*	--/CSC	Emergent wetlands.	**Moderate.** Resident of San Francisco Bay region salt and freshwater marshes. Small and fragmented marsh size may reduce likelihood of presence.	Year-round
Alameda song sparrow *Melospiza melodia pusillula*	--/CSC	Salt marshes of Central San Francisco Bay.	**Moderate.** Suitable habitat present. Small and fragmented marsh size may reduce likelihood of presence.	Year-round
Double-crested cormorant *Phalacrocorax auritus*	--/CSC	Nests colonially on coastal cliffs, on offshore islands, and along lake margins.	**Low.** Foraging habitat available at Project Site but no suitable breeding habitat on site.	Year-round
Allen's hummingbird *Selasphorus sasin*	/* (AWLY)	Inhabits coastal scrub and a variety of woodlands and riparian habitat, as well as gardens in the urban-wildland interface.	**Moderate.** Suitable nesting and foraging habitat is present in coastal scrub on Icehouse Hill.	January–July
Barn owl *Tyto alba*	--/3503.5	Found in open and partly open habitats, especially grasslands. Nests in tree cavities or buildings.	**Observed.** Suitable nesting habitat in abandoned or underused buildings on the Project Site (WRA, 2003).	Year-round
Burrowing Owl *Athene cunicularia*	-/CSC	Found in open and partly open habitats, especially grasslands. Nests in small mammal burrows or manmade burrows.	**Low.** Suitable foraging habitat occurs within the non-native annual grassland and ruderal habitats across the project site. If burrows are present there is a potential for owls to occupy them and use site for foraging and breeding.	Year-round

TABLE 4.C-1 (Continued)
SPECIAL-STATUS SPECIES POTENTIALLY OCCURRING WITHIN THE PROJECT SITE

Common Name *Scientific Name*	Listing Status USFWS/ CDFW/CNPS[a]	General Habitat	Potential for Species Occurrence Within Project Site	Period of Identification
OTHER SPECIAL-STATUS SPECIES (cont.)				
Animals (cont.)				
Mammals				
Pallid bat *Antrozous pallidus*	--/CSC/WBWG-HP	Occurs in various habitats including rocky arid deserts and canyon lands, shrub-steppe grasslands, and higher-elevation forests. Roosts include rocky outcrops and cliffs, caves, mines, trees, and various human structures.	**Moderate.** Potential roosting habitat is available in eucalyptus trees and crevices in the Roundhouse building. Good foraging habitat is available throughout the Project Site.	March–August
Townsend's Pacific big-eared bat *Corynorhinus townsendii townsendii*	--/CSC/WBWG-HP	Inhabits a variety of habitats; requires caves or human-made structures for roosting.	**Moderate.** Potential roosting habitat is available in eucalyptus and crevices in the Roundhouse building. Good foraging habitat is available throughout the Project Site.	April–August
Hoary bat *Lasiurus cinereus*	--/*/WBWG-MP	Prefers open habitats or habitat mosaics; roosts in dense foliage of medium to large trees.	**Moderate.** Potential roosting habitat is available in larger landscape trees and eucalyptus on the Project Site. Good foraging habitat is available throughout the Project Site.	April–August
Long-eared myotis *Myotis evotis*	--/*/WBWG-MP	Inhabits woodlands and forests; roosts in crevices and snags.	**Moderate.** Potential roosting habitat is available in eucalyptus and crevices in the Roundhouse building. Good foraging habitat is available throughout the Project Site.	April–August
Fringed myotis *Myotis thysanodes*	--/*/WBWG-HP	Inhabits a variety of woodland habitats, roosts in crevices or caves, and forages over water and open habitats.	**Moderate.** Potential roosting habitat is available in eucalyptus and crevices in the Roundhouse building. Good foraging habitat is available throughout the Project Site.	April–August
Yuma myotis *Myotis yumanensis*	--/CSC	Open forests and woodlands below 8,000 feet in close association with water bodies.	**Moderate.** Potential roosting habitat is available in eucalyptus and crevices in the Roundhouse building. Good foraging habitat is available throughout the Project Site.	March–August
Harbor seal *Phoca vitulina richardsi*	MMPA/--	Only permanent resident marine mammal in San Francisco Bay. Haul-out sites are used for pupping and are primarily located in the north, central and south bay. Uses deep water for foraging and feeds primarily on fish.	**Low.** Potential for foraging in offshore waters, but no suitable haul-out sites exist on Project Site.	Year-round

TABLE 4.C-1 (Continued)
SPECIAL-STATUS SPECIES POTENTIALLY OCCURRING WITHIN THE PROJECT SITE

Common Name *Scientific Name*	Listing Status USFWS/ CDFW/CNPS[a]	General Habitat	Potential for Species Occurrence Within Project Site	Period of Identification
OTHER SPECIAL-STATUS SPECIES (cont.)				
Animals (cont.)				
Mammals (cont.)				
California sea lion *Zalophus californianus*	MMPA/--	Occurs along west coast from Vancouver to Gulf of California. In San Francisco Bay, uses deep waters and haul-out sites at Pier 39, Angel Island, and Seal Rock.	**Low.** Presence in bay tied to that of Pacific herring. No breeding or pupping known to occur within the estuary. No suitable haul-out sites present on Project Site.	Year-round
Plants				
Bent-flowered fiddleneck *Amsinckia lunaris*	--/--/1B.2	Coastal bluff scrub, valley and foothill grassland.	**Moderate.** Potential habitat exists on Icehouse Hill. Documented from San Bruno Mountain (CDFW, 2013).	March–June
Montara manzanita *Arctostaphylos montaraensis*	--/--/1B.2	Maritime chaparral, coastal scrub.	**Low.** Nearby occurrences are on steep slopes associated with Montara Mountain and San Bruno Mountain; no similar habitat exists within the Project Site.	January–March
Alkalil milk vetch *Astragalus tener* var. *tener*	--/--/1B.2	Adobe clay soils in valley and foothill grassland.	**Low.** Adobe clay soils not present on the Project Site. Believed extirpated from the United States Geological Survey San Francisco South quadrangle.	March–June
Bristly sedge *Carex comosa*	--/--/2.1	Coastal prairie, marshes and swamps, valley and foothill grasslands.	**Moderate.** Nearest CNDDB occurrence is historical and potentially extirpated, but potential habitat is present in freshwater wetlands in the former railyard area.	
Pappose tarplant *Centromadia parryi* ssp. *parryi*	--/--/1B.2	Vernally mesic, often alkaline microhabitats in valley and foothill grassland, coastal salt marsh, meadows and seeps, coastal prairie.	**Low.** Suitable habitat exists throughout Project Site. However, the only location documented on the San Francisco peninsula is historical and near Mussel Beach. Would likely have been identified during site wetland delineation and other site assessments.	May–November
San Francisco Bay spineflower *Chorizanthe cuspidata* var. *cuspidata*	--/--/1B.2	Sandy soils in coastal bluff scrub, coastal dunes, coastal prairie, or coastal scrub.	**Low.** Value of suitable habitat on Icehouse Hill is reduced by density of understory grasses.	April–July
Franciscan thistle *Cirsium andrewsii*	--/--/1B.2	Mesic and sometime serpentine-derived soils in coastal bluff scrub, coastal scrub, and coastal prairie.	**Low.** Potentially suitable habitat occurs on Icehouse Hill. However, known primarily from coast and only one historical collection from San Francisco South quad.	March–July
Compact cobwebby thistle *Cirsium occidentale* var. *compactum*	--/--/1B.2	Coastal dunes, scrub, and prairie.	**Low.** Potentially suitable habitat occurs on Icehouse Hill. However, known primarily from coast and only one historical collection from San Francisco South quad.	April–June

TABLE 4.C-1 (Continued)
SPECIAL-STATUS SPECIES POTENTIALLY OCCURRING WITHIN THE PROJECT SITE

Common Name *Scientific Name*	Listing Status USFWS/ CDFW/CNPS[a]	General Habitat	Potential for Species Occurrence Within Project Site	Period of Identification
OTHER SPECIAL-STATUS SPECIES (cont.)				
Plants (cont.)				
San Francisco collinsia *Collinsia multicolor*	--/--/1B.2	Sometimes on serpentine soils in coastal scrub.	**Moderate.** May occur in coastal scrub habitat on Icehouse Hill. Occurs on nearby Bayview Hill and on San Bruno Mountain (Wood, 1996). No serpentine soils occur on Project Site.	March–May
Fragrant fritillary *Fritillaria liliacea*	FSC/--/1B.2	Coastal prairie and scrub, grasslands, often on serpentine soils.	**Low.** Serpentine soils are not present on Project Site. Scrub habitat is generally not open enough and grasslands are of marginal suitability for this species.	February–April
Dune gilia *Gilia capitata* ssp. *chamissonis*	--/--/1B.1	Coastal dunes and coastal scrub.	**Low.** No dune habitat present on Project Site; even quality coastal scrub understory dense with grasses and not conducive to persistence of herbaceous annuals.	April–June
San Francisco Gumplant *Grindelia hiristuta var. maritima*	--/--/3.2	Near or above high tide line of tidal marsh surrounding San Francisco Bay. Occurs among pickleweed, and typical salt marsh halophytes.	**High.** *Grindelia* sp. observed around Brisbane Lagoon in appropriate habitat. Not collected or keyed during reconnaissance level surveys.	June-September
Diablo helianthella *Helianthella castanea*	--/--/1B.2	Broadleaved upland forest, chaparral, cismontane woodland, coastal scrub, riparian woodland, valley and foothill grassland.	**Low.** Limited suitable habitat present on Project Site. Not observed.	March–June
Seaside tarplant *Hemizonia congesta* ssp. *congesta*	--/--/1B.2	Valley and foothill grasslands, sometimes along roadsides.	**Low.** Records in the CNDD) are historical and the species has likely been extirpated.	April–November
Short-leaved evax *Hesperevax sparsiflora* var. *brevifolia*	--/--/1B.2	Sandy soils in coastal bluff scrub.	**Low.** Species would have difficulty competing with dense, grassy coastal scrub understory. Only a small amount of quality habitat available on Icehouse Hill on Project Site. Not observed.	March–June
Kellog's horkelila *Horkelia cuneata* var. *sericea*	--/--/1B.1	Sandy or gravelly openings in coastal scrub.	**Low.** Only a small amount of suitable habitat present on Icehouse Hill within Project Site. Not observed.	April–September
Rose leptosiphon *Leptosiphon rosaceus*	--/--/1B.1	Coastal bluff scrub.	**Low.** While coastal scrub occurs on Icehouse Hill, no coastal bluffs exist within the Project Site, and other occurrences of this species are found on bluffs adjacent to the Pacific Ocean. Not observed.	April–July
Arcuate bush-mallow *Malacothamnus arcuatus*	--/--/1B.2	Chaparral, cismontane woodlands.	**Low.** Colonies previously found in hills of the Coast Range west of the Project Site. Chaparral habitat is not present on the Project Site.	April–September

TABLE 4.C-1 (Continued)
SPECIAL-STATUS SPECIES POTENTIALLY OCCURRING WITHIN THE PROJECT SITE

Common Name *Scientific Name*	Listing Status USFWS/ CDFW/CNPS[a]	General Habitat	Potential for Species Occurrence Within Project Site	Period of Identification
OTHER SPECIAL-STATUS SPECIES (cont.)				
Plants				
Choris' popcorn-flower *Plagiobothrys chorisianus* var. *chorisianus*	--/--/1B.2	Mesic areas in coastal prairie, coastal scrub, and chaparral.	**Moderate.** Potential habitat exists on Icehouse Hill. Recorded from Visitacion Valley historically. Not observed.	March–June
Adobe sanicle *Sanicula maritima*	--/--/1B.1	Chaparral, coastal prairie, meadows and seeps, valley and foothill grasslands.	**Low.** Only known occurrence from Potrero Hill in San Francisco is likely extirpated.	February–May
San Francisco campion *Silene verecunda* ssp. *verecunda*	--/--/1B.2	Sandy soils in valley and foothill grassland, coastal scrub, and chaparral.	**Moderate.** Suitable habitat exists on Icehouse Hill. Occurs on San Bruno Mountain. Not observed.	March–June
San Francisco owl's clover *Triphysaria floribunda*	--/--/1B.2	Usually on serpentine-derived soils in coastal prairie, coastal scrub, or valley and foothill grassland.	**Low.** Only a small area of moderate quality grassland habitat is present on the Project Site. No serpentine soils are present. Not observed.	April–June
California triquetrella *Triquetrella californica*	--/--/1B.2	Coastal bluff scrub and coastal scrub.	**Low.** Coastal scrub understory on Icehouse Hill generally too dense with grasses, small patch sizes for suitable habitat.	December–March

[a] STATUS CODES

Federal (U.S. Fish and Wildlife Service [USFWS]):

FE = Listed as Endangered (in danger of extinction) by the federal government.
FT = Listed as Threatened (likely to become Endangered within the foreseeable future) by the federal government.
FP = Proposed for Listing as Endangered or Threatened.
FC = Candidate to become a *proposed* species.
DL = Delisted (no longer considered threatened or endangered due to recovery of the species).
MMPA = Marine Mammal Protection Act

State (California Department of Fish and Game [CDFW]):

CE = Listed as Endangered by the State of California.
CT = Listed as Threatened by the State of California.
CFP = Listed as Fully Protected by the State of California.
CR = Listed as Rare by the State of California (plants only).
CSC = California Species of Special Concern.
3503.5 = Protection for nesting species of Falconiformes (hawks) and Strigiformes (owls).
*Special animal—listed on CDFW's Special Animals List.

California Rare Plant Rank (CRPR):

Rank 1A= Plants presumed extinct in California.
Rank 1B = Plants rare, Threatened, or Endangered in California and elsewhere.
Rank 2 = Plants rare, Threatened, or Endangered in California but more common elsewhere.

An extension reflecting the level of threat to each species is appended to each rarity category as follows:

.1 – Seriously endangered in California.
.2 – Fairly endangered in California.
.3 – Not very endangered in California.

Audubon Watch List (AWL):

AWLR = Red List; species that are declining rapidly, have very small populations or limited ranges, and face major conservation threats. These typically are species of global conservation concern.
AWLY = Yellow List; species that are also declining but at a slower rate than those in the red category. These typically are species of national conservation concern.

Western Bat Working Group (WBWG):

HP = High conservation priority; species are imperiled or at high risk of imperilment.
MP = Medium conservation priority; a lack of information regarding the status of the species constitutes a threat, and conservation actions are warranted.

SOURCE: CDFW, 2013; CNPS, 2013; Leidy et al., 2003; USFWS, 2013.

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4.D Cultural Resources

4.D.1 Introduction

This section describes existing cultural resources within the Project Site and vicinity and analyzes the impacts of the Project Site development on significant cultural resources. Cultural resources include historic architectural resources, prehistoric- and historic-period archaeological resources, paleontological resources, and human remains. Feasible mitigation measures are identified as necessary to minimize significant impacts.

4.D.2 Environmental Setting

Ethnographic Setting

Prior to Euro-American contact, the Bay Area was occupied by the Ohlone (also known by their linguistic group, Costanoan). Politically, the Ohlone were organized into groups referred to as tribelets. A tribelet constituted a sovereign entity that held a defined territory and exercised control over its resources. It was also a unit of linguistic and ethnic differentiation.

The Ohlone economy was based on fishing, gathering, and hunting, with the local land and waters providing a diversity of resources, including acorns, various seeds, salmon, deer, rabbits, insects, and quail. The acorn was the most important dietary staple of the Ohlone, and the acorns were ground to produce a meal that was leached to remove the bitter tannin. The Ohlone crafted tule balsa, basketry, lithics (stone tools) such as mortars and metates (a mortar-like flat bowl used for grinding grain), and household utensils. The Ohlone, like many other Native American groups in the Bay Area, likely lived in conical tule thatch houses.

During the Mission Period (1770–1835), native populations, especially along the California coast, were brought—usually by force—to the missions by the Spanish missionaries to provide labor. The missionization caused the Ohlone people to experience cataclysmic changes in almost all areas of their life, including a massive decline in population due to introduced diseases and declining birth rate. Following the secularization of the missions by the Mexican government in the 1830s, most Native Americans gradually left the missions to work as manual laborers on the ranchos that were established in the surrounding areas.

Archaeological Setting

Regional Chronology

The natural marshland biotic communities along the edges of bays and channels were the principal source of food for human subsistence as well as other activities from the middle Holocene until the arrival of Euroamericans in the San Francisco Bay region. Efforts to reconstruct prehistoric times into broad cultural stages (e.g., Early Period, Middle Period) allow researchers to describe a wide number of sites with similar cultural patterns and components during a given period of time, thereby creating a regional chronology.

Many of the original surveys of archaeological sites in the Bay region were conducted between 1906 and 1908 by N.C. Nelson and yielded the initial documentation of nearly 425 "earth mounds and shell heaps" along the littoral zone of the Bay (Nelson, 1909). From these beginnings, the most notable sites in the Bay region were excavated, such as the Emeryville shellmound (Ala-309), the Ellis Landing Site (CCo-295) in Richmond, and the Fernandez Site (CCo-259) in Rodeo Valley (Moratto, 1984). These dense midden sites (referred to as shellmounds) are vast accumulations of domestic debris, which were carbon 14 dated to be ±2300 B.C. Other evidence from around the Bay suggests that human occupation in the region is of greater antiquity, or ±5000 B.C. (Jones, 1992). While there are many interpretations of the function of the shellmounds, much of the evidence suggests that they served as sociopolitical landmarks on the cultural landscape and perhaps as ceremonial features as well.

In the San Francisco Bay Area, the Early Period, or the so-called "Berkeley Pattern," is characterized by almost exclusive use of cobble mortars and pestles, which is often associated with a heavy reliance on acorns in the economy (Moratto, 1984). This unusually intensive reliance on one foodstuff indicates that a shift away from the earlier reliance on a broad spectrum of dietary sources to supply demand was needed by around 1000 BP (Before Present). The Late Pleistocene/Early Holocene profusion of food availability along lakeshores and estuaries likely led to an overexploitation of the resources, which initially resulted in population increases but may also have forced inhabitants to rely on a readily available yet lower-ranked resource like acorns or seeds (Jones, 1991). Nevertheless, given the burgeoning size of Early Period settlements, it is probable that the populations were denser and more sedentary, yet continued to exploit a diverse resource base—from woodland, grassland, and marshland to bayshore resources throughout the San Francisco Bay Area (King, 1974). Many of the Berkeley Pattern traits diffused throughout the region and spread to the interior areas of Central California during this time period.

The population increases and larger, more complex settlements that began in the late-Early Period typify the Middle Period (circa 500 BC–AD 1000) (Arnold et al., 2004). The sociopolitical landscape also appears to have become more elaborate, with clear differentiations in wealth and evidence of personal aggrandizement. During the Late Period (circa AD 1000–1700), however, the record indicates that new sites started to decline and the large shellmounds were abandoned. The Late Period also showed population declines and associated changes in resource use—likely due to human-caused depletions in some terrestrial food sources during the Middle Period (Broughton, 1994).

Prehistoric Landscape and Recorded Sites in the Project Site Vicinity

According to both historical ecological research and late-19th century United States Geological Survey (USGS) maps, the edges of the Bay near present-day Brisbane were tidal wetland and bay waters during the prehistoric period (or throughout most of the Holocene or the past 10,000 years) (SFEI, EcoAtlas, 1999). As a result, the margins of the tidally influenced areas were likely attractive locations for food procurement and processing during this period. The area surrounding Visitacion Point appears to have been a watershed with small beach features and riparian woodlands. A large midden site with burials (site designation P-41-000496) was identified near

the United States Postal Service Annex just west of Bayshore Boulevard (Jones & Stokes, 2000). This site lies about 600 feet west of the Project Site. Another site, CA-SMA-92, was identified about 3,000 feet south of the Project Site near Bayshore Boulevard and was characterized as a small shell midden (Avina, 1999).

Icehouse Hill, located in the southwestern portion of the Project Site, rises to approximately 200 feet with steep cuts adjacent to the existing railroad tracks and along Bayshore Boulevard. This is the only portion of the Project Site with potentially native soils overlying bedrock. No previously documented archaeological resources have been identified at this location. Ground disturbance on the western and eastern banks as well as at the hilltop have disturbed the historic ground surface.

No previously identified prehistoric sites occur within the Project Site. Many of the known archaeological resources identified in Brisbane (e.g., CA-SMA-30, CA-SMA-234, CA-SMA-88) are west of Bayshore Boulevard, which corresponds with historical reconstructions of the Bay water levels and tidally influenced areas. Prehistoric settlements would more likely have occurred in locations upland from areas subject to tidal inundation or flood. Except for Icehouse Hill as discussed above, the Project Site was in Bay waters or tidal wetlands during the prehistoric period up to the early 20th century and would not likely contain any prehistoric deposits. Artificial fill deposits characterize virtually all of the landscape east of Bayshore Boulevard and within the Project Site (see discussion below). As such, these soils are not anticipated to contain significant prehistoric resource deposits. A records search of sacred lands did not indicate the presence of Native American cultural resources on the Project Site or in the immediate vicinity (NAHC, 2007).

Paleontological Setting

Paleontological resources are fossilized evidence of past life found in the geologic record. Despite the prodigious volume of sedimentary rock deposits preserved worldwide and the enormous number of organisms that have lived through time, preservation of plant or animal remains as fossils is an extremely rare occurrence. Because of the infrequency of fossil preservation, fossils (particularly vertebrate fossils) are considered to be nonrenewable resources. Because of their rarity and the scientific information they can provide, fossils are highly significant records of ancient life. Paleontological resource localities are sites where the fossilized remains of extinct animals and/or plants have been preserved.

Sedimentary rock formations that yield significant vertebrate or invertebrate fossil remains are considered to possess paleontological sensitivity. Significant paleontological resources can be found anywhere within the geographic extent of sedimentary rocks formations. However, neither the artificial fill material nor the underlying bay mud deposits that comprises the Project Site would contain significant paleontological deposits.

A search of the University of California Museum of Paleontology found no recorded paleontological resources located on the Project Site or in the immediate vicinity (UCMP, 2012). Vertebrate fossils in San Mateo County were limited to sedimentary rock formations of

Pleistocene and Tertiary age (i.e., bedrock formations), particularly along the Pacific coastline and inland stream-banks (UCMP, 2012). The artificial fill material within the Project Site would not contain significant paleontological deposits or unique geologic features, nor would such deposits be contained in the new layers of fill that would be used during Project Site grading efforts. The younger Bay Mud that underlies the artificial fill is not considered a unique geologic feature and is not sensitive for paleontological resources because of its young age and lack of consolidation. The likelihood that previously unknown or unrecorded paleontological resources would be encountered is remote, even through older bay mud deposits that underlie the artificial fill and younger bay muds, may be old enough to have fossilized the remains of ancient organisms.

Historic Setting

Non-native representation in the San Francisco Bay Area dates back to the Spanish exploration of the region in 1769. Early Spanish involvement throughout California centered on missionary and military interests set on securing Spain's territories. Mission San Francisco de Asis, also known as Mission Dolores, was established in 1776, and local native people were taken in as laborers for the mission. Spanish control of the area lasted until 1821 when the newly independent Mexican government took control of California and distributed the newly secularized land holdings as land grants to various individuals.

Brisbane is part of the area that encompassed the 9,594 acres granted to Jacob Lesse in 1841 in the *Rancho Canada de Guadalupe la Visitacion y Rodeo Viejo* Mexican land grant. In 1843, Lesse traded his grant to Robert Ridley, and in 1884 Charles Crocker bought the land, christening it Visitacion Ranch. Following the 1906 San Francisco earthquake, real estate entrepreneurs attempting to develop the area and named their new town the City of Visitacion, but lack of funding for necessary civil services halted plans for a developed town. Instead, the area was inhabited by a small population of rural families during the first quarter of the 20th century (Oral History Associates, 1986).

It was in 1929 that the community adopted the name "Brisbane" and experienced its first major growth phase. Throughout the 1930s, the residential area boomed due to its affordability, with 400 homes built between 1929 and 1933. By 1940, the town had grown to nearly 2,500 inhabitants, from a population of 28 in 1929. The City of Brisbane incorporated in 1961 and the Baylands area was annexed into the City in 1962 (Oral History Associates, 1986).

The Project Site is located on filled land reclaimed from tidal marshlands along San Francisco Bay. Bayshore Boulevard traces the approximate path of the original Bay shoreline. In the early 1900s, the Southern Pacific Railroad (SPRR) constructed railroad tracks across the Bay. After the 1906 San Francisco earthquake, the area west of the rail corridor was filled in primarily with demolition rubble.

The area east of the rail corridor was used as a municipal landfill site beginning in the 1930s. Starting from the north, dumping continued southward until it was finally stopped in the 1960s at the edge of what is now Brisbane Lagoon. The construction of US Highway 101 in the mid-1950s

established the easternmost boundary of the Bay fill. The Brisbane Landfill site encompasses an area of approximately 364 acres and is bounded by the Union Pacific/Joint Powers Board railroad corridor (Caltrain tracks) to the west, US Highway 101 to the east, and Brisbane Lagoon to the south. After the landfill operation was discontinued in 1967, a soil cover approximately 20 to 30 feet deep was placed over the site. Since the 1940s, a variety of uses, including the existing lumberyards and warehouse buildings, has developed atop the oldest part of the landfill (see discussion below).

Historic-period Archaeological Sites in the Project Area

As described in the Section 4.E, *Geology, Soils, and Seismicity*, of this EIR, the Project Site was originally part of San Francisco Bay. The area was transformed into its present-day condition through progressive infilling of tidal marshlands and the resultant eastern advancement of the shoreline to its present location east of US Highway 101. Following the 1906 San Francisco earthquake, the area west of the SPPR railroad corridor was filled in, primarily with demolition rubble. In the area east of the tracks, Bay infilling continued up through the mid-1950s, further extending the shoreline to the east (see Figure 4.E-1). Purposeful fill, that is fill that is derived offsite and deliberately dumped to raise the land surface, is "usually not very informative, except inasmuch as it marks transitions in land use" (Meyer et al., 2007). While purposeful fill may contain large quantities of artifacts, they can only serve as a baseline for comparison with artifact deposits associated with individual households or businesses. Offsite derived purposeful fill lacks integrity of location, feeling, and association. Therefore, per the standards set forth in Section 15064.5 of CEQA Guidelines, artificial fill associated with the 1906 earthquake on the Project Site is not likely to yield important information in history, nor does it contain information needed to answer important scientific research questions, and is therefore not considered a historical resource or a unique archaeological resource for the purpose of CEQA.

One known recorded historic-period archaeological site (CA-SMA-378H) is located on the southwestern portion of the Project Site near the North County Fire Authority fire station at 3445 Bayshore Boulevard. This artifact scatter contains glass fragments and other refuse from the late 19th and early 20th centuries and does not have significant data potential (Leach-Palm and Byrd, 2005). Per the standards set forth in CEQA Section 21083.2(g), the resource (1) does not contain information needed to answer important scientific research questions, (2) does not have a special and particular quality, and (3) is not associated with a recognized important historic event or person. Therefore, because CA-SMA-378H is not likely to yield important information in history nor does it contain information needed to answer important scientific research questions, it is not considered a historical resource or a unique archaeological resource for the purpose of CEQA.

Lumberyard Development

By the mid-1940s, the eastern portion of the Project Site had housed various industrial and commercial interests. The Gamerston & Green Lumber Company, Mars Metal Company, and Jones Hardwood Plywood Company are referenced on the 1946 Southern Pacific station plan of the Bayshore freight yard (Southern Pacific, 1950). Van Arsdale Lumber, now Van Arsdale-Harris Lumber Company, appears for the first time on the 1962 Southern Pacific Bayshore-

Visitacion station plan. Sierra Point Lumber and Plywood Company, immediately south of Van Arsdale Lumber, appears to have been constructed more recently (circa 1965-1970). Based on a review of historic maps of the area and professional judgment, none of the existing contemporary buildings located in either lumberyard appear to be 50 years old, and archival research and a field survey yielded no indication that any of these structures would be considered historically or architecturally significant (per federal and state criteria for listing, which are defined in Subsection 4.D.3, *Regulatory Setting*). **Figure 4.D-1** and **Figure 4.D-2** are contemporary photos of the Van Arsdale-Harris Lumber and Sierra Point Lumber buildings, respectively.

Railroad Development

The western portion of the Project Site is primarily associated with early-20th century railroad development. The San Francisco & San Jose Railroad (SF&SJRR) Company incorporated in 1861, and the railroad connecting the two cities was completed in 1864. SPRR bought out the SF&SJRR in 1868, around the same time that the owners of the Central Pacific Railroad, the "Big Four"—Leland Stanford, Collis Huntington, Charles Crocker, and Mark Hopkins—purchased the SPRR. The SF&SJRR was consolidated into the new SPRR in October 1870. The railroad expanded the agricultural economy of California and led to more innovative ways of shipping and preserving food supplies, such as transporting fruit and meat in refrigerator cars developed in 1880.

Rail Line Improvements

By 1890, rail traffic from San Francisco to San Jose had increased to four trains daily to San Jose and points beyond, as well as three trains to Menlo Park and back each day. E. H. Harriman became president of the SPRR in 1901 and initiated extensive improvements to the rail line, including the construction of the Bayshore Cutoff in 1904. A new level route that more closely followed the Bayshore was needed between San Bruno and San Francisco to eliminate the steep grade through Bernal Cut. In October 1904, construction of the Bayshore Cutoff began, and the work was done under the name of Bayshore Railway, a SPRR-held company. This line was one of the most expensive segments of railroad that had been built up to that time, costing almost a million dollars per mile for its 9.81 miles between San Francisco and San Bruno.

The construction of this line was a difficult undertaking, as 20 percent of the route consisted of tunnels. The cut at Visitacion Point, some 95 feet in depth, required removal of 750,000 cubic yards of material, which was used to fill in the inlet known as Visitacion Bay, north of the cut. Harriman directed his engineers to take the project several steps further than what earlier railroad planners had originally envisioned, as he was planning for future growth of the San Francisco Bay Area. The entire line was constructed with two main tracks, although it was designed to accommodate up to four tracks throughout the entire line, with the exception of four of the five tunnels. The line, which officially opened for service on December 8, 1907, shortened the distance between San Bruno and San Francisco by four miles and eliminated Bernal Cut as a mainline, saving 17 minutes for commuters heading from San Jose to San Francisco.

Brisbane Baylands . 206069

SOURCE: ESA, 2007

Figure 4.D-1
Van Arsdale-Harris Lumber Company

Brisbane Baylands . 206069

SOURCE: ESA, 2007

Figure 4.D-2
Sierra Point Lumber and Plywood Company

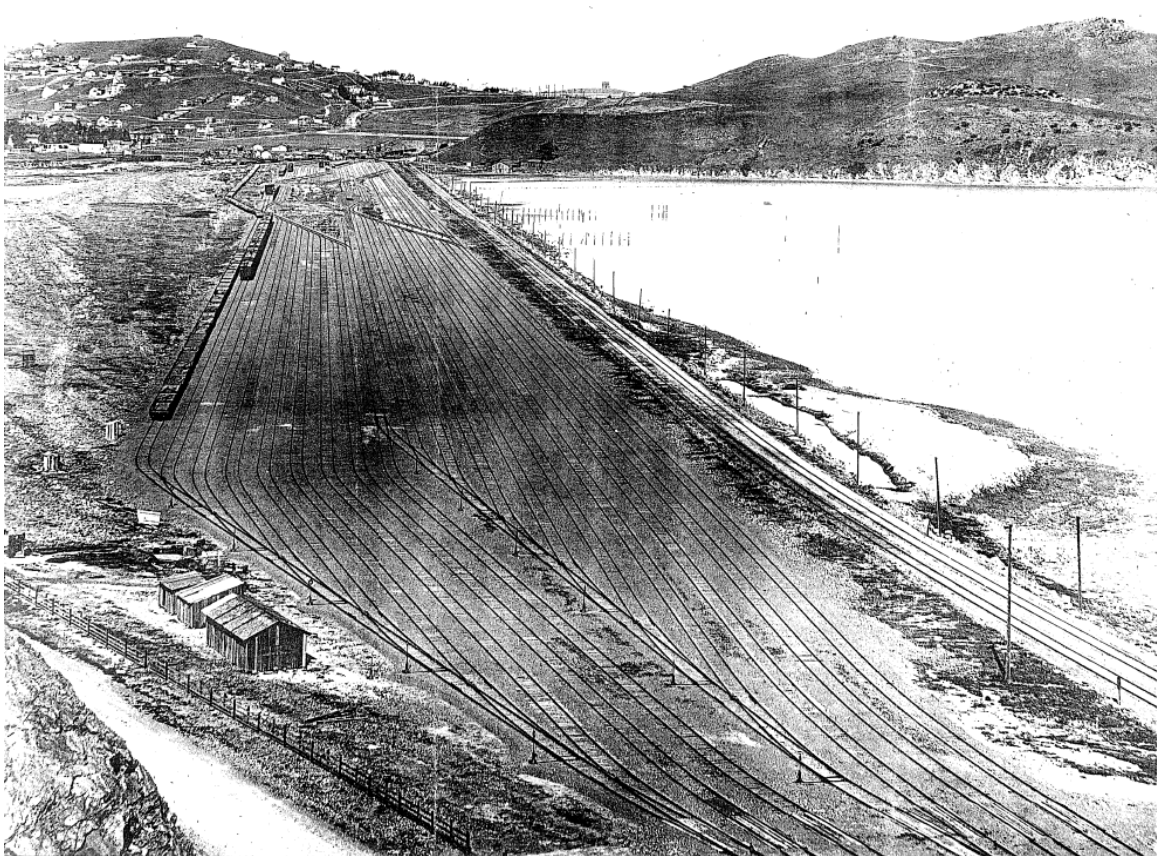
Building Construction

As part of the Bayshore Cutoff project, a modern freight terminal designed to replace the old machine shops at 16th and Harrison Streets and the car repair and roundhouse facilities at Mariposa Street on the old line in San Francisco was constructed on some 200 acres of fill at Visitacion Bay (see **Figure 4.D-3**). The new "Bayshore Yard," some 8,400 feet long, included a roundhouse, machine and car shops, and a hump,[1] the second hump to be built on the West Coast. The Roundhouse at the Bayshore Yard was built circa 1907[2] to service freight locomotives. The former Tank and Boiler Shop at the Bayshore Yard was built in 1920 to maintain and repair the iron boilers on the steam locomotives (Southern Pacific, 1920). Locomotives would originate from the Roundhouse, leaving from one of the rear doorways located in the northwestern portion of this building, stop at a transfer pit where the locomotive would slide horizontally, and align with one of approximately 15 tracks leading into the large, brick Machine and Erecting Building located approximately 300 feet north of the Tank and Boiler Shop. From there, the approximately 6,000-pound boilers would be hoisted off the locomotive(s) by an overhead gantry crane, placed on smaller rail cars, and transferred to the Tank and Boiler Shop through one of eight tracks leading into the building. In the Boiler Shop, the boiler's internal flues would be dismantled and washed to eliminate the scale and mineral build-up that would accumulate on them and reduce their efficiency (Hart, 2007). The nearby transfer pit, the hump, and the Machine and Erecting Building no longer exist. The former Tank and Boiler Shop operated until the 1950s, and in 1963 it was leased to the Lazzari Fuel Company for use as a charcoal warehouse, a use that continues today. It appears likely that one of the only reasons this building was not demolished with the majority of the other railyard buildings is that it had been leased to a tenant, and therefore generated income, for the last 48 years.

The Visitacion Ice Manufacturing Plant, located at the southern end of the railroad yard, was constructed in 1924 as a Pacific Fruit Express Ice Manufacturing Plant to supply ice to the trains of the Pacific Fruit Exchange going in and out of San Francisco. The plant had a 90-ton daily production capacity and 2,300 tons of storage capacity, as well as an island platform of 10 car lengths for loading and unloading ice onto waiting trains when it was in use. The plant at Visitacion was constructed to replace the retired San Francisco-Mission Bay Ice Transfer Plant and served the Bay Peninsula north of Santa Clara. It was constructed using the standard layout plan and design for a Pacific Fruit Exchange ice manufacturing plant. The Visitacion Ice Manufacturing Plant was in operation between 1924 and 1955, coinciding with the heyday of steam locomotion and train transport of California agriculture. Ice manufacturing plants were central aspects of the support system necessary for the shipment of perishable produce. Refrigeration with ice allowed for transportation of perishable goods beyond the local market and was very important to the development of California as an agricultural supplier throughout the continent (Thompson, 1992). The building was discontinued as an ice plant in 1955 and was bought by the Market Street Van & Storage Company by 1962. It currently houses Machinery & Equipment, Inc.

1 A railroad "hump" is an artificially built hill that uses the force of gravity to propel the cars through the various switches in order to arrange them into various trains without having to use switch engines to guide the cars into place. The hump at Bayshore is no longer extant.

2 The Roundhouse first appears on a 1915 USGS Map, San Francisco and Vicinity. Earlier maps of the vicinity from 1905 identify the SPRR tracks across Visitacion Bay, but no other structures. As such, a "circa" date of 1907 is given for the construction of the Roundhouse.



Brisbane Baylands . 206069

SOURCE: Collection of Ralph Domenici, sanfranciscotrains.org

Figure 4.D-3
Bayshore Railroad Yard at Visitacion Bay
View from Bayshore Point, February 24, 1911

By 1950, approximately 75 other railroad maintenance shops and smaller structures had been constructed along the western edge of the railroad yard and clustered along Bayshore Boulevard. These buildings included a machine shop, a powerhouse, a coach repair shop, a freight car repair shop, a lumber shed, a storage shed, loading platforms, a tower at the north end of the yard, and thousands of linear feet of rail spurs. A station plan from 1950 identifies the Bayshore Yard and many of its associated structures, including the Roundhouse (see **Appendix F.5**).

By 1954, the SPRR had nearly completed the change from steam-powered locomotives to diesel power. In May 1954, heavy repair of steam locomotives ceased at the Bayshore Yard and its shops were closed. Following its official closing, the Bayshore Yard remained busy for several years dismantling the now-defunct steam engines, and the yard became the major classification yard[3] for the San Francisco Terminal. Upon arriving at Bayshore, freight trains had their cars switched into smaller segments, or "cuts," destined to various industrial areas. From the Bayshore Yard, switch engines hauled the cuts of cars to the small yard in South San Francisco and to the Mission Bay yard at 16th and Bryant Streets in downtown San Francisco. After dropping off

[3] A "classification yard" is a type of railroad freight yard used to separate railroad cars onto one of several tracks.

these inbound cars, engines would return to the Bayshore Yard with cuts of outbound cars that would eventually be made up into outbound trains.

Use of the freight yard ceased in the 1960s, and the yard was predominantly idle at the time of its purchase in the late 1980s by Tuntex, now Universal Paragon Corporation. Caltrain took over the Union Pacific rail line in the 1980s, and by 1989 nearly all of the railroad spur tracks and numerous other maintenance shops and smaller support structures had been removed. The remaining railroad-related structures are described below. Please also see Figure 3-5 in Chapter 3, *Project Description*, which graphically depicts the development of the former rail yard site from 1915 to 1995.

Remaining Railroad-Related Structures

The only structures left standing today from the SPRR steam train era are the brick Roundhouse, the former Tank and Boiler Shop (currently Lazzari Fuel Company), and the former Visitacion Ice Manufacturing Plant (currently Machine & Equipment, Inc.). These buildings are described below.

Roundhouse. Designed by the SPRR and constructed circa 1907, the Roundhouse is a classic example of a railroad roundhouse, despite being significantly damaged by fire in recent years (see **Figure 4.D-4**).

Brisbane Baylands . 206069

SOURCE: ESA, 2007

Figure 4.D-4
The Roundhouse

Built out of brick and heavy timber construction, the building's semi-circular plan reflects its function as a railroad roundhouse built to service the steam-powered locomotives of the day. Surrounding roughly 120 degrees of the pond that once contained the circular railroad turntable, the building consists of a curving shed wrapped on its exterior by a brick facade. The Roundhouse was built approximately 100 feet from the center of the turntable (no longer extant). The structure has a low-pitched roof with overhanging eaves and a continuous roof monitor and ventilators along the ridge to allow heat, smoke, and steam to escape. On either end of the curved building, as well as at the building's center point, is a stepped brick parapet.[4] The building is approximately 24 feet tall at the roof's apex, tapering to about 18 feet at the lowest point. The brick facade is at least 18 inches thick, with arched openings consisting of five rows of soldier-course brickwork.[5] The approximately seven-by-nine-foot windows with arched headers run the length of the outside walls of the Roundhouse. The extant windows consist of wood framing with vertically proportioned small panes of glass. Doors and gates were made of heavy timber with externally expressed bracing and framing. A series of wood lamp posts arranged in a row extending from the southern end of the Roundhouse demarcate the location of additional spur lines where repair and maintenance of railroad engines also occurred. The western half of the building is severely fire-damaged, with portions of its roof missing, charred timbers, and missing or broken window frames. This abandoned building also shows evidence of vandalism and graffiti, despite the chainlink fencing that encircles the building.

Lazzari Charcoal Building (Former Southern Pacific Tank and Boiler Shop). Originally used to maintain and repair the boilers on steam locomotives, the Lazzari Charcoal Building, which currently houses the Lazzari Fuel Company and is referred to as the "Lazzari Fuel Company building" elsewhere in this EIR, is located about 150 feet northwest of the Roundhouse (see **Figure 4.D-5**).

The building is a rectangular shed structure with a low-pitched roof overhanging eaves and a monitor roof[6] along the ridge. This industrial building was designed by the SPRR and constructed in 1920. The wood post-and-beam framed building is about 180 feet long by 100 feet wide and about 60 feet tall to the peak of the roof. The building has a monitor roof form with an upper-level clerestory to allow light to penetrate the interior of the structure. Windows on the northern and southern walls consist of vertically proportioned casement windows with small panes of glass set near to the building's skin. Nearly all the windows and doorways on the lower elevations have been boarded up, and many window panes located along the building's upper clerestory are broken or missing. The external cladding is corrugated metal siding with two large industrial shed doors on the southern wall. The interior of the building consists of exposed wood trusses and posts and the remains of steel I-beams that supported a 30-ton traveling gantry crane used for locomotive repair. The crane and internal tracks are no longer extant.

4 A "parapet" refers to a low wall along the edge of a roof.
5 "Soldier-course brickwork" refers to bricks laid vertically with the narrow side exposed.
6 A "monitor roof" refers to a roof with a raised extension above a ridge, typically constructed to provide light and ventilation to the room below.

Brisbane Baylands . 206069

SOURCE: ESA, 2007

Figure 4.D-5
Lazzari Charcoal Building
(Former Southern Pacific Tank and Boiler Shop)

Machinery & Equipment Building (Former SPRR Ice Manufacturing Plant). Constructed in 1924, this L-shaped brick building consists of three sections: two storage areas in the two-story square northern portion and the single-story rectangular southern section that was used as the tank and compressor room (see **Figure 4.D-6**). This building is surrounded by, but not a part of, the 733-acre Project Site.

There were also two satellite buildings associated with the ice manufacturing plant: the condenser building, which has been heavily modified and now houses the Machinery & Equipment, Inc. administrative offices; and the blacksmith shop now used for storage. The main rail line that served the ice manufacturing plant still exists and is located immediately east of the property boundary. The associated rail spur used by the ice manufacturing plant is still present but it is no longer attached to the main line and is covered by concrete. The island platform for loading and unloading of ice onto waiting trains is also no longer extant. The building now provides storage space for the Machinery & Equipment, Inc.

The main building is a hollow and pressed brick structure with wooden beams supporting the two-story portion and steel trusses supporting the single-story section. The exterior brick piers occur approximately every 15 feet, are about two feet wide, and project at least 18 inches from the main facade. The second-story portion of the building has a yellow brick cornice with

Brisbane Baylands . 206069

SOURCE: ESA, 2007

Figure 4.D-6
Machinery & Equipment Building
(Former SPRR Ice Manufacturing Plant)

decorative brick detailing and cast stone parapet caps. Along the southern portion of the building, these piers frame large rectangular windows made up of small panes of glass. The building's interior is still covered with the cork insulation that was installed during its use as an ice manufacturing plant and has undergone only minimal structural alteration.

Other Buildings. Other buildings in the southwestern portion of the Project Site that are not directly associated with the former use as a SPRR railyard include a number of warehouses along Industrial Way and parallel to Bayshore Boulevard, immediately south of the Roundhouse. There are approximately 12 single-story, corrugated steel industrial warehouses, most of which appear to have been constructed within the last 30 to 40 years. This area once contained the Moore Building, a large, brick-clad, concrete-framed multi-storied factory building typical of early-20th-century industrial architecture. This building was demolished in 1997. The 1950 railyard plan indicates that the Moore Building and other buildings in this area were owned by Consolidated Chemical Industries, a fertilizer company. Aside from the Moore Building, this area included about eight other industrial buildings: a fertilizer plant, a warehouse, a mill, a powerhouse, bone shed and bone storage, a glue works, and a hide and glue plant.[7] All of these previous uses appear to have been replaced by newer steel industrial warehouses, with the exception of the former

[7] These buildings were likely used to manufacture glue and fertilizer from the bones of deceased cattle, possibly originating from the Cow Palace, about one mile northwest of this location (Bruce, 2007).

"bone storage" building, a two-story concrete warehouse that appears to have been constructed circa 1945 and is located at the southwest end of Industrial Way. Current uses in this area include auto repair shops and warehouses for film prop rentals.

Recology

The 44.2-acre Recology site straddles the Brisbane/San Francisco boundary between US Highway 101 and Tunnel Avenue. The facility provides landfill diversion and resource recovery services to residential, commercial, and municipal customers in San Francisco.

Following the 1906 San Francisco earthquake, several garbage collection companies began to form to remove the vast volume of construction debris, bringing a semblance of organization to the collection trade in San Francisco. By the early 1920s, two major refuse companies had emerged: Scavenger's Protective Association and Sunset Scavenger Company. In 1921, San Francisco began regulating the scavenger service and by the mid-1930s began setting rates and requiring permits for operation. In 1935, the city's two collection companies formed Sanitary Fill Company (today known as Recology San Francisco), the first of a number of jointly owned specialized subsidiaries. Sanitary Fill Company's charter was to develop disposal capacity for the increasingly large amount of refuse that was overwhelming San Francisco. Throughout the 1940s and 1950s, both San Francisco collection companies grew and expanded their services to keep pace with the city's growth. In 1965, as part of a modernization program, Scavenger's Protective Association changed its name to Golden Gate Disposal & Recycling Company. In 1983, Golden Gate Disposal & Recycling Company was reorganized as Norcal Solid Waste Systems, and in 2009, Norcal was rebranded as Recology San Francisco (Recology, 2013).

Although landfill operations began on the southernmost portions of the Recology site as early as 1915 (see Figure 3-5 in Chapter 3, *Project Description*, of this EIR), no buildings were constructed in the area until the early 1950s,when buildings were clustered primarily on the northeast corner of Beatty Avenue and Tunnel Avenue. The number and size of the facilities grew from the 1950s through the 1990s. Currently, there are approximately 20 existing buildings located on the site that contain administration, operations, and maintenance functions for the facility; about half of these buildings are located within the Brisbane city limits, while the other half are within San Francisco. These existing uses include 41,578 square feet of administrative buildings, 78,168 square feet of operations area, and 113,142 square feet of vehicle and container maintenance facilities.

While many of the Recology buildings date to the early 1950s and are therefore more than 50 years old, they are utilitarian in nature, consisting primarily of single-story warehouses clad in corrugated steel with steel sash windows and roll-up garage door bays. Based on a review of historic maps of the area, archival research, a reconnaissance-level windshield survey of the area, and professional judgment, there is no indication that any of the Recology structures would be considered historically or architecturally significant (per federal and state criteria for listing, which are defined in Subsection 4.D.3, *Regulatory Setting*).

Recorded Historic Resources on the Project Site and in the Vicinity

Recorded Historic Resources on the Project Site

The Conservation Element of the Brisbane General Plan identifies the former SPRR Roundhouse within the Project Site as an important cultural resource to the City (City of Brisbane, 1994b). A cultural resources background report prepared for the Brisbane General Plan (Report OS-1) identified the Roundhouse as an existing historical resource (City of Brisbane, 1994a). The Roundhouse was also listed in the National Register of Historic Places (NRHP) in March 2010 (NR #10000113). As a property listed in the NRHP, it was automatically listed in the California Register of Historical Resources (CRHR). Due to its federal, state, and local listing, the Roundhouse is considered to be a "historical resource" as defined by CEQA (CEQA Guidelines Section 15064.5(a)).

Recorded Historic Resources in the Project Site Vicinity

Recorded historic resources in the immediate vicinity of the Project Site (but not within the Project Site) include the 7 Mile House Sports Bar and Grill, located at 2800 Bayshore Boulevard; and the Bayshore/Crocker Tunnel, located west of the Project Site and approximately 450 feet northwest of the Machinery & Equipment building (former SPRR Ice Manufacturing Plant).

The 7 Mile House, identified by the City as a local historical resource (City of Brisbane, 1994a), is located across Bayshore Boulevard from the Project Site, near the intersection of Bayshore Boulevard and Geneva Avenue. In the mid-19th century, a number of "Mile Houses" were established between San Francisco and San Jose. A Mile House was a stagecoach stop where mail was delivered and where stagecoaches stopped to exchange and rest their horses. A Mile House was designated according to its distance from the stage terminus in downtown San Francisco; as the Mile Houses were built, they got their designations from the distance the stage had traveled. The 7 Mile House in Brisbane dates to between circa 1850 and 1875[8] and is located seven miles from the stage terminus on San Francisco's Embarcadero. This building is likely one of the last of its kind still in its original location. The building itself, however, appears to date to the 1920s with later additions, and continues to function as a bar and restaurant. As a property identified by the City as a local historical resource, the 7 Mile House is considered a historical resource for CEQA purposes.

Located immediately north of the Project Site within San Francisco is the former Schlage Lock factory site. The majority of the buildings on this site were demolished in 2009 except for the Schlage Lock Factory Building A (Old Office Building), located at 2201 Bayshore Boulevard and Blanken Avenue. This two-story, Spanish style office building constructed in 1926 was identified as individually eligible for listing in the California Register of Historic Resources as a result of a survey and evaluation of the property in 2008 in support of the Visitacion Valley Redevelopment

[8] An 1861 map of the City and County of San Francisco (Wackenreuder and Langley) from the David Rumsey Map Collection identifies a "6 Mile House – Cunningham" slightly north of today's 7 Mile House along the Bayshore route in Visitacion Valley, near today's Sunnydale Avenue. An 1869 U.S. Coast Survey Map of the San Francisco Peninsula identifies a number of buildings near the intersection of today's Bayshore Boulevard and Geneva Avenue, any one of which may have been the "7 Mile House."

EIR (Carey & Co., 2008 and San Francisco Redevelopment Agency, 2008), and therefore is considered a historical resource for CEQA purposes.

The Bayshore/Crocker Tunnel is a former SPRR tunnel located beneath Bayshore Boulevard that once connected the freight yard to today's Crocker Business Park with a single-track railroad spur. The tunnel was likely constructed in the early 20th century. The tunnel was identified by the City as a local historical resource (City of Brisbane, 1994a), and as such, it would be considered a historical resource for CEQA purposes.

Evaluation of Historical Significance

Buildings that were not previously recorded as historical resources, as well as the former freight yard as a whole, were evaluated for their potential historical significance by applying the federal and state criteria for listing, which are defined in Subsection 4.D.3, *Regulatory Setting*, below. **Table 4.D-1** shows whether these buildings are considered "historical resources" under the CEQA Guidelines definition.

TABLE 4.D-1
HISTORICAL SIGNIFICANCE OF RESOURCES WITHIN OR ADJACENT TO PROJECT SITE

Current Name / Description	Historic Name / Use	Eligibility
Roundhouse	Former Southern Pacific Roundhouse	Considered to be a "historical resource" as defined by CEQA Guidelines Section 15064.5(a).
Machinery & Equipment Building	Former SPRR Ice Manufacturing Plant	Considered to be a "historical resource" as defined by CEQA Guidelines Section 15064.5(a).
Lazzari Charcoal Building	Former Southern Pacific Tank and Boiler Shop	Not considered "historical resources" for purposes of CEQA Guidelines Section 15064.5(a).
Industrial Way warehouses	(not applicable)	Not considered "historical resources" for purposes of CEQA Guidelines Section 15064.5(a).
Lumberyard buildings	(not applicable)	Not considered "historical resources" for purposes of CEQA Guidelines Section 15064.5(a).
Freight Yard Cultural Landscape	Former Southern Pacific Freight Yard	Not considered a "historical resource" for purposes of CEQA Guidelines Section 15064.5(a).
Recology site	Landfill diversion and resource recovery services	Not considered a "historical resource" for purposes of CEQA Guidelines Section 15064.5(a).

SOURCE: ESA, 2012, 2013.

Although previously identified as a local historical resource within Report OS-1, the Machinery & Equipment building (former SPRR Ice Manufacturing Plant) was evaluated for its potential historical significance under federal and state criteria. The Lazzari Charcoal Building (former Southern Pacific Tank and Boiler Shop) was evaluated for its potential significance under federal

and state criteria. Other buildings that are located on the Project Site but are not associated with the railroad include the warehouses along Industrial Way and the lumberyard buildings in the northeastern portion of the site. Finally, the former freight yard as a whole was evaluated as a potential cultural landscape. All of these structures and the one landscape are described below.

Machinery & Equipment Building (Former SPRR Ice Manufacturing Plant)

The cultural resources background report (Report OS-1) prepared for the 1994 Brisbane General Plan identified the Machinery & Equipment building (former SPRR Ice Manufacturing Plant) as an existing historical resource (City of Brisbane, 1994a). As such, this building is considered to be a historic resource at the local level and a "historical resource" as defined by CEQA.

This building also was evaluated for its potential historical significance under federal and state criteria. The building may be historically significant under CRHR/NRHP criterion 1/A due to its historical associations with the SPRR's steam train era and the Pacific Fruit Express, the latter of which was central to the support system necessary for the shipment of perishable produce and, therefore, important to the development of California as an agricultural supplier. The building may also be historically significant under CRHR/NRHP criterion 1/C because it embodies the distinctive characteristics of a type, specifically, a 1920s-era Pacific Fruit Express Ice Manufacturing Plant, a building type that is exceedingly rare. Aside from the loss of the island platform and later adjacent additions, the building has maintained considerable physical integrity during its more than 85 years of use, and as such, this building may also be individually eligible for listing in the NRHP and CRHR.

Lazzari Charcoal Building (Former Southern Pacific Tank and Boiler Shop)

The Lazzari Charcoal Building, located about 150 feet north of the Roundhouse, is not listed in the NRHP, nor is it listed in Report OS-1 as a historic resource. The building also is not listed in the CRHR.

The Lazzari Charcoal Building has not been previously identified on any federal, state, or local registers of historical resources. This warehouse building, while historically associated with the SPRR, does not have sufficient historical or architectural significance to be considered individually eligible for listing under NRHP/CRHR criteria or as a City of Brisbane historical resource. Unlike the nearby Roundhouse or the former Ice Manufacturing Plant (see discussion below), the former Southern Pacific Tank and Boiler Shop was one of many shops that supported, but would not be considered individually integral to, the workings of the freight yard. The shed-style building is a more common industrial building style and does not reflect the distinctive characteristics of a type of architecture. Built of less durable materials such as wood and corrugated steel instead of brick, and somewhat altered since its use as a boiler shop for the SPRR, the building has fallen into a moderately dilapidated state.

The removal of the rail lines, the transfer pit, and the brick Machine and Erecting Building, as well as nearly all nearby associated features, has further reduced this building's historical setting and integrity. Due to a lack of strong historical associations and sufficient physical integrity, the

building does not meet the criteria for listing in the NRHP/CRHR. Therefore, although the structure has limited merit as a former SPRR shop building, it is not considered a "historical resource" for CEQA purposes.

Other Buildings on the Project Site

None of the other buildings on the Project Site, including Recology's facilities, the warehouses along Industrial Way, or the lumberyard buildings in the northeastern portion of the Project Site, qualify as historical architectural resources under NRHP/CRHR criteria. Archival research at local repositories, a review of historic maps and aerial photography, and a reconnaissance-level pedestrian survey did not reveal any structures with significant historical associations or structures of architectural merit. Given their relatively recent dates of construction (the majority constructed within the last 30 to 40 years) and their utilitarian/industrial style, it is unlikely that these buildings would become historical resources with future detailed surveys or evaluations. As such, these buildings are not considered "historical resources" for purposes of CEQA.

Former Southern Pacific Freight Yard as a Potential Cultural Landscape

The National Park Service, in the Guidelines for the Treatment of Cultural Landscapes, defines a "cultural landscape" as a geographic area (including both cultural and natural resources and the wildlife or domestic animals therein) associated with a historic event, activity, or person or exhibiting other cultural or aesthetic value. Under the Guidelines, there are four general types of cultural landscapes, not mutually exclusive: historic sites, historic designed landscapes, historic vernacular landscapes, and ethnographic landscapes. A historic site is a landscape considered significant for its association with a historic event or activity. This is the category under which the former SPRR freight yard (Bayshore Yard) is evaluated. The historic event or activity associated with the Bayshore Yard is the operation of the SPRR, which resulted in the substantial growth and development of the San Francisco Peninsula during the late 19th and early 20th centuries.

The former SPRR Bayshore Yard fails to maintain many of the key characteristics that would define it as a historic site and thus a cultural landscape. During its highest period of use, the nearly 200 acres of the Bayshore Yard were covered with railroad spurs, rail lines, and numerous shops for the service of steam freight locomotives. Presently, all that remains of the landscape are the Roundhouse, the Lazzari Charcoal Building (Tank and Boiler Shop), and the Machinery & Equipment building (former SPRR Ice Manufacturing Plant). The double-track rail line now used by Caltrain was also substantially modified from the railroad's original alignment. The removal of the railroad tracks in the late 1980s, as well as the destruction of a definitive majority of the historical structures associated with the railyard following its closure in the 1960s, has eliminated the physical, visual, and spatial features that contributed to and defined the character of the space during its use by the SPRR. The remaining buildings and associated altered landscape are not sufficient to qualify as a potential cultural landscape. Therefore, the Project Site does not appear to constitute a cultural landscape as defined by the National Park Service.

4.D.3 Regulatory Setting

Development within the Project Site must comply with federal, state, and local regulations. The requirements listed below will affect the way development may occur with the Project development scenarios in regard to cultural resources.

Federal Regulations

National Historic Preservation Act

The National Historic Preservation Act of 1966 (NHPA) established the NRHP, which is the official register of designated historic places. The NRHP is administered by the National Park Service and includes listings of buildings, structures, sites, objects, and districts that possess historical, architectural, engineering, archaeological, or cultural significance at the national, state, or local level.

To be eligible for the NRHP, a property must be significant under one or more of the following criteria A through D:

A: Properties that are associated with events that have made a significant contribution to the broad patterns of our history;

B: Properties that are associated with the lives of persons significant in our past;

C: Properties that embody the distinctive characteristics of a type, period or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

D: Properties that have yielded, or may be likely to yield, information important in prehistory or history (Criterion D - Information Potential).

In addition to meeting one or more of the aforementioned criteria, an eligible property must also possess historic "integrity." Integrity is defined as "the ability of a property to convey its significance." The National Register criteria recognize seven qualities that define integrity: location, design, setting, materials, workmanship, feeling, and association.

Structures, sites, buildings, districts, and objects over 50 years of age can be listed in the NRHP as significant historical resources. Properties under 50 years of age that are of exceptional importance or are contributors to a district can also be included in the NRHP.

The 1910 former SPRR Roundhouse within the Project Site is listed in the NRHP (#10000113). No other historical resources listed in or formally determined eligible for listing in the NRHP have been identified on or immediately adjacent to the Project Site.

Properties listed in or eligible for listing in the NRHP are also eligible for listing in the California Register of Historic Resources (described below), and as such, are considered historical resources for CEQA purposes.

Secretary of the Interior's Standards for Rehabilitation

The National Park Service provides recommendations via the Secretary of the Interior's Standards for the Treatment of Historic Properties. The standards are neither technical nor prescriptive, but are intended to promote responsible preservation practices that help protect cultural resources. The four treatment approaches are Preservation, Rehabilitation, Restoration, and Reconstruction. Rehabilitation emphasizes the retention and repair of historic materials, but more latitude is provided for replacement because it is assumed the property is more deteriorated prior to work. The Standards for Rehabilitation are described as follows:

1. A property will be used as it was historically or be given a new use that requires minimal change to its distinctive materials, features, spaces, and spatial relationships.

2. The historic character of a property will be retained and preserved. The removal of distinctive materials or alteration of features, spaces, and spatial relationships that characterize a property will be avoided.

3. Each property will be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or elements from other historic properties, will not be undertaken.

4. Changes to a property that have acquired historic significance in their own right will be retained and preserved.

5. Distinctive materials, features, finishes, and construction techniques or examples of craftsmanship that characterize a property will be preserved.

6. Deteriorated historic features will be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature will match the old in design, color, texture, and, where possible, materials. Replacement of missing features will be substantiated by documentary and physical evidence.

7. Chemical or physical treatments, if appropriate, will be undertaken using the gentlest means possible. Treatments that cause damage to historic materials will not be used.

8. Archeological resources will be protected and preserved in place. If such resources must be disturbed, mitigation measures will be undertaken.

9. New additions, exterior alterations, or related new construction will not destroy historic materials, features, and spatial relationships that characterize the property. The new work shall be differentiated from the old and will be compatible with the historic materials, features, size, scale and proportion, and massing to protect the integrity of the property and its environment.

10. New additions and adjacent or related new construction will be undertaken in a such a manner that, if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.

State Regulations

California Public Resources Code Section 5097

Section 5097 of the Public Resources Code provides the procedures to be followed in the event of the unexpected discovery of human remains on nonfederal land. Section 5097.5 of the code states:

> No person shall knowingly and willfully excavate upon, or remove, destroy, injure, or deface any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, or any other archaeological, paleontological or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over such lands. Violation of this section is a misdemeanor.

As used in this section, "public lands" means lands owned by, or under the jurisdiction of, the state or any city, county, district, authority or public corporation, or agency thereof. Consequently, the City of Brisbane is required to comply with Public Resources Code Section 5097.5 because the Project Site is within its jurisdiction.

Section 5097.98 further defines the standards for the handling of Native American human remains. Section 5097.993 sets requirements related to the unlawful and malicious excavation, removal, destruction, injury, or defacing of a Native American historic, cultural, or sacred site that is listed or may be eligible for listing in the California Register of Historic Resources.

California Health and Safety Code

Section 7052 of the California State Health and Safety Code makes the willful mutilation, disinternment, or removal of human remains a felony. Section 7050.5 requires that the construction or excavation be stopped in the vicinity of discovered human remains until the coroner can determine whether the remains are those of a Native American. If the remains are determined to be Native American, the coroner must contact the California Native American Heritage Commission.

California Senate Bill 18

Senate Bill 18 (SB 18) sets forth requirements for local governments (cities and counties) to consult with Native American tribes to aid in the protection of traditional tribal cultural places through local land use planning. The intent of SB 18 is to provide California Native American tribes an opportunity to participate in local land use decisions at an early stage of planning for the purpose of protecting, or mitigating impacts on, cultural places.

California Environmental Quality Act

Historical Resources

Under CEQA Guidelines Section 15064.5(a), the term "historical resources" includes the following:

(1) A resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the California Register of Historical Resources (Public Resources Code, Section 5024.1).

(2) A resource included in a local register of historical resources, as defined in Section 5020.1(k) of the Public Resources Code or identified as significant in a historical resource survey meeting the requirements of Section 5024.1(g) of the Public Resources Code, will be presumed to be historically or culturally significant. Public agencies must treat any such resource as significant unless the preponderance of evidence demonstrates that it is not historically or culturally significant.

(3) Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California may be considered to be a historical resource, provided the lead agency's determination is supported by substantial evidence in light of the whole record. Generally a resource shall be considered by the lead agency to be "historically significant" if the resource meets the criteria for listing on the California Register of Historical Resources (Pub. Res. Code Section 5024.1) including the following:

(A) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

(B) Is associated with the lives of persons important in California's past;

(C) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or

(D) Has yielded, or may be likely to yield, information important in prehistory or history. (4) The fact that a resource is not listed in, or determined to be eligible for listing in the California Register of Historical Resources, not included in a local register of historical resources (pursuant to Section 5020.1(k) of the Public Resources Code), or identified in a historical resources survey (meeting the criteria in Section 5024.1(g) of the Public Resources Code) does not preclude a lead agency from determining that the resource may be an historical resource as defined in Public Resources Code Sections 5020.1(j) or 5024.1.

Under Section 15064.5(b), a project with an effect that may cause a substantial adverse change in the significance of a historical resource is a project that may have a significant effect on the environment.

Substantial adverse change in the significance of a historical resource means physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historical resource would be materially impaired.

The significance of a historical resource is materially impaired when a project:

(A) Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register of Historical Resources; or

(B) Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to Section 5020.1(k) of the Public Resources Code or its identification in an historical resources survey meeting the requirements of Section 5024.1(g) of the Public Resources

Code, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or

(C) Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the California Register of Historical Resources as determined by a lead agency for purposes of CEQA.

Generally, a project that follows the Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings or the Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings (1995), Weeks and Grimmer, is considered to have mitigated a significant impact on the historical resource to a less-than-significant level.

Archaeological Resources

If a lead agency determines that an archaeological site is a historical resource, the provisions of Section 21084.1 of CEQA and Section 15064.5 of the CEQA Guidelines apply. If a project may cause a substantial adverse change (defined as physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historical resource would be materially impaired) in the significance of a historical resource, the lead agency must identify potentially feasible measures to mitigate these effects (CEQA Guidelines Sections 15064.5(b)(1) and 15064.5(b)(4)).

If an archaeological site does not meet the criteria for a historical resource contained in the CEQA Guidelines, then the site may be treated as a unique archeological resource in accordance with the provisions of Section 21083. As defined in Section 21083.2 of CEQA, a "unique" archaeological resource is an archaeological artifact, object, or site, about which it can be clearly demonstrated that there is a high probability that it meets any of the following criteria:

1. Contains information needed to answer important scientific research questions and there is a demonstrable public interest in that information;
2. Has a special and particular quality such as being the oldest of its type or the best available example of its type; or
3. Is directly associated with a scientifically recognized important prehistoric or historic event or person.

If an archaeological site meets the criteria for a unique archaeological resource as defined in Section 21083.2, then the site is to be treated in accordance with the provisions of Section 21083.2, which state that if the lead agency determines that a project would have a significant effect on unique archaeological resources, the lead agency may require reasonable efforts be made to permit any or all of these resources to be preserved in place (Section 21083.1(a)). If preservation in place is not feasible, mitigation measures shall be required.

The CEQA Guidelines note that if an archaeological resource is neither a unique archaeological resource nor a historical resource, the effects of the project on those resources shall not be considered a significant effect on the environment (CEQA Guidelines Section 15064.5(c)(4)).

Local Regulations

The Conservation Element of the Brisbane General Plan (City of Brisbane, 1994b) contains a number of policies and programs intended to protect cultural resources. Policies and programs applicable to the Project Site development include the following:

> ***Policy 136:*** Encourage the maintenance and rehabilitation of structures important to the history of Brisbane.
>
> > *Program 136a:* Provide assistance to owners of historic property in planning rehabilitation projects.
> >
> > *Program 136b:* Provide information to property owners on loan and grant funds and tax incentives.
> >
> > *Program 136c:* Provide local incentives, such as the Brisbane Star awards, to maintain historic places.
>
> ***Policy 137:*** Conserve prehistoric resources in accordance with State and Federal requirements.
>
> > *Program 137a:* Consider amendments to the Zoning Ordinance to require resource surveys in conjunction with land use development applications and to establish procedures in the event of discovery to protect Native American Cultural Resources consistent with the standardized procedures given in Appendix K of CEQA Guidelines.

4.D.4 Impacts and Mitigation Measures

Significance Criteria

Criteria outlined in the CEQA Guidelines were used to determine the level of significance of identified impacts on cultural resources. Based on Appendix G of the CEQA Guidelines a project would have a significant cultural resources impact if it were to:

- Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5;
- Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5;
- Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature; or
- Disturb any human remains, including those interred outside of formal cemeteries.

Impact Assessment Methodology

Baseline data for cultural resources were collected in 2011. As site conditions related to historic and archaeological resources did not change between 2010 and 2011, 2011 conditions are considered to be representative of 2010. With respect to historical resources, use of a 2011 baseline is more conservative as resources that may not have been considered eligible for listing on the National Register in 2010 solely based on age could be eligible with use of a 2011 baseline year.

A cultural resources records search of pertinent survey and site data was conducted at the Northwest Information Center (NWIC) of the California Historical Resources Information System, Sonoma State University, on February 23, 2007 (File No. 06-1292) and updated on February 22, 2011 (File No. 10-0801). The NWIC provided the records for USGS South San Francisco 7.5-minute quadrangles and included the Project Site along with a quarter-mile radius around the site. The records search included a review of the Directory of Properties in the Historic Property Data File for San Mateo County for information on sites of recognized historical significance in the National Register of Historic Places, California Register of Historical Resources, California Inventory of Historic Resources, California Historical Landmarks, and California Points of Historical Interest. Other reference material consulted included the following:

- The 1915 San Mateo USGS Quadrangle
- USGS Quaternary Geology Maps, San Francisco, California
- Coast and Geodetic Survey Nautical Map, San Francisco Bay, Southern Part, 1906
- State Office of Historic Preservation's Archaeological Determinations of Eligibility
- University of California, Berkeley Museum of Paleontology, Locality Catalog
- Geologic Guidebook of the San Francisco Bay Counties, State of California Department of Natural Resources, 1951
- Historic aerial and topographic maps of Brisbane from 1946 to 2005

In addition to the historical information provided by the NWIC, information regarding the Bayshore-Visitacion station and its historic resources was also retrieved through the California State Railroad Museum library in Sacramento, California, as well as the Millbrae Train Museum in Millbrae, California. Reference materials consulted included station maps, technical drawings, and historical photographs of the freight yard and station.

A reconnaissance-level pedestrian field survey of the entire Project Site was completed on June 14, 2007, to identify potentially significant historic architectural resources that could be directly or indirectly affected by the Project Site development. The results of the 2007 survey are representative of 2010-11 conditions and are appropriate for use as baseline information in this document because no physical changes have occurred to any of the buildings or structures on the Project Site since this time.

Impacts on historic architectural resources were assessed by determining whether development of the Project Site would demolish or materially alter in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the California Register of Historical Resources. If such Project Site development actions would occur, impacts were determined to be significant. If actions related to development of the Project Site would demolish or materially alter buildings or structures that were not determined to be significant historical resources for purposes of CEQA, such actions were determined to have a less-than-significant impact or no impact.

Impacts on archaeological and paleontological resources were assessed by determining the existence of known, recorded resources on the Project Site or in the immediate vicinity, the relative potential of the Project Site to contain previously unknown and unrecorded archaeological and paleontological resources, and the potential depths of subsurface excavation that could inadvertently affect such resources.

Construction-related impacts associated with implementation of the proposed Project and its infrastructure improvements described in Chapter 3, *Project Description*, are included in the analysis below.

Project Impacts and Mitigation Measures

Impact 4.D-1: Would the Project cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
SM	SM	SM	SM

SU = Significant Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = no impact

DSP, DSP-V, CPP, and CPP-V

The following section analyzes the impacts of Project Site development on onsite and offsite historical resources.

Direct Impacts

Roundhouse

The 1907 SPRR Roundhouse is located within the Project Site. In addition to being listed in the NRHP and CRHR, the former SPRR Roundhouse is identified by the Brisbane General Plan as an important cultural resource to the City. This building is therefore considered to be a "historical resource" as defined by CEQA.

Since the devastating fire at the Roundhouse, this abandoned building has been exposed to the elements, which have hastened its deterioration. It has also become an attractive nuisance for vandalism, which may further hasten its deterioration and/or make it vulnerable to another fire.

Under each Project development scenario, the existing Roundhouse would be renovated as part of a public use/civic/cultural center. However, restoration and reuse plans for this building would potentially not be completed until 2035 under Project Site development, and the Roundhouse could deteriorate further without immediate protection and stabilization, thereby resulting in a

substantial adverse change in the significance of a historical resource. General Plan Policy 136 (as listed above under Subsection 4.D.3, *Regulatory Setting*) requires that Project Site development encourage the maintenance and rehabilitation of structures important to the history of Brisbane. See Section 4.I, *Land Use and Planning Policy*, for a discussion of Project consistency with General Plan policies.

The proposed Roundhouse Green would be a circular park space containing the Roundhouse and areas immediately outside of it (generally where the former turntable and circular railroad spurs were once located). The proposed Promenade would be a linear park and roadway connecting the Roundhouse to the planned intermodal transit station at the north end of the Project Site. The proposed Visitacion Creek Park corridor would extend south from the Roundhouse Green and east toward San Francisco Bay. Encircling the outside of the existing Roundhouse and the proposed Roundhouse Green would be "Roundhouse Circle," a new two-lane road.

The retention and restoration of the Roundhouse as part of a public use/civic/cultural center and as a gateway to planned public parks could have a beneficial effect on this historical resource, as the structure is currently degraded due to age and fire damage. However, as no detailed plans for the restoration and reuse effort are yet available at this programmatic level of analysis, it is assumed that such plans could damage the integrity of the structure if they are not completed in a manner consistent with the guidance provided by the Secretary of the Interior's Standards for Rehabilitation. Under CEQA, a project that meets the Secretary of the Interior's Standards is generally considered to have mitigated impacts on historical resources to less-than-significant levels (CEQA Guidelines Section 15064.5(b)(3).)

Conclusion: Project Site development would cause a substantial adverse change in the significance of the historic Roundhouse, a historical resource as defined in Section 15064.5. This would result in a significant impact under CEQA. Therefore, to reduce the impact on the historic Roundhouse to a less-than-significant level, **Mitigation Measure 4.D-1a** is recommended.

Mitigation

Mitigation Measure 4.D-1a: Within 90 days of Specific Plan adoption or prior to the issuance of the first grading or building permit within the Project Site (whichever occurs first), the property owner shall prepare and implement a stabilization plan subject to review and approval by the Brisbane Planning Department to protect and stabilize the Roundhouse from further deterioration and future vandalism. Such a plan may include, but is not limited to, additional protective fencing, signage, installation of temporary roof coverings to protect the interior from rainwater intrusion, and covering of all window and door openings with plywood. In preparation of the stabilization plan, the property owner shall use the National Park Service's *Preservation Brief #31, Mothballing Historic Buildings.*

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	✓	✓
✓ = measure applies - = measure does not apply			

Within 90 days of the issuance of any planning or development approval (e.g., site remediation, grading, site development plan, building permit) encompassing the area of the

historic Roundhouse, the property owner shall also submit a rehabilitation plan for the historic Roundhouse to the City for review and approval by the Brisbane Planning Commission. Implementation of the rehabilitation plan shall be completed prior to the first occupancy permit for the area subject to the planning or development permit approved encompassing the area of the historic Roundhouse.

The rehabilitation plan shall be consistent with the performance standards contained in the following documents:[9]

- The Secretary of the Interior's Standards for Rehabilitation. Such standards call for the retention of significant, character-defining features of the building while finding a new use for the structure that is compatible with its historic character;
- The National Park Service's *Preservation Brief #17, Identifying the Visual Aspects of Historic Buildings as an Aid to Preserving Their Architectural Character*; and
- The National Park Service's *Preservation Brief #18, Rehabilitating Interiors in Historic Buildings - Identifying and Preserving Character-Defining Elements.*

To ensure compliance with the Secretary of the Interior's Standards for Rehabilitation, rehabilitation plans shall also be reviewed by a qualified consulting architectural historian who meets the Secretary of the Interior's Standards for Architectural History prior to action by the Planning Commission. The rehabilitation plans shall meet a minimum of 7 out of 10 of the standards.

The Secretary of the Interior's Standard #6, specifically, requires that replacement of missing features will be substantiated by documentary and physical evidence. As nearly 50 percent of the building is missing due to fires and vandalism, such evidence is key to its successful rehabilitation. Original plans and early photographs of the Roundhouse are available at the Library and Collections Department of the California State Railroad Museum in Sacramento. These original plans and early photographs shall be used when preparing the rehabilitation plan for this building to ensure that rehabilitation efforts will adequately preserve the historic architectural and structural integrity of the building.

Conclusion with Mitigation: With the inclusion of **Mitigation Measure 4.D-1a**, the direct impact on the historic Roundhouse would be less than significant for Project Site development.

Lazzari Charcoal Building

Under the DSP and DSP-V scenarios, the Lazzari Charcoal Building (former Southern Pacific Tank and Boiler Shop) would be renovated and adaptively reused. This building does not appear to be eligible for listing on a federal, state, or local historical register and therefore is not considered a "historical resource" for CEQA purposes. Renovation and reuse of this building would not be required to comply with the Secretary of the Interior's standards because the building is not considered a historical resource. Regardless, renovation of this older building would be considered a beneficial effect of the Project Site development and would help to preserve a reminder of the site's railroad history.

[9] The 10 Standards for Rehabilitation and Preservation Briefs #31, 17 18 and 31 are provided in **Appendix F** of this EIR.

Conclusion: The Lazzari Charcoal Building is not considered a "historical resource" for CEQA purposes, and therefore Project Site development would not cause a substantial change in the significance of a historical resource as defined in Section 15064.5. There would be no significant impact under CEQA.

Warehouse and Lumberyard Buildings

Under Project Site development, the warehouses along Industrial Way and the lumberyard buildings in the northeastern portion of the Project Site would be demolished, the area would be re-graded, and new development would be constructed. As the existing warehouses along Industrial Way and lumberyard buildings are not considered historical resources for CEQA purposes, their proposed demolition would not cause a substantial change in the significance of a historical resource and would not represent a significant impact on historical resources.

Conclusion: The warehouses and lumberyard buildings are not considered "historical resources" for CEQA purposes, and therefore Project Site development would not cause a substantial change in the significance of a historical resource as defined in Section 15064.5. There would be no significant impact under CEQA.

Former SPRR Bayshore Freight Yard Landscape

Project Site development would completely transform the former SPRR Bayshore freight yard into mixed-use development. The removal of the majority of the historic structures associated with the freight yard following its closure in the 1960s, and removal of the railroad tracks in the late 1980s, have eliminated the physical, visual, and spatial features that defined the character of the landscape during its use by the SPRR. The remaining buildings and associated altered landscape do not retain sufficient integrity to qualify as a potential cultural landscape. As no cultural landscape has been identified on the Project Site, Project Site development would have no significant impact on cultural landscapes.

Conclusion: No cultural landscape exists on the Project Site, and therefore Project Site development would not cause a substantial change in the significance of a historical resource as defined in Section 15064.5. There would be no significant impact under CEQA.

Recology Site Buildings

Under the DSP, DSP-V, and CPP scenarios, no changes are proposed to the buildings on the Recology site. Under the CCP-V scenario, the existing buildings on the Recology site would be demolished and replaced as part of the facility's modernization and expansion. As the existing utilitarian warehouses and other structures at the Recology site are not considered historical resources for CEQA purposes, their proposed demolition and replacement with new buildings and facilities would not cause a substantial change in the significance of a historical resource and would not represent a significant impact on historical resources.

Conclusion: The Recology buildings are not considered "historical resources" for CEQA purposes, and therefore the CCP-V scenario would not cause a substantial change in the significance of a historical resource as defined in Section 15064.5. There would be no significant impact under CEQA.

Indirect Impacts

Roundhouse

New development in the immediate vicinity of the Roundhouse may also cause a substantial adverse change in its significance by adversely affecting the building's historic setting if the development were completed in a manner that would not be compatible with the historic structure. Under Project Site development, different development intensities and building heights would be constructed in the immediate vicinity of the Roundhouse.

Under the DSP and DSP-V scenarios, areas immediately northeast and northwest of the Roundhouse would be designated for campus research and development and medium-density residential uses. Building heights in these areas immediately adjoining Roundhouse Circle would range from 35 to 45 feet and residential density would range from 45 to 70 dwelling units per acre.

Under the CPP and CPP-V scenarios, the area north of the Roundhouse would consist of a cultural/entertainment district with hotel overlay. The entertainment district would include shops and stores, eating and drinking establishments, and entertainment venues such as theaters and cultural institutions such as a museum or community performance space. This area would include building heights ranging from 55 feet for the cultural/entertainment district to 120 feet for hotels and extended stay facilities.

Proposed buildings that are significantly taller than the Roundhouse or would depart visually from the architecture of the Roundhouse would be incompatible with the historic setting of the resource. Incompatible new development would overwhelm or unnecessarily contrast with this historic building, which would reduce the integrity of the building's historic setting. Great disparities in height or architectural style between the Roundhouse and new construction, such as proposed residential development in the DSP and DSP-V scenarios and 120-foot-tall hotels and extended stay facilities in the CPP and CPP-V scenarios, would be considered incompatible.

Machinery & Equipment Building

Although the historic Machinery & Equipment building is located outside of the Project Site and is not a part of any development scenario, potential incompatible new construction immediately adjacent to this building could indirectly reduce the integrity of its historic setting, thereby causing a substantial adverse change in the significance of this historical resource. For example, the CCP and CCP-V scenarios have identified the area immediately west of this building as a "Public Use Envelope," specifically for a "Charter High School/Community Use Area." While the exact size and layout of a potential charter high school or other community use in this vicinity is unknown, as no specific plans have been developed, potential multi-story construction proposed in this area immediately adjacent to (i.e., within 50 feet of) the one- to two-story Machinery & Equipment building could affect the integrity of the building's historic setting, which could be a significant impact on this historical resource. Incompatible new development could overwhelm or unnecessarily contrast with this historic building, which could reduce the integrity of the building's historic setting. The DSP and DSP-V scenarios would designate Open Space adjacent to this building, which would have a less-than-significant impact on setting of this building.

Conclusion: All four scenarios would cause a substantial adverse change in the significance of the historic Roundhouse by altering its historic setting. The CPP and CPP-V scenarios would also cause a substantial adverse change in the significance of the historic Machinery & Equipment building by altering its historic setting. The Roundhouse and Machinery & Equipment building are historical resources as defined in Section 15064.5 of the CEQA Guidelines. All four scenarios would therefore result in a significant impact under CEQA and mitigation is required. **Mitigation Measure 4.D-1b** is recommended to reduce the indirect impact to a less-than-significant level.

Mitigation

Mitigation Measure 4.D-1b: All Project Site development within 50 feet of the Roundhouse or the Machinery & Equipment building be designed to ensure their architectural compatibility with the historic Roundhouse, and to ensure that new buildings do not overwhelm or unnecessarily contrast with these historic buildings. To this end, all development projects shall incorporate a minimum 50-foot structural setback and appropriate heights, volumes, and materials for any proposed new buildings in the immediate vicinity to ensure compatibility with the Roundhouse and the Machinery & Equipment building. Appropriate heights of new construction adjacent to the Roundhouse would be the same as (about 25 feet), or slightly greater than (i.e., up to 15 feet greater than), the existing height of the building. Appropriate heights of new construction adjacent to the Machinery & Equipment building would be the same as (about 40 feet) or slightly greater than (up to 10 feet greater than), the existing height of the building. Appropriate materials for new construction in the immediate vicinity of either building would be brick cladding and/or cementitious materials painted a similar dark red color, as well as Spanish tile roof cladding. Appropriate volumes for new development that would face the Roundhouse should mirror the curve of the existing structure. Appropriate volumes for new development in the vicinity of the Machinery & Equipment building would be rectilinear in massing.

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	✓	✓
✓ = measure applies - = measure does not apply			

All development projects within 50 feet of the Roundhouse or the Machinery & Equipment building shall be subject to City design permit review and approval prior to development.

Conclusion with Mitigation: With the inclusion of **Mitigation Measure 4.D-1b,** new development would be compatible with historic buildings, and the Project Site development would not cause a substantial adverse change in the significance of the Roundhouse or the Machinery & Equipment building. The impact would be less than significant under Project Site development.

Offsite Historical Resources

7 Mile House Sports Bar and Grill

Historical resources located outside of but in the immediate vicinity of the Project Site include the 7 Mile House Sports Bar and Grill, located at 2800 Bayshore Boulevard, near the intersection with Geneva Avenue and across Bayshore Boulevard from the Project Site. The 7 Mile House is identified by the City as a local historical resource. The Project Site development would have no

significant direct or indirect impact on the 7 Mile House, as the width of Bayshore Boulevard provides an approximately 100-foot separation between this structure and new development proposed by each Project development scenario.

Bayshore/Crocker Tunnel

Another local historical resource identified by the City is the Bayshore/Crocker Tunnel, a former SPRR tunnel located beneath Bayshore Boulevard located about 450 feet northwest of the Machinery & Equipment building and immediately west of the Project Site. As part of Project Site development, pedestrian and bicycle access would be provided through this former railroad tunnel to create the possibility of connecting proposed new uses on the Project Site to a planned city trail system on the west side of Bayshore Boulevard that would be developed along the abandoned rights-of-way running through the Brisbane Industrial Park. This aspect of the Project Site development would not physically alter the tunnel structure and would have no significant direct or indirect impact on the railroad tunnel as a historical resource.

Schlage Lock Factory Building A (Old Office Building)

Another historical resource located to the north of the Project Site is the Schlage Lock Factory Building A (Old Office Building), at 2201 Bayshore Boulevard and Blanken Avenue. The Old Office Building was identified as a historical resource as a result of a survey and evaluation in 2008 in support of the Visitacion Valley Redevelopment EIR (San Francisco Redevelopment Agency, 2008). The Project Site development would have no direct or indirect impact on the Old Office Building due to the approximate 1,400-foot separation between this structure and new development proposed by Project Site development.

Conclusion: Project Site development would not have a direct or indirect impact on the 7 Mile House, the former Schlage Lock Factory Building A (Old Office Building), or the Bayshore/Crocker Tunnel as historical resources. No mitigation is required.

Overall Conclusion

With the inclusion of **Mitigation Measures 4.D-1a** and **4.D-1b,** the Project Site development would not cause a substantial adverse change in the significance of historical resources and therefore would not have a significant environmental impact on historical resources. The impact would be reduced to a less-than-significant level.

Impact 4.D-2: Would the Project cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
SM	SM	SM	SM

SU = Significant Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = no impact

DSP, DSP-V, CPP, and CPP-V

While no known significant archaeological resources are located on the Project Site, Project Site development could have an impact on as-yet undiscovered archaeological resources.

All scenarios would involve ground disturbance that could result in direct impacts on unknown archaeological resources at the Project Site or damage or destroy undiscovered significant archaeological resources on the Project Site. Ground disturbance would occur with implementation of remediation activities and additional site preparation for future development.

As discussed in Subsection 4.D.2, *Environmental Setting*, above, one known historic-period archaeological site is located within the Project Site. This site, an artifact scatter from the late 19th and early 20th centuries, is not considered a historical resource or a unique archaeological resource for the purpose of CEQA. Additionally, the Project Site contains artificial fill associated with the 1906 earthquake, but this artificial fill would not likely yield important information in history or contain information needed to answer important scientific research questions and is therefore not considered a historical resource or a unique archaeological resource for the purpose of CEQA. No additional recorded archaeological resources are present on the Project Site. Archaeological resources have been recorded in the general vicinity to the west and south of Bayshore Boulevard. Although highly unlikely, previously unrecorded archaeological resources may exist beneath the original layers of Bay Mud that underlie the eastern portion of the Project Site.

Each Project development scenario would include ground disturbance immediately east of Bayshore Boulevard, both north and south of the proposed Geneva Avenue extension. These locations along Bayshore Boulevard contain the shallowest amount of historic fill and the least amount of proposed fill for Project grading, are closest to the original bay margins, and are 600 feet from a recorded archaeological site (a large midden site with burials – site designation P-41-000496). Due to the great depths of the existing and proposed fill in this area (up to 43 feet from original grade), it is unlikely that subsurface excavation associated with the proposed development and the infrastructure supporting the development would uncover unrecorded significant or unique archaeological resources.

Conclusion: While discoveries of archaeological resources are not anticipated during Project grading or construction, **Mitigation Measure 4.D-2** is recommended to ensure that impacts on previously unidentified archaeological resources are reduced to less-than-significant levels for Project Site development.

Mitigation

Mitigation Measure 4.D-2: If any previously unidentified archaeological resources are discovered during ground-disturbing activities associated with development on the Baylands, all work within 100 feet of the resources shall be halted. The City, in consultation with a City-approved qualified consulting archaeologist, shall assess the significance of the find according to CEQA Guidelines Section 15064.5. Prehistoric materials subject to this measure might include obsidian and chert flaked-stone tools (e.g., projectile points, knives, scrapers) or toolmaking debris; culturally darkened soil ("midden") containing heat-affected rocks, artifacts, or shellfish remains; stone milling equipment (e.g., mortars, pestles, handstones, or milling slabs); and battered stone tools, such as hammerstones and pitted stones. Historic-era materials subject to this

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	✓	✓
✓ = measure applies - = measure does not apply			

measure might include in-situ (in place) stone, concrete, or adobe footings and walls; filled wells or privies; and in-situ deposits of metal, glass, and/or ceramic refuse.

If any find is determined to be a historical resource or a unique archaeological resource, the City and the consulting archaeologist shall meet to determine the appropriate avoidance measures or other appropriate mitigation. The City shall make the final determination. All archaeological resources recovered shall be subject to scientific analysis, professional museum curation, and documentation according to current professional standards.

Preservation in place, i.e., avoidance, is the preferred method of mitigation for impacts on cultural resources and shall be required unless there are other equally effective methods. Preservation in place would include planning construction to avoid archaeological sites; deeding archaeological sites into a conservation easement, park, or green space; or capping/covering archaeological sites with a layer of soil before building. Other methods to be considered shall include archeological testing, archeological monitoring, and/or an archeological data recovery program that would include sample excavation, artifact collection, site documentation, and historical research. All archaeological work shall be completed in accordance with a Cultural Resources Management Plan prepared by the City-approved qualifying archaeological consultant. Work may commence upon completion of treatment, as approved by the City.

Conclusion with Mitigation: With the inclusion of **Mitigation Measure 4.D-2**, implementation of the Project Site development would not cause a substantial adverse change in the significance of archaeological resources. The impact would be less than significant for Project Site development.

Impact 4.D-3: Would the Project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
-	-	-	-

SU = Significant Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = no impact

DSP, DSP-V, CPP, and CPP-V

Project Site development, including the relocation of the lumberyard components, would have no impacts on known or recorded paleontological resources or unique geologic features. As discussed in Subsection 4.D.2, *Environmental Setting*, above, no known paleontological resources or unique geologic features are located on the Project Site, nor is the Project Site geologicallyy sensitive for paleontological resources. Even with the magnitude (substantial depth, extent, and volume) of proposed earthwork and cuts that would occur under Project Site development, including deep-driven piles into older bay muds, it is unlikely that construction crews would encounter unique paleontological resources or sites or unique geologic features.

Conclusion: Project Site development would not directly or indirectly destroy a unique paleontological resource or site or unique geologic feature. No mitigation is required.

Impact 4.D-4: Would the Project result in disturbance of human remains, including those interred outside of formal cemeteries?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
SM	SM	SM	SM

SU = Significant Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = no impact

DSP, DSP-V, CPP, and CPP-V

There is no indication that the Project Site has been used for human burial purposes. Therefore, it is unlikely that human remains would be encountered during Project construction. However, given the relatively shallow depths of existing artificial and proposed fill in the area along Bayshore Boulevard, this area's proximity to the original Bay shoreline, and the substantial amount of construction and grading proposed for this area, human remains could be encountered and inadvertently damaged, causing a significant impact.

Conclusion: This impact would be significant for Project Site development. While accidental discoveries of human remains interred outside of formal cemeteries are not anticipated in this area during grading or construction for the Project Site, for conservative purposes, **Mitigation Measure 4.D-4** is recommended.

Mitigation

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	✓	✓

✓ = measure applies
- = measure does not apply

Mitigation Measure 4.D-4. If human skeletal remains are uncovered during Project construction, work shall immediately be halted within 100 feet of the find and the San Mateo County Coroner shall be contacted to evaluate the remains as required by the protocols set forth in Section 15064.5(e)(1) of the CEQA Guidelines. If the County Coroner determines that the remains are Native American, the coroner has 24 hours to contact the Native American Heritage Commission (NAHC), in accordance with Health and Safety Code Section 7050.5, subdivision (c), and Public Resources Code Section 5097.98 (as amended by Assembly Bill 2641). The NAHC will then identify the person(s) thought to be the Most Likely Descendent (MLD) of the deceased Native American, who will then help determine what course of action should be taken in dealing with the remains. In accordance with Public Resources Code Section 5097.98, the specific project applicant/landowner shall ensure that, according to generally accepted cultural or archaeological standards or practices, the immediate vicinity where the Native American human remains are located is not damaged or disturbed by further development activity until the landowner has discussed and conferred, as prescribed in Public Resources Code Section 5097.98, with the MLD regarding their recommendations, if applicable, taking into account the possibility of multiple human remains.

Conclusion with Mitigation: With the inclusion of **Mitigation Measure 4.D-4** the impact on human remains would be less than significant for Project Site development.

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4.E Geology, Soils, and Seismicity

4.E.1 Introduction

This section describes the geology, soils, and seismicity of the Project Site and vicinity. It also analyzes and evaluates the impacts of Project Site development in relation to these resource areas. Feasible mitigation measures are identified as necessary to minimize significant impacts.

4.E.2 Environmental Setting

The following discussion describes the Project Site's regional topographic, geologic, and seismic setting, as well as potential geologic and seismic hazards that may affect the Project Site based upon the site conditions and location.

Landform History of the Project Site

Originally part of San Francisco Bay, the area that now makes up the Brisbane Baylands was transformed into its present-day condition through progressive filling of tidal marshlands and the resultant eastern advancement of the shoreline to its present location east of US Highway 101. In general, Bayshore Boulevard traces the early Bay shoreline. In the early 1900s, the Southern Pacific Railroad (SPRR) constructed railroad tracks across the Bay. Following the 1906 San Francisco earthquake, the area west of this rail corridor was filled in, primarily with demolition rubble. In 1914, this area became the main SPRR yard and remained so until 1960, when active rail operations temporarily ceased. Caltrain currently operates on the main line.

In the area east of the railroad tracks, Bay infilling continued up through the mid-1950s, further extending the shoreline to the east. Land filling operations were initiated in the area east of the railroad tracks, which served as the local municipal landfill for San Francisco from 1933 through 1967. Municipal waste was placed directly on tidal flats and waters at the margin of San Francisco Bay. The edge of the refuse pile was open to direct wave action from San Francisco Bay until construction of US Highway 101 began in 1959 (BKF, 2011). US Highway 101 was formed by placement of crushed rock directly in the Bay along a narrow strip east of the site. Waste and other fill has since been placed up to the US Highway 101 road base, which bounds the Project Site.

According to the Regional Water Quality Control Board (RWQCB), the former landfill portion of the Project Site was used for the disposal of primarily non-hazardous solid wastes including domestic, industrial, and shipyard waste; sewage; and construction rubble (RWQCB, 2001). The total volume of waste disposed at the landfill has been estimated to be 12.5 million cubic yards (Burns & McDonnell, 2002).

At the time of closure of the landfill in 1967, a soil cap was placed over the landfill and additional clean soil has also been placed over much of the site (BKF, 2011). **Figure 4.E-1** illustrates the history of fill placement. Current land use includes soil and aggregate material recycling operations and non-irrigated open space.

Figure 4.E-1
Land Reclamation Sequence
Historic Fill and Shoreline of the Project Site

The two recycling companies currently operating on an interim basis in this portion of the site are Brisbane Recycling Company Inc. and Baylands Soil Processing, LLC. Brisbane Recycling Company Inc. maintains a concrete recycling operation in the northern portion of the site. In the southern portion of the site, Baylands Soil Processing, LLC maintains a soil recycling operation. Materials from the recycling operations are kept in stockpiles, which have contributed to consolidation of underlying refuse and Bay Mud.

Topography

As discussed above, the Bay margin natural topography of the site has been covered by rubble, solid waste, and soil fill. The elevation of the flat-lying portion of the Project Site ranges from approximately 10 to 50 feet above mean sea level (msl), with the majority of the site being flat or gently sloping toward the Bay (see **Figure 4.E-2**). Icehouse Hill, located in the southwestern portion of the Project Site, rises to approximately 200 feet with steep cuts adjacent to the existing railroad tracks and more gently sloping cuts along Bayshore Boulevard.

Soils and Geology

This subsection describes geologic and seismic hazards as well as soil and mineral resources in the Project Site vicinity. The Project Site's geologic environment is assessed based on the evaluation of current site conditions and review of published and unpublished geologic reports and maps.

Soils

As discussed above, the majority of the Project Site has been heavily modified over the last 100 years, and the native soils have been covered with rubble, solid waste, and imported fill (see Figure 4.E-1). Although the Bay Mud as a soil unit is no longer visible at the surface due to the placement of fill, the Bay Mud unit is present at shallow depths, primarily along the Bay shoreline and lagoon perimeter. Because future construction activities would be expected to encounter the Bay Mud in places, more information on this unit is provided below. The following soil types are described in the United States Department of Agriculture Web Soil Survey site (USDA, 1991).

The soils mapped on the Project Site and in the vicinity include the Urban Land-Orthents and the Barnabe-Candlestick-Buri Buri. Urban Land-Orthents soils are developed on the coastal terraces and hills north of where Interstate 280 (I-280) and Skyline Boulevard diverge. These soils encompass all developed areas of San Bruno, Colma, and Daly City. Urban Land-Orthents, Smoothed soils are highly variable with respect to depth of development and steepness of slope on which they occur. The Urban Land-Orthents soils category includes generally well-drained soils underlain by soft sandstone, whereas the Urban Land-Orthents Smoothed category comprises very shallow to very deep, well-drained, fine sandy loam over loam. The Barnabe-Candlestick-Buri Buri soil is developed on the sandstone uplands of San Bruno Mountain, and is located southwest of the Project Site and on Icehouse Hill. The unit consists of well-drained, gravelly sandy loams to fine loams.

Geology

San Francisco Bay formed during the past 10,000 years during sea level rise associated with the melting of extensive continental glaciers. The Bay is relatively shallow and has filled with mud and sand to a depth of about 300 feet. These sediments overlay bedrock of the Franciscan Complex at the Project Site (Bonilla, et al., 1998). As previously discussed, multiple man-made infilling events were carried out to reclaim Bay margin lands (see Figure 4.E-1).

Geologic cross-sections developed by Geosyntec (2006, 2008) and geology reviewed by Treadwell & Rollo, Inc. (2008) were evaluated to describe the general Project Site stratigraphy.[1] The stratigraphy from top (youngest) to bottom (oldest) for the Project Site consists of Artificial Fill comprised of construction debris and landfill waste, Young Bay Mud (which includes lenses of sand), and Old Bay Mud (which includes layers of silty sand and silts and clays within/over the bedrock). This sequence of alluvial sediments and Bay Mud records the relative rise and fall of sea levels as San Francisco Bay subsided. **Figure 4.E-3** provides a general block diagram and a cross-section that illustrate the subsurface stratigraphy of the local area. The block diagram shows the geologic units draped on the bedrock sloping eastward into the Bay. The cross-section shows the inter-fingering of the geologic units (e.g., the boundary between the Bay Margin deposits and the A-Sand) from the periodic rises and falls of sea level.

A summary of geologic materials found on the Project Site is provided in **Table 4.E-1**, and **Figure 4E-6** provides a geologic map of the Project Site vicinity.

TABLE 4.E-1
SUMMARY OF GEOLOGIC MATERIALS ON PROJECT SITE

Geologic Unit	Geologic Age	General Description
Artificial Fill	Recent (Historic)	Non-engineered fill material includes soils, concrete, bricks, tires, steel, and wood. The soil types range from sandy clay to gravel with sand and range in thickness from 6 to 40 feet. The majority of fill was composed of silty clayey sand and concrete matrix. A clean soil layer approximately 10 feet thick overlies the waste.
Waste	Recent (Historic)	Wood, paper, plastic, glass, wires, metals, and gravelly soils. Thickness ranges from 20 to 35 feet.
Young Bay Mud (YBM)	Holocene (less than 11,000 years old)	Elastic silt or fat clay. Thickness ranges from 10 to 50 feet.
Old Bay Mud (OBM)	Holocene and late Pleistocene (less than 120,000 years old)	Classified as low-to-high plasticity clays and clayey sands. In the northwest portion of the site a sand layer ranging from 88 to 93 feet in thickness underlies the base of the YBM.
Franciscan Assemblage (Bedrock)	Cretaceous-Jurassic (65 to 208 million years old)	Sandstones, shale, siltstones, chert, greenstone, and schist. Partially recrystallized and intruded by serpentine. Slope stability characteristics highly variable. Subject to sliding where highly sheared.

SOURCE: Treadwell & Rollo, 2008; Geosyntec, 2008.

[1] Stratigraphy is the vertical arrangement or sequencing of underlying materials that can be interpreted to describe the geologic history or for geotechnical purposes to design building foundations.

Figure 4.E-2
Topographic Map of Project Site
(11 x 17)

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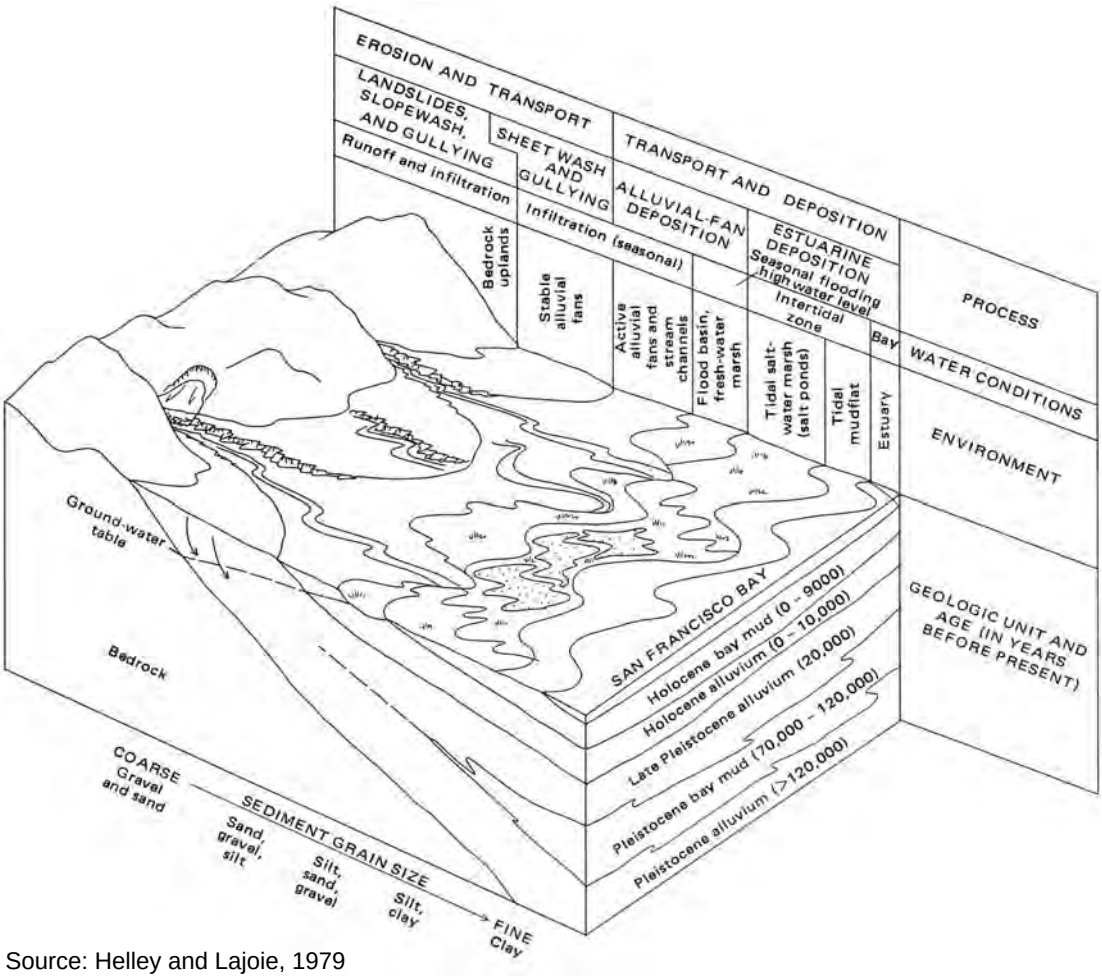
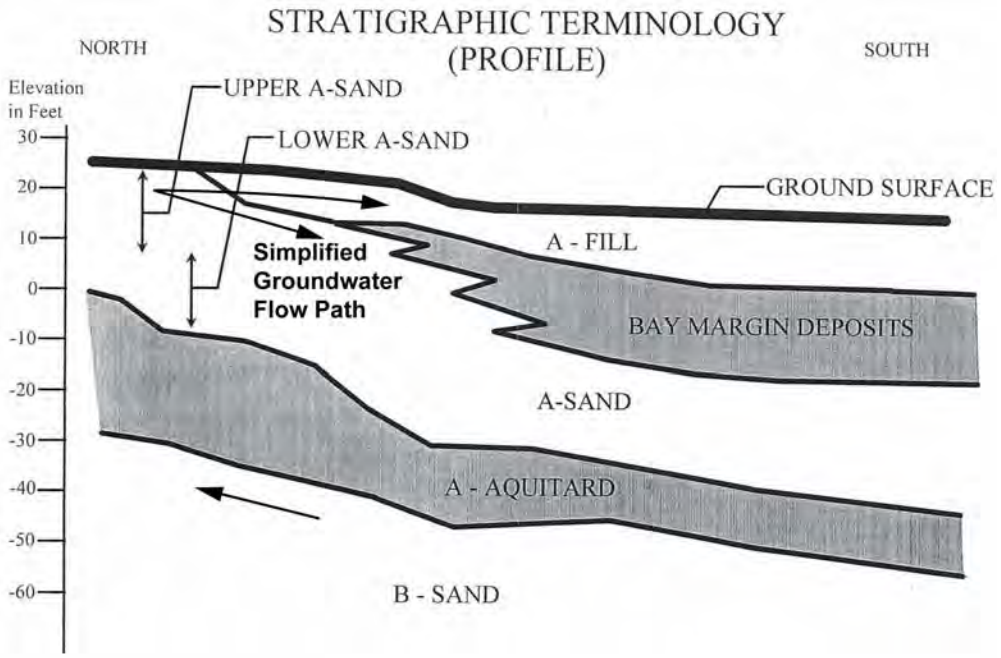


Source: Helley and Lajoie, 1979



Source: Burns & McDonnell, 2002

Brisbane Baylands . 206069

Figure 4.E-3

Regional and Local Stratigraphic Cross Sections

Artificial Fill, Waste, and Clean Soil Cover

Artificial fill material at the Project Site includes soils, concrete, bricks, tires, steel, and wood. Soil types range from sandy clay to gravel with sand. The majority of emplaced fill consists of silty clayey sand with a concrete matrix. At a few locations, steel was encountered within the concrete matrix. In addition, tires and wood were encountered at depths near the fill and waste boundary.

In the southern portion of the former landfill area, artificial fill thickness ranges from approximately 20 to 40 feet. In the northern portion of the former landfill area, artificial fill thickness ranges from 10 to 40 feet, with the greatest thickness of fill located near the center of the Project Site. The former railyard area is underlain by 6 to 22 feet of artificial fill, deposited on mudflats along the Bay margin in the early 1900s (Treadwell & Rollo, 2008). The fill is composed of mixtures of clay, silt, sand, rock fragments, organic matter, and other man-made debris. Geotechnical testing suggests that clay and silt within the fill are soft to very stiff and sandy fill is loose to dense (Geosyntec, 2008). The fill is underlain by Bay mud, which is a very soft to soft compressible marine clay.

Within the former landfill area, the waste material consists primarily of wood, paper, plastic, glass, wires, metals, and gravelly soils (Geosyntec, 2008).[2] The majority of waste material was composed of wood and paper. Approximately half of the waste was found to be below the water table. The waste thickness in the southern portion of the former landfill ranges from 20 to 30 feet, with deposits in the northern portion of the Project Site five feet thicker on average.

Consistent with landfill closure requirements at the time the landfill stopped accepting waste in 1967, the landfill operator placed a clean soil layer over the waste (Geosyntec, 2008). A Solid Waste Assessment Test (SWAT) report prepared by Kleinfelder for the former landfill site characterized the cover soil as primarily gravelly silt (CDM, 2005). Cover material has been added to the landfill through operations conducted by Baylands Soil Processing, LLC and Brisbane Recycling Company Inc. Recent soil cover investigations identified variability in soil cover thickness ranging from a few feet to more than 30 feet. However, the soil cover thickness over much of the landfill surface is reported to exceed 10 feet (Burns & McDonnell, 2002).

Young Bay Mud and Old Bay Mud

Young Bay Mud (YBM) is classified as elastic silt or fat clay. The total thickness of YBM deposits on the Project Site ranges from zero to up to approximately 50 feet (CDMG, 1966; Treadwell & Rollo, 2008; Geosyntec, 2008). **Figure 4.E-4** illustrates the thickness of the Young Bay Mud in the local area.

Old Bay Mud (OBM) is classified as low to high plasticity clays and clayey sands. The estimated thickness of OBM ranges from 50 feet in the west to more than 200 feet in the east. OBM thickness is estimated based on bedrock contours (see **Figure 4.E-5**), the elevation at the Project

[2] The landfill was used primarily for nonhazardous wastes, but is also reported to have had some hazardous wastes deposited. For more discussion and analysis of hazardous materials associated with the former landfill see Section 4.G, *Hazards and Hazardous Materials* of this EIR.

Figure 4.E-4
Young Bay Mud Isopach Map for the Project Site Vicinity

Figure 4.E-5
Top of Bedrock Contour Map for the Project Site Vicinity

Site shown in topographic profile from 2007 topographic maps (UPC, 2011; see Figure 4.E-2), and the thickness of the YBM (see Figure 4.E-4). The OBM consists of two sub-units on the Project Site: high plasticity clays interpreted as OBM and OBM containing a sand layer within the northern portion of the former landfill area. The OBM with the sand layer varies from 88 to 93 feet in thickness beneath the base of the YBM (Geosyntec, 2008). OBM is poorly characterized beneath the former railyard area but was encountered in several borings (Treadwell & Rollo, 2008).

The sediment sequence consists of a staggered and layered package of beach deposits (B-sand), back-bay mud flats (A/B-aquitard),[3] and offshore barrier bar (A-sand) deposits. As shown in Figure 4.E-3, this framework is initiated as a laterally flat relationship between beach deposits (B-sand), back-bay mud flats (A-aquitard), and offshore barrier bar (A-sand). With marine transgression (increase in relative sea level), this lateral relationship migrates landward, westward, and upward. With infilling, the above sediment sequence would compact over time. Typically, compaction is greater basinward (east) than shoreward (west) due to the increasing amount of Bay Mud. On the Project Site, bedrock elevations based on this regional map indicate a subsurface ridgeline running roughly east-west, dividing the northern sand rich deposits of the OBM from the fines rich OBM to the south, creating a depth range from approximately -50 to -250 feet msl (see Figure 4.E-5).

Bedrock

Bedrock of the Franciscan Complex underlies the Project Site (see Figure 4.E-5, **Figure 4.E-6,** and **Figure 4.E-7**) (Bonilla et al., 1998). The Franciscan Complex generally includes sedimentary and igneous rocks, including consolidated sandstone and shale encountered at depth in borings (Geosyntec, 2008).

This unit consists of layers of consolidated sandstone and shale, which have been tilted by tectonic action. The sandstone and shale, in about equal amounts, are about 3,000 feet thick on nearby San Bruno Mountain (Bonilla et al, 1998). To the north of the Project Site, near the Cow Palace, a valley has been eroded in the mélange, which consists of basalt, serpentine, and sandstone blocks in a sheared shale matrix. Many of these rocks were deposited in a coastal marine environment and have been deformed and uplifted by tectonic activity associated with displacement along the San Andreas fault.

Groundwater

The regional groundwater in the vicinity of the Project Site has been divided into two zones (A and B) (Burns & McDonnell, 2010). Zone A is comprised of shallow water-bearing sediments encountered from the ground surface to depths of approximately 20 feet below ground surface (bgs). The Zone A water-bearing sediments are typically encountered above the Younger Bay Mud. The relatively coarse-grained water-bearing Zone B sediments are encountered beneath the Younger Bay Mud, which is reported to act as an aquitard between the two zones.

[3] An aquitard is a bed of low permeability adjacent to an aquifer; may serve as a storage unit for groundwater, although it does not yield water readily.

Figure 4.E-6
Geologic Map of the Project Site Vicinity

Figure 4.E-7
Explanation for Geologic Map of the Project Site Vicinity

The direction of groundwater flow in the shallow water-bearing zone is generally a combination of east toward San Francisco Bay to south toward Brisbane Lagoon, depending on localized conditions. As groundwater flow reaches the margins of the Bay, the flow intersects the waters of the Bay, either through aquifers discharging directly into Bay waters or from reaching aquifers beneath the Bay. At this intersection, local groundwater flow directions on the site become highly variable. Please see Section 4.G, *Hazards and Hazardous Materials* for additional discussion of groundwater.

Regional Earthquake Faults

The Project Site, along with the entire San Francisco Bay Area, is dominated seismically by the active San Andreas fault system (see **Figure 4.E-8**). The San Andreas fault system forms the boundary between the northward-moving Pacific Plate (west of the fault) and the southward-moving North American Plate (east of the fault). In the San Francisco Bay Area, this movement is distributed across a complex system of subparallel right-lateral strike-slip faults, which include the San Andreas, San Gregorio, Hayward, Rogers Creek, and Calaveras faults, among others. Significant active and potentially active faults and seismic sources (earthquake) zones within 60 miles of the Project Site are listed in **Table 4.E-2**.

TABLE 4.E-2
ACTIVE FAULTS IN THE VICINITY OF THE PROJECT SITE

Fault	Approximate Distance and Direction from Project Site	Recency of Movement	Fault Classification[1,2]	Historical Seismicity[3]	Probability of at Least One M 6.7 or Larger Earthquake in 2007-2036[4]
San Andreas	5 miles southwest	Historic (1906; 1989) Holocene	Active	M 7.1, 1989 M 7.9, 1906 M 7.0, 1838 Many M 5	0.21
Hayward	13 miles east	Historic (1886, southern segment)	Active	M 6.8, 1868 Many <M 4.5	0.31
San Gregorio	11 miles southwest	Holocene-Late Quaternary	Active	Many M 3-6.4	0.07
Calaveras	24 miles east	Historic (1861) Holocene	Active	M 5.6-6.4, 1861 M 4-4.5 swarms, 1970, 1990	0.07
Monterey Bay	East of Bay (5)	(5)	(5)	M 6.5 1836	(5)

NOTES:
1 Fault activity rating as defined by the State of California (Hart and Bryant, 1997).
2 Fault designation by the USGS (OFR 96-08).
3 Earthquake Moment Magnitude (M).
4 The published background values are not explicitly stated by the WGCEP (2008) and thus the WGCEP (2003) values were used.
5 Information not available for this event.

SOURCES: Hart and Bryant, 1997; WGCEP, 2003.

Figure 4.E-8
Regional Map of Active and Potentially Active Faults

These faults are all considered active or potentially active and capable of producing significant intensities and durations of groundshaking at the site. Historically, the area has been subject to intense seismic activity (Hart and Bryant, 1997) and it will likely be subjected to a high degree of groundshaking in the future from earthquakes generated on active faults in the San Francisco Bay Area.

San Andreas Fault

The San Andreas fault zone is located approximately five miles southwest of the Project Site. The San Andreas fault is the longest active fault system in the state (see Figure 4.E-8). Within the Bay Area, the main trace of the San Andreas fault trends northwest through the Santa Cruz Mountains and the eastern side of the San Francisco Peninsula. The San Andreas fault zone was the source of the two major seismic events in recent history that resulted in widespread damage throughout the San Francisco Bay region: the 1906 San Francisco earthquake (magnitude [M] 7.9) and the 1989 Loma Prieta earthquake (M 7.1). The United States Geological Survey (USGS) Working Group on California Earthquake Probabilities (WGCEP) estimates there is a 21-percent chance that the San Andreas fault will produce an earthquake of M 6.7 or greater by 2036 (USGS, 2007). An earthquake of this magnitude would result in substantial structural damage and loss of life.

Hayward Fault

The Hayward fault zone is located approximately 13 miles east of the Project Site (see Figure 4.E-8). The Hayward fault zone is the southern extension of a fault zone that includes the Rodgers Creek fault (north of San Pablo Bay), the Healdsburg fault (in Sonoma County), and the Mayacama fault (in Mendocino County). The Hayward fault trends northwest within the East Bay, extending from San Jose 60 miles north to San Pablo Bay in Richmond. Historically, the southern portion of the Hayward fault generated a large to major earthquake in 1868. The USGS WGCEP estimates there is a 31-percent chance that the Hayward-Rodgers Creek fault system will produce an earthquake of M 6.7 or greater by 2036 (USGS, 2007).

San Gregorio Fault

The San Gregorio fault zone is located approximately 11 miles southwest of the Project Site (see Figure 4.E-8). The fault zone trends northwest and lies mostly within the Pacific Ocean in the vicinity of the Project Site, with right-lateral strike-slip motion on a near-vertical fault plane geometry. Historically, the fault has generated multiple M 3 to M 6.4 earthquakes. The USGS WGCEP estimates there is a seven-percent chance that the San Gregorio fault will produce an earthquake of M 6.7 or greater by 2032 (USGS/CGS, 2002).

Calaveras Fault

The Calaveras fault is located approximately 24 miles east of the Project Site (see Figure 4.E-8). The fault zone trends northwest within the East Bay, with right-lateral strike-slip motion on a near-vertical fault plane geometry. Historically, the fault generated a M 5.6 to 6.4 earthquake in 1861 and swarms of M4 to 4.5 earthquakes in 1970 and 1990. The USGS WGCEP estimates

there is a seven-percent chance that the Calaveras fault system will produce an earthquake of M 6.7 or greater by 2036 (USGS, 2007).

Other Faults

Several smaller faults, including the Serra, City College, and Hillside faults, that are not considered active, are located within an approximately five-mile radius of the Project Site (see Figure 4.E-6, Figure 4.E-7, and Figure 4.E-8).

The Serra fault, located approximately 4.8 miles west of the Project Site, is listed as potentially active with activity in the Pleistocene (i.e., active displacement 1.8 million years before present [BP]) but not after Holocene time (11,000 years BP) (Jennings, 1994).

The City College and Hillside faults are both pre-Quaternary (i.e., active displacement greater than 1.8 million years BP) and are therefore considered inactive (Bonilla et al., 1998). The City College fault is inferred to transect the northern portion of the landfill on the Project Site, while the Hillside fault is located approximately 1.8 miles to the southwest of the Project Site (see Figure 4.E-6). The shear zone of the City College fault is estimated to be several thousand feet wide. However, since the most recent activity along these faults has been estimated to be pre-Quaternary (i.e., older than 1.8 million years), these faults are considered inactive (BKF, 2011). No active shear zones (areas of strong deformation caused by movement along a fault) are known to exist at the Project Site.

Seismicity

The San Francisco Bay Area contains both active and potentially active faults, and is considered a region of high seismic activity (see Figure 4.E-8, **Figure 4.E-9**, and **Figure 4.E-10**). A major earthquake can occur at any time, in any part of this densely populated region. The epicenter of the 1989 Loma Prieta earthquake was in the Santa Cruz Mountains, some 30 to 70 miles away from Bay Area cities. The USGS warns that should an earthquake strike at one of the closer fault areas, such as the Hayward fault, shaking in local cities can be expected to be 5 to 12 times stronger than it was in 1989.

Earthquake Magnitudes

The greater San Francisco Bay Area region has historically experienced strong groundshaking from large earthquakes and will continue to do so in the future. A map showing the locations and magnitudes of the two largest historical earthquakes in the San Francisco Bay Area is presented in Figure 4.E-8. Since 1800, five earthquakes of magnitude (M) greater than 6.5 have occurred in the Bay Area (see Table 4.E-2): the 1836 M 6.5 event east of Monterey Bay, the 1838 M 7.0 event on the Peninsula section of the San Andreas fault, the 1868 M 6.8 Hayward event on the southern Hayward fault, the 1906 M 7.9 San Francisco earthquake on the San Andreas fault, and the 1989 M 7.1 Loma Prieta event in the Santa Cruz Mountains.

On the basis of research conducted since the 1989 Loma Prieta earthquake, the USGS and other scientists, comprising the Working Group on California Earthquake Probabilities (WGCEP), have

Figure 4.E-9
Level of Earthquake Hazard in the Project Site Vicinity

Figure 4.E-10
Ground Shaking Amplification Map of the Project Site Vicinity

concluded that there is a 66-percent probability of at least one magnitude 6.7 or greater earthquake striking the San Francisco Bay Area before 2036 (USGS, 2007). The findings of the WGCEP (2008) report are summarized in the Table 4.E-2.

Earthquake Intensity

While magnitude is a measure of the energy released in an earthquake, intensity is a measure of the groundshaking effects at a particular location. Ground movement during an earthquake can vary depending on the overall magnitude of the earthquake, distance from a site to the fault, focus of earthquake energy, and type of geologic material. The composition of underlying soils, even those relatively distant from faults, can intensify groundshaking. The Project Site is underlain by both National Earthquake Hazard Reduction Program (NEHRP) Soil Classifications E and D, suggesting that significant amplification of strong groundshaking could occur (see **Table 4.E-3**).

TABLE 4.E-3
NATIONAL EARTHQUAKE HAZARD REDUCTION PROGRAM (NEHRP) SOIL CLASSIFICATIONS

Soil Classification	Shear-Wave Velocity (Vs)	Soil Description
Soil Type A	Vs > 1500 meters/second	Includes unweathered intrusive igneous rock. Occurs infrequently in the Bay Area. Considered with Type B. Soil types A and B do not contribute greatly to shaking amplification.
Soil Type B	1500 meters/second > Vs > 750 meters/second	Includes volcanic, mostly Mesozoic bedrock, and some Franciscan bedrock. (Mesozoic rocks are between 245 and 64 million years old. The Franciscan Complex is a Mesozoic unit that is common in the Bay Area.)
Soil Type C	750 meters/second > Vs > 350 meters/second	Includes some Quaternary (less than 1.8 million years old) sands, sandstones, and mudstones; some Upper Tertiary (1.8 to 24 million years old) sandstones, mudstones, and limestones; some Lower Tertiary (24 to 64 million years old) mudstones, and sandstones; and Franciscan mélange and serpentinite.
Soil Type D[1]	350 meters/second > Vs > 200 meters/second	Includes some Quaternary muds, sands, gravels, silts, and mud. Significant amplification of shaking by these soils is generally expected.
Soil Type E[1]	200 meters/second > Vs	Includes water-saturated mud and artificial fill. The strongest amplification of shaking is expected for this soil type.

NOTE:
[1] As described in the text, the soil underlying the Project Site is NEHRP Soil Type D and/or E.

SOURCE: USGS, 2006a.

The Modified Mercalli (MM) intensity scale (see **Table 4.E-4**) is commonly used to measure earthquake effects due to groundshaking (CGS, 2007). The MM values range from I (earthquake not felt) to XII (damage nearly total). Values ranging from IV to X could cause moderate to significant structural damage. Maximum groundshaking resulting from an earthquake generated on the San Andreas fault, as discussed below, is anticipated to be violent to very violent (MM IX to MM X) at the Project Site (ABAG, 2007).

TABLE 4.E-4
MODIFIED MERCALLI INTENSITY SCALE

Intensity Value	Intensity Description	Average Peak Acceleration[1]
I	Not felt except by a very few under especially favorable circumstances.	<0.0017g
II	Felt only by a few persons at rest, especially on upper floors of buildings. Delicately suspended objects may swing.	<0.014g
III	Felt quite noticeably indoors, especially on upper floors of buildings, but many people do not recognize it as an earthquake. Standing motor cars may rock slightly. Vibration like passing of truck. Duration estimated.	<0.014g
IV	During the day felt indoors by many, outdoors by few. At night some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motor cars rocked noticeably.	0.014-0.039g
V	Felt by nearly everyone, many awakened. Some dishes, windows, etc., broken; a few instances of cracked plaster; unstable objects overturned. Disturbances of trees, poles, and other tall objects sometimes noticed. Pendulum clocks may stop.	0.039-0.092g
VI	Felt by all, many frightened and run outdoors. Some heavy furniture moved; a few instances of fallen plaster or damaged chimneys. Damage slight.	0.092-0.18g
VII	Everybody runs outdoors. Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable in poorly built or badly designed structures; some chimneys broken. Noticed by persons driving motor cars.	0.19-0.34g
VIII	Damage slight in specially designed structures; considerable in ordinary substantial buildings, with partial collapse; great in poorly built structures. Panel walls thrown out of frame structures. Fall of chimneys, factory stacks, columns, monuments, and walls. Heavy furniture overturned. Sand and mud ejected in small amounts. Changes in well water. Persons driving motor cars disturbed.	0.34-0.65g
IX	Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb; great in substantial buildings, with partial collapse. Buildings shifted off foundations. Ground cracked conspicuously. Underground pipes broken.	0.65-1.24g
X	Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations; ground badly cracked. Rails bent. Landslides considerable from river banks and steep slopes. Shifted sand and mud. Water splashed (slopped) over banks.	>1.24g
XI	Few, if any, (masonry) structures remain standing. Bridges destroyed. Board fissures in ground. Underground pipelines completely out of service. Earth slumps and land slips in soft ground. Rails bent greatly.	>1.24g
XII	Damage total. Practically all works of construction are damaged greatly or destroyed. Waves seen on ground surface. Lines of sight and level are distorted. Objects are thrown upward into the air.	>1.24g

NOTE:
[1] g (gravity) = 580 centimeters per second squared. 1.0 g of acceleration is a rate of increase in speed equivalent to a car traveling 328 feet from rest in 4.5 seconds.

SOURCE: CGS, 2007.

In 2002, the USGS teamed with the California Geological Survey (CGS) to complete an update of the national seismic hazard maps that depict the probabilistic groundshaking hazard for the entire United States (USGS/CGS, 2002). The hazard was calculated at a series of gridded locations (spaced 0.05 kilometer apart) across the country using probabilistic seismic hazard analysis techniques. The USGS maps display contoured ground motion parameters for a standardized probability scenario. As shown in **Table 4.E-5**, the estimate of the range of peak ground accelerations (PGA) expected in the vicinity of the Project Site is between 0.5 to 0.6 g, and spectral accelerations are expected to be between 0.58 to 1.251 g within a 475-year period (10 percent in 50 years; CGS, 2012).[4]

TABLE 4.E-5
ESTIMATED PEAK GROUND ACCELERATIONS (PGA) FOR PROJECT SITE[1]

Ground Motion	Firm Rock	Soft Rock	Alluvium
PGA	0.56	0.56	0.56
SA 0.2 Sec	1.251	1.251	1.251
SA 1.0 Sec	0.58	0.656	0.757

NOTE:
[1] Calculations based on user specified point in the center of the Project Site (latitude 37.6977,longitude -122.4). Values expressed as a fraction of the acceleration due to gravity (g). Abbreviations: PGA = peak ground acceleration, SA = spectral acceleration. Ground motion values were interpolated from a grid of calculated values (0.05 degree spacing), not intended for design. NEHRP Soil corrections were calculated by USGS/CGS (2002) and used to calculate soft rock alluvium.

SOURCE: USGS/CGS, 2002, CGS, 2012.

Mineral Resources

The California Department of Conservation, CGS has classified lands within the San Francisco-Monterey Bay Region into Aggregate and Mineral Resource Zones (MRZs) based on guidelines adopted by the California State Mining and Geology Board, as mandated by the Surface Mining and Reclamation Act of 1974 (Stinson et al., 1983).

No known mineral resources are located within or near the Project Site. Mineral resource extraction activities have not taken place within or around the Project Site during recent history. The Project Site is mapped by CGS as MRZ-1, a zone where no significant mineral or aggregate deposits are present (Kohler-Antablin, 1996).

Geologic Hazards

Slope Failure

Background

Slope failure can occur in the form of creep, slumps, large progressive translation or rotational failures, rockfall, or debris flows. Soil creep is the slow continuous deformation of soil or rock.

[4] Spectral accelerations refers to what might be experienced by a building during an earthquake as opposed to what might be experienced on the ground.

Slumps refer to a mass movement of materials that slide on a curved plane, and are generally smaller than what would be considered to be a large translational or rotational failure, which would also occur along a curved plane of motion. Rockfalls and debris flows are more general references to the downward movement of rock or soil materials.

Landslides can occur during earthquakes, triggered by the strain induced in soil and rock by the groundshaking vibrations. During non-earthquake (static) conditions, slope failures occur most frequently during the rainy season when high groundwater conditions persist. Landslides typically occur most frequently during or following large storms and in years with significant precipitation.

Landslides are most likely to occur in areas where they have previously occurred. Landslide mapping, therefore, provides a basis for estimating the most likely locations for future slope failure. Steep slopes are often prone to sliding. Slides may occur slowly or suddenly, at times without apparent provocation. Possible landslide causes include gradual disintegration of the structure of the soil, an increase in pore water pressure, liquefaction of underlying soil, or horizontal acceleration due to earthquake groundshaking. Evaluation of the stability of a slope is performed by calculating "factors of safety;" the factors of safety are calculated for both static and dynamic (earthquake-induced groundshaking) conditions.

Project Site Conditions

The review of existing maps, including landslide inventory maps, confirmed that no landslides are mapped within the Project Site. The associated landslide hazard for the former landfill area is nil to very low because surface gradients are very gentle (see Figure 4.E-2). Along the southwestern boundary of the former railyard area, moderate to locally steep relief is associated with bedrock outcrops in the vicinity of Icehouse Hill, near the Kinder Morgan Energy Tank Farm; however, no landslides are documented for this area. The west side of Icehouse Hill has had some noted rock fall which the City has addressed through placement of concrete k-rail barriers to prevent falling rocks and soil from reaching Bayshore Boulevard travel lanes.

As described above, soils within much of the Project Site consist of fill that is generally underlain by a layer of very soft to soft, compressible marine clay, known as Bay Mud. The thickness of the Bay Mud layer ranges from zero to about 50 feet, and generally increases in thickness toward the southern portion of the site.

Settlement and Differential Settlement

Settlement and differential settlement can be caused by several factors, including primary settlement, settlement related to liquefaction and lateral spreading, and cyclic densification related to strong groundshaking (Treadwell & Rollo, 2008). Fill subsidence and settlement can affect long-term durability and maintenance requirements of constructed slopes, built structures, roadways, and underground utilities.

For the former landfill, there is ongoing decomposition of the waste material which causes settlement as well as consolidation of the underlying Bay Mud. As a result, the landfill surface is expected to continue to undergo some degree of differential settlement.

Expansive Soils

Expansive soils exhibit "shrink-swell" behavior, also called linear extensibility. Shrink-swell is the cyclic change in volume (expansion and contraction) that occurs in fine-grained sediments from the process of wetting and drying. An expansive soil hazard is considered to exist where soils with an expansion index greater than 20 are present. Typically, the expansion index of a soil is directly correlative to the amount of clay in the soil, with a high clay percentage resulting in a high expansion index (Edwards et al., 1970).

If it is not currently saturated, Young Bay Mud has a fairly high shrink-swell potential, due to the presence of expansive clay derived from upland areas (Helley and LaJolie, 1979). Since the Bay Mud on the Project Site is buried by landfill material and is beneath the groundwater level, it remains wet and the corresponding potential for shrink-swell is relatively low. The surface fill has not been identified as having a significant expansive clay component (Geosyntec, 2006).

Bay Mud and associated estuarine deposits are present beneath the former landfill area at depths greater than 71 feet (Geosyntec, 2008) and beneath the former railyard area starting from seven feet to 50 feet (Treadwell & Rollo, 2008). For the majority of the former railyard area, Bay Mud and other clay-rich deposits are located primarily beneath the groundwater level, and therefore have a relatively low corresponding potential for shrink-swell (Geosyntec, 2008). However, the depth of these deposits in the former railyard area is somewhat poorly constrained, and in one boring near Icehouse Hill, Bay Mud is located above the groundwater table, suggesting a possible higher shrink-swell potential.

Soil Corrosivity

Corrosivity of soils is dependent on soil texture, soil pH, moisture content, and geochemical composition of fluids within the soil. These factors, in turn, are influenced by the physical and mineralogical composition of soils. Soil composition often is directly derived from the characteristics of the underlying geologic deposits on which they develop. Silty, loamy, and clayey soils tend to be among the more potentially corrosive soils, in contrast to granular soils (sands and gravels). In addition, the topography of the land, depth to groundwater, and native vegetation all influence the soil corrosivity potential.

Although soil corrosivity can exist within a broad range of soil conditions, the extent of acidity or alkalinity of a soil, as expressed by pH, directly influences corrosion susceptibility. Soils with a pH less than 4.0 have been found to indicate the highest risk of corrosion (Muckel, 2004). Typically soils with a pH of 0.0 to 4.0 are acidic and, where saturated, can serve as a corrosive electrolyte. Soils with a more neutral pH of 6.5 to 7.5 and low redox, or oxidizing, conditions are optimal for sulfate reduction by bacteria, which can cause localized corrosion. Soil resistivity, the measure of a soils' ability to retard the conduction of an electrical current, also has a strong influence on the corrosion rate. As a general rule, higher resistivity values correlate to lower corrosion potential. Soil resistivity arises from a number of factors, but fine-grained soils (silts, loams, clays) typically have the lowest resistivities and thus the greatest corrosion susceptibility.

Corrosive subsurface soils may exist in places within the Project Site and are especially likely along Bayshore Boulevard, where Bay Mud is present beneath the fill. The landfill waste can also have corrosive properties depending on the chemistry of the leachate. Corrosive soils could have a detrimental effect on concrete and metals. Corrosion is typically a result of contact with soluble chloride salts found in the soil or water, which requires moisture to form solutions of these salts. Several key factors that influence the severity and rate of corrosion include: the amount of moisture in the soil, the conductivity of the solution, the pH of the solution, and the oxygen concentration within the soil (aeration). The organic content of the soil, soil porosity, and soil texture indirectly affect corrosion of metals in soil by influencing the key factors listed above. Depending on the degree of corrosivity of subsurface soils, concrete and reinforcing steel in concrete structures and bare-metal structures exposed to these soils could deteriorate, eventually leading to structural failures.

Soil Erosion

Erosion is the wearing away of soil and rock by processes such as mechanical or chemical weathering, mass wasting, and the action of waves, wind and underground water. Surficial and near-surface materials are prone to erosion, with increased potential for deposits on steep slopes. Erosion of materials can lead to the destabilization of ground surfaces and exposure of buried materials.

The Project Site is mainly covered with undocumented fill materials, and thus fill is the most likely deposit at risk of soil erosion. Icehouse Hill is the only portion of the Project Site with native soils that overlie bedrock. Typically, the soil erosion potential is reduced once the soil is graded and covered with concrete, structures, asphalt, or vegetated with landscaping. The area with an increased risk of soil erosion includes the former landfill area, where steeper slopes, exposed/unvegetated soil, and low-lying areas that direct runoff (e.g., unlined drainage ditches, swales, and channels) may increase the potential for soil erosion.

Seismic Hazards

Surface Fault Rupture

Ground surface displacement, or surface rupture, caused by an earthquake is a major consideration in the siting of buildings in areas that are traversed by active faults. Surface rupture occurs when movement on a fault deep within the earth breaks through to the surface. Most surface faulting is confined to a relatively narrow zone several feet to tens of feet wide, making avoidance (i.e., building setbacks) the common mitigation method. Fault rupture typically follows preexisting faults, which are zones of weakness. Specific geomorphic features commonly coincide with the locations of repeated fault rupture. Thus, identification of active faults that might produce surface rupture requires (1) knowing the location of existing faults, and (2) evaluating recent fault activity. The most useful and direct method of evaluating fault activity is to document the youngest geologic unit faulted and the oldest unit that is not faulted to constrain the timing of the most recent surface offset on the fault.

As defined in Alquist-Priolo Earthquake Fault Zoning Act of 1972 (see Subsection 4.E.3, *Regulatory Setting*, below), a fault or fault zone is considered active under the provisions of the act if there is evidence of surface displacement within the last 11,000 years (Holocene time). A fault is thought to be "sufficiently active" if one or more of its segments or strands show evidence of surface displacement during Holocene time. A fault is considered "well-defined" if its trace can be clearly identified by a trained geologist at the ground surface or in the shallow subsurface, using standard professional techniques, criteria, and judgment (Hart and Bryant, 1997).

The northwest-trending City College fault is mapped crossing the center of the Project Site, but is considered not active (see Figure 4.E-6) (Bonilla et al., 1998). This fault is defined as a pre-Quaternary fault (older than 1.8 million years), with no associated seismicity, and therefore lacks recognized Quaternary displacement or shows evidence of no displacement during Quaternary time. Faults older than 10,000 years are not considered active. Observations of historic ground failures in Northern California triggered by major earthquakes from 1800 to 1970 indicate that no movement on the City College fault at the Project Site was observed and/or recorded during that time. Based on the lack of evidence for active faulting along the City College fault, the potential for surface rupture at the Project Site is judged to be low.

Groundshaking

An earthquake produces seismic waves that emanate in all directions from the fault rupture surface. The seismic waves cause strong groundshaking, which is typically strongest near the fault and diminishes (attenuates) as the waves move through the earth away from the fault. The magnitude of an earthquake is a measure of the seismic waves or energy released by the earthquake. The severity of groundshaking at any particular point is referred to as "intensity" and is a subjective measure of the effects of groundshaking on people, structures, and earth materials. Groundshaking intensity commonly is measured using the Modified Mercalli scale, which provides a means of correlating felt effects of an earthquake to the size (magnitude) of an earthquake (see Table 4.E-4).

The severity of groundshaking at a particular site is controlled by the interaction of several factors, including the distance from the earthquake source, earthquake magnitude, and the type, thickness, and condition of underlying geologic materials such as bedrock, sediment, soils, and man-made fill. Recent research has shown that areas underlain by unconsolidated, recent alluvium and/or man-made fill may amplify the strength and duration of strong ground motions during major earthquakes, increasing the risk of damage. During the Loma Prieta earthquake in 1989, ground motion locally was amplified up to four times.

The distribution of near-surface geologic materials for the Project Site is shown in Figure 4.E-6**,** and the accompanying Table 4.E-1 summarizes the characteristics of these geologic materials. The characteristics of these materials suggest that they describe the NEHRP Classifications D and E (see Table 4.E-3). These soil classifications are expected to amplify strong groundshaking (see Figure 4.E-10).

Strong groundshaking caused by fault movement during an earthquake has the potential to result in significant life and safety hazards and property damage throughout the City of Brisbane.

Maximum groundshaking for the Project Site would be expected to result from a large earthquake on the nearby San Andreas fault, although strong groundshaking may also occur as a result of moderate or large earthquakes on other faults in the San Francisco Bay region (see Table 4.E-2 and Figure 4.E-9).

The predicted maximum earthquake intensity for the site is characterized as "very violent" by the USGS (Borcherdt, 1975) and "very strong" (Modified Mercalli Intensity VIII) by the Association of Bay Area Governments (ABAG) (ABAG, 2007). The estimate of the range of peak ground accelerations (PGA) expected in the vicinity of the Project Site is between 0.5 to 0.6 g PGA within a 475-year period (10 percent in 50 years; see Table 4.E-5) (USGS/CGS, 2002).

Moving ground accelerates during earthquakes and imposes forces on buildings. Structural engineers use the horizontal acceleration to design buildings. Peak ground acceleration generated in the vicinity of the Project Site by the 1989 Loma Prieta earthquake was about 0.1g (Geosyntec, 2006) (see Figure 4.E-8). The epicenter of the Loma Prieta event was about 50 miles southeast of the Project Site, whereas the San Andreas fault is five miles west of the site (see Figure 4.E-8). The proximity of the site to the San Andreas fault and other nearby faults increases the probability of very strong ground motion on the site during a major earthquake (Geosyntec, 2006).

Liquefaction and Lateral Spreading

Liquefaction

The potential for liquefaction depends on both the susceptibility of a deposit to liquefy and the opportunity for ground motions to exceed a specified threshold level. Liquefaction susceptibility is the relative resistance of a deposit to loss of strength when subjected to groundshaking. Loss of soil strength can result in ground failures at the earth's surface. These failures, including localized ground settlement and lateral spreading, can cause significant property damage.

Physical properties of surficial deposits govern the degree of resistance to liquefaction during an earthquake. These properties include sediment grain-size distribution, density, cementation, saturation, and depth. Sediments that lack resistance to liquefaction (susceptible deposits) commonly include saturated young sediments that are sandy and loose. Sediments resistant to liquefaction include older surficial deposits that are dry or sufficiently dense.

Unconsolidated, water-saturated sand is most likely to liquefy under seismic stress. Water in pores between sand grains is compressed again and again during groundshaking until the water moves the grains apart and the soil loses its strength. If the grains are cemented together or well packed with silt- or clay-sized grains, or if water does not fill all the available pore space between grains, liquefaction is not as likely to occur.

The sandy alluvial saturated sediment underlying the Young Bay Mud at the Project Site is relatively dense and cohesive and has the potential to resist liquefaction. Saturated artificial fill and younger sandy deposits within and overlying Young Bay Mud, on the other hand, may be susceptible to liquefaction.

Figure 4.E-11 shows that the liquefaction hazard at the Project Site is very high according to maps of Quaternary (less than 1.8 million years old) deposits and liquefaction susceptibility prepared by the USGS (USGS, 2006b). Various geotechnical investigations at the Project Site have confirmed the presence of potentially liquefiable deposits in subsurface materials (Treadwell & Rollo, 2008). Geosyntec (2006) stated that the potential for surface manifestations of liquefaction of underlying material beneath the former landfill area "are expected to be somewhat limited" due to the depths of the sandy materials underlying the landfill area (Geosyntec, 2006). Conversely, Treadwell & Rollo, Inc. (2008) conducted preliminary liquefaction susceptibility analysis of the former railyard area and concluded that sandy layers in historic fill and sand within native deposits beneath the area are susceptible to liquefaction and capable of producing from 0 to 4 inches generally, and up to 8 inches of liquefaction-related settlement.

Lateral Spreading

Lateral spreading is a ground-failure condition induced by liquefaction where a slide plane develops within the liquefied sediment layer, causing the overlying soil to move. Lateral spreading generally occurs toward a free-face (e.g., a slope along a creek) or down a gentle ground slope. According to the Treadwell & Rollo investigation of the former railyard site, constructed slopes created through grading can be considered to be an unsupported face that could potentially be susceptible to lateral spreading and would require site specific evaluation (Treadwell & Rollo, 2008).

Earthquake-Induced Settlement

Strong ground motion can cause seismic settlement of dry, mostly cohesionless soils that make up the upper part of the landfill. Seismic settlement is typically induced in sandy deposits due to liquefaction.

A preliminary evaluation of earthquake induced settlement was completed for the former railyard area by Treadwell and Rollo, Inc. (2008). These results suggested that up to eight inches of earthquake-induced liquefaction-related settlement is possible. As mentioned above, the geotechnical evaluation for the landfill area of the Project Site concluded that seismic settlement was expected to be somewhat limited or relatively minor due to the depths of the sandy layers (Geosyntec, 2006).

4.E.3 Regulatory Setting

Development within the Project Site boundaries must comply with federal, state, regional, and local regulations. This section discusses these requirements to the extent that they affect the way Project development will occur.

Geologic, soil, and seismic conditions at the Project Site are subject to a variety of federal, state, regional, and local regulations, as discussed below.

Figure 4.E-11
Liquefaction Susceptibility Map of the Project Site Vicinity

Federal Regulations

Earthquake Hazards Reduction Act

The Earthquake Hazards Reduction Act was enacted in 1997 to "reduce the risks to life and property from future earthquakes in the United States through the establishment and maintenance of an effective earthquake hazards and reduction program." To accomplish this, the act established NEHRP, amended in November 1990, which refined the description of agency responsibilities, program goals, and objectives. NEHRP's mission includes improved understanding, characterization, and prediction of hazards and vulnerabilities; improvement of building codes and land use practices; risk reduction through post-earthquake investigations and education; development and improvement of design and construction techniques; improvement of mitigation capacity; and accelerated application of research results. NEHRP designates the Federal Emergency Management Agency as the lead agency of the program and assigns it several planning, coordinating, and reporting responsibilities. Programs under NEHRP help inform and guide planning and building code requirements such as emergency evacuation responsibilities and seismic code standards such as those to which the proposed project would be required to adhere.

State Regulations

The California Department of Conservation, CGS compiles, updates, and maintains information regarding regional and local geologic conditions. This task includes mapping potentially active and known active faults and seismic evaluations under the Alquist-Priolo Earthquake Fault Zoning Act (Public Resources Code Sections 2621–2630). CGS also defines Seismic Hazard Zones where amplified groundshaking, liquefaction, and earthquake-induced landsliding may occur and that will require site-specific geologic study under the Seismic Hazards Mapping Act of 1990 (Public Resources Code Sections 2690–2699.6). CGS makes this information available to other state and local agencies.

Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Special Studies Act of 1972 (recently renamed the Alquist-Priolo Earthquake Fault Zoning Act), Public Resources Code Sections 2621 through 2630, mandates the identification and disclosure of areas of potential surface fault rupture and designates a Special Studies Zone (now called Earthquake Fault Zone) around each potentially active fault within which a geologic investigation must be completed prior to development. The purpose of the Alquist-Priolo Earthquake Fault Zoning Act is to prevent development of structures directly on top of active faults in order to mitigate the effects of surface fault rupture. Review of the maps indicates that the Project Site is not located within an Earthquake Fault Zone.

Seismic Hazards Mapping Act

Following the 1989 Loma Prieta earthquake, the California legislature enacted the Seismic Hazards Mapping Act (Public Resources Code Sections 2690–2699.6), which requires the State Geologist to create Alquist-Priolo-type zones where amplified groundshaking, liquefaction, and earthquake-induced slope failures are likely to occur. Unlike surface fault rupture, which typically

is confined to a relatively narrow zone and requires a correspondingly narrow Earthquake Fault Zone, the effects of amplified strong ground motion, liquefaction, and earthquake-induced slope failure are more widespread in extent.

The maps currently are in the process of being prepared and will be completed for many parts of the Bay Area within the next decade. Mapping has not been officially released for the Brisbane Baylands area.

California Building Code

The California Building Code (CBC) has been codified in the California Code of Regulations (CCR) as Title 24, Part 2. Title 24 is administered by the California Building Standards Commission, which, by law, is responsible for coordinating all building standards. These regulations were adopted by the City, as provided under Brisbane Municipal Code Section 15.04.040, and are applicable to all Project Site development. Under state law, all building standards must be centralized in Title 24 or they are not enforceable. The purpose of the CBC is to establish minimum standards to safeguard the public health, safety, and general welfare through structural strength, means of egress facilities, and general stability by regulating and controlling the design, construction, quality of materials, use and occupancy, location, and maintenance of all building and structures within its jurisdiction.

The 2010 CBC is based on the 2009 International Building Code published by the International Code Conference. In addition, the CBC contains necessary California amendments, which are based on reference standards obtained from various technical committees and organizations such as the American Society of Civil Engineers (ASCE), the American Institute of Steel Construction, and the American Concrete Institute. ASCE Minimum Design Standards 7-05 provides requirements for general structural design and includes means for determining earthquake loads as well as other loads (flood, snow, wind, etc.) for inclusion into building codes. The provisions of the CBC apply to the construction, alteration, movement, replacement, and demolition of every building or structure or any appurtenances connected or attached to such buildings or structures throughout California.

The earthquake design requirements take into account the occupancy category of the structure, site class, soil classifications, and various seismic coefficients which are used to determine a Seismic Design Category (SDC) for a project as described in Chapter 16 of the CBC. The SDC is a classification system that combines the occupancy categories with the level of expected ground motions at the site and ranges from SDC A (very small seismic vulnerability) to SDC E (very high seismic vulnerability and near a major fault). Design specifications are then determined according to the SDC and in accordance with Chapter 16 of the CBC. Chapter 16, Section 1613 provides earthquake loading specifications for every structure, and portion thereof, including nonstructural components that are permanently attached to structures and their supports and attachments, which shall be designed and constructed to resist the effects of earthquake motions in accordance with ASCE 7-05. Chapter 18 of the CBC covers the requirements of geotechnical investigations (Section 1803), excavation, grading, and fills (Section 1804), load-bearing of soils (1805), as well as foundations (Section 1808), shallow foundations (Section 1809), and deep foundations (Section 1810). Chapter 18 also describes analysis of expansive soils and the

determination of the depth to groundwater table. For SDCs D, E, and F, Chapter 18 requires analysis of slope instability, liquefaction, and surface rupture attributable to faulting or lateral spreading, plus an evaluation of lateral pressures on basement and retaining walls, liquefaction and soil strength loss, and lateral movement or reduction in foundation soil-bearing capacity. It also addresses mitigation measures to be considered in structural design, which may include ground stabilization, selecting appropriate foundation type and depths, selecting appropriate structural systems to accommodate anticipated displacements, or any combination of these measures. The potential for liquefaction and soil strength loss must be evaluated for site-specific peak ground acceleration magnitudes and source characteristics consistent with the design earthquake ground motions.

CCR Title 24 also includes the California Residential Code and the California Green Building Code, which have been adopted as separate documents (CCR Title 24, Part 2.5 and 11, respectively). The California Residential Code includes structural design standards for residential one- and two-family dwellings and covers all structural requirements for conventional construction. This part incorporates by adoption the 2009 International Residential Code of the International Code Council with necessary California amendments for seismic design. All other structures including multi-family residential projects are found in the other parts of the CBC as discussed above.

California Code of Regulations, Title 27, Section 21190

CCR, Title 27, Section 21190 pertains to development in or within 1,000 feet of active, inactive, and abandoned solid waste landfills. It requires that all proposed post-closure land uses be designed and maintained to:

(1) Protect public health and safety and prevent damage to structures, roads, utilities and gas monitoring and control systems;

(2) Prevent public contact with waste, landfill gas and leachate; and

(3) Prevent landfill gas explosions.

This regulation dictates various construction requirements for buildings including measures to mitigate the effect of differential settlement through use of flexible connections and utility collars for the placement of utilities.

McAteer-Petris Act

The McAteer-Petris Act (California Government Code Sections 66600–66694) is the California state law that established the San Francisco Bay Conservation and Development Commission (BCDC) as a state agency (see discussion under “Regional Regulations” below). The act prescribes BCDC’s powers, responsibilities, and structure and describes the broad policies to regulate development within 100 feet of the shoreline of San Francisco Bay.

Regional Regulations

Bay Conservation and Development Commission

The BCDC Administrative Regulations (14 California Code of Regulations Division 5, Sections 10110–11990) supplement and interpret the McAteer-Petris Act, the Suisun Marsh Preservation Act, the San Francisco Bay Plan, the Suisun Marsh Protection Plan, the federal Coastal Zone Management Act, the California Environmental Quality Act, and the State Coastal Conservancy Act as they apply to the regulation, planning, and management of the area within BCDC's authority and jurisdiction. BCDC is empowered to issue or deny permits, after public hearings, for any proposed project that involves placing fill, extracting materials, or making any substantial change in use of any water, land, or structure within the area of BCDC's jurisdiction.

Regional Water Quality Control Board

The RWQCB regulates the development and enforcement of water quality objectives and implementation of plans to protect the area's waters while "recognizing our local differences in climate, topography, geology and hydrology."

Under Order 01-041 from the RWQCB (2001), clay cap material must be maintained over landfill materials and undeveloped or open space areas. If the cap should be breached by any means (differential settlement, construction, plantings, etc.), adequate measures must be taken to keep the cap sealed.

San Mateo County Health System – Solid Waste Program

The San Mateo County Environmental Health Division's Solid Waste Program is responsible for ensuring that businesses, garbage collection and disposal companies, and individual residents follow federal, state and local standards and permitting requirements for proper handling and disposal of solid waste. The solid waste facilities and landfill sites are monitored for compliance with state minimum standards for the proper handling and disposal of solid waste to prevent the creation of public health and safety and environmental concerns. The program includes regulatory oversight of 16 closed landfills and oversight of post closure development (building construction on top of landfill sites).

Local Regulations

The Community Health and Safety Element of the City of Brisbane General Plan contains policies and programs pertaining to geology, soils, and seismicity that are relevant to the Project Site development. The following policy and programs relate to the seismic safety of structural improvements:

Policy 149: Construct new buildings and retrofit existing ones to withstand seismic forces.

Program 149a: Require that all new construction meet current codes for seismic stability.

Program 149e: Require soils reports and engineering recommendations for structural stability in conjunction with building permit applications in areas which have been identified as prone to seismically-induced landslides or subsidence in seismic events.

The following policy and programs relate to the slope stability requirements:

Policy 152: Consider issues of slope stability in conjunction with development applications.

Program 152a: Require soil and geologic investigations in areas identified as prone to slope instability. Consider both on-site and off-site impacts.

Program 152b: Unless adequate mitigating measures are undertaken, prohibit land alteration, including any grading and structural development, in identified areas of slope instability.

Program 152e: Encourage placement of structures away from areas identified as prone to slope failure or erosion unless effective mitigation measures are proposed as a part of the project design.

4.E.4 Impacts and Mitigation Measures

Significance Criteria

Based on Appendix G of the CEQA Guidelines the project would have a significant effect on the environment if it were to:

- Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:
  - Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault;
  - Strong seismic groundshaking;
  - Seismic-related ground failure (including liquefaction); and/or
  - Landslides.
- Result in substantial soil erosion or loss of topsoil;
- Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse;
- Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code, creating substantial risks to life or property; or
- Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater.

Because the Project Site contains corrosive soils, this document analyzes the suitability of the Project Site for placement of underground utilities. The project would have a significant effect on the environment if it would:

- Place concrete or steel elements, including piles that could be damaged by corrosive soils present within the Project Site.

Impact Assessment Methodology

General Approach

This section identifies the geologic and seismic impacts associated with the proposed Project Site development. Project Site development scenarios were evaluated against existing (2010) conditions to determine whether geologic or seismic effects would trigger any significant impacts based on the identified significance criteria. Feasible mitigation measures are identified to mitigate significant impacts. This section also identifies impacts that are considered to be less than significant.

Construction-related impacts including site grading (and site remediation to the extent it relates to geologic impact criteria) associated with implementation of the Project Site development infrastructure improvements described in the Chapter 3, *Project Description*, are included in the analysis below[5].

The geotechnical and seismic hazards associated with the Project Site development scenarios would present similar challenges regardless of the specific land use or density configurations. Therefore, the analysis of impacts associated with each of the four proposed development scenarios generally is grouped together in this section.

Project Site development scenarios would include the construction of an integrated sewer system across the Project Site. Therefore, the Project Site development would have no impacts related to soils being incapable of supporting septic systems or other alternative wastewater disposal systems. Furthermore, no known mineral resources are located within or near the Project Site. Mineral resource extraction activities have not taken place within or around the Project Site during recent history. The Project Site is mapped by CGS as MRZ-1, a zone where no significant mineral or aggregate deposits are present. Therefore, these issues are not addressed further in this analysis, consistent with CEQA Guidelines Section 15128.

Use of Previous Geotechnical Investigations

The geologic hazards present within the Project Site have been well studied and documented in numerous geotechnical investigations that have been performed at various areas of the Project Site by several different reputable geotechnical firms. The following analysis is based on available local geologic data and seismic hazards, as well as a review of the findings presented in geotechnical evaluations completed in 1990, 2006 and 2008 (Kleinfelder, 1990; Geosyntec, 2006; Treadwell & Rollo, 2008; and Geosyntec, 2008). As a result of these previous geotechnical studies, much is known about the underlying conditions including thicknesses of fills, Bay Mud and landfill waste. While there have been changes to some of the amount of fills on the surface in

[5] For a more detailed discussion of Project Site remediation, see Section 4.H, *Hazards and Hazardous Materials* of this EIR.

various areas, the underlying conditions of subsurface materials in terms of thicknesses and composition have not substantially changed from 1990 to the baseline of this analysis (2010) even if some consolidation and settlement may have occurred over that time period.

The presence of fills, soft compressible Bay Mud deposits, and landfill waste material at the Project Site presents significant hazards for un-engineered structures during ground shaking and/or conditions that would likely induce liquefaction. However, as is commonplace for construction in such an environment, use of established geotechnical design measures (discussed further below) have been successfully employed at many areas of similar geologic conditions. A sound geotechnical approach typically includes improvements to the foundation soils, such as compaction or densification, combined with a building foundation design that takes into account underlying soil properties. Individual foundation designs vary depending on the size and height of the structure proposed.

The geotechnical investigations completed to date provide a sound understanding of the geotechnical hazards present across the site for purposes of analyzing programmatic impacts under CEQA, but are not intended for site-specific construction design. The foundation system for each building site within the Baylands must be designed in accordance with the site specific engineering properties of the materials beneath the proposed structure, combined with the intended loading (weight) of the proposed structure. These design criteria can only be developed with information obtained from a site-specific geotechnical investigation that is conducted according to the requirements of the relevant regulations. For example, site-specific investigations would more accurately determine the depth of the fill materials and Bay Mud at each building site. The identified depths would influence whether shallow foundations or deep foundation pilings are appropriate, the number and dimensions of each deep foundation piling (a primary consideration for each building site), and the seismic design coefficients used by structural engineers to determine the type and sizing of structural building materials. Once appropriately designed and subsequently constructed in accordance with local and state building code requirements, the structures would have the structural fortitude to withstand anticipated seismic hazards without significant damage.

Project Impacts and Mitigation Measures

Impact 4.E-1: Would the Project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
LTS	LTS	LTS	LTS

SU = Significant Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = no impact

DSP, DSP-V, CPP, and CPP-V

As discussed in the preceding sections, no known active fault traces across the Project Site, and the site is not located in an Alquist-Priolo Earthquake Fault Zone.

Conclusion: The Project Site development would have a less-than-significant impact in relation to this criterion. No mitigation would be required.

Significance Criterion – Seismic Groundshaking

Impact 4.E-2: Would the Project expose people or structures to potential substantial adverse effects from strong seismic groundshaking?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
SM	SM	SM	SM

SU = Significant Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = no impact

DSP, DSP-V, CPP, and CPP-V

The Project Site would likely experience at least one major earthquake (M 6.7 or higher) within the next 20 years. The intensity of such an event would depend on the causative fault and the distance to the epicenter, the depth of the rupture below ground surface, the moment magnitude, and the duration of shaking. A seismic event in the Bay Area could produce considerable ground accelerations within the Project Site. Earthquake hazard mapping for the Project Site indicates that violent to very violent (MM IX to MM X) groundshaking (ABAG, 2007) and peak ground accelerations of 0.565(g) (CGS, 2012) would potentially occur at the Project Site. The 1989 Loma Prieta earthquake caused damage within the area with an epicenter located approximately 50 miles away. A larger earthquake with a closer epicenter could cause even greater groundshaking and damage. The geotechnical studies prepared for the Project Site development (and described in Subsection 4.E.2, *Environmental Setting*, above) provide recommendations to minimize adverse effects from seismic groundshaking on the Project Site.

Geotechnical engineering methods for building design, underground utilities, and roadways (including bridge crossings) in accordance with CBC requirements have been used throughout the Bay Area in areas where similar challenges of development on thick deposits of Bay Mud and imported fills have been encountered. In addition, impacts from a major seismic event would be further reduced by carrying out the site-specific analyses required by the CBC and the City Engineer. Chapter 16, Section 1613 of the CBC provides earthquake loading specifications for every structure and associated attachments that must also meet ASCE 07-05.This approach of preparing site-specific investigations is standard practice within the geotechnical engineering industry and required by Chapter 18, Section 1803 of the CBC. Site-specific investigations are used to obtain site-specific data, such as the depths of artificial fill and Bay Mud, to be considered along with the proposed loading (size of building) that would overlie that area. Engineers would use this information to identify the appropriate design parameters for the spacing and dimensions of the foundation systems for each specific structure within the Project Site.

The geotechnical report required by **Mitigation Measure 4.E-2a** would provide site-specific construction methods regarding grading activities, fill placement, soil corrosivity/expansion/ erosion potential, compaction, foundation construction, drainage control (both surface and

subsurface), and avoidance of settlement, liquefaction, differential settlement, and seismic hazards. The report would also include stability analyses of final design cut and fill slopes, including recommendations for avoidance of slope failure(s). The final grading plan and associated development elements would be designed and constructed in accordance with requirements of the final design-level geotechnical investigation, and would be submitted to the City Engineer prior to the issuance of building permits. Designers and contractors would comply with recommendations of the design-level geotechnical investigation during Project construction. Additionally, a licensed geotechnical or soil engineer would monitor earthwork and construction activities to ensure that site-specific construction methods are followed during Project construction. The recommendations would be incorporated into all development plans submitted for site-specific development projects within the Baylands.

In general, deep foundation systems would be required for most Project Site structures to ensure that the proposed structures are founded on dense competent materials found at depth. The site-specific investigations would be used to determine the specific design of the foundation systems required for the specific design of each structure. The results of the site-specific investigations would include specifications to ensure that anticipated seismic groundshaking risk hazards at the Project Site are minimized.

In addition, strong groundshaking could potentially compromise the stability of the final landfill cap that is required as part of the landfill closure requirements and constructed as part of the Project Site development. In general, the final clay cap cover would be designed for potential groundshaking hazards in accordance with geotechnical standards such that protection of human health is maintained even in the event of a seismic event. Under Order 01-041 from the RWQCB (2001) the final clay cap material over the former landfill must be maintained over the landfill materials and undeveloped or open space areas. If the cap should be breached by any means (differential settlement, construction, plantings, etc.), adequate restorative measures are required by Order 01-041 to maintain the integrity of the cap.

The landfill owner is required to comply with California Code of Regulations, Title 27, Section 21130(c), which requires the operator to amend emergency response plans in the event that post-closure land use and/or structures on the site change and these changes are not addressed in existing plans.

Conclusion: This impact would be significant. **Mitigation Measures 4.E-2a** and **4.E-2b**, along with adherence to building code requirements and landfill closure requirements, are recommended to minimize impacts from strong seismic groundshaking for Project Site development.

Mitigation

Mitigation Measure 4.E-2a: Prior to the issuance of a grading permit, applicants for all site-specific development and infrastructure projects within the Project Site, including structures, utilities, and roadways shall submit to the City Engineer a final design-level geotechnical report prepared by a licensed geotechnical or soil engineer experienced in construction methods on fill materials in an active seismic area. The report shall provide site-specific construction methods and recommendations regarding grading activities, fill placement, soil corrosivity/expansion/erosion potential, compaction, foundation construction, drainage control (both surface and subsurface), and avoidance of settlement, liquefaction, differential settlement, and seismic hazards in accordance with current California Building Code requirements including Chapter 16, Section 1613. The report shall also require that all subsurface improvements such as utilities that include any materials susceptible to corrosive effects would be engineered in conformance with the most recently adopted California Building Code requirements including the use of engineered backfill. The report shall also include stability analyses of final design cut and fill slopes, including recommendations for avoidance of slope failure(s). The final grading plan and associated development elements including the landfill cap layer shall be designed and constructed in accordance with requirements of the final design-level geotechnical investigation as approved by the City Engineer prior to the issuance of any building permits. Designers and contractors shall comply with recommendations of the design-level geotechnical investigation during project construction including any modifications required by the City Engineer. A licensed geotechnical or soil engineer shall monitor earthwork and construction activities to ensure that recommended site-specific construction methods are followed during Project construction. These recommendations shall be incorporated into all development plans submitted and approved for the Project Site development as conditions of approval.

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	✓	✓
✓ = measure applies - = measure does not apply			

Mitigation Measure 4.E-2b: To address recovery from damage to future structures and to the landfill itself that may be caused by future earthquakes[6], a Post-Earthquake Inspection and Corrective Action Plan (Plan) for the site-specific development projects within the former landfill portion of the Project Site shall be prepared and implemented by all Project applicants in accordance with Title 27 landfill closure requirements as approved by the RWQCB and the San Mateo County Department of Environmental Health prior to issuance of a building permit. The plan shall be implemented in the event of a magnitude 7.0 or greater earthquake centered within 30 miles of the former Brisbane Landfill. Results of the inspection of containment features and groundwater and leachate control facilities potentially affected by any static or seismic deformations of the landfill shall be reported to the RWQCB within 72 hours of the event. Immediately following an earthquake event causing damage to the landfill structures, the Plan shall be implemented and the RWQCB notified of any damage. Plan activities following a triggering event shall include assessing perimeter dikes and shoreline erosion

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	✓	✓
✓ = measure applies - = measure does not apply			

6 Because the required plan addresses specific structures that will be located and designed as part of subsequent actions, and also addresses specific yet to be approved by the RWQCB measures related to landfill closure, it cannot be prepared until after specific structures have been designed and a landfill closure plan has been approved.

protection measures, the surface locations of underground utilities, landfill cover including roads and parking areas, groundwater monitoring systems, leachate monitoring systems, and surface-water drainage and outlet facilities. Any restorative measures as required under Order 01-041 shall be implemented in accordance with RWQCB requirements.

Conclusion with Mitigation: With the inclusion of **Mitigation Measures 4.E-2a** and **4.E-2b**, impacts related to strong seismic groundshaking associated with Project Site development would be reduced to less-than-significant levels.

Impact 4.E-3: Would the Project expose people or structures to potential substantial adverse effects from seismic-related ground failure including liquefaction?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
SM	SM	SM	SM

SU = Significant Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = no impact

DSP, DSP-V, CPP, and CPP-V

According to general maps compiled by the USGS and preliminary geotechnical investigations at the Project Site, there is a potential risk from liquefaction of saturated sand layers within existing fill, Young Bay Mud, and below Young Bay Mud beneath the Project Site. Liquefaction at the site could result in loss of bearing pressure, lateral spreading, sand boils (liquefied soil exiting at the ground surface), and other potentially damaging effects if not addressed in geotechnical engineering design. Analysis of site-specific soils data determined that liquefaction susceptibility at the former railyard area was relatively high (Treadwell & Rollo, 2008). In contrast, the Geosyntec (2008) report suggests that the liquefaction risk for the Project site is low because of the depth to the sand and the type of subsurface material (i.e., clayey soils); however, further investigation is necessary to pinpoint the site-specific liquefaction risk (Geosyntec, 2008). As discussed above, site-specific investigations would be required for all Project Site development to determine the site specific risk and appropriate foundation system design.

The site is underlain by Bay Mud that has a high potential to amplify ground shaking and can contain saturated sand lenses that are susceptible to liquefaction. The landfill portion of the Project Site may be more susceptible to liquefaction because it contains unknown buried materials that may be prone to liquefaction during strong ground shaking. The final design-level geotechnical report as required by the City Engineer and the California Building Code (Chapters 16 and 18) would be prepared by a licensed professional and submitted to the City for review and approval. As is standard for the geotechnical industry, the final design-level geotechnical report would address liquefaction and lateral spreading potential at each development site and provide site-specific recommendations to reduce the potential damage in accordance with building code requirements. The report recommendations would be incorporated into all site-specific development plans submitted within the Baylands.

Conclusion: Because the potential for liquefaction may be present at the site and would require site-specific analysis to determine the amount of potential settlement that could occur, this impact

would be significant. **Mitigation Measure 4.E-3** is recommended to minimize impacts under all of the proposed development scenarios.

Mitigation

Mitigation Measure 4.E-3: The final design-level geotechnical investigation recommended in Mitigation Measure 4.E-2a above, to be prepared by a licensed professional and submitted to the City for review and approval, shall address liquefaction potential. The geotechnical investigation shall include recommendations for foundation design to address site specific potential liquefaction issues. The recommendations of the investigation shall be in accordance with the most recent California Building Code requirements for building design and incorporated into all development plans submitted for the Project Site development. All final design and engineering plans submitted by the applicant shall be subject to review and approval by the City of Brisbane Building Official.

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	✓	✓
✓ = measure applies - = measure does not apply			

Conclusion with Mitigation: With the inclusion of **Mitigation Measure 4.E-3**, implementation of the Project Site development would result in a less-than-significant impact related to liquefaction.

Impact 4.E-4: Would the Project expose people or structures to potential substantial adverse effects from landslides?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
SM	SM	SM	SM
SU = Significant Unavoidable SM = Significant but Mitigable LTS = Less than Significant - = no impact			

DSP, DSP-V, CPP, and CPP-V

Project Site development would require substantial re-grading activities that would include creating constructed slopes of fill materials. If not engineered appropriately, these constructed slopes could be subject to slope failure which could damage proposed improvements or potentially adversely affect local visitors, residents, or workers. Based on the proposed conceptual grading plan for the Project Site, both Geosyntec (2008) and Treadwell & Rollo, Inc. (2008) concluded the potential placement of engineered fill may cause underlying Bay Mud to fail. The underlying, or in some areas, exposed weak Bay Mud layer has the potential to fail under the proposed fills, which represent substantial additional loading (Treadwell & Rollo, Inc (2008). Geosyntec conducted slope stability analysis on a cross-section extending from the edge of Brisbane Lagoon approximately 1,000 feet toward the north for the former landfill area. The analysis showed that the extent of possible slope instability is estimated to extend from the edge of Brisbane Lagoon toward the site approximately 600 feet, increased from the 480 feet for the existing conditions. Geosyntec (2006, 2008) recommended that fill not be placed within 600 feet of the edge of Brisbane Lagoon and that the stability of the area be re-evaluated once final designs are available. Likewise, Treadwell & Rollo, Inc. (2008) concluded that placement of engineered fill may cause underlying Bay Mud to fail and recommended that

additional subsurface exploration and static/seismic stability of the proposed slopes be analyzed prior to final design and construction.

Quantitative slope stability analyses (e.g., slope stability modeling) is a geotechnical modeling of slope stability to determine what is known as the slope factor of safety. Expressed as a numeric figure, the factor of safety represents a comparison of shearing forces (e.g. gravitational forces and internal pressures) versus resisting forces of the soil or bedrock. Therefore, the higher the factor of safety, the more stable the slope because it represents a determination of greater resisting forces present. Generally accepted geotechnical practices for the San Francisco Bay Area regard a slope safety factor of 1.5 as suitable for development under static or non-earthquake conditions. For pseudo-static or non-earthquake conditions a lower safety factor is typically used because a higher factor cannot be practically achieved. Therefore, a safety factor of 1.2 for pseudo-static conditions is generally accepted practice in the Bay Area.

Neither the Geosyntec nor Treadwell & Rollo, Inc. reports addressed the potential for dynamic (seismically induced) slope instability in a quantitative analysis at the Project Site in their preliminary geotechnical evaluations of the Project Site. Given that the soils are potentially unstable under static conditions, the soil beneath the Project Site is also likely unstable under dynamic conditions. Therefore, this impact would be significant.

Conclusion: Impacts related to slope stability risk would be significant. **Mitigation Measures 4.E-4a** and **4.E-4b** are recommended to reduce this impact to a less-than-significant level.

Mitigation

Mitigation Measure 4.E-4a: Site-specific development projects within the Project Site shall not place new fill materials within 600 feet of Brisbane Lagoon. All manufactured slopes shall require certification by a licensed geotechnical engineer to the satisfaction of the City Engineer that a factor of safety[7] of at least 1.5 for static conditions and 1.2 under dynamic conditions will be achieved.

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	✓	✓
✓ = measure applies - = measure does not apply			

Mitigation Measure 4.E-4b: Site-specific development projects within the Project Site shall comply with Brisbane General Plan policy requirements and the most recent California Building Code requirements for slope stability, including Chapters 16 and 18 that require geotechnical investigations. The recommendations of the investigation shall be in accordance with the most recent California Building Code requirements for building design and incorporated into all development plans submitted for Project Site development. All final design and engineering plans submitted

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	✓	✓
✓ = measure applies - = measure does not apply			

[7] As noted above, the factor of safety represents a comparison of shearing forces (e.g. gravitational forces and internal pressures) versus resisting forces of the soil or bedrock. The higher the factor of safety, the more stable the slope because it represents a determination of greater resisting forces present.

by the Project applicant shall be subject to review and approval by the City of Brisbane Building Official prior to issuance of a building permit.

Conclusion with Mitigation: With the inclusion of **Mitigation Measures 4.E-4a** and **4.E-4b**, implementation of the Project Site development would not result in a significant environmental effect, because mitigation would include minimum standards for slope stability to reduce the risk from static and dynamic slope instability. This impact would be reduced to a less-than-significant level.

Impact 4.E-5: Would the Project result in substantial soil erosion or loss of topsoil?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
SM	SM	SM	SM

SU = Significant Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = no impact

DSP, DSP-V, CPP, and CPP-V

Construction Activities

Construction and remediation activities required for Project Site development, such as excavation, backfilling, grading, and placement of fill material for surcharging purposes can expose areas of loose soil. Grading activities alone would require movement of large quantities of soils with preliminary estimates of 4,475,000 cubic yards of cut, and approximately 3,397,000 cubic yards of fill.[8] In general, the grading would primarily consist of cuts from the landfill area, approximately 3,730,000 cubic yards that would be placed on the westerly, former railyard portion of the Project Site. If not properly stabilized or protected, these soils and fills could be subjected to soil loss and erosion by wind and storm water runoff. Concentrated water erosion, if not managed or controlled, can eventually result in significant soil loss. Excessive soil erosion can also eventually lead to damage of building foundations and roadways. At the Project Site, areas that are susceptible to erosion are those that would be exposed during the construction phase and along the shoreline where soil is subjected to wave action. However, construction contractors for the Project Site development would be required by law to obtain a National Pollutant Discharge Elimination System (NPDES) Permit for Discharges of Stormwater Associated with Construction Activities from the RWQCB-San Francisco Bay Region for all proposed construction as part of the proposed Project. Conditions of this permit would include preparation and implementation of a Storm Water Pollution Prevention Plan (SWPPP).

As also discussed in Section 4.H, *Hydrology and Water Quality*, of this EIR, a SWPPP includes specific construction-related best management practices (BMPs) to prevent soil erosion and loss of topsoil. BMPs implemented could include, but would not be limited to, physical barriers to prevent erosion and sedimentation, construction of sedimentation basins, limitations on work periods during storm events, use of swales, protection of stockpiled materials, and a variety of other measures that would substantially reduce or prevent erosion from occurring during

[8] The 4,475,000 cubic yards figure is inclusive of the 700,000 cubic yards that has been placed on the site since 2007 as part of the surcharging activities (BKF, 2011).

construction (see also the discussion in Section 4.H, *Hydrology and Water Quality*). Project Site development would not otherwise change drainage patterns to the extent that it would cause significant erosion resulting in damage to existing or proposed improvements. Construction impacts associated with earth movement also are discussed in Section 4.B, *Air Quality*, and Section 4.N, *Traffic and Circulation*, of this EIR.

Post-Construction Development

Once construction is completed, the interior areas of the Project Site would be largely developed, with the exception of open spaces which would be landscaped. As a result, few locations would be created that would be exposed to the forces that cause erosion. With implementation of the requirements of the NPDES permit and the associated SWPPP, the impact of erosion and loss of topsoil would be less than significant.

New development within the Baylands must adhere to Policy 152 of the Community Health and Safety Element of the Brisbane General Plan, which requires the consideration of slope stability in conjunction with development applications. Policy 152 requires, among other things, that soil and geologic investigations be done in areas identified as prone to slope instability. Therefore, in complying with the directives of Policy 152, erosion or loss of soil would be prevented.

Conclusion: With implementation of a SWPPP, which is required to be prepared and implemented under the NPDES General Construction Permit, and compliance with Brisbane General Plan Policy 152, impacts related erosion or loss of topsoil would be reduced to less-than-significant levels for Project Site development. **Mitigation Measures 4.H-1a** and **4.H1b** incorporate requirements for preparation and implementation of a SWPPP in relation to hydrology impacts of proposed site development (see Section 4.H *Hydrology and Water Quality*, in this EIR).

Impact 4.E-6: Would the Project be located on a geologic unit or soil that is unstable or that would become unstable as a result of the Project including landslide, lateral spreading, subsidence, liquefaction or collapse?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
SM	SM	SM	SM

SU = Significant Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = no impact

DSP, DSP-V, CPP, and CPP-V

Settlement would occur in the former landfill, as well as in the overlying non-engineered fill and in natural deposits (Young Bay Mud [YBM], Old Bay Mud [OBM], etc.). Settlement within the Project Site (in both the short and long term) is expected to be differential due to variances in deposit thickness and material properties. Additional fill placed within the Project Site as part of site development would increase total surface settlement (Geosyntec, 2008; Treadwell & Rollo, 2008). Consolidation of Bay Mud and tidal flat deposits and non-engineered artificial fill beneath proposed engineered fills may also be associated with differential settlement across the Project Site (Geosyntec, 2008; Treadwell & Rollo, 2008). Fill subsidence and settlement can affect long-term durability and maintenance requirements of roadways and underground utilities. Detailed

geotechnical characterization and engineering analysis would be required to determine the composition and thicknesses of undocumented, non-engineered fills and underlying tidal deposits and to evaluate the settlement potential across the entire Project Site using similar assumptions and analytical methods from preliminary studies. Treadwell & Rollo (2008) indicated that consolidation settlement will occur between one and 30 years after fill placement and presented several mitigation concepts to reduce post-construction settlement.

Based on geotechnical data collected for the Project Site, it is estimated that 6 to 30 inches of settlement may occur in the former landfill area (Geosyntec, 2008) and 12 to 38 inches of settlement may occur in the former railyard area (Treadwell & Rollo, 2008). However, because these studies have different assumptions and methods for calculating the potential primary settlement, direct comparisons between settlement of the former landfill and railyard areas should not be made. Below is a discussion of each study.

Geosyntec (2008) performed settlement calculations for waste fill, Young Bay Mud, and portions of Old Bay Mud beneath the former landfill area. Based on laboratory data and settlement analyses, Geosyntec (2008) reported the following:

- Young and Old Bay Mud are generally to slightly over-consolidated in the northern portion of the former landfill area;
- Settlement is expected for waste fill, Young Bay Mud, and portions of Old Bay Mud; and
- Placement of fill over non-engineered fill and refuse would cause differential settlements.

Assuming site elevations of 21 feet or 26 feet, the total settlement estimates presented by Geosyntec (2008) assume use of wick drains to facilitate primary settlement in Young and Old Bay Mud and secondary settlement of municipal waste after use of deep dynamic compaction.[9] Geosyntec (2008) did not perform a site-specific liquefaction evaluation and concluded that the "surface manifestations [of liquefaction] are expected to be somewhat limited" (Geosyntec, 2008, p. 25). Geosyntec (2008) suggested that liquefaction-related settlement can be mitigated using features such as stone columns and compaction grouting as part of the final design concept.

Treadwell & Rollo (2008) considered consolidation of Bay Mud, post-liquefaction reconsolidation, cyclic densification, and compression of new/existing fills using laboratory data from Michelucci (2004) and Kleinfelder (1990). These settlement analyses indicated that primary consolidation of Bay Mud beneath the former railyard area is essentially complete, but that placement of up to 26 feet of new engineered fill would cause additional settlement in Bay Mud. Placement of additional fill may cause from one to six inches of settlement of existing fills and settlement associated with compression of proposed engineered fill will be from 0 to 1.6 inches (Treadwell and Rollo, 2008). Liquefaction and cyclic densification related to strong

[9] Wick drains are prefabricated vertical drains installed through soft soils that are designed to help remove moisture and allow compressible soils to consolidate rapidly prior to construction. Deep dynamic compaction also called "heavy tamping" is a geotechnical technique of consolidating soft soils through repeated systematic application of a heavy weight.

groundshaking may cause up to four inches (and up to eight inches in Kleinfelder boring resulting from liquefaction) of settlement.

With the ongoing decomposition of the in-place refuse and consolidation of the underlying Bay Mud, the landfill surface is expected to continue to undergo differential settlement. Considering future development on the former landfill area, differential settlement of the landfill surface will require detailed engineering analysis and design as future site-specific projects are proposed for development within the Project Site. As part of a design-level geotechnical report, as also described above, analyses of the depth, thickness, and liquefaction potential of saturated deposits would provide necessary information on possible surface effects associated with earthquake-induced settlement. These effects, if calculated to be a potential hazard, could be mitigated as part of the final site design through widely accepted geotechnical engineering practices. These practices include surcharging the area with fill prior to construction and site development, installing wick drains to increase rate of consolidation of Bay Mud, limiting thickness of new engineered fill, using light-weight fills, and using deep dynamic compaction to densify the near-surface fill. Treadwell & Rollo also suggested pile foundations for structures to reduce differential settlement.

The geotechnical design recommendation for construction of heavily loaded structures at the Project Site includes the use of pile foundations in order to minimize impacts of surface settlement on the structures (Treadwell & Rollo, 2008). Such piles may be up to 110 feet deep. The surface of the site, which includes landscaping, roads, structures, and utilities, would continue to settle as the soil compacts. Such settlement could damage improvements and/or change drainage on the Project Site if not engineered appropriately.

California Code of Regulations, Title 27, Section 21190 contains specific requirements for development on former solid waste landfills including*:*

- Enclosed basement construction shall be prohibited;
- Buildings and utilities shall be constructed to mitigate the effects of differential settlement. All utility connections shall be designed with flexible connections and utility collars;
- Utilities shall not be installed in or below any low permeability layer of final cover;
- Pilings shall not be installed in or through any bottom liner unless approved by the RWQCB; and
- If pilings are installed in or through the low permeability layer of final cover, then the low permeability layer must be replaced or repaired.[10]

The requirements of Title 27, Section 21190 are mandatory. However, there are a variety of alternative measures that could be imposed to meet the Title 27, Section 21190 standards. The potential for consolidation settlements can be addressed prior to development through several

[10] Considering that there may be potential resistance to achieving desired pile depth due to encountering large waste materials or debris, there are a number of different methods such as pre-drilling, placement of a concrete plug at the bottom of the pile, using a larger capacity hammer, or other measures.

different methods including: (1) surcharging[11] the site with fill prior to the construction of the proposed improvements; (2) installing wick drains to increase the rate of consolidation-related Bay Mud settlements where approved by the regulatory agencies; (3) limiting thicknesses of new fill; (4) using light-weight fills; and (5) using soil improvement techniques, such as deep dynamic compaction to increase the density of the near-surface fill or grouting techniques to reduce the potential for settlements associated with liquefaction and cyclic densification.

In addition, proposed structures may be supported on pile foundations to limit total and differential settlements. Surcharging accelerates the amount of settlement that would normally occur with development so that the majority of anticipated settlement occurs prior to initial construction. Prefabricated vertical drains, also known as wick drains, can be used to significantly decrease surcharge durations from years to months and would be specified as part of the surcharging process for specific development sites where appropriate. Wick drains allow pore waters that are being dissipated by the new loads to drain away more quickly, allowing settlement to occur faster. Any of the aforementioned geotechnical approaches to reducing the potential for settlement would be in accordance with building code requirements and subject to review and approval by the City Engineer prior to issuance of a building permit as discussed above in Impact 4.E-2.

Potential impacts related to landslides are addressed above in Impact 4.E-4 and lateral spreading/ liquefaction in Impact 4.E-3. The potential for Project Site development to cause or be subject to collapse is considered to be very low at the site based on the known characteristics of underlying materials at the site. Collapse is considered to have a greater potential in soils with high porosities, low densities such as windblown silt deposits known as Loess which are often found in more arid climates. The materials at the Project Site are denser and not considered susceptible to collapse.

Conclusion: While preliminary ground settlement estimates have been made, final parcel-specific ground settlement calculations are not available at this time, and cannot be determined until more detailed grading plans for site-specific development are available. Because it is known that some degree of ground settlement would occur, this impact is considered significant. Implementation of **Mitigation Measure 4.E-2a**, which requires that all structures be designed and constructed in conformance with the most recently adopted California Building Code requirements, which set performance standards for building design in areas undergoing compaction, and that all final design and engineering plans be submitted by the licensed geotechnical engineer and subject to review and approval by the City Engineer to confirm that Project Site development meets those performance standards, is recommended for each of the proposed development scenarios.

Conclusion with Mitigation: Implementation of **Mitigation Measure 4.E-2a** would reduce ground settlement impacts to a less-than-significant level under all development scenarios.

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[11] Surcharging is the placement of temporary loads on areas susceptible to settlement prior to development.

Impact 4.E-7: Would the Project place concrete or steel elements including piles that could be damaged by corrosive soils present on the Project Site?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
SM	SM	SM	SM

SU = Significant Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = no impact

DSP, DSP-V, CPP, and CPP-V

Corrosive subsurface soils may exist in places within the Project Site and are especially likely wherever Bay Mud is encountered. As such, corrosivity of future engineered fill at the Project Site would require evaluation as part of site specific analysis of geotechnical hazards for buildings within the Project Site. Typically, use of imported engineered fill or reuse of suitable onsite materials, as determined by building code requirements, are resistant to corrosion. As described above, and in compliance with the CBC, final design-level site specific geotechnical evaluations would be submitted to the City for final approval which would include an assessment of potentially corrosive soils on the Project Site. Development elements would be designed and constructed in accordance with requirements of the final design-level geotechnical report and would be verified prior to the issuance of building permits. Based on that report, all concrete in contact with the soil would be designed in accordance with local building code requirements. All metals in contact with corrosive soil would be designed based on the results of the soil corrosivity testing and subsequent recommendations of the manufacturer or a corrosion engineer. The City Engineer would approve all final design and engineering plans prior to any construction.

Corrosivity is a geotechnical hazard that is assessed as part of standard geotechnical investigations required to conform to the most recently adopted CBC requirements for building design. All final design and engineering plans as submitted by the licensed geotechnical engineer would be subject to review and approval by the City Engineer, as required and discussed above in Impact 4.E-2. Therefore, with application of engineered fill and use of corrosion-resistant materials, that are part of widely accepted geotechnical practices, the potential for adverse effects from corrosion would be minimized.

Conclusion: Without final design and engineering plans for site-specific development within the Project Site which provide parcel-specific evaluation of the corrosion potential of native soils and the waste layer and since it is known that corrosive soils are present with the Project Site, this impact is considered to be significant. Implementation of **Mitigation Measure 4.E-2a** is recommended.

Conclusion with Mitigation: With implementation of **Mitigation Measure 4.E-2a,** impacts related to corrosive soils would be reduced to less-than-significant levels under all of the proposed development scenarios.

Impact 4.E-8: Would the Project locate structures on expansive soils as defined in Table 18-1B of the Uniform Building Code, potentially creating substantial risks to life or property?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
SM	SM	SM	SM

SU = Significant Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = no impact

DSP, DSP-V, CPP, and CPP-V

Soil conditions within the Project Site vary considerably, and expansive soils may exist in certain places, especially along Bayshore Boulevard, where Bay Mud is present beneath the fill. As recommended in previous geotechnical investigations for the Project Site, engineered fill or reused onsite materials would be used for placement beneath foundations and in utility trenches, provided they meet the non-expansive criteria found in the CBC. As required by **Mitigation Measure 4.E-2a**, a final design-level geotechnical report would be required to address the potential for expansive soils on each site-specific development within the Project Site, and to ensure that the performance standards set forth in the CBC are met. Development elements would be designed and constructed in accordance with requirements of the final design-level geotechnical report which include moisture content requirements along with minimum standards for expansion potential and would be submitted to the City for review and approval prior to the issuance of building permits. Characterization of the potential for expansive soil at the Project Site in accordance with standard geotechnical practices and building code requirements is required prior to issuance of building permits**.**

Although site conditions vary across the Project Site, there is a potential for expansive soils in areas of proposed improvements. Proposed development would include substantial earthwork activities including the placement of engineered fill materials. Evaluation of the potential for expansive soils and prevention of the placement of expansive fill materials is part of standard geotechnical investigations that are required to conform to the most recently adopted CBC requirements for building design.

Conclusion: Without final design and engineering plans based on parcel-specific evaluation of the expansion potential and since it is known that expansive soils are present with the Project Site, this impact is considered to be significant. Implementation of **Mitigation Measure 4.E-2a** is recommended for Project Site development.

Conclusion with Mitigation: With implementation of **Mitigation Measure 4.E-2a**, impacts related to expansive soils would be reduced to less-than-significant levels under all development scenarios.

Impact 4.E-9: Would the Project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
-	-	-	-

SU = Significant Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = no impact

DSP, DSP-V, CPP, and CPP-V

Wastewater services within the Project Site are currently provided by the Bayshore Sanitary District (BSD) in the area north of the Lagoon. BSD maintains wastewater collection facilities and contracts with the San Francisco Public Utilities Commission for wastewater treatment. None of the development scenarios would include the use of septic tanks or alternative wastewater disposal systems.

Conclusion: Project Site development would have no impact in relation to this criterion. No mitigation would be required.

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4.F Greenhouse Gas Emissions

4.F.1 Introduction

This section presents an overview of region-specific information related to greenhouse gas (GHG) emissions. The impact analysis discusses the expected GHG emissions associated with Project Site development operations and construction activities inclusive of soil transport and remediation, and reflects elements incorporated into Project Site development construction and operations that would reduce Project GHG impacts. Feasible mitigation measures are identified to reduce significant impacts. The impact analysis includes an evaluation of the consistency of Project Site development scenarios with statewide and local planning efforts to reduce GHG emissions. Impacts of climate change on the Project Site, including sea level rise, are addressed in Section 4.H, *Hydrology and Water Quality*, of this EIR.

4.F.2 Environmental Setting

"Global warming" and "global climate change" are the terms used to describe the increase in the average temperature of the earth's near-surface air and oceans since the mid-20th century and its projected continuation. Warming of the climate system is now considered to be unequivocal (IPCC, 2007), with global surface temperature increasing approximately 1.33 degrees Fahrenheit (°F) over the last 100 years. Continued warming is projected to increase global average temperature between 2 and 11°F over the next 100 years.

Natural processes and human actions have been identified as the causes of this warming. The International Panel on Climate Change (IPCC) concludes that variations in natural phenomena such as solar radiation and volcanoes produced most of the warming from pre-industrial times to 1950 and had a small cooling effect afterward. After 1950, however, increasing GHG concentrations resulting from human activity such as fossil fuel burning and deforestation have been responsible for most of the observed temperature increase. These basic conclusions have been endorsed by more than 45 scientific societies and academies of science, including all of the national academies of science of the major industrialized countries. Since 2007, no scientific body of national or international standing has maintained a dissenting opinion.

Increases in GHG concentrations in the earth's atmosphere are thought to be the main cause of human-induced climate change. GHGs naturally trap heat by impeding the exit of solar radiation that has hit the earth and is reflected back into space. Some GHGs occur naturally and are necessary for keeping the earth's surface inhabitable. However, increases in the concentrations of these gases in the atmosphere during the last 100 years have decreased the amount of solar radiation that is reflected back into space, intensifying the natural greenhouse effect and resulting in the increase of global average temperature.

Greenhouse Gases

Carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O) are the principal GHGs. When concentrations of these gases exceed natural concentrations in the atmosphere, the greenhouse

effect may be enhanced. CO_2, CH_4, and N_2O occur naturally, and are also generated through human activity. Emissions of CO_2 are largely by-products of fossil fuel combustion, whereas CH_4 results from off-gassing[1] associated with agricultural practices and landfills. Other human-generated GHGs, which have much higher heat-absorption potential than CO_2, include fluorinated gases such as hydrofluorocarbons (HFCs), perfluorocarbons (PFC), and sulfur hexafluoride (SF_6), which are byproducts of certain industrial processes.

CO_2 is the reference gas for climate change because it is the predominant GHG emitted. The effect that each of the aforementioned gases can have on global warming is a combination of the mass of their emissions and their global warming potential (GWP). GWP indicates, on a pound-for-pound basis, how much a gas is predicted to contribute to global warming relative to how much warming would be predicted to be caused by the same mass of CO_2. CH_4 and N_2O are substantially more potent GHGs than CO_2, with GWPs of 21 and 310 times that of CO_2, respectively.

In emissions inventories, GHG emissions are typically reported in terms of pounds or metric tons of CO_2 equivalents (CO_2e). CO_2e are calculated as the product of the mass emitted of a given GHG and its specific GWP. While CH_4 and N_2O have much higher GWPs than CO_2, CO_2 is emitted in such vastly higher quantities that it accounts for the majority of GHG emissions in CO_2e, both from residential developments and human activity in general.

Effects of Human Activity on GHG Emissions

Fossil fuel combustion, especially for the generation of electricity and powering of motor vehicles, has led to substantial increases in CO_2 emissions (and thus substantial increases in atmospheric concentrations). In 1994, atmospheric CO_2 concentrations were found to have increased by nearly 30 percent above pre-industrial (c. 1860) concentrations.

There is international scientific consensus that human-caused increases in GHGs have contributed and will continue to contribute to global warming.

Global warming impacts in California may include, but are not limited to, loss in snow pack, sea level rise, more extreme heat days per year, more high ozone days, more large forest fires, and more drought years. Secondary effects are likely to include the displacement of thousands of coastal businesses and residences, impacts on agriculture, changes in disease vectors, and changes in habitat and biodiversity. As the California Air Resources Board (CARB) *Climate Change Scoping Plan* noted, the legislature in enacting Assembly Bill (AB) 32 found that global warming would cause detrimental effects to some of the state's largest industries, including agriculture, winemaking, tourism, skiing, commercial and recreational fishing, forestry, and the adequacy of electrical power generation. The *Climate Change Scoping Plan* states as follows (CARB, 2011): "The impacts of global warming are already being felt in California. The Sierra snowpack, an important source of water supply for the state, has shrunk 10 percent in the last 100 years. It is expected to continue to decrease by as much as 25 percent by 2050. World-wide changes are

[1] Off-gassing is defined as the release of chemicals under normal conditions of temperature and pressure.

causing sea levels to rise – about eight inches of increase has been recorded at the Golden Gate Bridge over the past 100 years – threatening low coastal areas with inundation and serious damage from storms."

Impacts of Climate Change

Ecosystem and Biodiversity Impacts

Climate change is expected to have effects on diverse types of ecosystems, from alpine to deep-sea habitat (U.S. EPA, 2008a). As temperatures and precipitation change, seasonal shifts in vegetation would occur; this could affect the distribution of associated flora and fauna species. As the range of species shifts, habitat fragmentation could occur, with acute impacts on the distribution of certain sensitive species. The IPCC states that "20 percent to 30 percent of species assessed may be at risk of extinction from climate change impacts within this century if global mean temperatures exceed 3.6 to 5.4°F relative to pre-industrial levels" (IPCC, 2007). Shifts in existing biomes could also make ecosystems vulnerable to encroachment by invasive species. Wildfires, which are an important control mechanism in many ecosystems, may become more severe and more frequent, making it difficult for native plant species to repeatedly re-germinate. In general terms, climate change is expected to put a number of stressors on ecosystems, with potentially catastrophic effects on biodiversity.

Human Health Impacts

Climate change may increase the risk of vector-borne infectious diseases, particularly those found in tropical areas and spread by insects such as malaria, dengue fever, yellow fever, and encephalitis (U.S. EPA, 2008b). Cholera, which is associated with algal blooms, could also increase. While these health impacts would largely affect tropical areas in other parts of the world, effects would also be felt in California. Warming of the atmosphere would be expected to increase smog and particulate pollution, which could adversely affect individuals with heart and respiratory problems, such as asthma. Extreme heat events would also be expected to occur with more frequency and could adversely affect the elderly, children, and the homeless. Finally, the water supply impacts and seasonal temperature variations expected as a result of climate change could affect the viability of existing agricultural operations, making the food supply more vulnerable.

Greenhouse Gas Emissions Estimates

Global Emissions

Worldwide emissions of GHGs in 2004 were 30 billion tons of CO_2e per year (UNFCCC, 2012). This includes both ongoing emissions from industrial and agricultural sources, but excludes emissions from land use changes.

U.S. Emissions

In 2009, the United States emitted about 6.7 billion tons of CO_2e or about 21 tons per year per person. Of the four major sectors nationwide — residential, commercial, industrial, and

transportation — transportation accounts for the highest fraction of GHG emissions (approximately 33 percent); these emissions are entirely generated from direct fossil fuel combustion (U.S. EPA, 2011).

State of California Emissions

In 2004, California emitted approximately 550 million tons of CO_2e, or about 6 percent of the U.S. emissions. This large number is due primarily to the sheer size of California compared to other states. By contrast, California has one of the lowest per capita GHG emission rates in the country, due to the success of its energy efficiency and renewable energy programs and commitments that have lowered the state's GHG emissions rate of growth by more than half of what it would have been otherwise (CEC, 2007). Another factor that has reduced California's fuel use and GHG emissions is its mild climate compared to that of many other states.

The California Environmental Protection Agency (CalEPA) Climate Action Team stated in its March 2006 report that the composition of gross climate change pollutant emissions in California in 2002 (expressed in terms of CO_2 equivalence) were as follows (CalEPA, 2006):

- CO_2 accounted for 83.3 percent;
- CH_4 accounted for 6.4 percent;
- N_2O accounted for 6.8 percent; and
- Fluorinated gases (HFCs, PFC, and SF_6) accounted for 3.5 percent.

The California Energy Commission found that transportation is the source of approximately 41 percent of the state's GHG emissions, followed by electricity generation (both in-state and out-of-state) at 23 percent and industrial sources at 20 percent. Agriculture and forestry are the source of approximately 8.3 percent, as is the source categorized as "other," which includes residential and commercial activities (CEC, 2007).

Bay Area Emissions

In the San Francisco Bay Area, the transportation sector and industrial/commercial sector represent the largest sources of GHG emissions, accounting for 36.4 percent each of the Bay Area's 95.8 million tons of CO_2e in 2007. Electricity/co-generation sources account for about 15.9 percent of the Bay Area's GHG emissions, followed by residential fuel usage at about 7.1 percent. Off-road equipment and agricultural/farming sources currently account for approximately three percent and 1.2 percent of the total Bay Area GHG emissions, respectively (BAAQMD, 2010).

San Mateo County Emissions

San Mateo County is in the process of compiling an inventory of countywide GHG emissions. The inventory is in draft form at the time of this analysis. Countywide GHG emissions were estimated to have been 905,090 metric tons per year in 2005 (San Mateo County, 2012). Of the sources in this total, the largest contributors include transportation sources, industrial energy, and solid waste disposal, which contribute 52 percent, 18 percent, and 14 percent, respectively.

Existing Emissions in the Project Site Vicinity

A GHG inventory for City of Brisbane governmental operations was completed as part of an effort to develop a citywide energy strategy. The inventory was established for a 2005 base year[2] consistent with the State's *Climate Change Scoping Plan*. A baseline year 2005 GHG inventory of Brisbane's local government operations identified the amount and source of emissions associated with municipal operations, such as buildings, facilities, vehicle fleet, and public lighting. GHG emissions of City governmental operations totaled 1,265 metric tons per year (San Mateo County, 2012). In addition to a GHG inventory for governmental operations, the City completed an inventory of communitywide GHG emissions for the following sectors (City of Brisbane, 2010):

- Residential, including electricity and natural gas usage in homes;
- Commercial/Industrial, including electricity and natural gas usage in businesses;
- Transportation, including emissions from fuel consumption in on-road vehicles and off-road equipment;
- Landfills, including emissions from organic waste decomposing in community landfills;
- Solid Waste Generation, including future emissions from the expected decomposition of waste generated by the community in the base year.

In 2005, non-governmental activities and operations taking place within Brisbane resulted in approximately 160,944 metric tons of CO_2e. This number includes emissions from the combustion of fuels in the residential, commercial/industrial, and transportation sectors within the City, as well as consists of emissions from the decomposition of organic waste in community landfills in 2005. In addition, this number contains emissions associated with community electricity consumption (emissions that occur as a result of electricity consumption within the City, but that occur at sources located outside of the City's jurisdiction), and future emissions from waste generated by the community.

GHG emissions are also generated by existing uses at the Project Site, which include two lumberyards, the Recology solid waste facility, a cooking fuels and equipment manufacturing/ distribution company, an industrial park, a rock and concrete crushing operation, a soils processing operation, and associated construction equipment parking. The lumberyards would be relocated by Project Site development while others, such as the industrial park, would be replaced; existing emissions from uses to be replaced are considered in the impact analysis. GHG emissions from these facilities are generated primarily from motor vehicle and truck trips, but also by existing electrical demand, natural gas demand, solid waste generation, and water and

[2] While 2005 is the appropriate base year for analysis of GHG impacts in relation to meeting statewide GHG reduction targets, CEQA requires that a project's impacts be evaluated in relation to conditions as they exist at the time of issuance of a Notice of Preparation (December 2010 for the Brisbane Baylands EIR). Because GHG emissions contribute to global climate change and CO_2 concentrations are worldwide and not a localized phenomenon, the CEQA analysis of GHG emissions focuses on the total amount of project-related emissions, and is not additive to existing conditions.

wastewater conveyance and treatment. The Bay Area Air Quality Management District (BAAQMD) Bay Area Greenhouse Gas Model (BGM) estimates GHG emissions associated with 231,400 square feet of industrial uses to be replaced to total 2,762 metric tons per year of CO_2e.

4.F.3 Regulatory Setting

Project Site development must comply with federal, state, regional, and local regulations. This section discusses these requirements to the extent that they will affect the way development occurs within the Project Site.

Federal Regulations

U.S. Environmental Protection Agency "Endangerment" and "Cause or Contribute" Findings

The U.S. Supreme Court held that the United States Environmental Protection Agency (U.S. EPA) must consider regulation of motor vehicle GHG emissions. In *Massachusetts v. Environmental Protection Agency* et al., 12 states and cities, including California, together with several environmental organizations, sued to require the U.S. EPA to regulate GHGs as pollutants under the Clean Air Act (127 S. Ct. 1438 (2007)). The Supreme Court ruled that GHGs fit within the Clean Air Act's definition of a pollutant and the U.S. EPA had the authority to regulate GHGs.

On December 7, 2009, the U.S. EPA Administrator signed two distinct findings regarding GHGs under Section 202(a) of the federal Clean Air Act:

- ***Endangerment Finding:*** The current and projected concentrations of the six key well-mixed GHGs—CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6—in the atmosphere threaten the public health and welfare of current and future generations.
- ***Cause or Contribute Finding:*** The combined emissions of these well-mixed GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution that threatens public health and welfare.

Mandatory Greenhouse Gas Reporting Rule

On September 22, 2009, the U.S. EPA released its final Greenhouse Gas Reporting Rule (Reporting Rule). The Reporting Rule is a response to the fiscal year 2008 Consolidated Appropriations Act (H.R. 2764; Public Law 110-161), that required the U.S. EPA to develop "…mandatory reporting of GHGs above appropriate thresholds in all sectors of the economy…." The Reporting Rule will apply to most entities that emit 25,000 metric tons of CO_2e or more per year. Starting in 2010, facility owners are required to submit an annual GHG emissions report with detailed calculations of facility GHG emissions. The Reporting Rule also mandates recordkeeping and administrative requirements in order for the U.S. EPA to verify annual GHG emissions reports.

State Regulations

The legal framework for GHG emission reduction has come about through Executive Orders, legislation, and regulation. The major components of California's climate change initiative are reviewed below.

California Environmental Quality Act and Senate Bill 97

CEQA requires lead agencies to consider the reasonably foreseeable adverse environmental effects of projects they are considering for approval. GHG emissions have the potential to adversely affect the environment because they contribute to global climate change. In turn, global climate change has the potential to raise sea levels, affect rainfall and snowfall, and affect habitat.

Senate Bill 97

Senate Bill (SB) 97, signed in August 2007, acknowledges that climate change is a prominent environmental issue requiring analysis under CEQA. This bill directed the Governor's Office of Planning and Research (OPR) to prepare, develop, and transmit to the California Natural Resources Agency guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions, as required by CEQA, no later than July 1, 2009. The California Natural Resources Agency was required to certify or adopt those guidelines by January 1, 2010.

On December 30, 2009, the Natural Resources Agency adopted the CEQA Guideline amendments, as required by SB 97. These CEQA Guideline amendments provide guidance to public agencies regarding the analysis and mitigation of the effects of GHG emissions in draft CEQA documents. The amendments became effective March 18, 2010.

CEQA Guidelines

CEQA Guidelines Section 15064.4 specifically addresses the significance of GHG emissions. Section 15064.4 calls for a lead agency to make a "good-faith effort" to "describe, calculate or estimate" GHG emissions in CEQA environmental documents. Section 15064.4 further states that the analysis of GHG impacts should include consideration of (1) the extent to which the project may increase or reduce GHG emissions, (2) whether the project emissions would exceed a locally applicable threshold of significance, and (3) the extent to which the project would comply with "regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions." The revisions also state that a project's incremental contribution to a cumulative effect is not cumulatively considerable if the project will comply with the requirements in a previously approved plan or mitigation program (including plans or regulations for the reduction of greenhouse gas emissions) that provides specific requirements that will avoid or substantially lessen the cumulative problem within the geographic area in which the project is located (CEQA Guidelines Section 15064(h)(3).) The CEQA Guidelines revisions do not, however, set a numerical threshold of significance for GHG emissions.

The revisions also include the following guidance on measures to mitigate GHG emissions, when such emissions are found to be significant:

Consistent with Section 15126.4(a), lead agencies shall consider feasible means, supported by substantial evidence and subject to monitoring or reporting, of mitigating the significant effects of greenhouse gas emissions. Measures to mitigate the significant effects of greenhouse gas emissions may include, among others:

(1) Measures in an existing plan or mitigation program for the reduction of emissions that are required as part of the lead agency's decision;

(2) Reductions in emissions resulting from a project through implementation of project features, project design, or other measures;

(3) Off-site measures, including offsets that are not otherwise required, to mitigate a project's emissions;

(4) Measures that sequester greenhouse gases; and

(5) In the case of the adoption of a plan, such as a general plan, long range development plan, or plans for the reduction of greenhouse gas emissions, mitigation may include the identification of specific measures that may be implemented on a project-by-project basis. Mitigation may also include the incorporation of specific measures or policies found in an adopted ordinance or regulation that reduces the cumulative effect of emissions (CEQA Guidelines Section 15126.4(a)).

Assembly Bill 1493

In 2002, then-Governor Gray Davis signed Assembly Bill (AB) 1493, which required the CARB to develop and adopt, by January 1, 2005, regulations that achieve "the maximum feasible reduction of GHGs emitted by passenger vehicles and light-duty trucks and other vehicles determined by CARB to be vehicles whose primary use is noncommercial personal transportation in the state."

To meet the requirements of AB 1493, the CARB approved amendments to the California Code of Regulations (CCR) in 2004, adding GHG emissions standards to California's existing standards for motor vehicle emissions. Amendments to CCR Title 13, Sections 1900 and 1961 (13 CCR 1900, 1961), and adoption of Section 1961.1 (13 CCR 1961.1), require automobile manufacturers to meet fleet-average GHG emissions limits for all passenger cars, light-duty trucks within various weight criteria, and medium-duty passenger vehicle weight classes (i.e., any medium-duty vehicle with a gross vehicle weight [GVW] rating of less than 10,000 pounds and that is designed primarily for the transportation of persons), beginning with model year 2009. For passenger cars and light-duty trucks with a loaded vehicle weight (LVW) of 3,750 pounds or less, the GHG emission limits for model year 2016 are approximately 37 percent lower than the limits for the first year of the regulations, model year 2009. For light-duty trucks with an LVW of 3,751 pounds to a GVW of 8,500 pounds, as well as for medium-duty passenger vehicles, GHG emissions will be reduced approximately 24 percent between 2009 and 2016.

Because the Pavley standards (named for the bill's author, state Senator Fran Pavley) would impose stricter standards than those under the federal Clean Air Act, California applied to the U.S. EPA for a waiver under the federal Clean Air Act; this waiver was denied in 2008. In 2009, however, the U.S. EPA granted the waiver.

Executive Order S-3-05

In 2005, in recognition of California's vulnerability to the effects of climate change, then-Governor Arnold Schwarzenegger established Executive Order S-3-05, which sets forth the following target dates by which statewide GHG emissions would be progressively reduced: by 2010, reduce GHG emissions to 2000 levels; by 2020, reduce GHG emissions to 1990 levels; and by 2050, reduce GHG emissions to 80 percent below 1990 levels.

Assembly Bill 32 and the California Climate Change Scoping Plan

Assembly Bill 32 Requirements

In 2006, the California legislature passed Assembly Bill 32 (California Health and Safety Code Division 25.5, Sections 38500, et seq., or AB 32), also known as the Global Warming Solutions Act. AB 32 requires the CARB to design and implement feasible and cost-effective emission limits, regulations, and other measures, such that statewide GHG emissions are reduced to 1990 levels by 2020 (representing a 25-percent reduction in emissions). AB 32 anticipates that the GHG reduction goals will be met, in part, through local government actions. The CARB has identified a GHG reduction target of 15 percent from current levels for local governments themselves and notes that successful implementation of the plan relies on local governments' land use planning and urban growth decisions because local governments have primary authority to plan, zone, approve, and permit land development to accommodate population growth and the changing needs of their jurisdictions.

Scoping Plan Provisions

Pursuant to AB 32, the CARB adopted a *Climate Change Scoping Plan* in December 2008 (re-approved by the CARB on August 24, 2011 [CARB, 2008]) outlining measures to meet the 2020 GHG reduction goals. In order to meet these goals, California must reduce its GHG emissions by 30 percent below projected 2020 business-as-usual emissions levels or about 15 percent from today's levels. The Scoping Plan recommends measures that are worth studying further, and that the State of California may implement, such as new fuel regulations. It estimates that a reduction of 174 million metric tons of CO_2e (about 191 million U.S. tons) from the transportation, energy, agriculture, forestry, and other sources could be achieved should the state implement all of the measures in the Scoping Plan. The Scoping Plan relies on the requirements of SB 375 (discussed below) to implement the carbon emission reductions anticipated from land use decisions.

Cap-and-Trade Program

The Scoping Plan identifies cap-and-trade as a key strategy for helping California reduce its GHG emissions. A cap-and-trade program sets the total amount of greenhouse gas emissions allowable for facilities under the cap and allows covered sources, including producers and consumers of energy, to determine the least expensive strategies to comply. AB 32 required the CARB to adopt the cap-and-trade regulation by January 1, 2011, and the program itself began in November 2012.

Carbon offset credits are created through the development of projects, such as renewable energy generation or carbon sequestration projects, that achieve the reduction of emissions from

activities not otherwise regulated, covered under an emissions cap, or resulting from government incentives. Offsets are verified reductions of emissions whose ownership can be transferred to others. As required by AB 32, any reduction of GHG emissions used for compliance purposes must be real, permanent, quantifiable, verifiable, enforceable, and additional. Offsets used to meet regulatory requirements must be quantified according to CARB-adopted methodologies, and the CARB must adopt a regulation to verify and enforce the reductions. The criteria developed will ensure that the reductions are quantified accurately and are not double-counted within the system (CARB, 2008).

Executive Order S-1-07

Executive Order S-1-07, signed by then-Governor Arnold Schwarzenegger in 2007, proclaimed that the transportation sector is the main source of GHG emissions in California, at over 40 percent of statewide emissions. The order established a goal of reducing the carbon intensity of transportation fuels sold in California by a minimum of 10 percent by 2020. It also directed the CARB to determine whether this Low Carbon Fuel Standard could be adopted as a discrete, early-action measure after meeting the mandates in AB 32. The CARB adopted the Low Carbon Fuel Standard on April 23, 2009.

Senate Bills 1078 and 107 and Executive Orders S-14-08 and S-21-09

SB 1078 (Chapter 516, Statutes of 2002) requires retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 20 percent of their supply from renewable sources by 2017. SB 107 (Chapter 464, Statutes of 2006) changed the target date to 2010.

In November 2008, then-Governor Schwarzenegger signed Executive Order S-14-08, which expands the state's Renewable Portfolio Standard to 33 percent renewable power by 2020. In September 2009, then-Governor Schwarzenegger continued California's commitment to the Renewable Portfolio Standard by signing Executive Order S-21-09, which directs the CARB under its AB 32 authority to enact regulations to help the state meet its Renewable Portfolio Standard goal of 33 percent renewable energy by 2020.

The 33-percent-by-2020 goal was codified in April 2011 with SB X1-2, which was signed by Governor Edmund G. Brown, Jr. This new Renewable Portfolio Standard preempts the CARB 33 percent Renewable Electricity Standard and applies to all electricity retailers in the state, including publicly owned utilities, investor-owned utilities, electricity service providers, and community choice aggregators. All of these entities must adopt the new Renewable Portfolio Standard goals of 20 percent of retail sales from renewables by the end of 2013 and 25 percent by the end of 2016, with the 33 percent requirement being met by the end of 2020.

Senate Bill 1368

SB 1368 is the companion bill of AB 32 and was signed by then-Governor Schwarzenegger in September 2006. SB 1368 requires the California Public Utilities Commission to establish a GHG emission performance standard for baseload generation from investor-owned utilities by

February 1, 2007. The California Energy Commission was also required to establish a similar standard for local publicly owned utilities by June 30, 2007. These standards cannot exceed the GHG emission rate from a baseload combined-cycle natural gas-fired plant. The legislation further requires that all electricity provided to California, including imported electricity, must be generated from plants that meet the standards set by the California Public Utilities Commission and California Energy Commission.

Senate Bill 375

In addition to policy directly guided by AB 32, the legislature in 2008 passed SB 375, which provides for regional coordination in land use and transportation planning and funding to help meet the AB 32 GHG reduction goals. SB 375 aligns regional transportation planning efforts, regional GHG emissions reduction targets, and land use and housing allocations. SB 375 requires Regional Transportation Plans developed by the state's 18 metropolitan planning organizations to incorporate a "sustainable communities strategy" that will achieve GHG emission reduction targets set by the CARB. SB 375 also includes provisions for streamlined CEQA review for some infill projects, such as transit-oriented development. SB 375 would be implemented over the next several years.

The Metropolitan Transportation Commission is responsible for developing Regional Transportation Plans for the San Francisco Bay Area, and their 2013 Regional Transportation Plan will be its first plan subject to SB 375.

Regional Regulations

In June 2010, the BAAQMD issued its CEQA Air Quality Guidelines, replacing former guidelines adopted in December 1999, and adopted new thresholds of significance to assist lead agencies in determining when potential air quality impacts would be considered significant under CEQA. Updated in May 2011, these guidelines include recommendations for analytical methodologies to determine air quality impacts and identify mitigation measures that can be used to avoid or reduce air quality impacts, including for GHGs (BAAQMD, 2011).

The *BAAQMD CEQA Guidelines* is an advisory document and local jurisdictions are not required to utilize the methodology outlined therein. The document describes the criteria that BAAQMD uses when reviewing and commenting on the adequacy of environmental documents. It recommends thresholds for use in determining whether projects would have significant adverse environmental impacts, identifies methodologies for predicting project emissions and impacts, and identifies measures that can be used to avoid or reduce air quality impacts. BAAQMD adopted new thresholds of significance (BAAQMD thresholds) on June 2, 2010, to assist lead agencies in determining when potential air quality impacts would be considered significant under CEQA. BAAQMD also released new *CEQA Guidelines* in May 2011, which advise lead agencies on how to evaluate potential air quality impacts with the adopted new thresholds of significance.

On March 5, 2012, the Alameda County Superior Court issued a judgment finding that BAAQMD had failed to comply with CEQA when it adopted its 2010 thresholds of significance. While the

court did not determine whether or not the thresholds were valid, it did find that the adoption of the thresholds was a project under CEQA, and therefore that BAAQMD should have conducted environmental review. As a result, the court set aside the thresholds and ordered BAAQMD to cease dissemination of them until it had complied with CEQA. BAAQMD has appealed the court's decision and the appeal is currently pending.

In compliance with the court's order, BAAQMD is no longer recommending that the thresholds be used as a generally applicable measure of a project's significant air quality impacts, and lead agencies are not required to use these thresholds in their environmental documents. However, nothing in the court's decision prohibits an agency's use of the thresholds to assess the significance of a project's air quality impacts. Therefore, based on substantial evidence, the analysis herein uses the BAAQMD thresholds and the methodologies in its 2012 *Air Quality CEQA Guidelines* (updated in May 2012) to determine the significance of Project Site development-related impacts with respect to air pollutant emissions.

Separate thresholds of significance are established for operational emissions from stationary sources (such as generators, furnaces, and boilers) and non-stationary sources (such as on-road vehicles). As no threshold has been established for construction-related emissions, the operational emissions thresholds apply. The threshold for stationary sources is 10,000 metric tons of CO_2e per year (i.e., emissions above this level may be considered significant). For non-stationary sources, three separate thresholds have been established:

- Compliance with a Qualified Greenhouse Gas Reduction Strategy (i.e., if a project is found to be out of compliance with a Qualified Greenhouse Gas Reduction Strategy, its GHG emissions may be considered significant); or
- 1,100 metric tons of CO_2e per year (i.e., emissions above this level may be considered significant); or
- 4.6 metric tons of CO_2e per service population per year (i.e., emissions above this level may be considered significant). (Service population is the sum of residents plus employees expected for a development project.)

For quantifying a project's GHG emissions, BAAQMD recommends that all GHG emissions from a project be estimated, including a project's direct and indirect GHG emissions from operations. Direct emissions refer to emissions produced from onsite combustion of energy, such as natural gas used in furnaces and boilers, emissions from industrial processes, and fuel combustion from mobile sources. Indirect emissions are emissions produced offsite from energy production and water conveyance due to a project's energy use and water consumption. BAAQMD has provided guidance on detailed methods for modeling GHG emissions from proposed projects (BAAQMD, 2012).

4.F.4 Impacts and Mitigation Measures

Significance Criteria

Criteria outlined in the CEQA Guidelines were used to determine the level of significance of identified impacts on greenhouse gases. Appendix G of the CEQA Guidelines indicates that a project would have a significant effect on the environment if it were to:

- Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment. The threshold identified in the 2009 BAAQMD Justification Report identifies emissions of 4.6 metric tons of CO2e per service population annually or more (the "efficiency threshold") as resulting in a significant GHG impact (BAAQMD, 2009); or
- Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.

Impact Assessment Methodology

Approach

This analysis uses both a quantitative and a qualitative approach. The quantitative approach is used to address the first significance criterion: Would the Project Site development generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment? The quantitative efficiency threshold proposed by BAAQMD in its 2009 document *Revised Draft Options and Justification Report for California Environmental Quality Act Thresholds of Significance* is 4.6 metric tons of CO_2e per service population annually. If a Project scenario would exceed this threshold then, consistent with BAAQMD Guidelines, it would be considered to have a cumulatively considerable contribution of GHG emissions and a cumulatively significant impact on climate change.

This analysis considers that, because the quantifiable thresholds developed by BAAQMD in its Justification Report were formulated based on AB 32 and California Climate Change Scoping Plan reduction targets for which its set of strategies were developed to reduce GHG emissions statewide, a project cannot exceed the numeric BAAQMD efficiency threshold of 4.6 metric tons of CO_2e per service population annually without also conflicting with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs (The state Climate Change Scoping Plan). Therefore, if a project exceeds the numeric threshold and therefore results in a significant cumulative impact, it would also result in a significant cumulative impact with respect to plan, policy, or regulation consistency, even though the Project Site development may incorporate measures and have features that would reduce its contribution to cumulative GHG emissions. Because of the utility of comparative analysis for this topic, the analysis of the different development scenarios is grouped together under each impact discussion.

Methods

GHG emissions resulting from Project Site development were estimated using a combination of the URBEMIS2007 model and the Bay Area Greenhouse Gas Model (BGM) as suggested by

BAAQMD CEQA Air Quality Guidelines. Vehicle trips assumed default trip lengths for urban land uses, which are embedded in URBEMIS2007. BGM then takes these data and makes adjustments for implementation of Pavley vehicle standards and Low Carbon Fuel Standards (see Subsection 4.F.3, *Regulatory Setting*, above). Model data and additional assumptions are included in **Appendix G** of this EIR. A post-processing adjustment to electrical GHG emissions was made to account for PG&E-specific future year emission rates. Construction emissions were also estimated using URBEMIS2007 for equipment and truck exhaust and construction worker vehicles.

Area and indirect sources (as opposed to transportation sources) associated with Project Site development would primarily result from electrical usage, water and wastewater transport (the energy used to pump water and wastewater to and from the Project Site development), and solid waste generation. GHG emissions from electrical usage are generated when energy consumed on the site is generated by fuel combustion. GHG emissions from water and wastewater treatment and transport as part of the proposed water transfer agreement envisioned under all scenarios are also indirect emissions resulting from the energy required to transport water from its source and the energy required to treat wastewater and transport it to its treated discharge point. Solid waste emissions are generated when the increased waste generated by a project are taken to a landfill to decompose. GHG emissions from electrical usage, water and wastewater conveyance, and solid waste were estimated using BGM.

Construction-related impacts associated with implementation of the Project Site development infrastructure improvements described in the Chapter 3, *Project Description*, are included in the analysis below.

Cumulative Approach

Both BAAQMD and the California Air Pollution Control Officers Association consider GHG impacts to be exclusively cumulative impacts (BAAQMD, 2011; CAPCOA, 2008); as such, assessment of significance is based on a determination of whether the GHG emissions from a project represent a cumulatively considerable contribution to the global atmosphere.

Project Impacts and Mitigation Measures

Impact 4.F-1: Would the Project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
LTS	LTS	SU	SU

SU = Significant Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = no impact

DSP, DSP-V, CPP, and CPP-V

Potential Project GHG Emissions Sources

Application of BAAQMD's project-specific GHG emissions thresholds is to include both direct emissions from a project's vehicle trip generation and onsite water and space heating and other stationary sources, as well as indirect emissions from offsite electrical generation, solid waste generation, wastewater treatment, water conveyance and treatment, and Project Site remediation and construction.

The following activities associated with each of the proposed development scenarios would contribute to the generation of GHG emissions:

- ***Construction Activities.*** Project Site development involves remediation and construction. Construction equipment typically uses fossil-based fuels to operate. The combustion of fossil-based fuels creates GHGs such as CO_2, methane, and N_2O. Furthermore, methane is emitted during the fueling of heavy equipment. These emissions include equipment and truck operations for proposed movement of soils from the project site, as well as remediation (disposal) of contaminated soil.

- ***Solid Waste Disposal Emissions.*** Project Site development would generate solid waste. Resulting emissions associated with waste generation and disposal in landfills are indirect. Landfills emit anthropogenic methane from the anaerobic breakdown of material.

- ***Gas, Electricity, and Water Use.*** Project Site development would consume gas, electricity, and water. Natural gas use results in the emissions of two GHGs: methane (the major component of natural gas) and CO_2 from the combustion of natural gas. Methane is released prior to initiation of combustion of the natural gas (as before a flame on a stove is sparked), and from the small amount of methane that is uncombusted in a natural gas flame. Electricity use can result in GHG production if the electricity is generated by combustion of fossil fuel. The local utility provider, Pacific Gas & Electric Company (PG&E), calculates CO_2 emission factors for electricity annually based on the mix of renewable and non-renewable sources used to generate electricity which fluctuate depending on rainfall and water flows. All project scenarios assume implementation of a proposed water transfer agreement with Oakdale Irrigation District totaling 2,400 acre feet per year. GHG emissions associated with treatment and transport of this water is calculated using statewide emission factors.

- ***Motor Vehicle Use.*** Project Site development would generate motor vehicle trips. Transportation associated with the Project Site development would result in GHG emissions from the combustion of fossil fuels in daily automobile and truck trips. However, not all of these emissions would be "new" to the region or state since drivers would likely have relocated from another area. Because it is not possible to accurately determine the proportion of Project Site development-related trip that would be "new" to the region compared to those that are relocating within the region to the Project Site, and in order to provide a conservative analysis, all vehicle trips predicted to be generated by Project Site development in the transportation analysis are assumed to be new trips.

- ***Stationary Sources.*** Project Site development does not include any new or expanded stationary sources that would exceed BAAQMD's industrial threshold of 10,000 metric tons per year (MT/yr) of CO2e. Stationary-source projects include land uses that would accommodate processes and equipment that emit GHG emissions and would require an air district permit to operate.

The following activities would result in a decrease in GHG emissions within the Project Site:

- ***Removal of Existing Sources.*** While some of the existing sources of GHG emissions within the Project Site would be relocated (e.g., lumberyards) as a result of the Project Site development, some existing uses removed (existing industrial park) would be removed entirely and removal of their emissions would be incremental benefit of Project Site development.

- ***Installation of Photovoltaic or Other Renewable Energy Sources.*** The DSP and DSP-V scenarios would both allocate 25 acres to renewable energy generation. Specific renewable

energy facilities under the CPP and CPP-V scenarios are currently undefined, but would likely consist of small-scale wind and solar facilities that could be installed on rooftops and other non-dedicated spaces along with a dedicated solar facility. The CPP and CPP-V scenarios proposed an equivalent amount of onsite renewable energy generation to that of the DSP scenario. Additional renewable energy generation would be achieved in the CPP-V scenario due to processes that would be undertaken at the expanded Recology facility.

Impacts of Construction-Related GHG Emissions

CO_2 emissions associated with different aspects of construction activities for urban development can be estimated using a combination of software programs. BAAQMD's BGM model does not calculate GHG emissions from construction sources. Consequently, these emissions were calculated using the estimated CO_2 emissions from URBEMIS2007 and percentage emissions for other GHG's from diesel fuels as estimated by the General Reporting Protocol of the Climate Registry. OFFROAD2011 and the EMFAC2011 predict the same CO_2 emission factors as EMFAC2007 and OFFROAD2007 (embedded in URBEMIS2007) and therefore post processing adjustments were not necessary.

Assumptions regarding construction timing and the number, type, and operating hours of equipment are based on the number and type of equipment that would be used in the construction of the Project Site development, as well as the duration of each construction phase. Emissions estimates are conservative in that they do not account for any best management practices that may reduce GHG emissions. Construction emissions over an assumed 13-year construction period are annualized assuming a 20-year development life[3] (which is likely low), and added to overall project emissions for comparison to significance thresholds. Construction-related emissions would be a temporary occurrence and would not represent an ongoing burden to the regional GHG emission inventory.

DSP and DSP-V: Amortized annual GHG emissions associated with the construction of the DSP and DSP-V scenarios would result in annualized generation of 2,218 and 2,081 metric tons of CO_2e, respectively, as shown in Appendix G of this EIR.

CPP and CPP-V: GHG emissions associated with the construction phase of the CPP and CPP-V scenarios would result in annualized generation of 1,682 and 1,656 metric tons of CO_2e, respectively, as shown on pages 7 and 8 of Appendix G of this EIR, respectively.

Impacts of GHG Emissions from Project Site Operations

Tables 4.F-1 and **4.F-2** present gross estimates of each scenario's unmitigated operational CO_2e emissions in a horizon year of 2040 resulting from increases in motor vehicle trips, grid electricity usage, solid waste, and other sources (including area sources, natural gas combustion, and water/wastewater conveyance). These values were calculated using the BGM and output summaries are presented in Appendix G of this EIR, pages 11, 17, 23, and 30.[4] Reductions in

[3] The development life is the assumed lifetime of project buildings and facilities, after which the potential exists for the buildings and facilities to be demolished or substantially altered for a new land use, requiring CEQA review.

[4] Post processing adjustment for PG&E specific electrical emission factors are not reflected in BGM output for electrical emissions.

TABLE 4.F-1
ESTIMATED EMISSIONS OF GREENHOUSE GASES (2040)
FROM OPERATION OF THE DSP AND DSP-V SCENARIOS

Source	Emissions (metric tons of CO_2e per year)
Developer-Sponsored Plan (DSP)	
Construction (Amortized Annual Emissions)	2,218
Motor Vehicle Trips	39,457
Electricity	12,236
Natural Gas	10,069
Solid Waste	26,743
Other Sources (i.e., area sources, water/wastewater)	1,358
Existing land uses to be removed (Industrial Park)	-2,762
Renewable Energy Generation (PV)	-3,116
Total Unmitigated Operational GHG Emissions	86,203
Operational GHG Emissions per Service Population (17,540 jobs + 9,888 population = 27,428)	3.1
BAAQMD Efficiency Threshold	*4.6*
Significant (Yes or No)?	***No***
Developed-Sponsored Plan–Entertainment Variant (DSP-V)	
Construction (Amortized Annual Emissions)	2,081
Motor Vehicle Trips	37,023
Electricity	12,580
Natural Gas	10,789
Solid Waste	32,442
Other Sources (i.e., Area Sources, Water/Wastewater)	1,358
Existing land uses to be removed (Industrial Park)	-2,762
Renewable Energy Generation (PV)	-3,116
Total Mitigated Operational GHG Emissions	90,395
Operational GHG Emissions per Service Population (15,466 jobs) + 9,888 population = 25,354)	3.6
BAAQMD Efficiency Threshold	*4.6*
Significant (Yes or No)?	***No***

NOTE: GHG emissions from vehicles and area sources (including natural gas combustion) associated with the Project Sire development were calculated using the URBEMIS2007 model and BGM and trip generation data from the DSP and DSP-V scenarios traffic analysis. Additional data and assumptions are included in Appendix G of this EIR.

BAAQMD = Bay Area Air Quality Management District
GHG = greenhouse gas
CO_2e = carbon dioxide (CO_2) equivalents

SOURCE: ESA, 2012.

TABLE 4.F-2
ESTIMATED EMISSIONS OF GREENHOUSE GASES (YEAR 2040)
FROM OPERATION OF THE CPP AND CPP-V SCENARIOS

Source	Emissions (metric tons of CO_2e per year)
Community Proposed Project (CPP)	
Construction (Amortized Annual Emissions)	1,682
Motor Vehicle Trips	67,252
Electricity	11,503
Natural Gas	5,561
Solid Waste	26,766
Other Sources (i.e., area sources, water/wastewater)	1,336
Existing land uses to be removed (Industrial Park)	-2,762
Renewable Energy Generation (PV)	-3,116
Total Unmitigated Operational GHG Emissions	108,222
Operational GHG Emissions per Service Population (16,191 jobs	6.7
BAAQMD Efficiency Threshold	*4.6*
Significant (Yes or No)?	***Yes***
Community Proposed Project–Recology Expansion Variant (CPP-V)	
Construction (Amortized Annual Emissions)	1,656
Motor Vehicle Trips (non-Recology)	64,213
Recology Vehicle Trips	748
Electricity	10,839
Natural Gas	4,974
Solid Waste	24,824
Other Sources (i.e., area sources, water/wastewater)	1,336
Existing land uses to be removed (Industrial Park)	-2,762
Recology Renewable Energy Implementation	-11,022
Renewable Energy Generation (non-Recology PV)	-3,116
Total Unmitigated Operational GHG Emissions	**91,690**
Operational GHG Emissions per Service Population (16,073 jobs)	**5.7**
BAAQMD Efficiency Threshold	*4.6*
Significant (Yes or No)?	***Yes***

NOTE: GHG emissions from vehicles and area sources (including natural gas combustion) associated with the Project Site development were calculated using the URBEMIS2007 model and BGM and trip generation data from the CPP and CPP-V scenarios traffic analysis. Additional data and assumptions are included in Appendix G of this EIR.

BAAQMD = Bay Area Air Quality Management District
GHG = greenhouse gas
CO_2e = carbon dioxide (CO_2) equivalents

SOURCE: ESA, 2012.

GHG from existing sources to be removed and renewable energy (assumed to be photovoltaic) are also included in these tables. Model runs revealed that CO_2 motor vehicle emission factors in EMFAC2011 are equivalent to those in EMFAC2007 and no adjustments to BGM output were required.

Table 4.F-1 indicates that GHG emissions from the DSP and DSP-V scenarios would be below BAAQMD's "efficiency threshold" of 4.6 metric tons of CO_2e per service population per year. This would represent a cumulatively less-than-significant GHG impact for these two scenarios.

The CPP and CPP-V scenarios would produce between 1 and 25 percent more GHG emissions than the DSP and DSP-V scenarios. The primary reason for this difference in impact is that the number of vehicle trips generated by the CPP and CPP-V scenarios is predicted to be 81 and 72 percent greater than the number generated by the DSP and DSP-V scenarios, respectively. The larger number of vehicle trips occurring in the CPP and CPP-V scenarios results from the physical separation between onsite employment opportunities and offsite housing for Project Site employees. The accepted GHG modeling methodologies for the Bay Area place an emphasis on mixed use development and placing new jobs and housing in close proximity. Secondly, the CPP and CPP-V scenarios have fewer employees than the DSP and DSP-V scenarios and no residents; therefore, the denominator in the GHG emissions equation (on-site resident and employee population) is relatively small in the CPP and CPP-V scenarios as compared to the DSP, resulting in higher per service population emissions.

As shown in Table 4.F-2, emissions associated with the CPP and CPP-V scenarios would exceed BAAQMD's "efficiency threshold" of 4.6 metric tons of CO_2e per service population per year. Consequently, the CPP and CPP-V would make a cumulatively considerable contribution to cumulative GHG impacts and mitigation would be required.

Mitigation Measure 4.F-1 below is recommended to reduce the impacts of the CPP and CPP-V scenarios. Emissions must be reduced by a further 28 percent for the CPP and approximately 23 percent for the CPP-V (to approximately 68,457 metric tons of CO2e per year) to meet the BAAQMD "efficiency threshold" and reduce the impact to a less-than-significant level.

The following mitigation measures were identified within the BGM as appropriate mitigation measures for development projects and applied in a mitigated scenario using default values for calculation of GHG emissions after mitigation for the CPP and CCP-V scenarios (see **Table 4.F-3**).

Conclusion: The CPP and CPP-V would make a significant contribution to cumulative GHG impacts and mitigation would be required. Implementation of **Mitigation Measure 4.F-1** is recommended to reduce the impacts related to GHG emissions.

TABLE 4.F-3
MITIGATED EMISSIONS OF GREENHOUSE GASES
FROM OPERATION OF THE CPP AND CPP-V SCENARIOS

Source	Emissions (metric tons of CO_2e per year)
Community Proposed Project (CPP)	
Construction (Amortized Annual Emissions)	1,682
Motor Vehicle Trips	67,252
Electricity	9,202
Natural Gas	4,449
Solid Waste	25,089
Other Sources (i.e., area sources, water/wastewater)	1,336
Existing land uses to be removed (Industrial Park)	-2,762
Renewable Energy Generation (PV)	-3,116
Total Mitigated Operational GHG Emissions	103,132
BAAQMD GHG Bright Line Threshold	*1,100*
Significant (Yes or No)?	***Yes***
Operational GHG Emissions per Service Population (16,191 jobs)	6.4
BAAQMD Efficiency Threshold	*4.6*
Significant (Yes or No)?	***Yes***
Community Proposed Project–Recology Expansion Variant (CPP-V)	
Construction (Amortized Annual Emissions)	1,656
Motor Vehicle Trips (non-Recology)	64,213
Recology Vehicle Trips	748
Electricity	8,671
Natural Gas	3,980
Solid Waste	22,342
Other Sources (i.e., area sources, water/wastewater)	1,336
Existing land uses to be removed (Industrial Park)	-2,762
Recology Renewable Energy Implementation	-11,022
Renewable Energy Generation (non-Recology PV)	-3,116
Total Mitigated Operational GHG Emissions	86,038
Operational GHG Emissions per Service Population (16,073 jobs)	5.4
BAAQMD Efficiency Threshold	*4.6*
Significant (Yes or No)?	***Yes***

NOTE: GHG emissions from vehicles and area sources (including natural gas combustion) associated with the Project Site development were calculated using the URBEMIS2007 model and the BGM and trip generation data from the CPP and CPP-V scenarios traffic analysis. Additional data and assumptions are included in Appendix G of this EIR.

BAAQMD = Bay Area Air Quality Management District
GHG = greenhouse gas
CO_2e = carbon dioxide (CO_2) equivalents

SOURCE: ESA, 2012.

Mitigation

Mitigation Measure 4.F-1: All new development within the Project Site shall be required to develop and implement a Greenhouse Gases Emissions Reduction Plan (GHG Plan) containing strategies to increase energy efficiency and reduce GHG emissions to the greatest extent feasible with a minimum performance standard of five percent (as reflected in Table 4.F-3). The GHG Plan shall be submitted to the City for approval as part of the initial application process for building permits so that the measures will be verified as present in building specifications. The GHG Plan, as implemented, shall include strategies that exceed those already identified in the project description or required by law. The GHG Plan shall include strategies designed to reduce emissions generated by motor vehicles, as well as strategies to reduce stationary source emissions from energy consumption. Strategies shall include, but not be limited to, the following types of GHG reduction measures:

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
–	–	✓	✓

✓ = measure applies
- = measure does not apply

- Motor Vehicle Emissions
  - Provide free transit passes to employees and onsite residences;
  - Provide secure bike parking (at least one space per 20 vehicle spaces);
  - Provide showers and changing facilities for employees;
  - Provide information on transportation alternatives to employees;
  - Establish a dedicated employee transportation coordinator; and
  - Include preferential carpool and vanpool parking.
- Stationary Source Emissions
  - Provide stand-alone or rooftop solar, wind, or other renewable energy generation facilities (e.g., co-generation) to accommodate at least 3,600 MT per year of GHG offset within the Project Site;
  - Upgrade buildings within the Project Site to achieve a LEED Gold rating, rather than the LEED Silver rating now required by the Brisbane Municipal Code;
  - Increase solid waste diversion from landfills by 10 percent beyond state and local diversion requirements;
  - Employ "cool roof" technology for buildings; and
  - Use electrically powered landscape equipment.

Additional measures that are not identified within the BGM may be feasible but would require the GHG Emissions Reduction Plan to develop and commit to effective GHG emission reductions and provide GHG reduction estimates for each measure. These additional measures are presented below in **Table 4.F-4**, along with the type of information needed to estimate further reductions in GHG emissions. Additionally, measures recommended by the state Attorney General's office that are not proposed or have not been considered by other mitigation above are also identified. These measures could be implemented as part of the required specific plan by developers of site-specific

TABLE 4.F-4
ADDITIONAL GREENHOUSE GAS EMISSION REDUCTION STRATEGIES AND DATA REQUIRED

Strategy	Data Required
Bay Area Greenhouse Gas Model (BGM) Measures	
Institute recycle and compost services	Percent waste reduction
Install water-efficient landscape	Gallons/year
Use reclaimed water	Percent use inside/outside
Water conservation strategy (precludes above two strategies)	Percent reduction inside/outside
Install high efficient lighting	Percent energy reduction
Provide ridesharing program	Percent employees eligible
Limit parking supply	Percent reduction
Increase on-street parking fee	Percent increase in price
Implement trip reduction program	Percent employees eligible
Charge for workplace parking	Percent employees eligible and amount
Implement employee vanpool/shuttle program	Percent employees eligible
State Attorney General's Office Measures	
Meet recognized green building standards, such as Leadership in Energy and Environmental Design (LEED), for individual buildings	
Use passive solar design to reduce energy demand for space heating and cooling.	
Reduce unnecessary outdoor lighting	
Build solar ready structures where solar systems cannot feasibly be incorporated at the outset	
Include energy storage to optimize renewable energy generation and avoid peak energy use	
Use onsite landfill gas in energy applications	
Reuse and recycle demolition and construction wastes	
Accommodate recycling collection areas in business spaces	

SOURCE: ESA, 2012.

development projects as a condition of building permit to be verified by the City through the permit process. Many of these measures are also identified in **Mitigation Measure 4.B-4** of Section 4.B, *Air Quality*, of this EIR to address regional criteria air pollutant impacts.

Conclusion with Mitigation: With the inclusion of **Mitigation Measure 4.F-1**, implementation of the CPP or CPP-V scenarios would result in a reduction of GHG emissions (approximately 4.5 percent), but that reduction would not reduce GHG emissions to the degree necessary (a 28- to 31-percent reduction) to achieve a less-than-significant environmental effect, as indicated by Table 4.F-3. Implementation of additional emissions reduction strategies such as those identified in Table 4.F-4 above could further reduce the impact of GHG emissions. However, because it is unclear to what extent such measures could feasibly be implemented and would reduce GHG

emissions to levels below the threshold of significance, the impact of GHG emissions from the CPP and CPP-V scenarios would remain significant unavoidable.

Impact 4.F-2: Would the Project conflict with an applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
LTS	LTS	SU	SU

SU = Significant Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = no impact

DSP, DSP-V, CPP, and CPP-V

Project Site development, inclusive of remediation, soil transport, and the proposed water transfer agreement, would result in impacts related to this criterion.

As indicated in Table 4.F-1, GHG emissions generated by operation of the DSP and DSP-V scenarios would be less than the BAAQMD "efficiency threshold" of 4.6 metric tons of CO_2e per service population per year. However, the GHG emissions generated by operation of the CPP and CPP-V scenarios would exceed the BAAQMD "efficiency threshold," as described in Impact 4.F-1, above. GHG efficiency metrics were developed for the emissions rates at the State level for the land use sector that would accommodate projected growth (as indicated by population and employment growth) under trend forecast conditions, and the emission rates needed to accommodate growth while allowing for consistency with the goals of AB 32 (i.e., 1990 GHG emissions levels by 2020) (BAAQMD, 2009). As a result, the CPP and CPP-V scenarios would also be considered to impair attainment of GHG reduction goals established pursuant to AB 32 in the *Climate Change Scoping Plan*. BAAQMD thresholds were crafted in a manner that defined a project's emissions significant if the Project Site development would emit GHG in excess of the level needed to facilitate achievement of AB 32 goals.

Conclusion: The CPP and CPP-V scenarios would impair attainment of GHG reduction goals established pursuant to AB 32 in the *Climate Change Scoping Plan* and would therefore be considered to conflict with an applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of GHGs. **Mitigation Measure 4.F-1** above is recommended for the CPP and CPP-V scenarios. The DSP and DSP-V scenarios would have a less-than-significant impact with regard to GHG reduction planning efforts, as emissions per service population would be below thresholds developed based on attainment of AB 32 goals.

Conclusion with Mitigation: As described above, even with the implementation of **Mitigation Measure 4.F-1**, above, the CPP and CPP-V scenarios would result in significant unavoidable environmental effects on GHG reduction planning efforts. The cumulative impact would be significant unavoidable because no mitigation measures have been identified that would reduce emissions to below the numeric threshold, as would be required for the CPP and CPP-V to comply with the State of California's goal to reduce GHG emissions.

References – Greenhouse Gas Emissions

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4.G Hazards and Hazardous Materials

4.G.1 Introduction

This section evaluates the hazardous materials and physical hazards impacts that would result from Project Site development, including construction and remediation activities, as well as operation of proposed onsite land uses. It identifies the ways that hazardous materials and other types of hazards would expose people and the environment to various health and safety risks. This section also describes existing contamination of soils and groundwater due to historic uses of the Project Site.

Historic and current land uses on the Project Site are summarized in this section based on environmental assessments and a review of regulatory databases. In addition, the section describes regulatory requirements providing for the management of soil or groundwater contamination within the Project Site. Assessments provided to the City as part of the Specific Plan application package for the DSP and DSP-V scenarios were independently reviewed by CDM Smith on behalf of the City and determined to be adequate for the purposes of CEQA analysis.

This section also describes routine hazardous materials that are likely to be used within the Project Site and the potential for upset and accident conditions in which hazardous materials could be released. The impact analysis identifies ways in which proposed Project Site development would routinely use, store, or transport hazardous materials, and evaluates the extent to which existing and future populations would be exposed to hazardous materials. Feasible mitigation measures are identified to reduce significant impacts.

Air emissions can also carry hazardous materials and create potential risks to human health and the environment. Sources of hazardous or toxic air emissions include, but are not limited to: industrial processes; vehicle use (diesel particulate emissions from exhaust); and proximity to existing or relocated sources of diesel or other toxic air emissions such as the US 101 freeway and the Caltrain rail line, as well as off-site industries and businesses. Impacts related to toxic air contaminants, including the release of diesel particulate matter from construction truck trips and/or delivery truck trips (when the haul routes are located within one-quarter mile of an existing or proposed school) are identified in Section 4.B, *Air Quality*. The Project Site's proximity to air traffic and the potential for air safety hazards is evaluated in this section, along with an analysis of potential fire hazards and emergency response/access issues associated with proposed Project Site development. Other safety hazards, such as earthquakes, are addressed in Section 4.E, *Geology, Soils, and Seismicity*. Flooding and sea level rise are addressed in Section 4.H, *Surface Water Hydrology and Water Quality*.

Some of the key terms used in the management of hazardous materials and the context within which they apply to sites where contaminants have been identified in soil or groundwater are presented below.

- A "hazardous material" is any material that, because of its quantity, concentration, or physical, or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the

environment. Hazardous materials include, but are not limited to, hazardous substances, hazardous waste, and any material that a handler or an administering agency has a reasonable basis for believing would be injurious to the health and safety of persons or harmful to the environment if released into the workplace or the environment (*California Health and Safety Code*, Section 25501).

- A "hazardous waste" is a waste substance that, because of its quantity, concentration, or physical, chemical, or infectious characteristics, may either cause, or significantly contribute to an increase in mortality or an increase in serious illness, or pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed (*California Health and Safety Code*, Section 25117).

- A "hazardous materials release site" refers to any area, location, or facility where a hazardous material has been released or threatens to be released to the environment.

- "Remedial action" or "remediation" refers to actions required by federal; state; or local laws, ordinances, or regulations necessary to prevent, minimize, or mitigate damage that may result from the release or threatened release of a hazardous material. These actions include site cleanup, monitoring, testing, and analysis of site conditions, site operation and maintenance, and placing conditions or restrictions on the land use of a site upon completion of remedial actions.

- "Constituent of concern" or "contaminant of concern" is a hazardous material that has the potential to cause damage to human health or the environment, and create a "risk" to human health and the environment.

- "Exposure pathway" is the course a chemical or pollutant takes from the source to the organism exposed. A "complete" exposure pathway consists of four elements: chemical sources, migration routes (i.e., transport in the environment), an exposure point for contact (i.e., soil, air, or, water); and exposure routes.

- "Exposure route" is the way a chemical or pollutant enters the organism after contact. Four exposure routes are recognized in risk evaluation methods: ingestion, inhalation, dermal (skin and eye), and injection.

- An "extremely hazardous substance," in the context of *Public Resources Code* Section 21151.4 pertaining to hazardous materials emissions near schools, refers to a material included on lists compiled pursuant to Section 25532 of the *California Health and Safety Code*, which incorporates regulated toxic and flammable substances under Section 112(r) of the federal *Clean Air Act* Table 3 of Section 112(r) lists those regulated substances pursuant to Section 25532(g)(2) of *California Health and Safety Code.*

There are three basic ways in which a person may come into contact with a hazardous substance: inhalation, ingestion, or direct contact. Some common exposure pathways by which people may be exposed to hazardous substances include the following:

- **Groundwater and Surface Water:** Exposure will occur if people drink contaminated groundwater or surface water, accidentally ingest it while swimming, or if it comes into contact with their skin (e.g., in the shower, while swimming or wading in contaminated water, etc.).

- **Soil, Sediment, Dust:** People will be exposed to hazardous substances in soil, sediment, or dust if they accidentally ingest it (e.g., the contaminants such as lead dust or other heavy

metals land on their food), if they breathe it in (especially dust), or if their skin comes into direct contact with the contaminated materials. Because of their play habits, children can be highly susceptible to exposure through these pathways.

- **Air:** When a hazardous substance takes the form of vapors or is absorbed by particulate matter (e.g., benzene, volatile organic compounds, dust, etc.), the simple act of breathing can expose people to contamination. In some cases, a person's skin can absorb a hazardous substance in vapor form, although inhalation is considered the greater threat.
- **Food:** Eating food that has been contaminated is another common exposure route. In some cases, food found on people's plates may be contaminated as a result of direct exposure to the hazardous substance. In other cases, food contamination may occur further down the food chain. For example, hazardous substances can collect in the fatty tissues of animals that ingest contaminated plants. The contamination can then be transferred to the animals' natural predators, and eventually, to people.

Activities within a site can result in spills or leaks of hazardous materials to the ground, causing soil and/or groundwater contamination. This occurs for various reasons, due to (1) activities occurring in violation of regulatory standards, (2) past activities that occurred prior to the establishment of regulatory standards or (3) past activities that occurred legally under previous, less stringent regulatory controls than currently exist.

Exposure to some chemical substances may harm internal organs or systems in the human body, ranging from temporary effects to permanent disability or death. Aquatic, terrestrial, or avian species may also be similarly adversely affected. While a "hazard" includes any situation that has the potential to cause damage to human health or the environment, the "risk" to human health and the environment is determined by the probability of exposure to hazardous materials (which are also referred to as "constituents of concern" or "contaminants of concern" in many investigations of past releases of hazardous materials) and the severity of harm that such exposure would pose.

The "risk" to human health and the environment is determined by (1) the probability of exposure to hazardous materials and (2) the severity of harm such exposure would pose. Thus, the likelihood and means of exposure, in addition to the inherent toxicity of a material, are used to determine the degree of risk to human health or the environment. For example, a high probability of exposure to a low toxicity chemical would not necessarily pose an unacceptable human health or environmental risk, whereas a low probability of exposure to a very high toxicity chemical might. Methodologies have been established by the United States Environmental Protection Agency (US EPA) that are also used at the state level to quantify risk and assist in determining how risks should be managed.

Federal and state laws require that hazardous materials be specially managed and that excavated soils having concentrations of contaminants that are higher than certain acceptable levels be specially managed, treated, transported, and/or disposed of as a hazardous waste. Title 22 of the California Code of Regulations §66261.20–24 contains technical descriptions of characteristics that would cause a soil, once excavated and discarded, to be designated a hazardous waste. California regulations are compliant with federal regulations and, in most cases, are more stringent. State and federal regulations also set standards for allowable concentrations of contaminants in order to protect the public health from harmful concentrations of hazardous materials. Applicable regulations are set forth and discussed in greater detail in Section 4.G.3 below.

4.G.2 Environmental Setting

Existing Contamination and Assessments within the Project Site

The Project Site contains two primary areas where past hazardous materials releases have occurred: the former Brisbane Landfill and the former railyard. For regulatory purposes, the former railyard was divided into a north area (Operable Unit 1 or OU-1 which is north of Geneva Avenue), and a south area (Operable Unit 2 or OU-2 south of Geneva Avenue), recognizing differences in the type of contamination present and the different regulatory agencies responsible for overseeing site remediation (Regional Water Quality Control Board and Department of Toxic Substances Control). The three sites (the landfill, OU-1 and OU-2) are described in separate subsections set forth below. **Figure 4.G-1** shows the location of these areas within the Project Site along with other sites discussed in the section.

The information provided for the landfill, OU-1 and OU-2 was obtained from the subsurface soil and groundwater investigation reports resulting from ongoing monitoring within the Project Site described above. While data from quarterly groundwater monitoring reports has been provided, it should be noted that groundwater concentrations commonly fluctuate over time.

The reports described below were independently reviewed by CDM Smith and ESA on behalf of the City and reviewed to assess their suitability for use in this EIR, and to describe existing conditions at the landfill, OU-1 and OU-2 (Geosyntec, 2010; Burns & McDonnell, 2002a; Burns & McDonnell, 2008; MACTEC, 2010a; LFR, 2008; BKF, 2011; and Fugro, 2011 and CDM, 2005). In addition, a database search was generated for the Project Site (EDR, 2011). The results of the database search are included in Appendix H-1.

Over the years, a number of hazardous materials investigations have been undertaken on behalf of the landowner. These investigations have been summarized as follows (Geosyntec, 2012a).

Preliminary Geotechnical Investigation – 1977

In 1977, John V. Lowney & Associates completed a preliminary geotechnical investigation for the landfill to assess geotechnical issues associated with the development of the site for commercial and industrial use. The report concluded that development of the landfill site for commercial and industrial use was feasible. The primary concerns identified in the report for construction were the control of methane gas, which had been previously measured at explosive levels within the landfill, and the potential for differential settlement.

Environmental Assessment of Fill - 1982

In 1982, Harding Lawson Associates (HLA) conducted an environmental assessment of the former railyard, which consisted of drilling and collecting soil samples from 25 shallow boreholes and installing monitoring wells in 24 of the boreholes to assess the presence of contaminants. Groundwater samples were collected from these wells and one deep production well. Ten soil samples, 24 groundwater samples, and one oil sample from the vicinity of the oil tank were collected and submitted for chemical analysis. The results of soil sample analyses were not

Figure 4.G-1
Location of Operable Units

described in recent reports. Groundwater from well HLA-1, located in the northern part of the railyard, was analyzed for heavy metals, VOCs, and SVOCs, and groundwater from HLA-4 was analyzed for SVOCs only. The remaining wells were tested for pH and total organic carbon (TOC). Results indicated that the groundwater collected from HLA-1 was impacted by VOCs, including TCE (10,000 µg/L), trans-1,2-DCE (2,770 µg/L), PCE (600 µg/L), vinyl chloride (460 µg/L) and 1,1-DCE (75 µg/L). Well HLA-1 also contained TOC (91 mg/L), total chromium (0.026 mg/L), bis(2-ethylhexyl)phthalate (30 µg/L) and mercury (0.0003 mg/L).

Soil and Groundwater Investigation – 1985

In 1984, Ecology and Environment, Inc. (E&E) conducted a two-phase environmental investigation at the former railyard. The first phase of the investigation included measuring water levels in 24 of the HLA wells and collecting groundwater samples from 18 of the wells. The second phase of the investigation, undertaken in 1985, included abandoning and sealing all the HLA wells (due to problems with their construction), drilling and collecting soil samples from 41 soil borings, and installing and collecting soil and groundwater samples from 14 new shallow groundwater basin wells and 13 new deep groundwater basin wells. A total of 136 soil samples and 46 groundwater samples were collected and analyzed. The results of soil samples were not discussed in the recent reports.

Groundwater levels were measured and the flow direction evaluated. Groundwater samples were analyzed for VOCs and metals. The highest VOC concentration was PCE (10,100 µg/L) at well MW-5A, screened in the A-Fill. Trans-1,2-DCE was reported at a concentration of 2,360 µg/L at well HLA-1. TCE was detected in wells MW-5A, MW-5B, and MW-6A at concentrations ranging from 2,080 µg/L to 9,550 µg/L. No SVOCs were detected in the wells sampled. Arsenic was detected at concentrations ranging from 0.043 mg/L to 1.9 mg/L (MW- 3A). Other metals detected in groundwater include total barium (up to 2.93 mg/L), total copper (up to 1.56 mg/L), total chromium (up to 1.81 mg/L) and total zinc (up to 4.88 mg/L).

Remedial Action Alternative Feasibility Study – 1986

In 1985 and 1986, the Mark Group performed a Remedial Action Alternative Feasibility Study for the former railyard, which included drilling and collecting soil samples from 21 soil borings, nine shallow groundwater basin wells, and five deep groundwater basin wells. Four of the shallow groundwater basin wells were installed next to existing deeper wells. Five shallow groundwater basin well pairs were installed in new locations. A total of 69 soil samples were collected from soil borings and well borings, and 41 groundwater samples were collected and analyzed. The Mark Group also surveyed measuring points and measured water levels in all of the wells, performed some small-scale aquifer tests to estimate hydraulic conductivities and aquifer interconnections, and made limited measurements of tidal fluxes. Groundwater samples were analyzed for metals and VOCs. Arsenic, barium, and chromium were detected in groundwater samples. Methylene chloride was detected at 500 µg/L in well MK-5A, TCE at 1.3 µg/L in MK-4B and xylenes at 2.3 µg/L (MK-2A) and 0.6 µg/L (MK-3B). The Mark Group also sampled existing wells for VOCs and metals. The highest concentration of VOCs was TCE detected at 1,000,000 µg/L in well MW-5A, located near the Schlage Lock site boundary. A

second sample obtained from this well two months later indicated a TCE concentration of 140,000 µg/L. Other VOCs detected at much lower levels included benzene, 1,1,1-trichloroethane (1,1,1-TCA), 1,1,2-TCA, toluene, PCE, methylene chloride, cis-1,2-DCE, chloroform, ethylbenzene, xylene and 1,1,2,2-tetrachloroethane.

Detection Monitoring Program Investigation – 1987

The first comprehensive soil, groundwater, and surface-water quality evaluation at the Brisbane Landfill was performed by SPTC in 1987. Twenty-eight (28) samples[1] of materials underlying the refuse fill area and the railyard (just upgradient of the landfill) were collected and analyzed for VOCs, SVOCs, phenols and 14 priority pollutant metals (PPMS)[2]. The report stated that "... it appears that disposal operations have impacted soil chemical quality below the landfill area." (Geosyntec, 2012). However, "With the exception of three semi-volatile organic compounds: phenanthrene, pyrene, and chrysene, the levels of chemical constituents detected were found at low levels which should not be of environmental concern. These compounds were detected only at shallow depths in the Bay mud and are generally considered to have low mobility."

Additionally, 15 groundwater samples were collected from shallow groundwater zone and deep groundwater zone groundwater monitoring wells and analyzed for VOCs, SVOCs, phenols, oil and grease, 13 PPMs, nitrate, Total Kjeldahl Nitrogen (TKN), general mineral and physical parameters[3], oxidation and reduction potential, and total and fecal coliforms. Shallow groundwater samples, obtained from monitoring wells within the landfill area, indicated elevated levels of a variety of inorganic constituents and parameters... "Probable sources of these higher levels could be the waste materials disposed of at the site and bay waters, in which the wastes were placed" (Kleinfelder, 1987). A variety of VOCs and SVOCs were also detected at low levels in samples from on-site shallow groundwater zone wells. In general, a greater number of constituents were detected in the last areas to be filled than in earlier fill areas.

Additionally, seven surface-water samples, obtained during low and high tides on 18 December 1986, were analyzed for the same constituents as the groundwater samples. No PPMs or VOCs were detected in any of the samples analyzed. Detected concentrations of other chemicals in the surface-water samples were "... well below designated level to protect marine waters and should not be a concern."

Groundwater Monitoring Program –1989

In 1989, S.S. Papadopoulos & Associates Inc. developed and implemented a semiannual groundwater monitoring program for the former railyard. Under the monitoring plan, Papadopoulos sampled groundwater and measured water levels in the 40 wells at the site and collected and analyzed two samples of water from the onsite ditch. The groundwater samples

1 Including 27 samples of Young Bay Mud and one sample of silty sand underlying the Young Bay Mud.
2 PPMs included antimony, arsenic, beryllium, cadmium, chromium, copper, iron (soil samples only), lead, mercury, nickel, selenium, silver, thallium and zinc.
3 General mineral and physical parameters included color, odor, turbidity, bicarbonate/carbonate and hydroxide alkalinity, calcium, chloride, foaming agents (MBAS), iron, magnesium, manganese, pH, potassium, sodium, sulfate, specific/electrical conductance, total dissolved solids (TDS), total hardness and fluoride.

were analyzed for VOCs, BTEX, and metals. The analytical results confirmed the presence of VOCs and metals identified previously. Metals detected included arsenic, barium, chromium, copper, lead and zinc.

Groundwater Monitoring - 1989

HCI conducted groundwater sampling at the former railyard in June 1989. Water levels were measured and samples collected from 31 wells. HCI also removed 11,500 gallons of oil-contaminated water and sediments from the on-site drainage ditch for off-site treatment and recycling.

Remedial Investigation Data Study – 1989

In May 1989, HCI completed a Remedial Investigation Data Study (RIDS) report for the former railyard (referred to in their report as "SPTCO Bayshore Facility"). The purpose of the study was to review and interpret data generated in the previous investigations and to identify data gaps and additional work needed to allow better definitions of the nature and extent of contamination and potential risks associated with the site, and to design effective remedial actions. To meet these objectives, HCI developed a Supplemental Remedial Investigation (SRI) Work Plan concluding that:

- Low to moderate concentrations of metals were found in soils at many locations across the site. HCI suggested that these sporadic distribution patterns were probably related to the generally poor quality of fill material used to raise the land level in the region.
- Oil and/or fuel type organic materials were observed in the soils underlying the turntable and former oil tank location by all of the previous investigators.
- The presence of VOCs in soils appeared to be limited to low levels of chlorinated hydrocarbons in the northwest corner of the site, where they are closely related to the extent of VOC's in groundwater.

Phase 1 Geotechnical Investigation – 1990

In 1990, Kleinfelder conducted a geotechnical investigation to evaluate foundation requirements for future development of the landfill area. They also conducted an evaluation of the extent of refuse at the site and installed soil gas and gas pressure probes to provide additional information for design of a landfill gas extraction system.

Air Quality Solid Waste Assessment – 1990

The Air Quality Solid Waste Assessment Test (SWAT) field program at the Brisbane Landfill consisted of landfill gas (LFG) sampling, ambient air sampling, gas migration testing, and instantaneous surface monitoring performed in October-November 1989 and in May 1990.

Gas stream characterization revealed the presence of methane gas in all samples at concentrations ranging from 67.7 to 81.8 percent by volume. Additionally, benzene was detected in two samples at concentrations of 1,080 ppb and 881 ppb.

Instantaneous surface monitoring was conducted over a three-day period in October-November of 1989. Percent-level total organic compound concentrations (measured as methane) were detected south of Lagoon Road, along the northern Tunnel Road perimeter and in one area near the eastern perimeter of the landfill. In addition to these elevated perimeter readings, percent-level measurements were detected in part of the interior northwestern, central, and southeastern sectors of the landfill site. Supplemental testing conducted in May 1990 confirmed the existence of these interior gas "seep" areas. In all cases, the locations of high landfill gas emissions corresponded to areas where extreme landfill settlement had occurred or irregular landfill contours existed, thus likely indicating the need for soil addition and compaction. Once compacted soil was placed over the identified "seep" areas, additional instantaneous surface emissions surveying was conducted. The maximum single point instantaneous measurement obtained was 30 ppm, while the majority of readings were less than 5 ppm.

Ambient air sampling was conducted over three separate days. The analytical results indicated that air contaminants apparently were not emitted from the landfill into the ambient atmosphere at levels that would be likely to pose a potential threat to public health or safety or a threat to the environment.

Gas migration testing was performed at eight perimeter probe locations. Probe samples were monitored for total organic compounds (TOCs), measured as methane, using field instrumentation. Gas concentrations, detected in six probes, ranged from 1 to 24 ppm.

Supplemental Remedial Investigation – 1990

In 1990, L-F implemented the Work Plan for the former railyard prepared by HCI in 1989. The field work and laboratory analyses included a soil gas/ groundwater survey, soil characterization from shallow trenches and deeper borings, surface soil sampling, air sampling, piezometer and monitoring well installation, groundwater and surface-water sampling, hydraulic testing and tidal fluctuation monitoring. The majority of work was performed in the OU2 area south of the Brisbane portion of OU-1. Forty shallow borings were drilled to collect samples and make visual observations to identify the lateral and vertical extent of chemical-affected soils at the site. The analytical results and visual observations of the soil samples collected from the borings were also used to refine the locations for the eight new wells and 10 piezometers.

Additionally, eight groundwater monitoring wells were installed in the deep groundwater basin to better characterize quality and flow of the deeper water bearing unit. Data collected through these activities, along with soil and groundwater data previously collected, were summarized and evaluated to characterize the extent of chemicals at and in the vicinity of the former railyard.

Three general areas of concern at the site were identified:

- The North Area – High concentrations of chlorinated VOCs were detected primarily in shallow and deep groundwater basins in this area. A localized area of oil was also identified in the extreme northwest corner of the site. The principal VOCs detected include: TCE, PCE, vinyl chloride, 1,1-DCE, 1,2-DCE, 1,1,1-TCA, and 1,1,2-TCA.

- Turntable and Oil Tank Areas – Petroleum hydrocarbons, primarily heavy, viscous Bunker C oil, were observed throughout this area. Other lighter fraction oils were also identified in the Turntable Area. Bunker C oil extends off-site to properties along Industrial Way.
- South Disposal Area – Metals were detected at concentrations above regulatory standards in soils in this former solid waste disposal area. The principle metals of concern in this area are arsenic, copper, mercury and lead, although other metals have also been detected.

Water Quality Solid Waste Assessment – 1992

In 1992, Kleinfelder conducted a Water Quality Solid Waste Assessment Test (SWAT) investigation to evaluate whether the landfill had an adverse effect on water quality. The report concluded that organic compounds had been detected and had impacted the shallow water bearing groundwater zone above the Young Bay Mud[4]. The report also concluded that the Young Bay Mud was an effective barrier and coupled with the observed upward vertical groundwater gradient, should prevent the downward migration of contaminants. The report also concluded that the refuse layer of the landfill did not appear to be tidally influenced and that contamination at the site would not be classified as a hazardous waste under California regulations.

The SWAT report also stated that groundwater (within and immediately adjacent to the landfill) and surface water (crossing and adjacent to the landfill) contained naturally occurring minerals (e.g., chloride, total dissolved solids (TDS), iron and manganese) at concentrations in excess of non-health related drinking water standards, i.e., secondary maximum contaminant levels (MCLs). As such, these waters would not be considered a potential drinking water source as defined by the State Water Resources Control Board.

Interim Remedial Investigation – 1995

This investigation included historical research and assessment of the Project Site and the Schlage property, along historical research and assessment of the Bodinson, Norton Trust, and SPTC properties as well as an assessment of the Schlage and Project Site. Results confirmed the presence of CVOCs, total petroleum hydrocarbons (TPH), and metals in groundwater and soil.

Field Investigation, Project Site and Schlage Site – 1998

The primary purpose of this September 1998 investigation was additional characterization of VOC distribution in groundwater near the boundary between the Project Site and the Schlage property. The investigation included groundwater sampling at various depths, soil sampling, and a passive soil gas survey.

[4] The highest VOC concentrations and greatest number of VOCs exceeding primary MCLs [CRWQCB, 2011] were detected in samples collected from four monitoring wells adjacent to the Santa Fe Pacific Pipelines (SFPP) (currently Kinder Morgan Energy Partners, LLP) “Tank Farm” facility near the southwest comer of the landfill, suggesting the tank farm as a possible source area.

Landfill Footprint Delineation – 2000

Geosyntec performed two investigations to identify property owners and to delineate the footprint of the Brisbane Landfill in 2000. Additionally, Subsurface Consultants, Inc. completed a technical review of geologic information to delineate the northern extent of the landfill.

Landfill Cover Thickness Investigation – 2001

An existing soil cover thickness investigation performed in August 2000 consisted of drilling 40 borings to the top of waste within the landfill. Locations of these borings were to supplement borings drilled by Geosyntec in March 2000 as part of the waste extent delineation program. Based on the results of the 2000 B&M and Geosyntec investigations, a contour map of the soil cover thickness, reflecting the mid-2000 conditions, was prepared. According to the map, the thickness of the cover material generally ranged from 1 to 37 feet.[5] However, as stated in the report, "With the continued inert filling operations at the landfill, and on-going settlement of refuse and underlying Bay Mud, development of homogenous contour maps for the top of refuse and top of Bay Mud that are inclusive of both pre-2000 elevation data and the data collected in 2000 was not possible."

Interior Drainage Channel Investigation – 2002

The primary objective of this investigation was to evaluate the depth to landfill waste beneath the interior drainage channel for use in planning and channel liner system design. According to the report, waste is generally present under the IDC throughout the landfill at depths of 3 to 6 feet below the existing channel surface. Also, most of the soils above waste materials "... in the upper ranges of the channel are low plasticity clays or silts and may provide an acceptable foundation for a channel lining system." However, soils in the lower range of the interior drainage channel "are high plasticity clays and probably do not provide an acceptable foundation for a channel lining system." Young Bay Mud was found to be present under the interior drainage channel at depths ranging from 8 to 16 ft below the channel surface.

Final Closure and Post-closure Maintenance Plan – 2002

The final closure and post-closure maintenance plans (FCPMPs) for the Brisbane Landfill were prepared to address requirements of Sections 20950 through 21200 of Title 27 of the Code of California Regulations[6].

The final closure and post-closure maintenance plans propose to install a final cover system over the entire Brisbane Landfill consisting of the following layers (from bottom to top):

- a minimum 2-ft thick soil foundation layer (in-place soil);

5 Adjacent to Guadalupe Lagoon, the cover material ranged from 1 ft to 5 ft.
6 The Title 27 regulations provide minimum standards related to closure and postclosure maintenance of solid waste landfills.

- a low-hydraulic conductivity layer (flexible membrane liner (FML) or a minimum 1-ft thick compacted clay liner (CeL), with a maximum hydraulic conductivity of 1 x 10-6 cm/s); and
- an erosion-resistant layer "of sufficient thickness to allow for the installation of utilities at the proper depths without harming the low-hydraulic conductivity layer."

The final closure and post-closure maintenance plans state that prior to each increment of development on landfill, a detailed Development Plan will be prepared and submitted to the regulatory agencies for review and approval[7].

The Brisbane Landfill final closure and post-closure maintenance plans were conditionally approved by the Regional Water Quality Control Board. Additionally, the Local Enforcement Agency, San Mateo County Environmental Health Division, reviewed the final closure and post-closure maintenance plans, and provided their preliminary comments.

Remedial Investigation Report Joint Groundwater Operable Unit – 2002

The objective of the investigation was to evaluate the nature and extent of groundwater contamination beneath both the former Schlage Lock and the Brisbane portion of OU-1. The investigation (1) evaluated the hydrogeology and geology of the site as it relates to groundwater and contamination migration; (2) compiled available groundwater chemical data into a single document along with a representative summary of hydrogeological data and information; (3) characterized the nature and extent of contamination in the groundwater at the site; (4) evaluated transport routes of the chemical substances present in groundwater at the site; and (5) developed a foundation of data necessary for the preparation of a Risk Assessment (RA) and subsequent Remedial Action Plan for the groundwater at the site. The chemicals of concern at the site were identified as CVOCs. The report also presented an outline of the objectives of the groundwater remedy (i.e., pump and treat) that was operating at the time.

Wetland Mitigation Plan – 2004

B&M conducted pedestrian surveys at the Brisbane Baylands on May 27 – 30, 2003 to identify federal jurisdictional wetlands and other waters of the United States (U.S.) in anticipation of federal permit requirements for site remediation. B&M identified 27 wetland areas[8], one tidally influenced drainage area (the interior drainage channel), and one tidal water body (Brisbane Lagoon) within the Brisbane Baylands boundaries during wetland surveys. Remediation activities were identified as impacting approximately 1.7 acres (2,200 linear feet) of saltwater marsh wetlands and tidal waters along the interior drainage channel and 1.4 acres of freshwater marsh wetlands.

The 2004 wetland mitigation plan provided for creating two types of wetland habitats to offset impacts to jurisdictional wetlands. Both types were planned to utilize native vegetation to increase function and habitat value. One acre of saltwater marsh wetlands and three acres of

7 The CRWQCB [2001, 2003] requires submittal of detailed Construction (Development) Plans at least 60 days prior to construction commencement.

8 Includes four wetland areas that were originally determined to be non-jurisdictional.

freshwater marsh wetlands, including a shallow water shoreline zone, a deep water zone and an open water zone, were planned along the existing interior drainage channel.

Proposed maintenance activities focused on promoting wetland habitat establishment. Additionally, a success criterion monitoring program was developed to assure that the mitigation areas will restore or exceed the functions and values of existing waters of the U.S. The wetland mitigation plan was not implemented and federal permits have since lapsed.

Soil Conditions Summary – 2005

The main objective of this report prepared by Burns & McDonnell was to summarize existing OU-1 soil analytical data and to identify data gaps, if any, for scoping future investigations. It was reported that the highest concentrations of VOCs (PCE and TCE) were detected topographically down slope of the Schlage buildings and parking lot immediately adjacent to the Schlage/Project Site property line (samples TR-21 and TR-59). TCE concentrations at the site ranged from 0 to 16,000 mg/kg. PCE concentrations ranged from 0 to 8,000 mg/kg. TPH was detected in shallow soils in two of the 17 locations sampled, with the highest concentration of TPH detected in the area of the former sludge pits. Confirmatory samples taken from the walls of the sludge pit excavation did not show a detection of TPH above the method detection limit. Metals were detected in shallow soils in all of the 51 locations sampled across the entirety of OU-1. Arsenic, chromium and lead were detected at the highest concentrations, in some cases exceeding screening criteria, but not in any one specific area of OU-1. According to the report, the metals are widespread because the area was filled with rubble and debris in the early 1900s.

Soil and Groundwater Sampling – 2005/2006

Fifty-eight (58) borings were advanced within OU-1 during collection of soil and groundwater samples between December 2005 and September 2006. Soil samples were analyzed for metals and VOCs, while groundwater samples were analyzed for VOCs only. Results indicated that impacts of VOCs to groundwater were limited to the area near the northern boundary of the Brisbane portion of OU-1, related to the Schlage Lock site. Soil impacts due to arsenic, lead, cadmium, mercury and chromium were further delineated.

Landfill Gas Surface Emission Evaluation – 2006

Geosyntec performed an evaluation of landfill gas surface emissions at the Brisbane Landfill in June 2006. The work followed the requirements of federal (Subpart WWW[9]) and state (Rule 34 of Regulation 8 by the BAAQMD) regulations for surface emissions. The LFG surface emission survey indicated no detection of LFG along the perimeter or within the boundary of the landfill.

Soil Sampling Summary Report – 2006

Soil and shallow groundwater sampling was performed at OU-1 (including both San Francisco County and Brisbane portions) in December 2005 and January 2006 to supplement the existing

9 Section 60.755(c) and/or (d) (Subpart WWW) of Title 60 of the Code of Federal Regulations (CFR).

data from previous subsurface investigations of the OU-1 area, to reduce the spacing between soil and groundwater sampling locations, and to further characterize the soil and groundwater. Soil samples from 25 borings were analyzed for metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium and silver) and from 20 borings for VOCs. Groundwater samples obtained from six borings were analyzed for VOCs. The analytical results of 48 soil samples indicated the presence of metals, at concentrations exceeding screening levels or background across the site, in 15 out of 25 borings. VOC detections in soil samples were limited to four locations in a small area east and south of the Project Site/Schlage Lock property line. Eight VOCs (including acetone, 1,1- dichloroethane, cis-1,2-DCE, ethylbenzene, total xylenes, toluene, TCE and PCE) were detected in the six groundwater samples. At two locations, concentrations of TCE and PCE were above their respective maximum contaminant levels (MCLs).

OU1 Additional Investigation – 2006

An additional soil and groundwater investigation was performed at OU-1 both (San Francisco and Brisbane portions) in August 2006 to further assess the quality of soil and groundwater. Thirty-three borings were drilled to approximately 12 to 15 feet below the ground surface and soil and groundwater samples were obtained from each boring. Selected soil samples were analyzed for metals (arsenic, barium, cadmium, chromium, copper, lead, mercury, selenium and silver) and CVOCs, while groundwater samples were analyzed for CVOCs only. The laboratory results of 19 soil samples indicated that concentrations of a number of metals exceeded their respective background concentrations. Maximum concentrations of metals that exceeded their background concentrations were: 350 mg/kg (arsenic), 4,400 mg/kg (chromium), 8,000 mg/kg (lead) and 100 mg/kg (mercury). Eight out of 33 soil samples analyzed for VOCs indicated the presence of TCE (at the maximum concentration of 160 µg/kg), PCE (110 µg/kg) and toluene (11 µg/kg). Groundwater samples collected from the 33 borings indicated the presence of nine VOCs in the A-Fill groundwater, including acetone, cis-1,2-DCE (6.9 to 1,300 µg/L), ethylbenzene, PCE (19 to 750 µg/L), TCE (6.9 to 1,100 µg/L), toluene, trans-1,2-dichloroethene (ND to 18 µg/L), vinyl chloride (0.61 to 160 µg/L) and xylenes. Additionally, five VOCs (cis-1,2-DCE, PCE, TCE, trans-1,2-DCE and vinyl chloride) exceeded their respective MCLs. Generally, the investigation results indicated that impacts of CVOCs to groundwater were limited to the area near the northern boundary of OU-1, related to the Schlage Lock site.

Preliminary Geotechnical Investigation and Recommendations Report – 2008

Geosyntec developed preliminary geotechnical conclusions and recommendations for future development of the Brisbane Landfill based on the field investigations, laboratory testing and evaluations of available subsurface data. Findings and recommendations included:

- The subsurface stratigraphy at the site consists of (from the ground surface, down) 10 to 40 ft of non-engineered fill over approximately 20 to 35 ft of waste underlain by soft to stiff Young Bay Mud and Old Bay Mud, which consist of clays and silts with sand layers.
- The water levels are between elevations +5 ft and + 10 ft mean sea level (msl).
- In general, bedrock is within the elevations shown on the 1969 California division of Mines and Geology regional map or higher (i.e., closer to the surface) with localized variations.

- A relatively thick sand layer was encountered in the northern portion of the site.
- Settlement of the waste fill, the Young Bay Mud and a portion of the Old Bay Mud are expected. Differential settlements will affect structures and will induce downdrag loads in deep foundations. Placing fill over non-engineered fill and refuse will cause uneven settlement. Design and construction of structures and placement of fills over refuse should, therefore, consider the impacts of short- and long-term settlement.
- Engineered Fill materials shall be non-expansive, free of organics and debris, and compacted at 90 percent relative compaction in accordance with ASTM D1557, unless modified by the final design. Structural Fill and Retaining Wall Fill needs to be compacted at 95 percent relative compaction. The top 5 feet of fill should be compacted to 95 percent relative compaction (ASTM D 1557) and within 3 percent of the optimum moisture content.
- Shallow Foundation (i.e., slab-on-grade and shallow footings) may be an option provided that buildings are monitored for differential settlements and the foundations are repaired (e.g., slab jacking, grouting, etc.). Settlements may cause grade reversal and therefore affect the long-term performance of the utilities (e.g., sewers and water supply lines) at the site. Flexible joints shall be necessary.
- Deep Foundation – for structures that cannot tolerate differential settlements, deep foundations are recommended. To reduce down drag (i.e., negative skin friction) due to settling deposits, a bituminous coating over 70% of the length of the settling layer can be used. A 14-in. by 14-in. (360-mm by 360-mm) precast pre-stressed concrete pile was evaluated for preliminary pile capacities. Piles shall be designed in accordance with the applicable local/state ordinances and requirements. Compatibility of pile materials shall be evaluated with leachate and sea water.
- The slope stability analyses performed for the 2006-proposed grading plan slopes facing Guadalupe Lagoon show that addition of fill lowers the existing static factor of safety; therefore, consideration should be given to minimizing the addition of fill in the area, and slope stability analyses performed for the final development grading plan.

Leachate Management Plans - 2002-2008

As required by Regional Water Quality Control Board Waste Discharge Requirements, the landowner (UPC) submitted a Leachate Management Plan for the landfill in 2002. The Leachate Management Plan considered two methods of leachate collection and extraction: (1) a french drain along the landfill perimeter and/or slurry wall; and (2) a series of leachate extraction wells strategically located for suitable operation. In 2006, in response to a request by the Regional Water Quality Control Board, UPC submitted a revised Leachate Management Plan that proposed a seep mitigation program designed to improve water quality parameters for Brisbane Lagoon seeps and overall lagoon water beyond those required by the Regional Water Quality Control Board to protect ecological receptors. The Regional Water Quality Control Board approved the revised Leachate Management Plan in 2007. The revised Leachate Management provides interim management of landfill leachate under the current (i.e., pre-development) site use.

In 2008, a Draft Leachate Management Plan was prepared to establish a long-term approach for managing leachate at the Brisbane Landfill and to provide a basis for landfill development planning, including the preparation of the Environmental Impact Report (EIR). Pursuant to the

2008 Draft Leachate Management Plan, it is intended for the Draft Leachate Management Plan to remain in "draft" status until completion and certification of the EIR for Project Site development. At that time, applicable mitigation measures from the EIR for Project Site development will be incorporated into the Final Leachate Management Plan. The Final Leachate Management Plan will be submitted to the Regional Water Quality Control Board for approval and subsequently implemented by the landowner, UPC. Prior to certification of the EIR for Project Site development and approval of a land use plan for the Project Site, from which the Regional Water Quality Control Board can set risk-based clean-up goals and use to tier its environmental review and approval of the Final Leachate Management Plan by the Regional Water Quality Control Board, leachate at the landfill will be managed in accordance with existing Waste Discharge Requirements and the approved revised Leachate Management Plan, unless otherwise required by the Regional Water Quality Control Board.

The Draft Leachate Management Plan addresses the following interim and long-term leachate management objectives:

- minimize the amount of leachate generated;
- collect leachate from existing and future-identified leachate seeps;
- convey and dispose of collected leachate off-site in an environmentally-safe and cost-effective manner; and
- monitor to confirm that interim and long-term mitigation measures meet the requirements of the Regional Water Quality Control Board and Title 27.

The interim objectives are currently being achieved through: (1) grading of the existing intermediate cover to enhance surface drainage toward a storm-water runoff system (thus reducing surface infiltration); (2) installation of a temporary Leachate Seep Collection and Transmission System to collect leachate at the Lagoon seeps and convey it through a sanitary system for off-site treatment and disposal; (3) based on experience/performance of the above and internal drainage channel seep Screening Level Ecological Risk Assessment results, a decision will be made by the Regional Water Quality Control Board as to the most appropriate measure(s) to be implemented for the internal drainage channel seeps; and (4) monitoring performance of interim measures by measuring leachate fluid levels in leachate monitoring wells and inspecting landfill perimeter for seeps.

The primary method for long-term leachate management at the Brisbane Landfill is to reduce leachate generation through the construction of a low-permeability final cover. Construction of the final cover will reduce leachate generation by approximately 90 percent. The Draft Leachate Management Plan anticipates that following construction of the final cover, no additional leachate management actions will be required. The Draft Leachate Management Plan also identifies potential contingency leachate mitigation measures in case leachate management objectives are not met by construction of the final cover system.

Sampling and Analysis for Lead and Arsenic in Soil – 2009

In October 2009, Mactec further characterized the extent of arsenic and lead-impacted soil in the San Francisco County portion of OU-1 to fill a data gap identified in the 2009 Feasibility Study / Remedial Action Plan. In addition, a limited number of soil samples were analyzed for PCBs and pesticides. Based on analysis of samples from 46 soil borings, the extent of soil above risk-based cleanup levels for arsenic and lead was identified. Arsenic above risk-based cleanup levels was found to be more widespread than lead, but limited to near-surface soils and considered to be the result of spraying of lead arsenate herbicides. PCBs or pesticides were either not detected or detected below screening values in the soil samples analyzed. The remedial activities of the San Francisco portion of OU-1 are currently being implemented.

Landfill Groundwater, Surface-Water and Leachate Monitoring – 2002-Present

Semiannual groundwater, surface-water, and leachate monitoring has been performed at the Brisbane Landfill pursuant to Regional Water Quality Control Board Waste Discharge Requirements since 2002. The monitoring results confirm the SWAT investigation findings that the shallow groundwater zone at the landfill has been impacted by the waste. However, the Young Bay Mud that separates the shallow and deep groundwater zones, along with the upward hydraulic gradient, prevents contamination of the deep groundwater zones.

Results of the surface-water monitoring in the Brisbane Lagoon and internal drainage channel indicate low concentrations of the target chemicals. Additionally, Screening-Level Ecological Risk Assessments performed for seeps discharging to the Brisbane Lagoon and internal drainage indicate that they do not pose a significant threat to the environment.

Groundwater Monitoring – Ongoing

Groundwater monitoring has been carried out at the San Francisco and Brisbane portions of OU-1 since 1995, in accordance with the Operation and Maintenance (O&M) agreement between the DTSC and the landowner. From 1995 through the present, groundwater monitoring has been conducted at various times by Recon Environmental Corp., SCS Engineers, B&M, and Mactec. Groundwater samples from all of the wells have been analyzed for CVOCs. Also, groundwater from designated wells has been analyzed for TPH, total chromium, hexavalent chromium, benzene/toluene/ethylbenzene/xylenes (collectively, BTEX), and MTBE. Since the third quarter of 2008, Mactec has conducted quarterly groundwater monitoring events for the San Francisco portion of OU-1.

Settlement Evaluation Program – 2008-Present

As recommended by Geosyntec a settlement monitoring program was implemented at the landfill to evaluate short- and long-term settlement, and to calibrate the settlement model developed for the landfill. The model considers primary and secondary settlements of the cover soil, waste, Young Bay Mud and Old Bay Mud. The program, initiated in 2008, includes quarterly and semiannual monitoring of four deep settlement monitoring systems (i.e., two Sondexes at two landfill locations) and 30 shallow settlement monuments.

Risk-Based Cleanup Levels

In January 2009, Mactec [2009c] calculated risk-based clean-up levels for constituents of concern in soil within the Brisbane and San Francisco portions of OU-1. The constituents of concern included PAHs, quantified as benzo-a-pyrene (BaP), arsenic, cadmium, lead and mercury. The maximum concentrations for the constituents of concern in soil were compared by MACTEC to regulatory screening levels, which included the California Environmental Protection Agency (CalEPA) California Human Health Screening Levels. Although the maximum concentration of chromium in the San Mateo County OU-1 is below the regional screening level for total chromium, testing for hexavalent chromium had not been conducted at this location.

The January 2009 clean-up levels recommended by MACTEC for the constituents of concern in soil at OU1 are presented below.

- **PAH as BaP**
  - Residential: 0.4 mg/kg
  - Recreational: 0.4 mg/kg
  - Commercial: 0.4 mg/kg
- **Lead**
  - Residential: 254 mg/kg
  - Recreational: 599 mg/kg
  - Commercial: 800 mg/kg
- **Arsenic**
  - Residential: 19.1 mg/kg
  - Recreational: 19.1 mg/kg
  - Commercial: 19.1 mg/kg
- **Cadmium**
  - Residential: 2.7 mg/kg
  - Recreational: 2.7 mg/kg
  - Commercial: 2.7 mg/kg
- **Mercury**
  - Residential: 18 mg/kg
  - Recreational: 18 mg/kg
  - Commercial: 18 mg/kg

Preliminary Fill Soil Import Criteria – 2011

The placement of fill materials by the landowner is occurring at the landfill to accelerate consolidation of the waste and to provide bearing capacity for future development. Guidance was developed by Geosyntec to screen fill materials accepted as Brisbane Landfill cover soil.

Overview of Project Site Geology

As discussed in more detail in Section 4.E, *Geology, Soils, and Seismicity*, the stratigraphy[10] from top (youngest) to bottom (oldest) for the Project Site consists of Artificial Fill comprised of construction debris and landfill waste, alluvial sediments and bedrock. A summary of geologic materials found on the Project Site includes.

- **Artificial Fill**
  - ***Landfill.*** Non-engineered fill material includes soils, concrete, bricks, tires, steel, and wood. The soil types range from sandy clay to gravel with sand and range in thickness from 6 to 40 feet. The majority of fill was composed of silty clayey sand and concrete matrix. A clean soil layer approximately ten feet thick overlies the waste.
  - ***Underlying the landfill and former railyard.*** Non-engineered fill ranges in thickness from 0 to 15 feet, and consists of a heterogeneous mixture of clay, silt, coarse sand, and gravel with fragments of brick, stone, and wood from the 1906 San Francisco earthquake rubble. The A-Fill was placed directly on the marine sediments that comprise the Bay Margin deposits.
- **Waste**. Wood, paper, plastic, glass, wires, metals, and gravelly soils. Thickness ranges from 20 to 35 feet.
- **Young Bay Mud**. Elastic silt or fat clay. Thickness ranges from 10 to 50 feet.
- **Old Bay Mud**. Classified as low-to-high plasticity clays and clayey sands. In the northwest portion of the site a sand layer ranging from 88 to 93 feet (27 to 28 meters) in thickness underlies the base of the Young Bay Mud.
- **A-Sand**. A-Sand is a yellow-to-brown, fine-to-medium-grained quartz sand with some minor lenses of silt and clay. The sand is medium dense to very dense at depth. The thickness of the A-Sand beneath the site within the former railyard ranges from approximately 14 to 33 ft thick.
- **A-Aquitard**[11]. The A-Sand overlies and is separated from B-Sand by a southward dipping clay unit referred to as the A-Aquitard. The A-Aquitard is a yellow to brown, stiff, low-plasticity clay to sandy clay with occasional lenses of cleaner sand. This unit dips southward and the depth to the top of this unit is approximately 20 ft below the ground surface within the former railyard.
- **B-Sand**. The B-Sand unit occurs below the A-Aquitard and is similar to the A-Sand in lithology. The top of the B-Sand has been encountered at depths ranging from 55 to 60 feet below the ground surface within the former railyard.
- **Franciscan Assemblage**. Sandstones, shale, siltstones, chert, greenstone, and schist. Partially recrystallized and intruded by serpentine. Slope stability characteristics highly variable. Subject to sliding where highly sheared.

[10] Stratigraphy is the vertical arrangement or sequencing of underlying materials that can be interpreted to describe the geologic history or for geotechnical purposes to design building foundations.

[11] An aquitard is a geologic formation retarding the flow of water, a geologic formation that may contain groundwater, but is incapable of transferring that water to the surface

Overview of Project Site Hydrogeology

The Project Site is located within the 880-acre Visitacion Valley Groundwater Basin, which is part of the San Francisco Bay Hydrologic Region (DWR 118, 2003). The regional groundwater in the area of the Project Site is characterized by shallow and deep water bearing units (often referred to as Zones A and B), which are separated by a tight grained layer of Younger Bay Mud (see also generalized cross sectional view in Figure 4.E-3) (Geosyntec, 2010). Zone A is comprised of shallow water-bearing sediments encountered from the ground surface to depths of approximately 20 feet below ground surface (bgs). The Zone A water-bearing sediments are typically encountered above the Younger Bay Mud soil layer. The relatively coarse-grained water-bearing Zone B sediments are encountered beneath the Younger Bay Mud.

The influence of tidal cycles on water levels in shallow and deep groundwater monitoring wells was studied by Kleinfelder in 1987 and 1991. The purpose of these tidal studies was to evaluate the hydraulic communication between groundwater and San Francisco Bay and the potential contribution of leachate recharge from the Bay. The study concluded that the shallow groundwater basin was not in hydraulic communication with San Francisco Bay and that the deep groundwater basin, at least in the vicinity of the tested well, appeared to have some discharge to San Francisco Bay (B&M, 2002b). Therefore, it appears that tidal influence is not likely a significant contributor to recharge of leachate in the landfill (Geosyntec, 2012).

Overview of Historic Hazardous Materials and Contamination within the Project Site

The Project Site contains contaminants in the soil and groundwater that would require remediation prior to future development. Both the State of California and San Mateo County provide regulatory oversight for these measures. These agencies are currently monitoring the site and will oversee remediation techniques and results in accordance with the Remedial Action Plans (RAPs) that would need be prepared, approved and implemented prior to any development on the Project Site.

The historical land uses at the Brisbane Landfill, former Southern Pacific railyard, Kinder Morgan Energy Tank Farm, and the Recology site have resulted in releases of various chemicals to soil and groundwater within and adjacent to the Project Site. As such, soil and groundwater contamination on the site has been the subject of numerous investigation and cleanup efforts. Assessments to evaluate soil and groundwater have been performed within the Project Site, since 1987, as discussed above, including assessments as required by the Site Cleanup Requirement (SCR) Order No. 92-141 issued by the California Regional Water Quality Control Board (RWQCB) on November 18, 1992. Most of the groundwater cleanup and remedial activities have focused on various volatile organic carbons (VOCs), metals (primarily arsenic [As] and lead [Pb]), and bunker C oil.

The western portion of the Project Site was contaminated during its use by the Southern Pacific Railroad as a railyard between 1914 and 1960. For purposes of remediation and regulatory oversight, this area has been divided into two “operable units” based on the type and nature of contamination. The California Department of Toxic Substances Control (DTSC) oversees Operable Unit 1 (OU-1) in the northwestern portion of the Project Site. OU-1 contains volatile

organic compounds (VOCs). A groundwater treatment system has been in place in this area since 1995 to improve groundwater conditions. Groundwater continues to be monitored through quarterly reports to DTSC.

Operable Unit 2 (OU-2) is located to the south of OU-1, and contains Bunker C fuel oil and heavy metals (primarily lead). The remediation strategies for this portion of the Project Site are supported by monitoring of groundwater and surface water quality, which is reported to the San Francisco Bay Regional Water Quality Control Board (SFBRWQCB). Both Bunker C oil and lead have low solubility and mobility.

The eastern half of the Project Site north of the lagoon was contaminated from 1932 to 1967, when this area was operated as the Brisbane Landfill. Following cessation of landfill operations, the landfill was buried with a soil cover approximately 20–30 feet deep to prevent future human contact with contamination. Some methane gas is still being generated by decomposing solid waste within the landfill. Currently, methane gas emissions are collected through wells and piping, and burned periodically in a flare. The San Mateo County Health Services Agency oversees the landfill site, along with the San Francisco Bay Regional Water Quality Control Board (RWQCB). Groundwater/leachate and stormwater quality is being regularly monitored by consultants for the landowner as described above at well and outfall locations and reported to the Regional Water Quality Control Board.

Types of Hazardous Materials Found within the Project Site

The potential for exposure to hazardous materials within the Project Site includes:

- Underlying contamination of the soil, air and groundwater from historic railyard and landfill uses;
- Existing offsite hazardous sites; and
- The acquisition, use, storage, disposal, and potential accidental release of hazardous materials associated with development that may occur as the result of new Project Site development.

A brief description of the primary types of contaminants found within the Project Site is provided below.

Leachate

Leachate is defined as liquid that has come into contact with solid waste, carrying dissolved or suspended materials. Leachate can be either liquid that is generated as part of the decomposition of the waste or liquid that has percolated into the waste from external sources (e.g., surface drainage, rainfall, or groundwater). The quantity of leachate generated at a landfill is a direct function of the amount of water entering the landfill from external sources.

Landfill Gas (LFG)

Decomposition of organic waste under anaerobic conditions (without the presence of oxygen) results in landfill gas (LFG) generation.

Volatile Organic Compounds (VOCs)

Volatile organic compounds (VOCs) are organic chemicals that have a high vapor pressure under ordinary, room temperature conditions. VOCs are numerous, varied, and ubiquitous. They include both human-made and naturally occurring chemical compounds. Some VOCs are dangerous to human health or cause harm to the environment. Harmful VOCs are typically not acutely toxic, but instead have compounding long-term health effects. Concentrations of VOCs are usually low and symptoms are slow to develop.

Metals

As the result of past industrial operations, various metals can be found in onsite soils, including primarily arsenic (As), lead (Pb), and chromium (Cr). The main use of metallic arsenic is for strengthening alloys of copper and especially lead (as in car batteries). Arsenic is common in semiconductor electronic devices. Arsenic and its compounds are also used in the production of pesticides, treated wood products, herbicides, and insecticides, although these applications are declining. Arsenic is highly poisonous.

Lead is a soft and malleable metal, used in building construction, lead-acid batteries, bullets and shot, weights, as part of solders, pewters, fusible alloys, and as a radiation shield. Lead is a poisonous substance that damages the nervous system and causes brain and nervous system disorders. Excessive lead also causes blood disorders in mammals. Lead is a neurotoxin that accumulates both in soft tissues and the bones.

Chromium is a steely-gray, lustrous, hard and brittle metal, which is odorless and tasteless. Metallic chromium is used in the steelmaking process to form stainless steel, adding high resistance to corrosion and discoloration, along with chrome plating. Because chromium compounds were also used in dyes and paints and the tanning of leather, these compounds are often found in soil and groundwater at abandoned industrial sites. Primer paint containing hexavalent chromium is still widely used for aerospace and automobile refinishing applications.

Bunker C Fuel

Bunker fuel is technically any type of fuel oil used aboard ships or trains, getting its name from the containers on ships and in ports that it is stored in. Bunker C fuel oil is a high-viscosity residual oil that requires pre-heating before the oil can be pumped from a bunker tank. “Residual” refers to the material remaining after the more valuable cuts of crude oil have boiled off. The residue used for Bunker C fuel may contain various undesirable impurities including 2 percent water and one-half percent mineral soil.

Polychlorinated Biphenyls (PCBs)

PCBs are petroleum-based oils that were formerly used primarily as insulators in many types of electrical equipment, including transformers and capacitors. After PCBs were determined to be carcinogenic in the mid to late 1970s, the U.S. EPA banned PCB use in most new equipment and began a program to phase out certain existing PCB-containing equipment. Fluorescent lighting ballasts manufactured after January 1, 1978, for example, do not contain PCBs and are required to have a label clearly stating that PCBs are not present in the unit.

Brisbane Landfill

The Project Site contains the former Brisbane Landfill, which encompasses an area of approximately 364 acres bounded by the railroad corridor to the west, US Highway 101 to the east, and Brisbane Lagoon to the south. An earthen dike separates the landfill from Brisbane Lagoon. Disposal operations were initiated at the Brisbane Landfill in 1932 and continued until 1967. Waste was placed directly on tidal flats and waters at the margin of San Francisco Bay. The edge of the refuse pile was open to direct wave action from San Francisco Bay until construction of US Highway 101 in about 1959 (BKF, 2011).

The Brisbane Landfill operated and closed before either modern waste disposal practices were developed or formal regulatory designs for closure were required. As a result, waste disposal design features such as liners, segregation of waste into disposal cells, and leachate collection systems were not components at the site. Waste containment was consistent with practices in the industry at that time where waste fill was placed directly on native soils (Geosyntec, 2012).

The total volume of waste disposed at the landfill has been estimated to be 12.5 million cubic yards (Burns and McDonnell, 2002b). Of this volume, an estimated 73 percent was produced by residential and commercial activities, with inert fill accounting for approximately 25 percent, and the remaining 2 percent assumed to be liquid waste (Geosyntec, 2012). Waste tires were also placed in the landfill as reported by KRON-TV in 1965; an aerial photograph of the Brisbane Landfill taken in 1963 shows four localized black areas, likely representing tire stockpiles (Geosyntec). The depth of the waste layer is estimated to range from 20 to 35 feet.

Following closure of the landfill, the area was subsequently buried with a 20- to 30-foot cover of soil to prevent future direct human contact with refuse. As part of Title 27 landfill closure requirements and RWQCB Waste Discharge Order 01-041, the landfill is routinely monitored for offsite migration of contaminants in groundwater, leachate seeps, and soil gas. The landfill closure process is overseen Environmental Health Division of the by San Mateo County Health System and the RWQCB.

It is reported that the site was used for the disposal of primarily non-hazardous solid wastes including domestic, industrial, and shipyard waste; construction rubble, and sewage (RWQCB, 2001). An independent review by Golder Associates of publicly available site assessment reports, as well as groundwater and landfill gas monitoring data concluded that there was no evidence of hazardous material disposal at the landfill other than typical household hazardous waste (Golder, 2008). The monitoring, analysis and testing performed to date indicate that the hazardous waste constituents in the groundwater, leachate and leachate seeps, are consistent with other landfills in the Bay Area. The landfill gas constituents are actually much lower than typical landfills, further indicating that hazardous materials were not disposed at the former landfill (Golder, 2008).

Waste tires were also placed in the landfill as reported by KRON-TV in 1965; an aerial photograph of the Brisbane Landfill taken in 1963 shows four localized black areas, likely representing tire stockpiles (Geosyntec, 2012). Borings logs conducted in the area identified confirm rubber debris in the area. The landfill closed before more stringent landfill regulations were in place that would have provided more detailed information on the waste stream profile.

Current uses on the former Brisbane Landfill include soil and aggregate material recycling operations and non-irrigated open space. Two recycling companies currently operate on the former landfill: Brisbane Recycling Company and Brisbane Soil Processing, LLC. Brisbane Recycling Company maintains a concrete recycling operation in the northern portion of the former landfill area. In the southern portion of the area, Brisbane Soil Processing maintains a soil recycling operation. Materials from the recycling operations are kept in stockpiles that have contributed to consolidation of underlying refuse and Bay mud (see Section 4.E, *Geology, Soils, and Seismicity*). Because each of the project Site development scenarios proposed future development of the landfill, these uses would be replaced regardless of which scenario were to be selected.

Soil/Groundwater Contamination from Brisbane Landfill

Site monitoring wells at the periphery of the former Brisbane Landfill outside of the waste layer have been classified as shallow or deep based on their depth in relationship to the shallow and deep groundwater zones present in the area (Geosyntec, 2010).[12] Water quality of shallow wells is generally screened at depths of less than 25 feet and deep wells are screened between depths of 40 to 100 feet (see **Figures 4.G-2a, 2b, 3, 4,** and **5**). Fine-grained marine deposits with scattered coarser sand lenses underlie the site; there are no well-defined aquifers[13] underlying the site. As such, water levels measured in the shallow monitoring wells are generally similar to what is observed in the fill materials and Younger Bay Mud. Water levels measured in the deep monitoring wells respond to different conditions found in deeper portions of the Younger Bay Mud, the older Bay Mud, and deeper sand lenses.

Monitoring of groundwater levels by Geosyntec for the landowner has been ongoing for several years. **Table 4.G-1** summarizes depths to groundwater and groundwater elevations for the May and August 2010 monitoring events, indicating year 2010 baseline groundwater elevations.[14] The depths to groundwater are measured from ground surface whereas the elevations are measured relative to mean sea level.

TABLE 4.G-1
SUMMARY OF BRISBANE LANDFILL GROUNDWATER DEPTHS AND ELEVATIONS

	Depths to Groundwater (feet below ground surface)		Groundwater Elevations (feet, mean sea level, USGS datum)	
	May 2010	**August 2010**	**May 2010**	**August 2010**
Shallow	4.70 to 11.35	4.70 to 11.40	1.84 to 21.30	1.51 to 15.91
Deep	0.44 to >15.98	0.00 to 7.30	5.53 to >15.98	5.55 to 15.98

SOURCE: Geosyntec, 2010

12 The wells are not located in the waste material but are placed around the periphery to monitor conditions around the former landfill.

13 An aquifer is a wet underground layer of water-bearing permeable rock or unconsolidated materials (gravel, sand, silt, or clay) from which groundwater can be usefully extracted using a water well.

14 Note that groundwater levels in the deep wells appear to be relatively shallow based on the measured depths within the monitoring wells due to upward pressure of the deeper screened wells which are representative of an upward vertical hydraulic gradient.

Figure 4.G-2a
Groundwater Contours – Shallow Aquifer

Figure 4.G-2b
Groundwater Contours – Deep Aquifer

Figure 4.G-3
Groundwater Monitoring Stations

Figure 4.G-4
Seep Monitoring Stations

Figure 4.G-5
Groundwater Contours at OU-1 and OU-2

Groundwater flow in the shallow zone is generally a combination of east toward San Francisco Bay and south toward Brisbane Lagoon. Groundwater flow in the deep zone radiates away in several directions from a well located adjacent to U.S. 101 and south of the Central Drainage Channel. Tidal influences or leakage between water-bearing zones may be the cause for this condition (BKF, 2011). As indicated by the groundwater levels in the deep wells compared to the shallow wells shown in Table 4.G-1, groundwater beneath the landfill is characterized by strong upward vertical hydraulic gradients indicating that groundwater flows in an upward vertical direction which helps to explain why the depths to groundwater in the deep wells appear to be shallow. An upward gradient occurs naturally in association with groundwater discharge at the Bay margin. In addition, the upward gradient is significantly increased due to the weight of the landfill materials consolidating the underlying Bay Mud. This upward gradient at the site is observed by the presence of artesian conditions in the deep monitoring wells, meaning that the elevation of the groundwater surface is higher than that of the overlying shallow groundwater surface. (BKF, 2011).

Investigation and sampling activities were commenced as early as December 1986. As of 2010, the monitoring program included 20 groundwater monitoring wells (located primarily around the perimeter of the former landfill), two leachate wells[15], and various seep check locations along the Lagoon and interior drainage channel to monitor how groundwater seeps may be affecting the lagoon and channel water quality (Geosyntec, 2012). Leachate and groundwater samples were analyzed in September 2010 for the following compounds:

- Volatile organic compounds (VOCs)
- Semi-volatile organic compounds (SVOCs)
- Organochlorine pesticides and polychlorinated biphenyls (PCBs)
- Sulfate
- Ammonia
- Total dissolved solids (TDS)
- Total organic carbon (TOC)
- Nitrate
- Metals (arsenic, barium, lead, nickel, and selenium)

Groundwater in both the shallow and deep groundwater zones has been impacted by a number of constituents, including volatile organic compounds (VOCs), total dissolved solids, ammonia, and dissolved metals. For purposes of analysis, the level of these constituents is compared to the primary maximum contaminant level (MCL), which constitutes the enforceable standard for the maximum concentration of a contaminant that is allowed in drinking water.

[15] Leachate wells are intended to monitor and characterize contamination in the water that filters through landfill waste. The leachate wells at the former landfill are centrally located at the landfill on either side of the interior drainage channel.

According to the most recent groundwater monitoring report prepared for the landowner and reported to the Regional Water Quality Control Board (Geosyntec, 2010), VOCs, including benzene, 1.4-dichlorobenzene, and MTBE, continue to be detected in groundwater collected from the shallow aquifer wells at levels above-MCL concentrations, but do not show any statistically significant increase, meaning that concentrations are either decreasing or remaining stable. Chlorobenzene also was detected, but at levels below MCL concentrations. In the deep aquifer, trace concentrations of methylene chloride, chlorobenzene, and naphthalene were also detected. No semi-volatile organic compounds (SVOCs) were detected in the deep aquifer. Recent groundwater monitoring data for shallow monitoring wells also indicates that concentrations of total dissolved solids are not increasing. However, concentrations of ammonia, which is toxic to aquatic life, continue to exceed RWQCB water quality objectives (regulatory standards) for ammonia (Geosyntec, 2010) in shallow wells. Dissolved metals detected in both the shallow and deep wells include arsenic, barium, and selenium (for the deep wells). Arsenic and barium remain above MCLs in both the shallow and deep wells. Analyses performed on contaminant detections in the shallow monitoring wells located within the landfill footprint and down-gradient of the landfill indicates that none of the tested constituents of concern show statistically significant increases, meaning that concentrations are either decreasing or remaining stable. This suggests that no new releases are occurring.

Leachate Generation from Brisbane Landfill

The most recent leachate monitoring results (Geosyntec, 2010) indicate the presence of VOCs in samples collected from the two leachate monitoring wells. Trace concentrations of six SVOCs and metals (barium and nickel) also were detected. Ammonia exceeded the RWQCB water quality objectives in both leachate wells. In general, the 2010 sampling indicated a slight leachate buildup (Geosyntec, 2010).

A leachate seep collection and transmission system (LSCTS) was installed by the landowner as part of a leachate management system to meet the interim objective required by the Regional Water Quality Control Board. The system is located at the southern end of the Brisbane Landfill, intercepting leachate and conveying it to the Bayshore Sanitary District sewer line. Results from the summer 2010 monitoring event indicated that no leachate seeps were observed; therefore, the leachate seep collection and transmission system is operating as designed, and no exposure to human or environmental receptors is occurring (Geosyntec, 2010). **Table 4.G-2** presents the maximum reported concentrations of chemical compounds in the leachate wells. Those chemical compounds not included in this table were not detected above the laboratory reporting limits. The Maximum Contaminant Level for California drinking water is provided for context, but it should be noted that groundwater is not used for domestic water supply in Brisbane, and thus cleanup levels ultimately approved by the Regional Water Quality Control Board may not reflect drinking water standards.

Table 4.G-3 lists the maximum or highest reported concentration of chemical compounds in the groundwater wells, along with Maximum Contaminant Level for California drinking water for comparison purposes.

TABLE 4.G-2
BRISBANE LANDFILL
MAXIMUM CONCENTRATIONS OF CHEMICAL COMPOUNDS IN LEACHATE WELLS

Chemical Compound	Maximum Concentration	Units	California Maximum Contaminant Level (MCL)
Benzene	8.9	µg/L	1
n-butyl benzene	1.6	µg/L	--
Sec-butyl benzene	2.8	µg/L	--
Chlorobenzene	33	µg/L	--
1,4-dichlorobenzene	7.0	µg/L	5
Ethylbenzene	1.3	µg/L	680
Isopropylbenzene	2.7	µg/L	--
Methyl tertiary butyl ether (MTBE)	8.6	µg/L	5
Naphthalene	21	µg/L	--
n-propylbenzene	4.9	µg/L	--
Toluene	0.91	µg/L	150
1,2,4-trimethylbenzene	1.2	µg/L	--
Xylenes	2.2	µg/L	1750
Acenaphthalene	3.8	µg/L	--
1,4-dichlorobenzene	2.4	µg/L	5
Fluorene	2.7	µg/L	--
2-methylnaphthalene	8.1	µg/L	--
Phenanthrene	2.7	µg/L	--
Barium	500	µg/L	1,000
Nickel	11	µg/L	100
TDS	8100	mg/L	--
Ammonia (unionized)	1.704	mg/L	--
Ammonia as nitrogen	390	mg/L	--
TOC	69	mg/L	--

NOTE: MCLs have not been established for all compounds but are provided where available.

µg/L = micrograms per liter
mg/L = milligrams per liter

SOURCE: Geosyntec, 2010

Results of these sampling events are used to monitor the flow of groundwater contaminants and characterize the migration of contaminants[16]. Typically, landfill closure requirements are designed to isolate groundwater contamination and prevent offsite migration which is measured through perimeter wells.

Soil Gas from Brisbane Landfill

Given that landfill operations were initiated with placement of waste on tidal flats and that subsequent borings into the waste revealed continued saturated conditions within the waste mass, sufficient moisture has existed to promote a high rate of decomposition since disposal operations began in 1932 (Golder, 2008). The greatest organic decomposition typically occurs under such conditions during the initial 20- to 30-year period after solid waste is deposited. Decomposition of the organic fraction of the waste will continue to occur over time, with an ongoing decline in

[16] Pursuant to the requirements of the Regional Water Quality Control Board, the landowner is responsible for undertaking groundwater monitoring and reporting results to the Regional Water Quality Control Board.

TABLE 4.G-3
BRISBANE LANDFILL
MAXIMUM CONCENTRATIONS OF CHEMICAL COMPOUNDS IN GROUNDWATER WELLS

Chemical Compound	Maximum Concentration	Units	California Maximum Contaminant Level (MCL)
Benzene	1.6	µg/L	1
Sec-butyl benzene	1.7	µg/L	--
Chlorobenzene	26	µg/L	--
1,2-dichlorobenzene	0.55	µg/L	600
1,4-dichlorobenzene	4.6	µg/L	5
Isopropylbenzene	0.56	µg/L	--
Methyl tertiary butyl ether (MTBE)	8.8	µg/L	5
Naphthalene	1.3	µg/L	--
Xylenes	1.1	µg/L	1750
Arsenic	160	µg/L	50
Barium	1,000	µg/L	1,000
Nickel	14	µg/L	100
TDS	23,000	mg/L	--
Ammonia (unionized)	1.314	mg/L	--
Ammonia as nitrogen	180	mg/L	--
TOC	18	mg/L	--
Nitrate as nitrogen	19	mg/L	0.01
Sulfate	18,000	mg/L	--

µg/L = micrograms per liter
mg/L = milligrams per liter

SOURCE: Geosyntec, 2010

the rate of production of LFG. Since the Brisbane Landfill has been closed over 40 years, the rate of methane gas production from the site has diminished over time, as evidenced in the landfill gas monitoring (Golder, 2008). Nevertheless, continued generation of LFG indicates that decomposition of waste within the landfill is ongoing and must be controlled to ensure protection of human health and the environment. Landfill gas can build up underground and release into the environment, presenting either an exposure hazard or even an explosion hazard if not appropriately addressed (Golder, 2008).

As previously noted, a landfill gas control system was installed by the landowner pursuant to requirements of the Regional Water Quality Control Board, and is currently in place to collect and combust methane and other landfill gases, which is a common way of addressing build-up of gases. The landfill gas control system has been in place since at least 2002, and will be required to continue operating in accordance with Title 27 requirements. A report titled *Operation, Monitoring, and Maintenance of the Landfill Gas (LFG) Migration Control Facilities at the Closed Brisbane Landfill, Brisbane, California* (SCS, 2008) found that while some minor repairs were necessary, the LFG control facilities at the former Brisbane Landfill were operating satisfactorily. To ensure that LFG control facilities continue to meet operational criteria, SCS Engineers performs periodic monitoring of the landfill gas system on behalf of the landowner, including weekly monitoring of the monitors operating the flare station, monthly monitoring and adjustment of landfill gas extraction wells, and quarterly monitoring of component emissions.

Minor repairs, such as those noted as being needed in the 2008 report described above, are conducted during monitoring visits and major repairs and equipment replacements are performed as needed and documented in monthly reports.

Former Southern Pacific Railyard (Operable Unit 1 and Operable Unit 2)

The western half of the Project Site has a long history of industrial usage and much of the existing contamination in this area occurred between 1914 and 1960, during the occupancy of the Southern Pacific railyards and the Schlage Lock Facility, although other subsequent uses may have also contributed. For regulatory purposes, this area is divided into a northern portion, Operable Unit 1 (OU-1), and a southern portion, Operable Unit 2 (OU-2) based on types of contaminants that are presented and the agency having regulatory authority over remediation (see Figure 4.G-1). OU-1 extends beyond the Project Site boundary and into the City and County of San Francisco. The San Francisco portion of OU-1 has been addressed by the landowner of that property and the California Department of Toxic Substances Control (DTSC) separately from the Brisbane portion of OU-1 due to their different sources of contamination, and the two different municipal agencies (Brisbane and San Francisco) having authority of land use approvals that will ultimately define clean up levels, although there are migration issues that tie them together. DTSC has regulatory authority over the remediation of and oversees OU-1, which is primarily contaminated by VOCs in soil and groundwater. The RWQCB oversees OU-2, which is primarily contaminated with Bunker C fuel oil and heavy metals (primarily lead). Interim remedial measures for OU-2 were approved by the RWQCB in the 2004 Interim Remedial Measures Work Plan (Burns & McDonnell, 2005). As described below, remediation of OU-1 and OU-2 would occur as part of Project Site development. Proposed remedial actions for OU-1 and OU-2 are described in greater detail below as part of the discussion of Project site development impacts and mitigation measures. **Figures 4.G-6a** through **4.G-6m** illustrate existing contamination within OU-1 and OU-2, following the text discussion of OU-1 and OU-2.

Operable Unit 1

The area designated as OU-1 within Brisbane comprises approximately 44 acres west of the Caltrain/Union Pacific railroad tracks in the northwest portion of the Project Site. As discussed in Section 4.D, *Cultural Resources*, from 1914 through 1960, OU-1 was used by the Southern Pacific Railroad for major railcar rehabilitation, locomotive maintenance operations, and material transfer operations. By 1950, approximately 75 railroad maintenance shops and smaller structures were located along the western edge of the railroad yard along Bayshore Boulevard. These buildings included a machine shop, a powerhouse, a coach repair shop, a freight car repair shop, a lumber shed, a storage shed, loading platforms, a tower at the north end of the yard, and thousands of linear feet of rail spurs. By 1954, Southern Pacific had nearly completed the changeover from steam-powered locomotives to diesel power, and began closing shops later that year. Southern Pacific ceased operations in 1960 and the site became relatively idle for many years before being sold in the late 1980s. Most of the maintenance shops were removed at this time.

Figure 4.G-6a
VOCs in Soils at OU-1 and OU-2

Figure 4.G-6b
Choro-ethylene in Soil at OU-1 and OU-2

Figure 4.G-6c
Metals in Soil at OU-1 and OU-2

Figure 4.G-6d
Metals in Soil at OU-1 and OU-2

Figure 4.G-6e
Metals in Soil at OU-1 and OU-2

Figure 4.G-6f
Metals in Soil at OU-1 and OU-2

Figure 4.G-6g
PCBs in Soil at OU-1 and OU-2

Figure 4.G-6h
Bunker C Fuel in Soil at OU-1 and OU-2

Figure 4.G-6i
Contaminants of Concern in Soil at OU-1 and OU-2

Figure 4.G-6j
Contaminants of Concern in Soil at OU-1 and OU-2

Figure 4.G-6k
Contaminants of Concern in Soil at OU-1 and OU-2

Figure 4.G-6l
Contaminants of Concern in Soil at OU-1 and OU-2

Figure 4.G-6m
Contaminants of Concern in Soil at OU-1 and OU-2

The San Francisco portion of OU-1 (Schlage Lock property) north of the Project Site consists of soil and groundwater impacted by VOCs that underlie a portion of OU-1. The Brisbane (Project Site) portion of OU-1 contains soil and groundwater impacted by contaminants of concern other than VOCs, including arsenic, lead, cadmium, and mercury in the soil, and nickel, total chromium, and hexavalent chromium in groundwater. Groundwater contamination within the Brisbane portion of OU-1 largely originated from the San Francisco portion of OU-1 (Schlage Lock property).

As noted above, DTSC has regulatory authority and oversees the groundwater and soil investigations and remediation plans for OU-1, which have been ongoing since 1982.

Soil/Groundwater Contamination in OU-1

Groundwater flow in the shallow aquifer below the Project Site converges from the north and west, and flows eastward toward San Francisco Bay. Groundwater in the northern portion of the deep aquifer generally flows to the south, and groundwater flow through the deep aquifer in the radiates away in several directions. The groundwater flow direction in the deep aquifer is to the south (Geosyntec, 2012).

Investigation and sampling activities OU-1 were commenced as early as March 1984. A total of 36 wells were in the monitoring program, and have been analyzed for the following compounds:

- Diesel-range total petroleum hydrocarbons (TPHd)
- Gasoline-range TPH (TPHg)
- Motor oil range TPH (TPHmo)
- Bunker Oil C (TPHc)
- VOCs
- Benzene, toluene, ethylbenzene and xylenes (BTEX)
- MTBE
- Total Chromium
- Hexavalent Chromium

Since 2008, groundwater monitoring at OU-1 has been conducted by MACTEC on behalf of the landowner and reported to DTSC. Groundwater samples collected from all wells have been analyzed for VOCs, total chromium, hexavalent chromium, dissolved nickel, total petroleum hydrocarbons, benzene, toluene, ethylbenzene, xylenes (BTEX), and methyl tert-butyl ether (MTBE).

Soil and groundwater constituents of concern associated with OU-1 contamination include volatile organic compounds (VOCs) (primarily trichloroethylene (TCE), tetrachloroethylene (PCE), cis-1.2-dichloroethylene [cis-DCE], and vinyl chloride [VC]); total petroleum hydrocarbons (TPH) as Bunker C (fuel oil); and metals, primarily chromium.

A brief summary of constituents of concern detections found during 2010 monitoring by MACTEC (MACTEC, 2010a) generally shows that contamination levels are remaining stable as follows:

- Constituents of concern detections in the shallow aquifer are limited to two wells, within the Brisbane portion of OU-1, which is consistent with previous observations. PCE and TCE concentrations in both wells are low or not detected (MACTEC, 2010a).

- Concentrations of constituents of concern in a portion of the shallow aquifer known as the Colma Formation are generally consistent with previous observations, with the exception of the first detection of vinyl chloride in one well. Concentrations of PCE and TCE in the Colma Formation have decreased consistently since the well was installed, but remain above their respective maximum contamination levels.[17]

- Concentrations of constituents of concern in the deep aquifer are generally consistent with previous observations. Concentrations of total dissolved chromium slightly exceed maximum contamination levels. Though concentrations of dissolved hexavalent chromium do not exceed maximum contamination levels for total dissolved chromium (current action level), hexavalent chromium does constitute approximately 80 to 90 percent of the total chromium detected at OU-1. The California Department of Public Health (CDPH) has recently defined (CDPH, 2011) a draft public health goal for hexavalent chromium, and will determine an appropriate maximum contamination levels for this contaminant upon finalization of the public health goal. No total petroleum hydrocarbons were detected in deep aquifer groundwater during the Fourth Quarter 2010 monitoring event.

- Existing groundwater conditions indicate that conditions in the groundwater plume are favorable for application of a remediation technology known as enhanced reductive dechlorination.

Groundwater monitoring conducted in February and May 2008, as reported by Geosyntec in 2010, at which time Geosyntec reported that groundwater contamination levels were remaining stable. Thus, the 2008 groundwater monitoring data provides a reasonable baseline for 2010 conditions. **Table 4.G-4** shows the highest reported concentrations of chemical compounds in groundwater, along with Maximum Contaminant Level for California drinking water for comparison purposes. Some samples were collected at earlier dates as noted.

Completed Environmental Remediation Investigations and Actions for OU-1 (San Francisco and Brisbane Portions[18]*)*

Soil Excavation. *In 1993, contaminated soils adjacent to and beneath sludge traps of the former Schlage Lock facility in San Francisco were excavated by the landowner to remove VOC-impacted soils from beneath sumps within the Degreasing Room and Strip Room of Plant 3 of the former Schlage Lock facility (Treadwell & Rollo, 1996). The excavated soils were hauled offsite to a disposal facility and replaced with clean fill. Details on the nature and extent of the remaining contamination at this location are summarized in the Joint Groundwater Remedial Action Plan (RAP), and generally showed remaining concentrations of metals and limited detections of VOCs in the soil (BKF, 2011).*

Groundwater Extraction and Treatment. In 1995, the landowner, UPC, constructed a groundwater extraction and treatment system to control migration and expansion of the groundwater plume beneath OU-1, which emanates from the former Schlage Lock facility in San Francisco

[17] Maximum contaminant levels (MCLs) are drinking water health standards which are commonly used for comparison purposes in groundwater investigations but do not necessarily represent cleanup levels.

[18] As previously noted, OU-1 is divided into San Francisco and Brisbane portions due to the different activities that originally created contamination of the properties, and also recognizing the fact that two different municipal agencies have authority over the land use approvals that will be the basis for required clean-up levels.

TABLE 4.G-4
MAXIMUM CONCENTRATIONS OF CHEMICAL COMPOUNDS
IN OPERABLE UNIT NO. 1 WELLS

Chemical Compound	Maximum Concentration	Units	California Maximum Contaminant Level (MCL)
Tetrachloroethene (PCE)	9,700	µg/L	5
Trichloroethene (TCE)	230,000	µg/L	5
Chloroform	6.3	µg/L	--
Cis-1,2-dichlroethene (cis-1,2-DCE)	250	µg/L	6
Trans-1,2-DCE	150	µg/L	10
1,1-DCE	0.8	µg/L	6
Vinyl chloride	140	µg/L	0.5
TPH mostly as Bunker C Oil (Aug. 2006)	150,000	µg/L	--
Benzene	73	µg/L	1
Toluene	90	µg/L	150
Ethylbenzene	67	µg/L	680
Total xylenes	157	µg/L	1,750
Total chromium (February 2008)	52	µg/L	50
Hexavalent chromium (February 2008)	0.05	µg/L	0.02[a]

µg/L = micrograms per liter
MCL = Maximum Contaminant Level for drinking water for California

[a] There is no separate MCL for Hexavalent chromium but a Public Health Goal has been established specifically for Hexavalent chromium to distinguish it from Total Chromium.

SOURCE: Geosyntec, 2010

(Geosyntec, 2010). Extracted groundwater was treated using granular activated carbon filters, and the treated water was discharged to a sanitary sewer under an industrial wastewater discharge permit. The primary goals of the treatment system were to contain the VOC-impacted groundwater within the upper fill zone and to remove the VOCs. As of June 2008, approximately 5,135 pounds of PCE and 668 pounds of TCE had been removed by the groundwater extraction and treatment system, which was taken offline in July 2008 with DTSC approval, prior to initiating in-situ groundwater treatment pilot studies at OU-1 (Geosyntec, 2010). The groundwater extraction and treatment system has been kept in operational condition and on a stand-by status to process well development purge water and decontamination rinse water from drilling operations.

Soil Vapor Extraction. *A soil vapor extraction and treatment system was installed by the landowner, UPC, in 1999 near the former Schlage Lock facility, at the source of the VOC contamination that underlies OU-1 (Geosyntec, 2010). The treatment system consisted of eight extraction wells, one piezometer*[19]*, and 44 soil vapor monitoring points. Extracted soil vapor was treated using vapor-phase granular activated carbon and discharged to the atmosphere under a*

[19] A piezometer is an instrument use to monitor water pressure and groundwater levels. Typical applications include monitoring pore-water pressure to determine the stability of slopes, embankments, and landfill dikes; ground improvement techniques such as vertical drains, sand drains, and dynamic compaction; dewatering schemes for excavations and underground openings; seepage and ground water movement in embankments, landfill dikes, and dams; and water drawdown during pumping tests.

permit from the Bay Area Air Quality Management District (BAAQMD). The system was decommissioned in September 2008 and the equipment removed from the OU-1 site. The extraction wells, piezometer, and soil vapor monitoring points were properly destroyed in January 2009 in accordance with local requirements (Geosyntec, 2010). As of September 2008, approximately 3,830 pounds of VOCs had been removed by the treatment system.

In-Situ Groundwater Treatment. Groundwater treatment pilot studies were initiated in August 2008 by the landowner as described at the outset of Section 4.G.2, and consisted of a remediation technology known as "in-situ chemical oxidation," which treats groundwater in place as opposed to extracting it for treatment (Geosyntec, 2010). In-situ chemical oxidation proved to be an effective technology for the destruction of VOCs at high concentrations, but less so for those at lower concentrations. The enhanced reductive dechlorination study, mentioned above, identified enhanced reductive dechlorination as the preferred technology for groundwater remediation.

Soils Gas from OU-1. From July 2008 through March 2009, MACTEC conducted additional investigation activities on behalf of the landowner in order to further evaluate OU-1 site soil gas conditions after operation of the soil vapor extraction and treatment system to confirm the effectiveness of the system. The results from the investigation indicate soil samples collected in the soil vapor extraction and treatment system area after operation of the system had maximum reported PCE and TCE concentrations of 1 milligram per kilogram (mg/kg) and 0.23 mg/kg, respectively. These values are significantly lower than maximum concentrations reported prior to soil vapor extraction and treatment system's operation (95 mg/kg and 100 mg/kg, respectively). Soil gas data available for OU-1 were collected prior to operation and decommissioning of the soil vapor extraction and treatment system. Cleanup levels for soil gas at the site were developed on behalf of the landowner to mitigate potential health risks from inhalation of VOC vapors and were included in the 2009 Feasibility Study/Remedial Action Plan (FS/RAP) as part of ongoing efforts by the landowner to remediate the site (BKF et al., 2011).

Schlage Lock Site (San Francisco Portion of OU-1). The Schlage Lock Company manufactured door hardware and lock parts from 1926 to 1999 at a facility located at Bayshore and Sunnydale Boulevards immediately north of the Project Site in San Francisco. Operations started in a building known as Plant 1. The size of the facility was expanded in 1942, 1950. The manufacturing process included stamping and machining metal alloys; deburring brass, bronze, nickel, silver and steel parts; and cleaning brass and bronze parts with a product known as Safety Kleen 150, a petroleum naphtha solvent. Other solvents that contained trichloroethane were also commonly used at the facility, which closed operation in December 1999 (Geosyntec, 2008).

Soil removal and cleanup actions have been conducted by the landowner at this site since 1994 when a groundwater extraction and treatment system was installed. Groundwater was sampled quarterly to monitor the movement and levels of chemicals. The groundwater extraction and treatment system ceased operation in 2009. In 1996, an interim removal action was conducted by the landowner at the strip and degreasing rooms in Building 3 to remove soil contaminated with volatile organic compounds (VOCs). Also, in 1999, a soil vapor and extraction treatment system (SVETS) was installed by the landowner to remove soil vapor underneath the strip and degreasing area. The soil vapor and extraction treatment system was decommissioned in September 2008.

The groundwater is contaminated with VOCs underneath OU-1 site that originate from the Schlage Lock site. As a result, in addition to groundwater and soil contamination in the Schlage Lock site, cleanup will include groundwater contaminated with VOCs at the OU-1 site (discussed above). Remediation at the site is being conducted in accordance with an approved Remedial Action Plan (Geosyntec, 2012).

Completed Environmental Investigations and Remediation Actions for OU-2

Operable Unit 2 (OU-2) is located south of Geneva Avenue and comprises an area of approximately 142 acres west of the Caltrain/Union Pacific railroad tracks in the center and southwest portion of the Project Site. This area comprises approximately 75 percent of the former SPRR railyard, and also encompasses the Bayshore Industrial Park. As part of the railyard operations, OU-2 included an oil tank farm as well as what is known as the South Disposal Area (Burns & McDonnell, 2008). In 1960, the SPRR ceased operations and the former railyard area has been inactive and unoccupied since that time. The primary contamination issues at OU-2 include total petroleum hydrocarbons and heavy metals resulting from the historical railyard use (Burns & McDonnell, 2008).

Soil/Groundwater Contamination in OU-2. Various petroleum hydrocarbons, volatile organic compounds (VOCs), and metals have been released to soil and groundwater at the Operable Unit No. 2 portion of the former Southern Pacific's Bayshore railyard (Burns & McDonnell, 2009). In response to known contamination, investigation and sampling activities were commenced as early as March 1984 as a precursor to site remediation. In addition to railyard operations, contamination of soil with petroleum hydrocarbons and heavy metals within OU-2 is thought to have originated from the oil tank farm operations (Geosyntec, 2010).

Thirty-nine monitoring wells and piezometers (used for measuring water levels only) are located at the OU-2 site. Wells have been completed in both shallow and deeper water-bearing zones to provide vertical delineation of lithology[20] and information regarding groundwater quality and groundwater flow conditions. As part of the monitoring and cleanup work at the site, activities within OU-2 are described based on past activities at the sites of contamination as: the Oil Tank Area and the South Disposal Area. Semi-annual groundwater and surface water sampling is conducted by the landowner and reported to the Regional Water Quality Control Board at the OU-2 site to monitor groundwater flow conditions and water quality as part of ongoing remediation efforts.

The primary contaminants of concern are petroleum hydrocarbons (including Bunker C fuel oil) and heavy metals. The wells are also monitored for VOCs (primarily PCE). Groundwater and surface water are monitored on a semi-annual basis. Groundwater concentrations of Bunker C fuel oil and metals exceed the Remedial Action Objectives in soil set forth in a Conceptual Remedial Action Plan proposed to the Regional Water Quality Control Board by the landowner,

[20] The lithology of a rock unit is a description of its physical characteristics visible at outcrop, in hand or core samples or with low magnification microscopy, such as color, texture, grain size, or composition. It may be either a detailed description of these characteristics or a summary of the physical character of a rock.

and would therefore require remediation (Burns & McDonnell, 2002a). The RWQCB provided a conditional Approval Letter dated May 9, 2002 with the following requirements:

- Recalculate RAOs with Dilution Attenuation Factor of 22 instead of 39
- Design 7 to 10 feet of soil cap, including an additional protective layer of clay or geosynthetic liner over Bunker C oil concentrations in excess of 46,000 mg/kg
- Close the existing drainage ditch
- Use silica gel cleanup procedure on all Total Petroleum Hydrocarbon as gasoline samples
- Prepare a Soil Management Plan for future Site development
- Provide additional future calculation of RAOs for VOCs if buildings are constructed over area with residual VOCs
- Revise Residual Risk Management Plan to reflect addition of 7 to 10 feet of imported clean fill across the site
- Propose and implement deed restrictions that properly address the residual contamination (Geosyntec, 2008)

Groundwater monitoring conducted in February and May 2008, as reported by Geosyntec in 2010, at which time Geosyntec reported that groundwater contamination levels were remaining stable. Thus, the 2008 groundwater monitoring data provides a reasonable baseline for 2010 conditions. **Table 4.G-5** shows the highest reported concentrations of chemical compounds in groundwater.

TABLE 4.G-5
MAXIMUM CONCENTRATIONS OF CHEMICAL COMPOUNDS
IN OPERABLE UNIT NO. 2 WELLS

Chemical Compound	Maximum Concentration	Units	California Maximum Contaminant Level (MCL)
TPHg (in only one well)	26.8	µg/L	--
TPHd	991	µg/L	--
TPHmo (in only one well)	611	µg/L	--
MTBE	2.3	µg/L	5
Arsenic	75.6	µg/L	50
Barium	392	µg/L	1,000
Copper (in only one well)	22.1	µg/L	1,300
Lead (in only one well)	5.3	µg/L	15
Molybdenum	5.8	µg/L	--
Nickel (in only one well)	9.7	µg/L	100
Zinc	21.9	µg/L	--

µg/L = micrograms per liter

SOURCE: Geosyntec, 2010

No other chemicals were detected above their respective reporting limits.

Sediment within the vicinity and underlying a north-south drainage ditch has been impacted by Bunker C fuel oil and metals. Currently, surface water is conveyed in a number of stormwater system components, including the "brick arch" sewer, with ultimate discharge into San Francisco Bay. The surface water drainage ditch has been identified as a preferential pathway allowing impacted surface water and suspended sediments to be transported into San Francisco Bay (Geosyntec, 2010).

Remedial Action Plans (RAPs) for OU-2 were initially proposed by the landowner in a 2002 Final Revised RAP (Burns & McDonnell, 2002a***)*** and then revised in the 2004 Interim Remedial Measures (IRMs) work plan (Burns & McDonnell, 2004). Interim remedial measures for OU-2 were approved by the RWQCB in the 2004 Interim Remedial Measures Work Plan (Burns & McDonnell, 2005). However, because specific land uses are now being proposed within the Project Site as part of the Project Site development described in Chapter 3, *Project Description*, of this EIR, alternative remedial activities are being considered and will be finalized in a revised RAP for OU-2. Regardless of the specific land uses ultimately approved for the OU-2 area, remediation must occur.

Soil Gas in OU-2. No known soil vapor studies have been conducted for OU-2. The remedial strategy is to excavate and dispose of VOC-impacted soil, thereby removing the potential source for soil vapors and making it unnecessary to implement other measures to block the exposure pathway (Geosyntec, 2012a).

Recology Solid Waste Transfer Facility

The existing 44-acre Recology Solid Waste Transfer Facility (Recology) site is located within the Project Site, and is situated partially within the City of Brisbane and partially within the City and County of San Francisco. Operational activities include waste transfer, materials recovery, public disposal and recycling, vehicle weighing and maintenance, organics transfer, fueling, temporary hazardous materials storage, fleet parking, cart and container maintenance and storage. The facility included seven underground storage tanks (USTs) within a small area in the center of the facility that were removed in the mid to late 1990's. The Recology site is partly located over former landfill, as would be the proposed expansion area.

Data indicates that multiple investigations and removal actions occurred between 1986 and 1999. Since February 1988, the site has been in the verification monitoring stage of the regulatory process.[21] Groundwater at the site is impacted by total petroleum hydrocarbons in the form of diesel fuel. Data from the most recent remedial investigation report indicate groundwater flow direction at the site is to the south toward the balance of the Project Site and that concentrations of total petroleum hydrocarbons in the form of gasoline, diesel, and motor oil at the site exceed the groundwater environmental screening levels (Fugro, 2011).

[21] Generally, sites that have undergone some removal actions will be monitored for a period of time to ensure source removal and to monitor for potential changes as groundwater levels fluctuate with the seasons.

Petroleum hydrocarbons were released to soil and groundwater at the Recology site from underground storage tanks (USTs) and dispensers (Fugro, 2011a). Site investigation and remediation activities commenced at the Recology site in August 2000. Two extraction wells were installed to remove free-floating petroleum product. On March 22, 2011, one extraction well had a sheen, and the other extraction well had no observable floating petroleum product. Groundwater in selected wells was sampled and analyzed in September 2010 for the following compounds (Fugro, 2011a) (but not all of the listed compounds were analyzed in all wells):

- TPHd
- TPHmo
- TPHg
- BTEX
- MTBE
- Inorganic parameters (pH, electrical conductivity, dissolved oxygen)

Results of analyses (see **Table 4.G-6**) indicate that groundwater in the former underground storage tank (UST) area is affected primarily by petroleum hydrocarbons.

TABLE 4.G-6
MAXIMUM CONCENTRATIONS OF CHEMICAL COMPOUNDS IN RECOLOGY WELLS

Chemical Compound	Maximum Concentration	Units	California Maximum Contaminant Level (MCL)
TPHg	180	µg/L	--
TPHd	1,000	µg/L	--
MTBE	2.2	µg/L	5

µg/L = micrograms per liter

SOURCE: Fugro, 2010

Other Hazardous Facilities on Project Site

Other hazardous material facilities on the Project Site include hazardous material generators, sites with leaking tanks or other soil and groundwater contamination issues, and landfills[22].

Hazardous Waste Generators

Four small quantity generators of hazardous waste (SQGs) are located within the Project Site. While the database search identifies generators of hazardous waste or owners of storage tanks that hold potentially hazardous materials, the existence of these generators and storage facilities does not necessarily indicate that the contents have been released to the environment in such a way that would affect the Project Site or other uses in the area. However, since these facilities may need to

[22] Under regulatory guidelines the term "landfill" can refer to any solid waste disposal facilities that could include not only municipal waste but also other facilities that accept waste such as biosolids (byproducts from sanitary waste facilities), compost land farms, and others.

be removed during development of the Project Site, the hazardous materials at these four small quantity generator sites are as follows:

- **Hernandez Automotive SVC/Tiger's Automotive (MAP ID#H68/H69/H70, 23 Industrial Way).**[23] This facility, which is located within OU-2, is a truck and equipment repair and maintenance shop. The facility generates spent solvents, paint sludge, and waste oil. No notices of violation were found to have been issued during the database search. Thus, there is no indication that contamination is present at this site, other than the contamination already identified within OU-2.

- **Advance Carbon Products, Inc. (MAP ID#E43, 171 Industrial Way).** This facility, which is located within OU-2, generates organic solids and laboratory waste chemicals. No notices of violation were found to have been issued during the database search. Thus, there is no indication that contamination is present at this site, other than the contamination already identified within OU-2.

- **SCARAB (MAP ID#E42, 180 Industrial Way).** This facility is located within OU-2. The facility generates hydrocarbon solvents. No notices of violation were found to have been issued during the database search. Thus, there is no indication that contamination is present at this site, other than the contamination already identified within OU-2.

- **LD Truck and Equipment Repair (MAP ID#B8, 374 Industrial Way).** This small quantity generator, which is located within OU-2, is a truck and equipment repair and maintenance shop. Waste generated includes tetrachloroethylene (TCE). No notices of violation were found to have been issued during the database search. Based on the database search, there is no indication that contamination is present at this site, other than the contamination already identified within OU-2.

Existing Waste Facilities

There are two active operations within the Project Site that accept waste materials. These include:

- **Davey Tree Company (Map ID #E49, 131 Industrial Way).** This Class III[24] facility is a small active processing facility that accepts landscape materials for chipping and composting. Other than contamination from the already identified operable units, there is no indication of contamination being present at this site. Further, based on the nature of the operations at this site, which does not accept hazardous materials, it is unlikely that the Project Site will be impacted by former operations at this facility. This site facility will be removed as part of the Project Site development.

- **San Francisco Household Hazardous Waste Facility (MAP ID# Y283-286, 501 Tunnel Avenue).** This is an active collection facility that accepts household hazardous waste from residents in limited quantities, tires, landscape materials, construction/demolition debris, and inert materials. This facility accepts household hazardous wastes for transfer and disposal at an offsite location. This site is co-located with the Recology facility which was discussed in more detail above.

[23] MAP ID# refers to map identification numbers that were included in the EDR database report which can be cross-referenced in Appendix-H.

[24] Landfills are generally categorized according to three classifications (Class I, II, and III) which reflect the type of materials that can be accepted. Class I landfills can accept hazardous waste, Class II can accept "designated" hazardous waste and nonhazardous materials and Class III landfills can only accept nonhazardous wastes.

Other Areas of Contamination

In addition to soil and groundwater contamination associated with the former landfill, there are two Spills, Leaks Investigation and Cleanup (SLIC) and Leaking Underground Storage Tank (LUST) sites[25] that are within the Project Site and are still open cases. These investigations are overseen by the RWQCB. Additional Spills, Leaks Investigation and Cleanup and Leaking Underground Storage Tank sites within the Project Site that are closed are listed in the Environmental Data Resources, Incorporated report provided in Appendix H of this Draft EIR. The sites are as follows:

- **Kessler & Kessler (Map ID # B20, 350 Industrial Way).** This site, which is located within OU-2, is both a Spills, Leaks Investigation and Cleanup and Leaking Underground Storage Tank site. Records available on the SWRCB Geotracker website indicate that a leak was discovered in 1991. The preliminary assessment commenced in 1992, and concluded that soil and groundwater onsite was impacted with TPH and BTEX. The current clean-up status of the Site is "Open-Inactive" (GeoTracker, 2013).
- **Kessler & Kessler (Map ID # B36, 250 Industrial Way).** Also located within OU-2, this site is both a Spills, Leaks Investigation and Cleanup and Leaking Underground Storage Tank site. Records available on the SWRCB GeoTracker website indicate that a leak was discovered in 1988. The preliminary assessment commenced that same year and concluded that onsite soil and groundwater were impacted with TPH and BTEX. The current clean-up status of the Site is "Open-Inactive" (GeoTracker, 2013).

Overview of Existing Conditions in the Vicinity of the Project Site

Environmental Data Resources, Inc. (EDR) performed a computerized public records search of government hazardous materials databases in April 2011.[26] The database search was conducted for all sites located within 2.5 miles from the center of the Project Site in order to ensure that all pertinent hazardous materials sites within 1 mile of the Project Site boundary were identified. **Figure 4.G-7** provides a map of the area searched and an overview of the identified hazardous sites. **Table 4.G-7** lists identified the number of hazardous sites for each database located within the Project Site vicinity (i.e., outside of the Project Site but within the 2.5-mile search radius).

Hazardous sites within the Project Site were discussed in under "Overview of Existing Conditions at Project Site" above.

Appendix H of this EIR presents a complete list of the databases searched and information concerning the governing agencies, the sites identified in the Project Site vicinity, and a map locating all sites. Although the agency lists are updated regularly, there may be contaminated sites that have not yet been identified and, therefore, are absent from the databases.

[25] SLIC – Spills, Leaks, Investigations, and Cleanup; LUST – Leaking Underground Storage Tank

[26] The 2010 baseline for analysis of this Project originates from the 2010 issuance of Notice of Preparation, however the more recent EDR database search was used to capture any more recent additions to the databases that might more accurately reflect conditions closer to potential development.

Insert Figure 4.G-7
Identified Hazardous Materials Sites

TABLE 4.G-7
GOVERNMENT DATABASES LISTING HAZARDOUS SITES IN PROJECT SITE VICINITY

	Date EDR Contacted Agency	Number of Sites
Federal Records Databases		
National Priority List (NPL)	12/31/2010	1
Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS)	11/30/2010	2
CERCLIS No Further Remedial Action Planned (NFRAP)	10/28/2010	2
Resource Conservation and Recovery Act (RCRA) CORRACTS	5/25/2010	1
RCRA Transport, Store, Treat or Dispose (TSD) Facilities	2/17/2010	1
RCRA Large Quantity Generators (LQG)	2/17/2010	7
RCRA Small Quantity Generators (SQG)	2/17/2010	35
Emergency Response Notification System (ERNS)	12/31/2010	61
Hazardous Materials Information Reporting System (HMIRS)	12/31/2010	7
FIFRA/TSCA Tracking System (FTTS)	4/9/2009	6
Section Seven Tracking System (SSTS)	12/31/2009	2
Facility Index System (FINDS)	4/14/2010	76
Department of Transportation, Office of Pipeline Safety (DOT-OPS)	10/13/2010	1
Formerly Used Defense Sites (FUDS)	12/31/2009	1
Mines Master Index File (MINES)	8/4/2010	1
State and Local Records Databases		
DTSC Involved Cleanup (RESPONSE)	2/7/2011	9
State Landfill	2/2/2011	5
Waste Management Units (WMUDS)	4/1/2000	10
California Water Resources Control Board – Waste Discharge System (CA WDS)	6/19/2007	3
Cortese Hazardous Waste and Substances Sites List	1/4/2011	74
Recycling Facilities (SWRCY)	11/8/2010	1
Leaking Underground Storage Tanks (LUST)	2/3/2011	105
California Facility Inventory Database (CA FID UST)	10/31/1994	23
Spills, Leaks, Investigation & Cleanup Cost Recovery Listing (SLIC)	2/3/2011	7
San Mateo County Hazardous Materials Business Plan (BI)	2/14/2011	173
Underground Storage Tank Facilities (UST)	2/3/2011	29
Hazardous Substance Storage Container Database (HIST UST)	10/15/1990	41
Aboveground Storage Tank Facilities (AST)	8/1/2009	9
Statewide Environmental Evaluation and Planning System (SWEEPS UST)	6/01/1994	49
California Hazardous Material Incident Reporting System (CHMIRS)	12/31/2009	31
Deed Restriction Listing (DEED)	12/14/2010	4
Voluntary Cleanup Program Properties (VCP)	2/7/2011	3
Toxic and criteria pollutant emission sites (EMI)	12/31/2008	32
Clandestine Drug Labs (CDL)	12/32010	0
Facility and Manifest Data (HAZNET)	12/31/2009	206
Drycleaners	9/15/2010	5

SOURCE: EDR, 2011.

Hazardous Materials Management Facilities in Project Site Vicinity

The EDR report contains databases that include both sites where unauthorized releases of hazardous materials have occurred, as well as permitted facilities that handle or store hazardous materials, also referred to as hazardous materials management facilities, which have not necessarily released hazardous materials into the environment. The following hazardous materials management facilities were identified within the Project Site vicinity (defined as the search radius described above):

- 35 small quantity generators (SQG), including four that are located between a quarter-mile and half-mile from the Project Site;
- 1 hazardous materials transportation, storage and/or disposal (TSD) site;
- 7 large quantity generators (LQG); and
- 9 registered above-ground storage tank (AST) facilities.

Based on the database information, the following locations, due to their characteristics and proximity to the Project Site, are listed as a potential concern for future Project Site development. Hazardous waste generators located farther than one mile from the Project Site boundaries are unlikely to affect the Project Site because they are considered to be too far away to have any substantive effects. Such sites are therefore not discussed in detail. Of the 19 locations identified within one mile of the Project Site boundaries during the database review, 16 of the locations were reported to be in good regulatory standing, with no record of Notice of Violations (NOVs) issued from regulatory agencies and are therefore found to be unlikely to pose an environmental risk to the Project Site.

Three locations have been issued Notices of Violations as follows:

- **Quicksilver Products (Map ID# Q156/157/158, 200 Valley Drive)** – This is a transport facility that accepts waste including elemental mercury waste from offsite sources and, thus, is a transportation, storage and/or disposal facility. Additionally, this facility was a large quantity generator as recently as 1997 for the generation of non-ferrous metals. A corrective action was initiated by California Department of Toxic Substances Control (DTSC) at the site in 1990 and terminated in 1999. The site received 38 NOVs between 1989 and 1996. The facility achieved compliance on all issues by December 31, 1998 (EDR, 2011).
- **VWR International LLC (MAP ID#BP575, 3745 Bayshore Boulevard)** – This facility manufactures scientific products and is a large quantity generator. The facility received a Notice of Violation in 1986 and has been in compliance since 1987 (EDR, 2011). Wastes generated include halogenated and oxygenated solvents. This facility is in the process of terminating operations on a permanent basis.
- **SFPP, L.P/ Chevron/ Tosco Corp Brisbane Terminal (Map ID # A2/A3/S170, 950 Tunnel Avenue)** – This is a bulk terminal storing fuel, waste oil, organic solvents, and other liquid hazardous materials that is classified as a large quantity generator, small quantity generator, and a storage location. Wastes generated include ignitable aqueous wastes and benzene. The site received a Notice of Violation on December 20, 2005, and achieved compliance the same day (DTSC).

All sites listed above are currently in good standing with all federal, state, and local hazardous materials management regulations (EDR, 2011). The complete list of small quantity generators (SQGs) and large quantity generators (LQGs) is provided in the EDR report in Appendix H-1 of this EIR.

Landfills in Project Site Vicinity

One active landfill and one inactive landfill were identified in the vicinity of the Project Site as follows:

- **Associated Trucking Inc. (Map ID # CL680, 350 Paul Avenue)** – This is a small active landfill associated with a trucking and transportation facility, accepting small volumes of construction/demolition debris and inert materials.
- **Sierra Point Landfill (Map ID # CJ657/ CQ699-701, 1000 Marina Boulevard) –** This is an inactive landfill located more than 1 mile away from the Project Site boundary that is partially redeveloped as a commercial/office park and marina. Under a post-closure agreement with the Department of Environmental Health Division of the San Mateo County Health System, Sierra Point Landfill currently monitors for landfill gas generation at perimeter and surface emissions monitoring locations. As part of the regulatory requirements, any soil gas exceedances must be addressed to suit the existing land uses. Leachate and landfill gas continue to be monitored at the landfill.

Based on location and elevation, none of the landfills/collection facilities listed above has onsite contamination that could pose a risk to human health or the environment during construction activities or following future development on the Project Site (EDR, 2011).[27]

Soil/Groundwater Contamination in Project Site Vicinity

The following sites were identified as having soil and/or groundwater contamination in the vicinity of the Project Site:

- 105 Leaking Underground Storage Tanks (LUST) Program sites; and
- 7 Spills, Leaks, Investigation and Cleanup Program (SLIC) sites.

Based on information provided by the database search, 94 of the Leaking Underground Storage Tank sites and 5 of the Spills, Leaks Investigation and Cleanup sites have received closure from the governing agency, indicating that the contamination was found to be sufficiently contained (EDR, 2011). The remaining 11 Leaking Underground Storage Tank sites and 2 Spills, Leaks Investigation and Cleanup sites (identified in **Table 4.G-8**) are open cases overseen by the Regional Water Quality Control Board (RWQCB), San Francisco Bay Region.

[27] Page 10 of the Executive Summary shows that only the Associated Trucking site is located on an equal or higher elevation and it is not included on any other databases with documented unauthorized releases.

TABLE 4.G-8
SOIL/GROUNDWATER CONTAMINATION SITES PENDING IN PROJECT SITE VICINITY
(*OPEN* LEAKING UNDERGROUND STORAGE TANK *AND* SPILLS, LEAKS INVESTIGATION AND CLEANUP *SITES)*

	Map ID	Address
Leaking Underground Storage Tanks (LUST)		
Pacific American Services	AM380	450 Allen
Bayshore Gas & Service LLP	AQ441	2260 Bayshore Boulevard
McDonald's Restaurant	AY486/AY487	2750 Geneva
Former Auto Repair Facility	CH651	6201 3rd Street
Commercial Building	CH654	6199 3rd Street
Exxon RAS #7-8959	CP697	2985 San Bruno Avenue
ARCO #02056	CP698	2990 San Bruno Avenue
V & A Auto Repair	N126	2800 Bayshore Boulevard
Stephens Family Trust	CI688	1428 Egbert Avenue
Sunset Scavenger (within Project Site)	M96	515 Tunnel Avenue
Former Gasoline Station	CT713	2495 Jennings Street
Spills, Leaks, Investigations and Cleanup (SLIC)		
Kinder Morgan Tank Farm	S177-S194	950 Tunnel Avenue
Heidelberg West Inc.5700 3rd Street	AG321	355 Valley Drive

NOTE: Table does not include sites within the Project Site, which are discussed separately below.

SOURCE: EDR, 2011.

The following seven sites (four Leaking Underground Storage Tank sites and two Spills, Leaks Investigation and Cleanup sites) were determined to have groundwater impacts with the potential to affect the Project Site[28]:

- **Schlage Lock Facility (MAP ID# AK365, 2401 Bayshore Boulevard).** This site is a former manufacturing facility that is no longer in operation and is currently undergoing environmental cleanup. According to the database review, wastes generated include contaminated soil. This site is a small quantity generator and was formerly a large quantity generator. The facility received four notices of violations in 2002 and achieved compliance in 2002. This site is now part of the Visitacion Valley redevelopment project area.
- **Pacific American Services (Map ID # AM380, 450 Allen Way).** This site is located approximately 1,300 feet west-northwest of the Project Site. Data reviewed indicates that source removal occurred in 1993 and 1994 and the site assessment was opened in October 2008. Groundwater at the site is impacted with the primary contaminant of concern being total petroleum hydrocarbons (TPH) as diesel. Although the full extent of the hydrocarbon contamination has not been identified to the east, based on the age of the release and the distance from the Project Site, this Leaking Underground Storage Tank site is unlikely to

[28] Determination is made on the basis of the assumption that groundwater flow direction generally mimics surface topography.

result in adverse environmental conditions, such as contamination or additional environmental risk, at the Project Site (West, 2011).[29]

- **Bayshore Gas & Service LLP (Map ID # AQ441, 2260 Bayshore Boulevard).** This site is located approximately 1,460 feet north of the Project Site. The site assessment was opened in November 1994. Data reviewed indicate that tanks were removed from the site in 1994 and 2002. Groundwater at the site is impacted with TPH gasoline. Based on recent groundwater monitoring reports, regional groundwater flow is estimated to be towards the San Francisco Bay (Golden Gate Environmental, Inc., 2009). Based on the cross-gradient location of the Project Site to the Bayshore Gas & Service site, this Leaking Underground Storage Tank site is unlikely to result in adverse environmental conditions, such as contamination or additional environmental risk, at the Project Site.[30]

- **McDonald's Restaurant (Map ID # AY487, 2750 Geneva Avenue).** This site is located approximately 2,580 feet west-northwest of the Project Site. Data reviewed indicate that a removal action occurred in 1986 and verification monitoring started in September 2001 (EDR, 2011). Groundwater at the site is impacted with TPH as gasoline. Data from a January 2010 site investigation report indicate that samples from monitoring well MW-4, which is farthest down-gradient of the site, have no detectable concentrations of TPH as gasoline. Based upon this limited extent of contamination and distance from the Project Site, this Leaking Underground Storage Tank site is unlikely to result in adverse environmental conditions, such as contamination or additional environmental risk, at the Project Site.

- **V & A Auto Repair (Map ID # N126, 2800 Bayshore Boulevard).** This site is located adjacent to the Project Site, across Bayshore Boulevard. Data reviewed indicate that a removal action occurred in 2008 and that, as of March 2010, the site is in the site assessment stage of the regulatory process.[31] Groundwater at the site is impacted by TPH as gasoline, benzene, toluene, ethylbenzenes, and xylenes (BTEX). Data from the most recent groundwater monitoring report indicate that groundwater flow direction at the site is to the south, in the direction of the Project Site, and that contaminants of concern are present at the site above Regional Water Quality Control Board, San Francisco Bay Region, environmental screening levels (ESLs). However, the most recent groundwater monitoring report also indicates that during the 2009 groundwater monitoring round, contaminants of concern were not detected (i.e., below laboratory detection levels) in monitoring wells located between the source area and the Project Site (Environmental Resource Group, Inc., 2009).

- **Heidelberg West, Inc. (Map ID # AG321, 355 Valley Drive).** This site is located approximately 1,980 feet west-southwest of the Project Site. Data reviewed indicate that tank removal actions occurred in 1987 and 1991; and as of August 1987, the site is in the Site Remediation stage of the regulatory process. Groundwater at the site is impacted by trichloroethylene (TCE) and is currently being treated by a groundwater extraction and treatment system. Data from the most recent remedial investigation report indicate

[29] Hydrocarbons will naturally degrade over time into harmless components and generally do not migrate very far) from the original source.

[30] Similar to the concept of an object rolling downhill, groundwater movement also goes from higher elevations to lower elevations. Sites that are at relatively similar groundwater elevations are then considered to be cross-gradient and would not affect one another.

[31] Generally, once COCs have been identified in either soils or groundwater, a site will remain in the Site Assessment stage until both the vertical and horizontal extent of contamination have been clearly defined.

groundwater flow direction at the site is to the east and northeast and that no contaminants of concern were detected in groundwater downgradient of the site (Aquifer Sciences, Inc., 2009). Based upon the limited extent of contamination, which does not extend beyond the site and is being actively remediated, this Spills, Leaks Investigation and Cleanup site is unlikely to result in adverse environmental conditions at the Project Site, such as contamination or additional environmental risk.

- **Kinder Morgan/SFPP LP/Brisbane Terminal (also known as Kinder Morgan Tank Farm) (Map ID # S177-194, 950 Tunnel Avenue).** Petroleum hydrocarbons were released to soil and groundwater at the Kinder Morgan Energy Tank Farm, and have been under investigation since the early 1990s (LFR, 2008). This Spills, Leaks Investigation and Cleanup site is surrounded by, but not within the Project Site boundaries. The Kinder Morgan/SFPP LP/Brisbane Terminal site is a bulk petroleum storage facility and distribution terminal. The facility has 21 above ground storage tanks, which are constructed on a bedrock outcrop to the west of the former Brisbane Landfill. Five loading rack facilities, where transport trucks are filled with petroleum products, are also located at the site. The Kinder Morgan Terminal is an important nexus in the fuel distribution system for Northern California and the Bay Area. In addition to supplying fuel to retail service stations in the Bay Area, the terminal provides aviation fuel to San Francisco International Airport. Since the early 1990s, Kinder Morgan has conducted subsurface assessments, including the installation of 33 groundwater monitoring wells, to evaluate impacted soil and groundwater quality conditions in the vicinity of the site.

  Previous remedial actions have occurred between 1998 and 2006 and consisted of dual-phase extraction, non-aqueous phase hydrocarbons (NAPH) recovery and soil excavations. The current approved remedial activities being implemented are monitored natural attenuation (MNA) for the dissolved phase petroleum hydrocarbon plume in shallow groundwater and NAPH recovery using absorbent socks and hand bailing in wells exhibiting NAPH near the manifold and loading rack areas of the site (Arcadis, 2011).

  Conclusions in the Semiannual Groundwater Monitoring Report, July 1 to December 31, 2010, prepared for Kinder Morgan, have been reviewed and are summarized below (Arcadis, 2011):

  - Soil impacts are limited to the Kinder Morgan property.
    - Based on the total dissolved solids (TDS) concentrations, which are greater than 1,000 milligrams per liter (mg/L) (upper limit for drinking water supplies established in CCR Title 22, Section 64449), groundwater beneath the [Kinder Morgan] Project Site is not considered to be a drinking water supply. Though water samples were found to be above estuary habitat environmental screening levels in surface waters adjacent to the Kinder Morgan facility, it was determined that the Kinder Morgan facility was not the source (Arcadis, 2011).
    - Groundwater contaminants of concern include non-aqueous phase hydrocarbons, total petroleum hydrocarbons, benzene, and methyl tert-butyl ether (MTBE). The total petroleum hydrocarbons groundwater plume extends off the Kinder Morgan site underneath the footprint of the Brisbane Landfill. However, concentrations of contaminants of concern extending underneath the Brisbane Landfill are below environmental screening levels.

- Groundwater was first encountered at a depth of 2 to 13 feet below the top of casing in the monitoring wells. Impacted groundwater beneath the Kinder Morgan site generally flows in a radial pattern outward from the center of the northern tank farm to the northeast and east towards the Brisbane Landfill. Recent groundwater measurements indicate that there is also a localized area of groundwater flow, westward from the Brisbane Landfill into the Kinder Morgan site.

- During the fourth quarter of 2010, the concentration trends for total petroleum hydrocarbons, BTEX compounds, and MTBE were generally stable or decreasing in the majority of monitored site wells, but a few of the wells showed increasing concentrations. Plume extent for the majority of the contaminants has been shown to be stable or decreasing.

- The presence of contaminants attributable to the Brisbane Landfill (e.g., chlorobenzene) supports the theory that groundwater flow beneath the landfill is a contributing source of groundwater contamination in the northeastern portion of the Kinder Morgan facility (Arcadis, 2011). This theory has also been documented and confirmed by the RWQCB. Therefore, the combined groundwater flow directions and distribution of contaminants of concern in groundwater suggests that groundwater from the Brisbane Landfill is affecting groundwater beneath the Kinder Morgan site (Arcadis, 2011).

  A report prepared for the site that evaluated various remediation alternatives, known as a Remedial Action Effectiveness Evaluation, concluded that the recent trends showing decreasing total petroleum hydrocarbons and volatile organic compounds (VOC) concentrations and the overall decreasing contamination plume size are largely the result of natural processes where the contaminants degrade into harmless elements (Arcadis, 2011). A screening level risk evaluation conducted as part of the Remedial Action Effectiveness Evaluation found that concentrations of contaminants of concern in the Kinder Morgan groundwater plume, on the site, and below the landfill remain below the environmental screening levels (ESLs) for Indoor Air for Commercial/Industrial Land Use as established by the RWQCB. Concentrations of contaminants of concern in soil are above environmental screening levels for protection of a construction worker; however, protective measures are in place for construction workers at the Kinder Morgan facility.

In addition, as part of the 2011 Remedial Action Effectiveness Evaluation (Arcadis, 2011) for the Kinder Morgan site, the possibility of volatilization of contaminants of concern from groundwater to indoor air was evaluated assuming potential commercial use. Maximum detected concentrations of volatile constituents were found to be below environmental screening level for the protection of indoor air in a commercial or industrial setting (Arcadis, 2011). This evaluation was performed for the well with the highest detected levels of contaminants of concern, located in the center of the Kinder Morgan property. Volatile constituents in wells bordering the Project Site have most recently been below laboratory detection levels with the exception of one well in the northeastern corner of the site that is impacted by contaminants of concern from the Brisbane Landfill, as discussed above.

4.G.3 Regulatory Setting

Development within the Project Site must comply with federal, state, regional, and local regulations. This section discusses requirements to the extent that they will affect Project Site development.

Federal Regulations

Hazardous Materials Management

The primary federal agencies responsible for hazardous materials management include the U.S. Environmental Protection Agency (U.S. EPA) and the U.S. Department of Labor Occupational Safety and Health Administration (OSHA).

Resource Conservation and Recovery Act of 1976

The U.S. EPA regulates the generation, transportation, treatment, storage, and disposal of hazardous waste in a "cradle to grave" manner through the Resource Conservation and Recovery Act (RCRA). RCRA sets standards for hazardous waste treatment storage and disposal units intended to manage hazardous wastes in a manner that minimizes present and future threats to the environment and human health. RCRA was amended in 1984 to reaffirm the regulation from generation to disposal and to prohibit the use of certain techniques for hazardous waste disposal. The U.S. EPA has largely delegated responsibility for implementing the RCRA program to the State of California, which implements this program through the California Hazardous Waste Control Law.

Remediation of existing contamination on the Project Site may be subject to certain RCRA requirements that apply to contaminated soil or groundwater. In addition, proposed commercial uses on the Project Site area may generate or handle hazardous waste that could subject the Project Site development to RCRA requirements.

Emergency Planning and Community Right-to-Know Act of 1986

Through the Emergency Planning and Community Right-to-Know Act of 1986 (also known as Title III of Superfund), the U.S. EPA also imposes requirements that hazardous materials are properly handled in order to prevent or mitigate risk to human or environmental health in the event of an accidental release.

Occupational Safety and Health Act of 1970

Federal and occupational health and safety regulations also contain provisions regarding hazardous waste management through the Occupational Safety and Health Act of 1970 (amended), which is implemented by OSHA. Code 29 of Federal Regulations (29 CFR) requires special training of handlers of hazardous materials; notification to employees who work in the vicinity of hazardous materials; acquisition from the manufacturer of material safety data sheets (MSDS),which describe the proper use of hazardous materials; and training of employees to remediate any hazardous material accidental releases. OSHA regulates administration of 29 CFR.

Safety and Health Regulations for Construction

OSHA also establishes standards regarding safe exposure limits for chemicals to which construction workers may be exposed. Safety and Health Regulations for Construction (29 CFR 1926.65 Appendix C) contains requirements for construction activities, which include occupational health and environmental controls to protect worker health and safety. The guidelines describe the health and safety plan(s) that must be developed and implemented during construction, including associated training, protective equipment, evacuation plans, chains of command, and emergency response procedures.

Due to the known and potential existence of hazardous materials in the vicinity of the Project Site, adherence to applicable hazard-specific OSHA standards would be required to maintain worker safety. For example, methane is regulated by OSHA under 29 CFR Part 1910.146 relative to worker exposure to a "hazardous atmosphere" within confined spaces where the presence of flammable gas vapor or mist is in excess of 10 percent of the lower explosive limit.

Hazardous Materials Transportation Act

The transportation of hazardous materials is regulated by the Hazardous Materials Transportation Act (HMTA), which is administered by the Research and Special Programs Administration (RSPA) of the U.S. Department of Transportation (USDOT). The Hazardous Materials Transportation Act provides USDOT with a broad mandate to regulate the transport of hazardous materials, with the purpose of adequately protecting the nation against risk to life and property, which is inherent in the commercial transportation of hazardous materials. The Hazardous Materials Transportation Act governs the safe transportation of hazardous materials by all modes, excluding bulk transportation by water. The Research and Special Programs Administration carries out these responsibilities by prescribing regulations and managing a user-funded grant program for planning and training grants for states and Indian tribes. USDOT regulations that govern the transportation of hazardous materials are applicable to any person who transports, ships, causes to be transported or shipped, or are involved in any way with the manufacture or testing of hazardous materials packaging or containers. USDOT regulations pertaining to the actual movement govern every aspect of the movement, including packaging, handling, labeling, marking, placarding, operational standards, and highway routing. Additionally, USDOT is responsible for developing curriculum to train for emergency response, and administers grants to states and Indian tribes for ensuring the proper training of emergency responders. Hazardous Materials Transportation Act was enacted in 1975 and was amended and reauthorized in 1990, 1994, and 2005.

Landfills

RCRA regulates landfill siting, design, operation, and closure (including identifying liner and capping requirements) for licensed landfills. In California, RCRA landfill requirements are delegated to the California Department of Resources Recycling and Recovery (CalRecycle), which is discussed in detail below.

Soil/Groundwater Contamination

As noted above, RCRA allows the U.S. EPA to oversee the closure and post-closure of landfills. Additionally the federal Safe Drinking Water Act, 40 CFR Part 141 gives the U.S. EPA the power to establish water quality standards and beneficial uses for waters from below- or above-ground sources of contamination. For the Project Site, water quality standards are administered by the RWQCB.

Soil Gas

RCRA also allows the U.S. EPA to control risk to human health at contaminated sites. Vapor intrusion presents a significant risk to human populations overlying contaminated soil and groundwater and is considered when conducting human health risk assessments and developing Remedial Action Objectives.

State Regulations

Hazardous Materials Management

In the regulation of hazardous waste management, California law often mirrors or is more stringent than federal law. Enforcement of state laws has been delegated to a state or local agency. The California Environmental Protection Agency (CalEPA) and California Occupational Safety and Health Administration (CalOSHA) are the primary state agencies responsible for hazardous materials management. Additionally, the California Emergency Management Agency (CalEMA) administers the California Accidental Release Prevention (CalARP). DTSC (a branch of CalEPA) regulates the generation, transportation, treatment, storage, and disposal hazardous waste, as well as the investigation and remediation of hazardous waste sites. The California DTSC program incorporates the provisions of both federal (RCRA) and state hazardous waste laws.

Unified Hazardous Waste and Hazardous Materials Management Regulatory Program

In 1996, CalEPA adopted the Unified Hazardous Waste and Hazardous Materials Management Regulatory Program (Unified Program). The Unified Program consolidates and coordinates the six state programs that regulate business and industry use, storage, handling, and disposal of hazardous materials and wastes. For the Project Site, the San Mateo County Environmental Health Division is the Certified Unified Program Agency (CUPA). Under the Unified Program, any future user storing hazardous materials and/or waste at their business site will be required to submit business information and hazardous materials inventory forms to the CUPA.

California Accidental Release Prevention

In 1997 CalEMA implemented CalARP, which is intended to prevent accidental releases of those substances determined to potentially pose the greatest risk of immediate hazard to the public and the environment. Regulated materials are toxic and flammable substances listed in Tables 1 through 3 of CCR Title 19 Section 2770.5. Under the program, CUPAs interact directly with businesses that handle, manufacture, use, or store any of the regulated substances over a threshold level. Also, such businesses are required to file a Risk Management Plan with the local CUPA.

The regulations that define the Risk Management Plan process are found in the California Health and Safety Code Sections 25531-25543.3. A Risk Management Plan provides additional planning information that covers equipment and systems safety, operating procedures, preventive maintenance, upset risk assessments, and safety auditing. The State Office of Emergency Services has primary responsibility for regulating acutely hazardous materials. Local governments have the lead role for working directly with businesses in implementing this program. The Certified Unified Program Agency for the Project Site is the Environmental Health Division of the San Mateo County Health System.

Hazardous Waste Control Act

The Hazardous Waste Control Act was passed in 1972 and established the California Hazardous Waste Control Program within the Department of Health Services. California's hazardous waste regulatory effort became the model for the federal Resource Conservation and Recovery Act (RCRA). California's program, however, was broader and more comprehensive than the federal system, regulating wastes and activities not covered by the federal program. California's Hazardous Waste Control Law was followed by emergency regulations in 1973 that clarified and defined the hazardous waste program, as follows:

- Included were definitions of what was a waste and what was hazardous as well as what was necessary for appropriate handling, processing, and disposal of hazardous and extremely hazardous waste in a manner that would protect the public, livestock, and wildlife from hazards to health and safety.
- The early regulations also established a tracking system for the handling and transportation of hazardous waste from the point of waste generation to the point of ultimate disposition, as well as a system of fees to cover the costs of operating the hazardous waste management program.
- Advancing the newly developing awareness of hazardous waste management issues, the program established a technical reference center, for public and private use, dealing with all aspects of hazardous waste management.

Hazardous Waste Source Reduction and Management Review Act

Senate Bill (SB) 14 is the Hazardous Waste Source Reduction and Management Review Act of 1989. SB 14 requires hazardous waste generators to seriously consider source reduction as the preferred method of managing hazardous waste. Source reduction is preferable over recycling and treatment options because source reduction avoids waste generation costs and management liability. Source reduction also provides the best protection for public health and the environment.

Hazardous Material Response Plans and Inventory Law (AB 2185)

Any business handling hazardous materials (as defined in Section 25500 of California Health and Safety Code [CH & SC], Division 20, Chapter 6.95) is required to register as a hazardous materials handler and comply with California's Hazardous Material Response Plans and Inventory Law (AB 2185), which is also known as the Waters Bill. The Waters Bill requires that any release or threatened release of a hazardous material to a workplace or the environment be reported immediately to the local administering agency and the State Office of Emergency

Services, if the release or threatened release poses a significant present or potential hazard to human health and safety, property, or the environment, regardless of the amount of hazardous materials handled by the business. In addition, businesses handling more than 500 pounds of solid, 55 gallons of liquid, or 200 cubic feet of gaseous hazardous material at any one time are required to file a Business Plan, which outlines the facility's emergency response procedures and provides a chemical inventory, with the local administering agency. The reporting requirements do not apply if releases or threatened releases are associated with activities that have been authorized by a government agency.

California Code of Regulations

Title 8 – CalOSHA. CalOSHA administers federal occupational safety requirements and additional state requirements in accordance with California Code of Regulations Title 8. CalOSHA requires preparation of an Injury and Illness Prevention Program (IIPP), which is an employee safety program of inspections, procedures to correct unsafe conditions, employee training, and occupational safety communication. This program is administered via inspections by the local CalOSHA enforcement unit.

CalOSHA regulates lead exposure during construction activities under CCR Title 8, Section 1532.1, Lead, which establishes the rules and procedures for conducting demolition and construction activities such that worker exposure to lead contamination is minimized or avoided.

Compliance with CalOSHA regulations and associated programs would be required for the proposed Project due to the potential hazards posed by onsite construction activities and contamination from former uses.

Title 24, Part 9 – California Fire Code. The California Fire Code (http://publicecodes.cyberregs.com/st/ca/st/b300v10/index.htm) regulates the type, configuration, and quantity of hazardous materials that may be stored within structures or in outdoor areas. The purpose of this code is to establish the minimum requirements consistent with nationally recognized good practices to safeguard the public health, safety, and general welfare from the hazards of fire, explosion, or dangerous conditions in new and existing buildings, structures, and premises; and to provide safety and assistance to firefighters and emergency responders during emergency operations.

Landfills

Title 27, Environmental Protection – Division 2, Solid Waste

In California, waste disposal on land is regulated by California Department of Resources Recycling and Recovery (CalRecycle) (formerly the California Integrated Waste Management Board). CalRecycle, through Title 27 of the California Code of Regulations, regulates the closure and post-closure activities at landfill sites. CalRecycle designates a local enforcement agency (LEA) to perform oversight of post-closure land uses at disposal sites. For the Project Site, the San Mateo County Environmental Health Division regulates landfills on behalf of CalRecycle. The California Air Resources Board (CARB), which regulates stationary and mobile air emission

sources, also has enforcement authority. Landfill gas is regulated by the CARB through its local affiliate, the BAAQMD.

The requirements for post-closure land use of solid waste disposal sites are described in CCR Title 27, Section 21190 titled "CIWMB – Post-Closure Land Use." Title 27 requires that the proposed post-closure land use be designed and maintained to:

- Protect public health and safety and prevent damage to structures, roads, utilities, and gas monitoring and control systems;
- Prevent public contact with waste, LFG, and leachate; and
- Prevent LFG explosions.

The CalRecycle regulatory requirements described in CCR Title 27 Section 21190 apply to landfills that were operating on or after January 1, 1988. However, based on the LEA Advisory #51 dated July 22, 1998:

> If a significant change in post-closure land use is proposed for these sites (sites that ceased operating prior to January 1, 1988), a post-closure land use proposal should be submitted to the LEA to address compliance with 27 CCR 21190. The LEA is required to approve the proposed post-closure land use if the Project Site development involves structures within 1,000 feet of the disposal area, structures on top of waste, modification of the low permeability layer, or irrigation over waste (27 CCR 21190(c)).

Calderon Act of 1984

Additionally, the Calderon Act of 1984 required preparation of a Solid Waste Assessment Test (SWAT) and Solid Waste Air Quality Assessment Test (SWAQAT) for all landfill sites in California to determine whether a site, as a result of leakage of contaminants, contributed to degradation of groundwater quality or air quality. This was administered by the regional agency, which for the Project Site is the RWQCB.

California Department of Transportation – Hazardous Materials Transportation

Within California, the state agencies with primary responsibility for enforcing federal and state regulations and for responding to transportation emergencies are the California Highway Patrol (CHP) and the California Department of Transportation (Caltrans). Together, federal and state agencies determine driver-training requirements, load labeling procedures, and container specifications. Although special requirements apply to transporting hazardous materials, requirements for transporting hazardous waste are more stringent, and hazardous waste haulers must be licensed to transport hazardous waste on public roads.

Soil/Groundwater Contamination

Safe Drinking Water and Toxic Enforcement Act

The Safe Drinking Water and Toxic Enforcement Act, better known as Proposition 65, was passed into law by California in 1986. Proposition 65 authorizes the California Department of Health Services (DHS) to protect the public from contaminants in drinking water by establishing

MCLs that are as stringent as those required by the federal Safe Drinking Water Act. This initiative was developed in order to improve public health by reducing the incidence of cancer and adverse reproductive outcomes that might result from exposure to potentially hazardous chemicals. To carry out this mission, Proposition 65 requires the creation of a list of chemicals and substances and the levels at which they are believed to have the potential to cause cancer or deleterious reproductive effects in humans. The law also restricts discharges of these listed chemicals into known drinking water sources at levels above the regulatory levels of concern. Finally, Proposition 65 requires that a clear and understandable warning be given prior to a known and intentional exposure to a listed substance. The Project Site is subject to the provisions of Proposition 65 due to the potential for exposure of persons to Proposition 65-listed chemicals.

Porter Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act of 1970 established the State Water Resources Control Board and nine RWQCBs within California. These entities are the primary state agencies responsible for protecting California water quality to meet present and future beneficial uses and regulating appropriative surface rights allocations. The RWQCB, San Francisco Bay Region, is the regional board responsible for the Project Site vicinity and specifically oversees both the former Brisbane Landfill and OU-2.

Soil Gas

CCR Title 8, Section 5155 Airborne Contaminants

CalOSHA regulates exposure to airborne contaminants during construction under CCR Title 8, Section 5155, Airborne Contaminants, which establishes the compounds that are considered a health risk, the exposure limits associated with such compounds, protective equipment, workplace monitoring, and medical surveillance required for compliance. Compliance with these CalOSHA regulations and associated programs would be required at the Project Site due to the potential hazards posed to construction workers from soil gas compounds that may exist onsite.

Murrell-Carlford Act

In 1967, California passed the Murrell-Carlford Act to establish the California Air Resources Board (CARB). The CARB regulates stationary sources of emissions to air as well as sources contributing to indoor air quality.

CalRecycle also allows the LEA, which for the Project Site is the SMCDEH, to regulate LFG emissions as part of the post-closure monitoring for inactive landfills.

Regional/Local Regulations

San Mateo County Hazardous Materials Business Plan Program

Businesses must complete a Hazardous Materials Business Plan (Business Plan) for the safe storage and use of chemicals. Firefighters, health officials, planners, public safety officers, health care providers, and others rely on the Business Plan in an emergency. The intent of the Business

Plan is to prevent or lessen damage to the health and safety of people and the environment when a hazardous material is released.

The Business Plan must include:

- Owner/operator information, including emergency contacts;
- The type and quantity of reportable hazardous materials;
- A site map;
- Spill prevention procedures;
- Emergency response procedures;
- An employee training program; and
- Record-keeping procedures.

In general, a business must submit a Business Plan to the County if it handles and/or stores a hazardous material equal to or greater than the minimum reportable quantities. These quantities are 55 gallons for liquids, 500 pounds for solids, and 200 cubic feet (at standard temperature and pressure) for compressed gases. Radioactive materials and extremely hazardous substances are reportable in any amount.

City of Brisbane Policies and Programs

The City of Brisbane Fire Department is part of the North County Fire Authority, a Joint Powers Authority (JPA) established in 2003 that also serves the communities of Daly City and Pacifica. JPA operations are governed by the California Fire Code, as described above. The JPA administers the California Fire Code (CFC) through regular site inspections and issuance of notices of violation (NOVs) in cases of non-compliance.

The City of Brisbane's general policy on hazardous materials management is included in the City of Brisbane 1994 General Plan. Policies and programs within the Community Health and Safety Element that address hazardous materials management include the following:

> ***Policy 166:*** Protect the community's health, safety, welfare, natural resources and property through regulation of the handling and storage of hazardous materials, with specific focus on prevention of accidents.
>
> > *Program 166a:* Work closely with County, State and Federal agencies in the regulation of hazardous materials.
> >
> > *Program 166b:* Continue administration of Hazardous Materials Management Plans through the Brisbane Fire Department.
> >
> > *Policy 166.1:* Require disclosure, in a risk analysis, of all hazardous materials to be utilized in research and development and biotechnical research, the assumptions that were used, and methods of safe handling and disposal. The City has a concern with and may exclude research and development and biotechnical research uses which involve high use or generation of hazardous materials and/or do not address public safety in handling and disposal to the City's satisfaction.

Program 1661a: In connection with any application for a proposed specific plan or land use development project involving biotechnical research activities, determine the nature and extent of any regulations that should be adopted to protect the public health and safety before any such specific plan or land use development application is approved.

The General Plan also includes the following Health and Safety Element policies applicable specifically to the Baylands subarea:

Policy 369: Disclose, in a risk analysis, all hazardous materials to be utilized in research and development and biotechnical research, the assumptions that were used, and methods of safe handling and disposal. The City has a concern with and may exclude research and development and biotechnical research uses which involve high use or generation of hazardous materials and/or do not address public safety in handling and disposal to the City's satisfaction.

Policy 379: There shall be no fabrication, manufacturing, processing or treatment of materials in this subarea other than that which is directly incidental to a permitted or conditional use. There shall be no processing of hazardous waste materials.

Policy 389: Special attention should be paid to uses of the adjacent property that has potential for the storage and/or processing of hazardous materials.

The Safety Element of the City of Brisbane General Plan includes the following policies that are applicable to development on inactive landfills:

Policy 172: Establish that it is of the highest priority that contaminated lands in Brisbane be remediated.

Program 172a: Communicate this priority to responsible State and Federal agencies and encourage these agencies to establish remediation plans and programs.

Program 172b: Seek to direct State and Federal funds to remediate contaminated lands in Brisbane.

Program 172c: Require private property owners to remediate contaminated lands consistent with State and Federal requirements.

Program 172d: Continue to maintain good communications and working relationships with the CalEPA DTSC, the RWQCB and other agencies regulating remedial actions.

Policy 173: The City shall not grant approval of a development project on a contaminated site unless a plan for remediation of the site has first been approved and adopted by all Federal, State and local agencies having jurisdiction over the remediation plan.

Policy 174: Include the remediation requirements of Federal, State and local agencies in the process of making determinations on land use designations and development applications.

Program 174a: Take into account risk assessments and other technical studies prepared by governmental agencies when making land use determinations for contaminated lands.

Program 174b: Condition all final approval of development projects on full compliance with all orders, remediation programs and mitigation measures imposed by regulatory agencies.

Program 174c: Require applicants to provide for analysis by environmental engineers, toxicologists or other technical specialists deemed necessary by the City to process development applications and complete environmental review for projects on contaminated lands.

Policy 175: Assure that any development otherwise permitted on lands filled with municipal waste is safe by implementing the following programs.

Program 175a: Exchange information with the CIWMB, SMDEH, and other responsible agencies regarding the requirements for safe and successful landfill development, utilizing the experience of Sierra Point.

Program 175b: Require evidence that scientific testing and verification has taken place to the satisfaction of regulatory agencies.

Program 175c: Encourage property owners of filled lands to complete all testing and related requirements of the Federal, State and local agencies well in advance of requesting land use permits from the City.

The Safety Element of the 1994 City of Brisbane General Plan also includes the following policies that apply specifically to the Baylands area:

Policy 330.1: Prohibit housing on the Baylands.

Policy 362: Support County and regional efforts to maintain and improve water quality in San Francisco Bay. Work closely with responsible agencies to assure monitoring of the landfill so as to avoid toxic leaking into the Bay and to have property owners repair any leaks.

Policy 365: Comply with applicable Federal, State and regional standards for development on landfill.

Policy 367: Develop grading and drainage controls for landfill.

Policy 368: Comply with the requirements of remediation plans approved by the DTSC, the RWQCB and other responsible agencies in conjunction with development on lands that have been contaminated by toxic substances.

Policy 370: Provide a risk assessment analysis identifying toxic contamination, landfill limitations and other related factors and resultant environmental impacts in order to address, mitigate and disclose the characteristics of the land and its suitability for safe development[32].

[32] The findings of studies completed to date characterizing contamination within the Project Site, delineating existing hazards and risks, identifying remediation actions taken to date, and evaluating impacts of remediation activities are presented in this Section of the EIR. Following certification of this EIR and selection of a Concept Plan establishing permitted uses for the Project Site by the City, the landowner will be required to undertake further studies to define the specific clean-up levels based on approved land uses and detail the specific remedial technologies that it proposes to employ to achieve those clean-up levels as part of the review and approval of Remedial Action Plans and landfill closure plans by the Regional Water Quality Control Board and DTSC.

Policy 371: Disclose the underlying assumptions of all risk analyses for toxic lands and lands that are considered at risk for liquefaction.

Policy 373.1: Work closely with the CIWMB and the BAAQMD to assure monitoring of regulatory air quality issues, especially those pertaining to grading, surcharging and methane emissions, by regulatory agencies.

Policy 387: Development on landfill shall comply with applicable Federal, State and regional standards.

Policy 391: Work closely with regulatory agencies to encourage ongoing toxic remediation programs and monitoring by those agencies.

In 2009, the City of Brisbane updated the Housing Element of its General Plan. The 2007-2014 Housing Element, includes the following policies that may apply to development at the Project Site:

Policy H.H.2: Regulate the development of environmentally sensitive and hazardous lands to assure the mitigation of significant impacts.

Program H.H.2.a: Work with responsible agencies to protect identified environmentally sensitive areas, including, but not limited to, wetlands, riparian habitat, critical wildlife habitat, geologically hazardous areas, areas subject to flooding, visually prominent or sensitive areas, and electric transmission line corridors.

4.G.4 Impacts and Mitigation Measures

Significance Criteria

Based on Appendix G of the CEQA Guidelines, a proposed project would have significant impacts relating to hazards if the construction or operation of the project would:

- Create a significant hazard to the public or the environment through the routine transport, use or disposal of hazardous materials;
- Create a significant hazard to the public or the environment through reasonably foreseeable upset or accident conditions involving the release of hazardous materials into the environment;
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances or waste within 0.25 mile of an existing or proposed school;
- Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, create a significant hazard to the public or the environment;
- Result in a safety hazard for people residing or working in the project area for a project located within an airport land use plan or, where such plan has not been adopted, be within 2 miles of a public airport use airport or public use airport;
- Be located within the vicinity of a private airstrip and result in a safety hazard for people residing or working in the project area;

- Impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan; or
- Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

Impact Assessment Methodology

General Approach

The impact assessment evaluates the construction and operational impacts of the Project Site development, including the impacts of remediation of the former Brisbane Landfill, OU-1, and OU-2.

The assessment of hazardous waste effects that would occur under each Project Site development scenario focuses on hazards that would be encountered during construction and operation of proposed development. To identify hazards from proposed Project Site development, known hazardous materials at the Project Site were reviewed to assess the risks associated with their remediation. The EDR database was used to identify additional known hazardous material sites within the vicinity that could be disturbed during construction activities. Database information obtained on these sites was augmented by searching online databases of regulatory agencies to verify the closure status of sites or obtain information on the type and extent of contamination at the sites. Information on hazardous materials associated with the former Brisbane Landfill, OU-1, and OU-2 was obtained from publicly available documents located on the GeoTracker and EnviroStor websites and hazardous materials summary reports prepared for the Project Site.

Appendix H of this EIR contains a complete list of the databases searched, information describing the governmental agencies and their databases, and a map showing all of the sites. Figure 4.G-2 shows the location of these sites.

Impacts associated with air emissions are addressed in Section 4.B, *Air Quality*, of this EIR. Impacts associated with surface water quality are discussed in Section 4.H, *Hydrology and Water Quality*.

Implementation of remedial actions would occur under each of the four proposed development scenarios, and related impacts associated with earthmoving and transport and potential release of hazards would be similar for all scenarios, regardless of potential differences in cleanup levels based on the land uses that may ultimately be approved. Other types of potential hazards and hazardous materials effects, such as those related to the routine transport of materials, proximity to airports, and potential for hazards related to wildland fires, also would be similar for all four development scenarios. Therefore, the analysis of impacts associated with each of the four proposed development scenarios generally is grouped together in this section.

Approach to Analysis

The following impact analyses focus on whether the physical development of the Project Site would expose construction and maintenance workers, visitors, existing and future residents, employees, or ecological systems to hazards associated with identified contaminants throughout the life of proposed Project site uses. The analysis also addresses impacts associated with future construction and operation of proposed land uses on the Project Site. Construction and operation of proposed development would require the use and transport of hazardous materials, including fuels, oils and other chemicals during construction, as well as the storage and transport of potentially hazardous materials associated with building demolition and implementation and maintenance of remedial actions. Following certification of this EIR and selection of a Concept Plan setting forth permitted uses for the Project Site by the City, the landowner will be required to undertake further studies to define the specific clean-up levels based on approved land uses and risk-based clean up goals, and then detail the specific remedial technologies that it proposes to employ to achieve those clean-up levels as part of the review and approval of Remedial Action Plans and landfill closure plans by the Regional Water Quality Control Board and DTSC.

Project Site development includes implementation of required remedial actions associated with the former Brisbane Landfill, OU-1, and OU-2 which have been undergoing investigation, identification, and remediation as required by the California Department of Toxic Substances Control (DTSC) and Regional Water Quality Control Board (RWQCB). In general, proposed development on contaminated sites requires an approved remedial action plan to be completed and certified by the overseeing agency prior to development or change in land use. Ultimately, cleanup levels are determined on a site-specific basis, including potential exposure pathways, existing and future land uses, and the characteristics of the contaminants involved.

Remedial Actions on the Project Site

Remedial actions required for the former Brisbane Landfill, OU-1, and OU-2 would be completed prior to development and are described below.

Remedial Actions at the Former Brisbane Landfill

Based on the review of existing conditions, on-going monitoring and data collected as discussed in section 4G.2, current issues to be addressed in future landfill remediation include; the following:

- lack of a low permeability engineered landfill cap that is compliant with Title 27;
- the presence of leachate and the continued requirement to prevent any increases in leachate that exceed regulatory standards,
- hydrologic connectivity to groundwater and surface water (primarily the Central Drainage Canal),
- ongoing consolidation of refuse and underlying geologic materials (Bay Muds), and
- control of landfill gas.

Final remedial actions implemented at the former Brisbane Landfill ultimately will be defined by the RWQCB, CalRecycle/San Mateo County Department of Health Services, and the City of Brisbane within the Final Closure and Post-closure Plans and would be influenced by the nature of the proposed development. These Final Closure and Post-closure Plans would include:

- Operation and maintenance of the existing Leachate Seep Collection and Transmission System (LSCTS);
- Operation and maintenance of the landfill Gas Collection and Control System (GCCS);
- Continued groundwater, surface water, and leachate quality monitoring and evaluation;
- Installation of a final cover system over the entire landfill; and
- Operation and maintenance of a landfill gas collection and monitoring system.

In addition, proposed Project Site development would also be subject to land use controls such as deed restrictions that limit site uses and require notifications for any ground disturbances. All of these measures would be required by Title 27 CCR 21190, as defined by CalRecycle, in order to achieve landfill closure and to minimize or eliminate risk to human health and the environment under any of the proposed project scenarios. These actions, as they pertain to the former Brisbane Landfill, have been generally described in the Final Closure and Post-Closure Maintenance Plan (Burns & McDonnell, 2002b), and include the following components.

Landfill Final Cover System. In accordance with Title 27 of the California Code of Regulations, a 2-foot thick foundation layer using onsite cover material would be graded over the entire site. In addition, the finished grade elevations over the majority of the Project Site would accommodate the depth of the low-hydraulic-conductivity layer (LHCL), without the need to excavate into the refuse material. Any areas of the site that require excavation and relocation of refuse material (e.g., building foundations and utility infrastructure) would be completed in accordance with the Title 27 of the California Code of Regulations to ensure that the low-hydraulic-conductivity layer requirements are met. Additionally, as required by Title 27, long-term maintenance, as described below, would be required to ensure the continued integrity of the final cover system.

Activities associated with construction of the final landfill cover would include the following:

- Excavation and removal of approximately 3.7 million cubic yards of soil;
- Excavation and stockpiling of approximately 5 million cubic yards of soil;
- Relocation of approximately 41,500 cubic yards of refuse material, in order to achieve grade elevations for placement of the foundation layer and low-hydraulic-conductivity layer. The material will most likely be excavated using either excavators or bulldozers and hauled to lower-lying areas of the site within the landfill footprint. This relocated material will then be covered and capped. All relocation of refuse will be performed in accordance with a site-specific health and safety plan developed during the design process and reviewed/approved by CalRecycle and the San Mateo County Environmental Health Division.
- Construction of the 2-foot foundation layer;

- Placement of the low-hydraulic-conductivity layer at depths as described in the Infrastructure Plan, with different depths for building pads, utility corridors, and designated open space areas; and
- Replacement of the stockpiled material on the surface to bring the landfill to final development grades.

Landfill Gas Control System. Decomposition of the organic component of solid waste leads to generation of LFG. Uncontrolled migration of landfill gas can lead to the creation of explosive conditions, primarily in or near enclosed areas (structures, utility vaults, etc.). A landfill control system typically consists of a system of interconnected horizontal and vertical pipes connected to vacuum blower. Landfill gas is extracted by a vacuum applied to the waste and combusted using a LFG flare that is typically permitted by the local air quality management district. Long-term system maintenance and a landfill perimeter and surface emissions monitoring program would occur to ensure the effectiveness of the landfill gas control system.

Surface Water Management System. Percolation of water into the waste would result in the generation of leachate. Actions would be taken to prevent ponding of water and percolation through the cover system and into the waste to minimize the generation of leachate. A surface water management system would facilitate surface transport of stormwater across the final cover and off of the landfill surface. This includes maintaining a minimum grade of 3 percent for all landfill surfaces. Leachate seeps in the Central Drainage Channel and Brisbane Lagoon have been identified as a recurring condition and would be addressed by reconstructing the channel and installing a layered lining system that includes a barrier membrane to ensure that the Central Drainage Channel and Brisbane Lagoon are fully isolated from any leachate migration as part of the ongoing remedial activities at the landfill, unrelated to the Project Site development.

Post-Closure Monitoring. Throughout the post-closure monitoring period (defined in the regulations as a minimum of 30 years), remedial action components at the former landfill will be maintained through the preparation of location-specific plans that define the particular remedial action components or landfill closure elements that will need to be implemented to accommodate proposed development. In accordance with RWQCB Waste Discharge Requirements, location-specific plans will include measures, such as maintaining the required 3-percent minimum grade, intended to prevent ponding of water and erosion, maintain operation of the landfill gas control system, and continue groundwater monitoring and landfill gas perimeter and surface emissions monitoring.

Worker Safety. To ensure worker safety during cleanup and maintenance of the former landfill site, a site-specific safety plan would be developed per OSHA Safety and Health Standards 29 CFR 1910.120. The plan would regulate all activities that could bring workers in contact with potentially contaminated soil or groundwater, landfill gas, or leachate, and would require review and approval by the local enforcement agency (LEA). The final closure and post-closure maintenance plans state that prior to each increment of development on landfill, a detailed Development Plan will be prepared and submitted to the regulatory agencies for review and approval. Per the Final Closure and Post-Closure Maintenance Plan, which received conditional

approval from the RWQCB and the San Mateo County Environmental Health Division, the site-specific safety plan would include, but not be limited to, the following measures:

- A listing of the hazards present;
- A listing of the tasks and objectives of the operations to take place;
- A hazard analysis for each task;
- Employee training requirements in order to complete the defined tasks;
- Personal protective equipment for each employee and engineering controls for each task;
- Frequency of air monitoring, personnel monitoring, and environmental sampling techniques and instrumentation to be used;
- Decontamination measures; and
- An emergency response plan.

The site-specific health and safety plan, in accordance with CFR 29 Section 1910.120 will be kept onsite at all times while landfill closure operations are being conducted. Workers will be briefed on the site-specific health and safety plan prior to performing any closure-related work.

Proposed Remedial Actions for OU-1

Remediation efforts for OU-1 have been separated into the San Francisco portion (also referred to as the Schlage San Francisco OU) and the Brisbane portion in recognition of the different operations on each site originally causing contamination and the two different jurisdictions with authority over the approval of land uses that will ultimately determine clean-up levels; only the Brisbane portion of OU-1 is within the Project Site. Based on Health Risk Estimates prepared for the Schlage San Francisco OU, Remedial Action Objectives (RAOs) have been developed for that area in San Francisco by the landowner, subject to Department of Toxic Substances Control review and approval. Remedial Action Objectives are a set of remediation goals designed to limit human health risk and exposure to contaminants. A list of the Remedial Action Objectives and descriptions of the specific remedial action plans for the Schlage San Francisco OU, for both soil and groundwater contamination, are included in 2009 Feasibility Study/Remedial Action Plan (FS/RAP) by MACTEC on behalf of the property owner (BKF et al., 2011).[33] While remediation of the Schlage San Francisco OU is not part of proposed Project Site development, the Remedial Action Objectives that were developed for the San Francisco portion of OU-1 are applicable to the volatile organic compound (VOC) groundwater plume extending below the Project Site (Brisbane portion of OU-1) and subject to approval by the Department of Toxic Substances Control. (Geosyntec, 2012a) The Remedial Action Objectives for groundwater for the Schlage San Francisco OU are California maximum contamination levels (MCLs).

In the Schlage San Francisco OU Feasibility Study/Remedial Action Plan prepared by MACTEC on behalf of the property owner (BKF et al., 2011), excavation and onsite treatment, relocation and capping for soils, and in-situ groundwater treatment and monitoring were the preferred

[33] As noted above, however, the soil remediation that would be required on the Schlage San Francisco OU would not be part of the Project.

remedial action strategies identified for implementation at OU-1. The 2009 Feasibility Study/Remedial Action Plan was prepared to address the VOC groundwater plume portion of OU-1, and states proposes that groundwater will be treated in-situ using Enhanced Reductive Dechlorination (ERD). Long-term groundwater monitoring will also be performed. Target cleanup goals for groundwater will be the maximum contaminant levels (MCLs) allowed by the California Department of Public Health for drinking water, or other concentrations protective of human health and the environment as may be established by DTSC or the RWQCB to ensure that beneficial uses of groundwater will not be adversely affected.

Remedial Action Objectives for heavy metals within the soil and groundwater within the Brisbane (Project Site) portion of OU-1 are currently being discussed with DTSC by the landowner for determination of final site cleanup requirements. Based on the 2012 Hazardous Materials Summary Report (Geosyntec, 2012a) and email communications from Geosyntec, UPC's primary remedial consultant (Geosyntec 2012b), the process to determine Remedial Action Objectives and appropriate risk-based cleanup levels for metals-impacted soil and groundwater within OU-1 will be similar to the process used for the Schlage San Francisco OU. This will require approval by DTSC or the RWQCB for each Operable Unit. Per email communication from Geosyntec (Geosyntec, 2012b), risk-based cleanup goals[34] will be calculated assuming an acceptable excess cancer risk (ECR) of $1x10^{-6}$ for residential and recreational uses and $1x10^{-5}$ for commercial uses, risk levels generally considered to be negligible and acceptable by the U.S. EPA and sufficiently small so further remediation is not required. Applicable remedial activities that may be implemented at OU-1 are summarized in Appendix H.

Based on the known contaminant distribution, Remedial Action Objectives for specific proposed land uses, and the characteristics of the various contaminants, remedial activities within the Project Site at OU-1 will include a combination of the following technologies[35]:

- ***Soil Excavation.*** Targeted excavation of metals-impacted soil with onsite reuse or offsite disposal will be provided. Up to 28,000 cubic yards (cy) of metals-impacted soil will be excavated and reused onsite at OU-1 (Geosyntec, 2012b). Excavation strategies that may be employed at OU-1 include:

    - *Targeted Excavation with Offsite Disposal*. With this technology, heavily contaminated soil is excavated and transported by truck or rail to a permitted offsite treatment and disposal facility. Pretreatment may be required at the disposal facility prior to disposal.

[34] Historically, regulatory agencies have used conservative standard-based criteria (i.e., drinking water standards) or required cleanups to background levels, often assumed to be pristine environments. In some cases, these types of criteria can lead to costly cleanup requirements. Recently, there has been a trend to use site-specific risk-based cleanup goals instead of "standard-based" or "background levels." Rather than pre-determining specific contaminant levels to be applied to every site regardless of the risks involved in exposure of the public to contaminants, risk-based cleanup goals involve application of performance standards (e.g., acceptable cancer risk) to site-specific conditions based on actual health and environmental risk posed by contaminants in the ground or water.. As a result, land uses where risks to the public health are higher (e.g., residential) will have more stringent clean-up requirements than would less sensitive uses (e.g. industrial), given the same level of cancer risk.

[35] Final remediation technologies will be determined in a final Remediation Action Plan/Feasibility Study and could be adaptively managed such that the Remedial Action Objectives for the specific land uses being approved within the Project Site are achieved.

- *Targeted Excavation with Onsite Treatment.* With this technology, heavily contaminated soil is excavated and stockpiled onsite for treatment and subsequent reuse onsite. Potential treatment technologies include:
    - Plasma arc centrifugal treatment technology (PACT), which uses heat generated by a plasma arc to melt the inorganic portion of waste material while destroying the organic portion, creating an inert slag that can be reused onsite;
    - Smoldering treatment technology (STAR), a new technology to remediate oil in the subsurface, either in situ or above-ground in treatment chambers following excavation which uses smoldering combustion (the type of combustion that turns charcoal into ash in a barbeque grill) to quickly and efficiently destroy contaminants; and bioremediation which uses naturally occurring microorganisms to degrade organic contaminants in soil.
- *Targeted Excavation with Onsite Extraction.* With this technology, moderately contaminated soil is excavated and placed in areas that will be covered by soil, concrete slabs, or other structures that prevent contact with the soil.

- ***In-situ Bioremediation.*** Bioremediation uses naturally occurring microorganisms to degrade organic contaminants in groundwater in situ. The microorganisms break down contaminants by using them as a food source or co-metabolizing them with a food source. Aerobic processes require an oxygen source, and the end products typically are carbon dioxide and water. Anaerobic processes are conducted in the absence of oxygen, and the end products can include methane, hydrogen gas, sulfide, elemental sulfur, and dinitrogen gas. Sometimes, nutrients and microorganisms that have been adapted for degradation of specific contaminants are applied to enhance the process. These nutrients and microorganisms are added to the groundwater through direct injection or through constructed monitoring wells and groundwater concentrations are monitored over time to evaluate the effectiveness of the treatment. In-situ bioremediation could involve the use of Enhanced Reductive Dechlorination (ERD), a treatment consistent with the proposed groundwater remediation as defined in the Schlage Lock San Francisco OU Feasibility Study/Remedial Action Plan, to address A-zone VOC-impacted groundwater.

- ***Monitored Natural Attenuation (MNA).*** Monitored natural attenuation is the likely remedial option for the deep aquifer VOC plume. The term “natural attenuation” refers to the reliance on natural processes to achieve site-specific remedial objectives. Where found to be a viable remedy, monitored natural attenuation may be used within the context of a carefully controlled and monitored site cleanup approach. To be considered an acceptable alternative, monitored natural attenuation would be expected to achieve site remedial objectives within a timeframe that is reasonable compared to that offered by other more active methods. Natural attenuation processes include a variety of physical, chemical, or biological processes that, under favorable conditions, act without human intervention to reduce the mass, toxicity, mobility, volume, or concentration of contaminants in soil or groundwater. These processes include biodegradation, dispersion, dilution, sorption, volatilization, and chemical or biological stabilization, transformation, or destruction of contaminants. Under this process data from long-term continued quarterly monitoring of the deep wells would be evaluated to assess the effectiveness of the following factors in remediating the deep VOC plume: (1) source removal of VOC-impacted soils in the Schlage San Francisco OU, (2) ERD remediation in the shallow aquifer, and (3) monitored natural attenuation. A formal assessment would occur at the first five-year review.

- ***Targeted Soil-Vapor Extraction.*** Soil-vapor extraction (SVE) is an in-situ soil remediation technology in which a vacuum is applied to soil in the unsaturated (vadose) zone to induce

the controlled movement of air and remove volatile and some semi-volatile contaminants from the soil. The vapor leaving the soil may be treated to recover or destroy the volatilized contaminants, depending on local and state air discharge regulations. Vertical extraction wells typically are used at depths of 5 feet or greater below ground surface (bgs) and have been applied successfully at depths as great as 300 feet bgs. Horizontal extraction vents (installed in trenches or horizontal borings) also can be used as warranted by contaminant zone geometry, drill rig access, or other site-specific factors.

- ***Vapor Intrusion Minimization.*** The potential for vapor intrusion into buildings from subsurface contamination can be minimized using active and/or passive technologies. Active strategies, which typically require some ongoing consumption of energy, include sub-slab depressurization systems that use a blower to create a strong vacuum under the building slab and redirect sub-slab vapor to outdoor air. Passive approaches include passive sub-slab venting, a technology that relies on convective air flow beneath the building slab generated by wind turbines at the roofline, sub-slab vapor barriers, and podium construction techniques, which allow vapors to dissipate in open air parking structures.

- ***Capping.*** Contaminated soil can be consolidated and covered onsite under buildings, roads, clean soil, or other areas approved by the regulatory agencies. In addition to regulatory agency approval, this option would require the filing of a deed notice for each capped area. The purpose of capping a contaminated site is to prevent human contact with the contaminated soil. Capping methods vary dependent upon site conditions, including contaminant chemistry, soil type, climate, and land use.

- ***Institutional Controls.*** Similar to the Schlage San Francisco OU, a land use control consisting of a State Land Use Covenant and deed restriction would be recorded on the title to the property to limit human exposures for contaminants left in place in soil above levels considered protective of unrestricted use of the site. Depending on the land uses approved by the City and associated clean-up levels, the restrictive covenant could include the following restrictions:

  - No first floor residences or daycare facilities (DSP, DSP-V scenarios)[36];
  - No hospital or schools;
  - No growing of food;
  - Where concentrations of groundwater contaminants of concern are above their MCL, no use of underlying groundwater; and
  - No excavation in contaminated soil without a Soil Management Plan and DTSC approval.

Soil gas samples will be collected as part of remediation confirmation sampling activities as required by DTSC after remedial actions have been completed to document soil gas concentrations and confirm that cleanup levels have been met.

Additionally, soil and groundwater target redevelopment cleanup goals (TRCGs) will be used for planning purposes to assess when soil gas sampling should be conducted to demonstrate that

[36] This requirement assumes City approval of prohibitions on first floor residences for the DAP and DSP-V scenarios. Should the City approve residential use within the Project Site, but not approve a prohibition against first floor residential uses, remediation of proposed sites for residential development under the DSP and DSP-V scenarios would be required to meet regulatory standards for residential use.

redevelopment activities can be initiated at the site with the oversight of DTSC. TRCGs are an interim guidance value for the contractors and will not be used to evaluate completion of the remediation. During the implementation of the remediation activities, soil and groundwater samples will be taken to track the progress of the cleanup and will be compared to TRCGs as required by DTSC in accordance with the requirements of the final Remediation Action Plan.

Proposed Remediation Actions for OU-2

Burns and McDonnell prepared a Revised Remedial Action Plan on behalf of the landowner (Revised RAP) in 2002 (Burns & McDonnell, 2002a). The 2002 Revised Remedial Action Plan for OU-2 revised updated risk-based cleanup levels (CULs) previously developed by Burns and McDonnell in 1998. The 2002 Revised RAP was again revised in the 2004 Interim Remedial Measures (IRMs) work plan (Burns & McDonnell, 2004). Interim remedial measures for OU-2 were approved by the RWQCB in the 2004 Interim Remedial Measures Work Plan (Burns & McDonnell, 2005). However, because specific land uses are now being proposed within the Project Site as part of the Project Site development described in Chapter 3, *Project Description*, of this EIR, alternative remedial activities are being considered and will be finalized in a revised RAP for OU-2.

Contaminants of concern included total petroleum hydrocarbons in the form of Bunker C, polynuclear aromatic hydrocarbons (PAHs), metals, and halogenated VOCs. Exposure scenarios included site workers and residents. Ecological receptors (tissues, organisms, populations, communities, and ecosystems) were evaluated for exposure to contaminated soil, sediment, and surface water. Target cleanup goals for groundwater will be the MCLs allowed by the California Department of Public Health for drinking water, or other concentrations protective of human health and the environment as may be established the RWQCB to ensure that beneficial uses of groundwater will not be adversely affected. As the 2012 Hazardous Materials Summary Report (HMSR) (Geosyntec, 2012a) indicates, once development plans are in place, updated risk-based, development-specific cleanup levels will be established to guide remedial efforts at OU-2.

Remedial Action Objectives established in the 2002 Revised RAP include:

- Prevention of human contact with Bunker C oil, metals, and halogenated VOCs;
- Prevention of migration of Bunker C oil, metals, and halogenated VOCs to the Bay;
- Removal of free product to the extent practicable; and
- Prevention of ecological impacts to surface water at the drainage ditch.

The following soil excavation activities are proposed as an element of the overall remediation at OU-2 (Geosyntec, 2012a):

- Excavation of approximately 16,000 cubic yards (cy) of total petroleum hydrocarbon-contaminated soil and 1,000 cy of VOC-contaminated soil for offsite disposal;
- Excavation of approximately 37,000 cy of total petroleum hydrocarbons-contaminated soil for onsite treatment and reuse; and

- Excavation of approximately 12,000 cy of total petroleum hydrocarbons-contaminated soil for onsite reuse.

The RWQCB conditionally approved the Revised RAP in 2002 with final approval dependent on applicability to future site development (Geosyntec, 2012a). Once development plans have been finalized, an updated Human Health Risk Assessment (HHRA) will be prepared to evaluate development-specific exposure pathways. The HHRA will be used to guide the development of establish remedial actions necessary to protect human health and the environment. The Human Health Risk Assessment will be developed under the oversight the RWQCB and will require the RWQCB's approval before development can proceed. A previous baseline risk assessment (BRA) conducted by Levine-Fricke in 1990 found that health risks to potential future residents presented an excess cancer risk (ECR) of $1x\ 10^{-2}$, which is greater than the U.S. Environmental Protection Agency's (U.S. EPA's) acceptable ECR of $1x10^{-6}$.

Project Impacts and Mitigation Measures

Impact 4.G-1: Would the project create a significant hazard to the public or the environment through the routine transport, use or disposal of hazardous materials?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
SM	SM	SM	SM

SU = Significant Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = no impact

DSP, DSP-V, CPP, and CPP-V

Project Construction

Pursuant to **Mitigation Measures 4.G-2a through 4.G-2d**, Project Site construction activities for each of the four development scenarios would not commence until site remediation plans are approved and completed. Because Project site grading and remediation will be intertwined, only grading required for approved remediation activities will be permitted prior to completion of remediation. A discussion of hazards and impacts associated with site remediation is provided as part of Impact 4.G-2.

Following remediation activities, construction activities would require the use and transportation of hazardous materials (e.g., fuels, cement products, lubricants, paints, adhesives, and solvents). In addition, construction vehicles used in Project Site construction activities could accidentally release hazardous materials such as oils, grease or fuels. These hazardous materials and vehicles would remain within the Project Site during the period of construction activities. Accidental releases of hazardous materials during demolition and construction activities could impact soil and/or groundwater quality, which could result in adverse health effects to construction workers, the public, and the environment. However, the contractor's compliance with federal, state and local requirements related to use, storage, and disposal of hazardous materials during construction would reduce impacts related to inadvertent release of hazardous materials to less-than-significant levels. In addition, site-specific development within the Project Site would be required to prepare and implement a Stormwater Pollution Prevention Plan (SWPPP) pursuant to **Mitigation**

Measure 4.H-1a, which would further reduce impacts related to the routine transport, use or disposal of hazardous materials.

Compliance with the SWPPP and applicable requirements would ensure that hazards to the public or the environment through the routine transport and use or disposal of hazardous materials during project construction activities would be reduced to a less-than-significant level.

Conclusion with Mitigation: In addition to implementation of **Mitigation Measures 4.G-2a through 4.G-2d,** compliance with applicable federal (Resource Conservation and Recovery Act of 1976, Occupational Safety and Health Act of 1970, 29 CFR 1926.65 Appendix C requirements for construction activities), state, and local requirements related to the use, storage, and disposal of hazardous materials, including preparation of a Stormwater Pollution Prevention Plan pursuant to **Mitigation Measure 4.H-1a**, would reduce impacts to below a level of significance.

Project Operations

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
LTS	LTS	LTS	LTS

SU = Significant Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = no impact

Nearly all proposed uses associated with Project Site development under each development scenario would involve the presence of hazardous materials (or products containing hazardous materials) at varying levels, and this would represent an increase in hazardous materials use compared to existing conditions. It would also increase the number of people who would be exposed to potential health and safety risks associated with routine use. The following summarizes the general types of hazardous materials that would be expected to be associated with Project Site operations based on proposed land uses.

Project Site development involves a variety of different land uses under each of the four proposed development scenarios. Commercial/retail and building support activities would use hazardous chemicals common in other commercial/retail and support settings. These chemicals could include familiar materials such as toners; paints; lubricants; kitchen and restroom cleaners; and refrigerants associated with building mechanical and heating, ventilation and air conditioning (HVAC) systems, and other maintenance materials. Grounds and landscape maintenance within the Project Site would also use a wide variety of commercial products formulated with hazardous materials, including fuels, cleaners and degreasers, solvents, paints, lubricants, adhesives, sealers, and pesticides/herbicides. These common consumer products would be used for the same purposes as in any commercial/retail or support setting. Small quantities of hazardous materials are also associated with residential land uses, including cleaning products, fuels, oils, pesticides, and lubricants. Because general commercial/retail and household hazardous materials are typically handled and transported in small quantities, and because the health effects associated with them are generally not as serious as industrial uses, operation of the new uses within the Project Site would not cause an adverse effect on the environment with respect to the routine transport, use, or disposal of general office and household hazardous materials. For commercial/retail uses, existing regulatory requirements include appropriate training of

employees in the use, storage, and disposal of the hazardous materials and wastes they are expected to encounter in the workplace.

Industrial uses would include the storage, handling, transport, and disposal of relatively larger quantities of hazardous materials that would similarly be subject to regulatory requirements that are designed to minimize the potential for adverse effects due to exposure (See also discussion below in Impact 4.G-2).

Under the CPP-V scenario, operations at the expanded Recology facility would include increased onsite use of gasoline and diesel fuels, as well as liquefied natural gas, which would be stored on-site is above-ground tanks. Safety requirements for the storage of these materials are prescribed in the Hazardous Materials Business Plan for the Recology Site, which was approved by the San Mateo County Environmental Health Division. Compliance with the Hazardous Materials Business Plan, which is on file with the San Mateo County Environmental Health Division, would ensure impacts elated to the routine transport, use or disposal of hazardous materials at the Recology site will be less than significant.

Proposed industrial land uses would include businesses and facilities in which some laboratory-based activities would be reasonably anticipated. Industrial operations could involve “dry” laboratories (or operations), where relatively small or negligible quantities of hazardous materials would be used because the space would typically be used for office-based research, software development, and similar uses. In those cases, the types of hazardous materials would be limited to such items as cleaning and maintenance materials, and office products such as adhesives and glues. “Wet” lab functions, on the other hand, could involve a broad spectrum of activities involving hazardous materials, which would be used in controlled indoor environments. The types and volumes of hazardous materials that would be used in wet laboratories are difficult to predict because the specific businesses that would move to the Project Site are not known, and because hazardous materials use is subject to continuous change as technologies evolve and as businesses change. It is, however, reasonably foreseeable that hazardous materials would be used routinely. Industrial businesses, including research and development operations would be subject to more intense regulation and oversight than typical commercial/office businesses (and households in the DSP and DSP-V scenarios) that handle smaller quantities of more common materials. Employees performing wet laboratory work would be required (by law) to receive specific training in the use and handling of hazardous materials, which is intended to protect the workplace and also to minimize the potential for spills or inadvertent releases that could adversely affect the environment through air emissions or releases to sewers, storm drains, or land.

Any medical-related establishment operating within the Project Site such as doctor/dentist offices, medical laboratories, or pharmacies, would involve use, transport, and storage of small amounts of laboratory-type chemicals, compressed gases, pharmaceuticals, and radiological materials would be used and stored. Medical, biohazardous, and low-level radioactive wastes would also be produced from these activities.

Project site development is not anticipated to include the type of large-scale manufacturing or processing facilities that would use, store, or transport use large quantities of hazardous materials that would present a substantial risk to people. There, would, however, be numerous locations where smaller quantities of hazardous materials would be present. The risks associated with hazardous materials handling and storage would generally be limited to the immediate area where the materials would be located, because this is where exposure would be most likely. For this reason, the individuals most at risk would be employees or others in the immediate vicinity of the hazardous materials, rather than visitors or residents (in the DSP and DSP-V scenarios). Generally, the health and safety procedures required for the routine transport, use, and disposal of hazardous materials protect workers and other individuals in the immediate vicinity of those materials and also protect the adjacent community and environment. Because the use, transport, and disposal of hazardous materials is highly regulated, activities in compliance with those regulations will result in less than significant impacts, except in the case of accidents, which is discussed in Impact 4.G-2.

Hazardous materials would routinely be transported to, from, and within the Project Site, and small amounts of hazardous waste would be removed and transported off site to licensed disposal facilities. The specific types and amounts of hazardous materials transported to or from the Project Site as a result of Project Site development cannot be quantified. While the types of land uses proposed for the Project Site are known, the specific businesses and their particular operations cannot be known at this time. It is, however, reasonable to anticipate that Project Site development will bring uses to the site that involve hazardous materials use, and that there would be an increase in transportation relative to current conditions. Such transportation would be provided by vendors licensed for such transport, and appropriate documentation for all hazardous materials and wastes would be required for compliance with the existing hazardous materials regulations.

Conclusion: Buildings where commercial and industrial businesses would use hazardous materials would be constructed in accordance with current laws and regulations, which require storage that minimizes exposure to people or the environment, and the potential for inadvertent releases. In addition, these materials would be labeled to inform users of potential risks and to instruct them in appropriate storage, handling, and disposal procedures. Employers are required by law (Cal/OSHA) to ensure employee safety by properly identifying hazardous materials and adequately training workers. The use of hazardous materials and generation of wastes would continue to be regulated under the authority of the County Department of Environmental Health, with additional oversight by other agencies (e.g., DTSC, RWQCB). Transporters of hazardous materials and wastes are required to comply with federal laws and regulations that are monitored and enforced by the California Highway Patrol.

The County Department of Environmental Health would continue to conduct periodic inspections to ensure that hazardous materials and wastes are being used and stored properly. For these reasons, hazardous materials uses and waste generation for project operations would not pose a substantial public health or safety hazard to the surrounding area. With adherence to existing regulatory requirements, impacts related to the routine transport, use or disposal of hazardous

materials (including radiological, hazardous and medical wastes) during operation would be less than significant. No mitigation is necessary.

Impact 4.G-2: Would the Project create a significant hazard to the public or the environment through reasonably foreseeable upset or accident conditions involving the release of hazardous materials into the environment?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
SM	SM	SM	SM

SU = Significant Unavoidable SM = Significant but Mitigable
LTS = Less than Significant
- = no impact

DSP, DSP-V, CPP, and CPP-V

Construction

As described for Impact 4.G-1, construction activities associated with future Project Site development would require the use, storage, transport, and disposal of hazardous materials during construction (e.g., fuels, oils and other chemicals for vehicle or equipment refueling and maintenance activities). While the routine use, storage, transport, and disposal of hazardous materials in accordance with applicable regulations would not pose health risks or result in significant impacts, improper use, storage, transportation and disposal of hazardous materials and wastes could result in accidental spills or releases, posing health risks to workers, the public, and the environment. Project Site development and construction activities, including demolition and remediation activities, for all four scenarios will require disturbance of subsurface soils and groundwater. As discussed above, past land uses, including former Brisbane Landfill and Southern Pacific railyard operations, resulted in soil and groundwater contamination at the former Brisbane Landfill, OU-1, and OU-2.

Former landfill operations resulted in the disposal of 12.5 million cubic yards of non-hazardous domestic, industrial, and shipyard waste at the Brisbane Landfill from 1930 to 1967. The thickness of the current soil cover ranges from a few feet to over 30 feet in some locations and soil movement or grading could take place in areas where the soil cover remains shallow. OU-1 still overlies a plume of VOC-impacted groundwater. Contaminants at OU-2 are widespread over the former railyard, with metals impacts in soil occurring in fill materials sitewide. Bunker C fuel impacts in soil and groundwater are limited to areas where fueling operations and disposal took place.

Remediation of the known contamination areas including the former Brisbane Landfill, OU-1, and OU-2 need to be completed prior to commencement of construction for future development under any of the four scenarios. While the remediation technologies that will ultimately be approved by DTSC and the RWQCB will be designed to both (1) effectively remediate contaminated soils and groundwater and (2) protect the environment and health of workers during remediation, given the age of existing onsite buildings, hazardous materials such as asbestos-containing materials and lead-based paint are likely to be encountered during demolition of structures. In addition, hazardous materials may still be encountered during Project Site construction activities following remediation. Encountering contaminated soils or groundwater either during or following remediation could expose construction workers, the environment, or the public to adverse effects of either known or previously unidentified contamination. Exposure to hazardous materials could cause various short-

term and/or long-term health effects. Possible health effects could be acute (immediate, or of short-term severity), chronic (long-term, recurring, or resulting from repeated exposure), or both. Acute effects, often resulting from a single exposure, could result in a range of effects from minor to major, such as nausea, vomiting, headache, dizziness, or burns. Chronic exposure could result in systemic damage or damage to organs, such as the lungs, liver, or kidneys. Health effects would be specific to each hazardous material.

Temporary dewatering in areas of shallow groundwater is often necessary for excavation to construct shallow foundation systems, utility corridors, or installation of deep pilings, depending on approved development plans. If dewatering is required and groundwater contamination is still present at OU-1, OU-2, and the Brisbane Landfill when construction and dewatering commences, exposure of workers, the public, or the environment to contaminated groundwater could occur if dewatering is not handled appropriately.

Remediation of the former landfill, OU-1, and OU-2 would be required prior to any future development of these portions of the Project Site. As described below, final closure and remediation of the former landfill would require containment of existing waste in order to prevent exposure of the public or the ecosystem to the in-place waste, prevention of liquid percolation through to the underlying waste, and prevention of LFG emissions. Remedial activities at OU-1 and OU-2 are estimated to involve excavation, handling, and offsite disposal of up to 94,000 cy of contaminated soil. These activities could result in the exposure of construction workers to hazardous materials through ingestion or dermal contact with total petroleum hydrocarbons, metals, or VOC-impacted soils; ingestion or dermal contact with VOC-impacted groundwater; and/or inhalation of VOCs within excavations.

As discussed above in the Setting section, the Kinder Morgan Bulk Terminal facility is located adjacent to and surrounded by the Project Site, and there are liquid gas pipelines that cross the Project Site leading to the terminal. Project construction would involve significant earthwork activities that if not managed appropriately could inadvertently damage a pipeline and potentially expose workers, the public and the environment to adverse effects. However, pipeline operators are required by law to post brightly-colored markers along their right-of-way to indicate the presence of their underground pipelines. Markers contain information about the nearby pipeline as well as emergency contact information. To ensure safety and avoid damage, anyone planning to dig or excavate is also required by law to contact the Underground Service Alert center at least 48 hours in advance so that utility operators, including Kinder Morgan, can coordinate with the contractor to avoid any close contact with the pipeline. Thus, grading and construction operations conducted in accordance with applicable regulations would not result in significant impacts.

While current regulations and procedures would minimize the potential for accidental damage to Kinder Morgan's pipelines, the possibility remains that underground excavations for grading, demolition, or construction of underground utilities would still damage a pipeline, with a resulting release of hazardous materials. To minimize damage and facilitate closing down a line in the event of an accident, pipelines are continuously monitored 24 hours per day, 7 days per week both at Brisbane Terminal and at Kinder Morgan's regional headquarters in Orange, California, as well as by a Supervisory Control and Data Acquisition (SCADA) computer system,

impacts are considered to be less than significant. The computer system gathers data in real time about all current operating conditions: pipeline pressures, volume, flow rates, status of pumping equipment and valves, temperatures, and can react to any sudden changes should they occur.

Conclusion: With compliance with federal, state, and local regulations pertaining to the handling and disposal of hazardous waste, including preparation and implementation of a Soil and Groundwater Management Plan and a Master Deconstruction and Demolition Plan, hazards to the public through foreseeable upset or accident conditions involving the release of hazardous materials into the environment would be reduced to a less-than-significant level. **Mitigation Measures 4.G-2a, 4.G-2b, 4.G-2c, 4.G-2d** would be required for all Project Site development scenarios to avoid significant impacts.

Mitigation

Mitigation Measure 4.G-2a (Confirm Achievement of Remediation Goals): Prior to approval of a specific plan for any parcel within the Project Site, the project applicant shall provide confirmation to the City that the Department of Toxic Substances Control (DTSC), Regional Water Quality Control Board (RWQCB), and/or the San Mateo County Environmental Health Division as the Local Enforcement Agency, as applicable, have reviewed and are prepared to approve a Remedial Action Plan or final closure and post-closure maintenance plans upon certification of appropriate environmental documentation for that action.

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	✓	✓

✓ = measure applies
- = measure does not apply

Prior to issuance of a building or grading permit (other than for grading needed for remediation activities) for any parcel within the Project Site, the applicant shall provide the City with evidence that the Department of Toxic Substances Control (DTSC), Regional Water Quality Control Board (RWQCB), and/or the San Mateo County Environmental Health Division as the Local Enforcement Agency in relation to the landfill have approved applicable Remedial Action Plan(s) or final closure and post-closure maintenance plans.

Prior to commencement of building construction or site grading for any parcel within the Project Site, the project applicant shall obtain regulatory approval from the Department of Toxic Substances Control (DTSC), Regional Water Quality Control Board (RWQCB), and/or the San Mateo County Environmental Health Division as the Local Enforcement Agency in relation to the landfill for the proposed land use, in the form of a Remediation Action Completion Report or equivalent closure letter stating that remediation goals have been achieved for proposed land uses.

Mitigation Measure 4.G-2b (Soil and Groundwater Management Plan): Prior to issuance of a building or grading permit for any parcel within the Project Site a Soil and Groundwater Management Plan (SGMP) shall be prepared by a qualified environmental consulting firm, reviewed and approved by DTSC and the RWQCB and implemented by the project applicant.

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	✓	✓

✓ = measure applies
- = measure does not apply

The Soil and Groundwater Management Plan shall also include a requirement for development and implementation of site-specific safety plans to be prepared prior to commencement of construction consistent with Occupational Safety and Health Administration (OSHA) Safety and Health Standards 29 CFR 1910.120 as well as management of groundwater produced through temporary dewatering activities.

Such site-specific safety plans shall include necessary training, operating and emergency response procedures, and reporting requirements to regulate all activities that bring workers in contact with potentially contaminated soil or groundwater, landfill gas, or leachate to ensure worker safety and avoid impacts to the environment. Further, the Soil and Groundwater Management Plan shall include protocols for any areas of the site that require excavation and relocation of refuse material (e.g., building foundations and utility infrastructure) in accordance with the Title 27 of the California Code of Regulations to ensure that the integrity of the low-hydraulic-conductivity layer (LHCL) requirements are maintained.

Mitigation Measure 4.G-2c (Master Deconstruction and Demolition Plan): Prior to issuance of a demolition permit for any parcel within the Project Site, a Master Deconstruction and Demolition Plan shall be submitted by the project applicant to the City Building Official. The plan shall be reviewed and approved by the Building Official prior to issuance of the requested demolition permit. This plan shall include documentation of hazardous materials determinations (surveys) and demolition or deconstruction recommendations in accordance with local and state requirements. If the surveys conducted by licensed professionals prior to issuance of a demolition permit per the requirements above hazardous building materials[37], demolition or deconstruction shall proceed in accordance with applicable BAAQMD, OSHA, and CalOSHA requirements, which may include air permits or agency notifications, worker awareness training, exposure monitoring, medical examinations and a written respiratory protection program.

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	✓	✓
✓ = measure applies - = measure does not apply			

Mitigation Measure 4.G-2d (NPDES Permit): Prior to issuance of a building or grading permit for any parcel within the Project Site, preparation and implementation of an industry standard spill prevention and protection procedure plan shall be conducted by a licensed professional selected or approved by the City in accordance with NPDES General Construction Permit requirements, and reviewed and approved by the City Building Official. The plan shall include implementation of Best Management Practices for the storage and use of hazardous materials in accordance with California Stormwater Quality Association Construction guidelines, including emergency procedures for

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	✓	✓
✓ = measure applies - = measure does not apply			

[37] Typical hazardous building materials include lead-based paint; asbestos-containing materials, such as insulation, paint, or fiberboards; PCBs in lighting ballasts or wiring; and mercury in thermostat switches. BAAQMD oversees the public health and environmental aspects of removal and disposal of asbestos-containing materials and other hazardous building materials. CalOSHA oversees worker protection and contractor licensing with respect to hazardous building materials.

hazardous materials releases for materials that shall be brought onto the site as part of site development and construction activities. The plan shall include standard emergency procedures for hazardous materials releases that would be implemented during Project construction activities, identification of required personal protective equipment, proper housekeeping, spill containment procedures, training of workers to respond to accidental spills/releases, most direct route to a hospital, and requirements for a site safety officer. These measures shall be included within a construction management plan required to be reviewed by all workers.

Conclusion with Mitigation: With implementation of **Mitigation Measures 4.G-2a**, (confirm achievement of remediation goals), **4.G-2b** (implement a Soil and Groundwater Management Plan), **4.G-2c** (Master Deconstruction and Demolition Plan), and **4.G-2d** (prepare a spill pollution prevention plan), impacts related to releases resulting from improper use, storage, or disposal of hazardous materials or wastes during site development and construction activities would be reduced to a less-than-significant level.

Operation

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
SM	SM	SM	SM

SU = Significant Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = no impact

Proposed Project Site development for each of the four development scenarios includes a variety of different land uses. Businesses associated with industrial/commercial/retail and building support activities would use hazardous chemicals common in other commercial/retail and support settings. These chemicals could include familiar materials such as toners, paints, lubricants, and kitchen and restroom cleaners as well as relatively small quantities of fuels, oils, and other petroleum-based products. Industrial uses could include storage, transport, handling, and disposal of larger quantities of hazardous materials. As required by the San Mateo County Department of Environmental Health (SMCDEH), and the Certified Unified Program Agency (CUPA), any businesses that would store hazardous materials and/or waste at its business site would be required to submit business information and hazardous materials inventory forms. The City of Brisbane requires all new commercial and other users to follow applicable regulations and guidelines regarding storage and handling of hazardous waste. All hazardous materials are required to be stored and handled according to manufacturer's directions and local, state and federal regulations, noted above. The City of Brisbane Fire Department administers the California Fire Code for the Project Site through regular site inspections to ensure hazardous materials are stored and handled properly.

In addition, the Kinder Morgan Bulk Terminal facility stores large quantities of hazardous materials that are delivered by pressurized liquid pipelines that traverse the Project Site to the facility. Upset and accident conditions could result in the release of large quantities of gasoline, diesel or jet fuel that might potentially adversely affect residents, workers, visitors or the environment. However, the storage tanks are constructed, monitored, inspected, and upgraded as necessary in accordance with the American Petroleum Institute recommendations. The tanks are kept at atmospheric pressure and any damage would result in leakage rather than an explosion. Secondary containment improvements are incorporated into the facility design which would

ensure that in the unlikely event of leakage including substantial damage from an earthquake, any released fuels would remain at the terminal within the containment areas. The tanks are on a regular inspection schedule, including major inspections where the tanks are emptied and all components inspected and upgraded as necessary to limit the potential for any releases.

As noted above, the pipelines are pressurized and continuously monitored by trained operators and a computerized system that can react to any sudden changes. The Pipeline and Hazardous Materials Safety Administration (PHMSA) is the primary federal regulatory agency responsible for ensuring that pipelines are safe, reliable, and environmentally sound. The federal pipeline integrity management regulations for hazardous liquid pipelines (§195.452) and natural gas pipelines (§192.901- §192.951) require operators to perform risk assessments (PHMSA, 2013) of their pipelines to:

- Ensure that integrity assessment methods (internal inspection, pressure testing, direct assessment, etc.) are employed to address significant threats on pipeline segments.
- Ensure that integrity assessments of the highest risk segments are scheduled with priority over lower risk segments.
- Ensure that assessments of threats and potential consequences are conducted to define, evaluate, and implement additional measures that address significant threats to the pipeline (e.g., conducting depth-of-cover surveys and correcting any deficiencies), or reduce potential consequences of failures (e.g., installing additional valves on the pipeline to reduce the amount of liquid or gas that might be released should a failure occur).

Conclusion: Implementation of **Mitigation Measure 4.G-2e** (preparation of a Hazardous Materials Business Plan) would be required for all proposed development scenarios to avoid the creation of a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials in the environment during operational phases of the development scenarios. In addition, the existing regulatory requirements and hazardous materials management of the Kinder Morgan Bulk Terminal facility reduce the potential for adverse effects from upset and accident conditions to less than significant levels. California Government Code Section 4216 also requires that:

- Delineation of the Proposed excavation sites be delineated with water soluble or chalk based white paint on paved surfaces or with other suitable markings such as flags or stakes on unpaved areas.
- Dig Alert be called at least 2 full working days prior to digging.
- No excavation may proceed without a Dig Alert ticket number.

As a result, impacts will be mitigated to a less than significant level.

Mitigation

Mitigation Measure 4.G-2e (Hazardous Materials Business Plan). Prior to receipt of a Certificate of Occupancy, any business that would handle, store, transport, or dispose of hazardous materials or wastes shall prepare and implement a Hazardous Materials Business Plan (HMBP) that shall include at a minimum, the following components:

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	✓	✓
✓ = measure applies - = measure does not apply			

- Details, including floor plans, of the facility and business conducted at the site;
- An inventory of the type and quantity of hazardous materials that are handled or stored onsite;
- Spill prevention procedures;
- An emergency response plan that provides emergency notification procedures; and
- A safety and emergency response training program for new employees with annual refresher courses.

The HMBP shall be submitted to and approved by the San Mateo Department of Environmental Health prior to site occupancy.

Conclusion with Mitigation: With implementation of **Mitigation Measure 4.G-2b** (Hazardous Materials Business Plan), the potential for accidental releases and upset conditions to occur as the result of storage or disposal of hazardous materials or wastes during operational phases of the development scenarios would be minimized. Thus, significant impacts related to hazards to the public or the environment through reasonably foreseeable upset or accident conditions involving the release of hazardous materials into the environment will be reduced to a less-than-significant level.

Soil Gas and Vapor Intrusion

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
SM	SM	SM	SM
SU = Significant Unavoidable SM = Significant but Mitigable LTS = Less than Significant - = no impact			

As described in Subsection 4.G.2, *Environmental Setting*, the waste materials associated with the former Brisbane Landfill are still undergoing decomposition under anaerobic conditions, which creates landfill gases (LFG) such as methane. Accumulation of landfill gases within confined spaces such as underground structures, basements, or utility vaults can lead to explosive conditions due to high levels of methane within landfill gases, which are typically composed primarily of methane and carbon dioxide. Depending on the composition of landfill waste, landfill gases may also contain non-methane organic compounds, such as TCE, benzene, and vinyl chloride.[38]

[38] Due to the age of the waste materials at the Brisbane Landfill, most of the decomposition has already occurred and the gas samples from the Solid Waste Assessment Test show primarily methane gas. Although benzene was also detected, no other constituents of concern (Kleinfelder, 1990b)

The methane in landfill gases presents an explosion risk at certain concentrations. The methane and the carbon dioxide in landfill gases can also accumulate in confined spaces or low points such as utility vaults or utilities trenches during construction. Because landfill gas is denser than air, it is able to displace oxygen, posing an asphyxiation hazard. Non-methane organic compounds such as TCE, benzene, and vinyl chloride are typically found in very low concentrations in landfill gases and only benzene has been identified at the Brisbane landfill which can present a toxic or carcinogenic hazard, or both, above certain concentrations.

The greatest decomposition of organic materials in waste typically occurs during the first 20 to 30 years. Since waste disposal on the former landfill site ceased in 1967, it is believed that a majority of decomposition has already taken place. However, even with the passage of more than 40 years, landfill gases continue to be generated, indicating that decomposition is still ongoing. To minimize risks related to landfill gas generation, a landfill gas collection system is currently operating on the Project Site and is overseen by the BAAQMD. Landfill gas is collected by vertical and horizontal extraction wells aligned along the perimeter of the landfill site. As described above, the Project Site also includes former industrial areas, OU-1 and OU-2, which remain impacted by the industrial activities formerly conducted onsite. This contamination could pose a risk to future occupants of buildings onsite through inhalation of volatile organics and incidental ingestion or dermal contact with contaminated soil or groundwater. While proposed remediation activities would minimize exposure risks related to landfill gas, further action is necessary to minimize impacts related to exposure from vapor intrusion into buildings to be constructed within OU-1 and OU-2.

In accordance with Title 27 requirements, the low-hydraulic-conductivity layer within the former landfill area would be placed approximately 4 to 8 feet below the final building pad grades. This additional depth would allow for the construction of the building foundation systems (grade beams, pile caps) and utility systems with minimal impact to the low-hydraulic-conductivity layer. If the future final designs for the foundation systems require additional depths, the low-hydraulic-conductivity layer would be removed and replaced to accommodate the deeper structures in accordance with Title 27 California Code of Regulations (CCR). For the larger building structures, any deep pile foundations penetrating the low-hydraulic-conductivity layer would be designed pursuant to Title 27 CCR 21190(e) requirements with final approval from the RWQCB. Special detailing for these penetrations may be required by RWQCB and incorporated into the final design plans to repair the integrity of the low-hydraulic-conductivity layer (BKF, 2011).

Conclusion: Soil gas and vapor intrusion from legacy contamination represent a significant impact. **Mitigation Measures 4.G-2f through 4.G-2h** would be required for all development scenarios to avoid a significant impact.

Mitigation

Mitigation Measure 4.G-2f: Prior to issuance of a building permit for any development within the Project Site, proposed underground utilities and utility vaults located on or within 500 feet of the landfill footprint shall be constructed with soil vapor barriers and constructed of intrinsically safe and/or explosion-proof equipment in accordance with City Building Division requirements and overseeing agency (DTSC or RWQCB) as well as the San Mateo County Environmental Health Division as necessary.

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	✓	✓
✓ = measure applies - = measure does not apply			

Mitigation Measure 4.G-2g Prior to issuance of a grading permit, all grading specifications for OU-1 and OU-2 shall be developed in accordance with RWQCB and DTSC requirements regarding soil vapor barriers, and incorporated into the final grading plan. Any installation of utilities in areas that have adopted soil capping remediation strategies shall be located above the contaminated soil and groundwater areas in accordance with RWQCB and DTSC requirements. Where gravity and utility force mains require encroachment into contaminated areas, special construction details and mitigation measures shall be developed during the preparation of the final RAPs for OU-1 and OU-2 as approved by the RWQCB and DTSC and in accordance with Soil and Groundwater Management Plans. Final RAPs shall include overseeing agency (DTSC or RWQCB) approved Human Health Risk Assessments which include inhalation risks and are based on proposed land uses.

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	✓	✓
✓ = measure applies - = measure does not apply			

Mitigation Measure 4.G-2h Construction of all new structures within the former landfill footprint and within OU-1 and OU-2, as well as on site areas within 1,000 feet of the waste material footprint shall incorporate sub-slab vapor barriers to minimize potential vapor intrusion into buildings. Further, all structures built on within 1,000 feet of the landfill footprint shall be equipped with automatic combustible gas sensors in sub-floor areas and in the first floor of occupied interior spaces of buildings. A centralized sensor monitoring and recording system shall also be provided. Gas monitoring for trace gases shall be conducted in accordance with the requirements of Title 27, for 30 years or until the operator receives authorization from the local enforcement agency (LEA) and CalRecycle to discontinue monitoring upon demonstration by the operator that there is no potential for trace gas migration into onsite structures.

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	✓	✓
✓ = measure applies - = measure does not apply			

Conclusion with Mitigation: With implementation of **Mitigation Measures 4.G-2f through 4.G-2h,** new construction would be designed to prevent exposure of occupants and visitors to the site to exposure of soil vapor hazards from being on a hazardous materials site pursuant to Government Code Section 65962.5, and the impact would be less than significant for all scenarios.

Overall Conclusion

With implementation of **Mitigation Measures 4.G-2a and 4.G-2b**, impacts related to hazard to the public or the environment resulting from the release of hazardous materials from accident and upset conditions would be less than significant.

Impact 4.G-3: Would development emit hazardous emissions or handle hazardous or acutely hazardous materials, substances or waste within 0.25 mile of an existing or proposed school?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
SM	SM	SM	SM

SU = Significant Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = no impact

DSP, DSP-V, CPP, and CPP-V

All proposed Project Site development scenarios include a charter high school to be constructed in the general area of Icehouse Hill. The DSP and DSP-V scenarios also include an elementary school, and both schools would be constructed within areas in the Icehouse District that are designated for institutional use. These areas are situated south of the Roundhouse and north of Icehouse Hill. Under the CPP and CPP-V scenarios, a charter high school would be developed at the base of Icehouse Hill within 0.25 mile of the Kinder Morgan site. The CPP and CPP-V scenarios do not include an elementary school.

Although there would likely be some variation among the four scenarios, all development scenarios would entail the storage, handling, transport, and disposal of hazardous materials in association with the research and development (R&D), institutional, and commercial uses proposed by each of the development scenarios. Examples of common hazardous materials could include fuels, oils, lubricants, paints, cleaning chemicals, and other petroleum products. If not managed appropriately, schoolchildren may be exposed to accidental spillage or leakage of hazardous materials stored onsite.

As discussed under **Impact 4.G-2** and required by **Mitigation Measure 4.G-2e,** all new development would be required to follow applicable regulations and guidelines regarding storage and handling of hazardous waste. All hazardous materials would be required to be stored and handled according to manufacturer's directions and local, state, and federal regulations. These requirements would include posting of signs, notification of the local fire department, filing of the Hazardous Materials Business Plan, and use of specialized containment facilities. In addition to mandatory adherence to City and County requirements, compliance with the requirements of CCR Title 5, Section 14010, Standards for School Site Construction and California Department of Education School Facilities Planning Division as overseen by DTSC further ensures that hazardous materials impacts on proposed schools would be less than significant.

Conclusion: Implementation of a Hazardous Materials Business Plan, as required by **Mitigation Measure 4.G-2e,** and siting requirements for proposed schools, as specified by **Mitigation Measure 4.G-3,** would be necessary to reduce impacts related to hazardous emissions within 0.25 mile of a school to a less-than-significant level for all scenarios.

Mitigation

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	✓	✓
✓ = measure applies - = measure does not apply			

Mitigation Measure 4.G-3: Grade K-12 school facilities constructed on the Project Site shall not be located within 0.25 miles of a facility with hazardous emissions or that handles hazardous or acutely hazardous materials, substances or waste, unless approved by School Facilities Planning Division of the California Department of Education in conformance with California Code of Regulations (CCR) Title 5, Section 14010 which sets forth California Department of Education criteria for school site locations:

- "If the proposed [school] site is within 1,500 feet of a railroad track easement, a safety study shall be done by a competent professional trained in assessing cargo manifests, frequency, speed, and schedule of railroad traffic, grade, curves, type and condition of track need for sound or safety barriers, need for pedestrian and vehicle safeguards at railroad crossings, presence of high pressure gas lines near the tracks that could rupture in the event of a derailment, preparation of an evacuation plan. In addition to the analysis, possible and reasonable mitigation measures must be identified in accordance the referenced code." California Code of Regulations (CCR) Title 5, Section 14010 (d)

- "The [school] site shall not be located near an above-ground water or fuel storage tank or within 1,500 feet of the easement of an above ground or underground pipeline that can pose a safety hazard as determined by a risk analysis study, conducted by a competent professional, which may include certification from a local public utility commission." CCR Title 5, Section 14010 (h):

Grade K-12 school facilities shall also comply with California Education Code Sections 17210 through 17224 and related statutory provisions related to risk to human health or the environment at proposed school properties as overseen by the Department of Toxic Substances Control (DTSC). In accordance with California Education Code Sections 17210 through 17224 and related statutory provisions, the school district must prepare a Phase I Environmental Site Assessment and/or a Preliminary Endangerment Assessment (PEA) to identify potential contamination and evaluate whether it presents a risk to human health or the environment at proposed school properties as overseen by the Department of Toxic Substances Control (DTSC). The environmental investigation and any required remediation of properties to be developed for use as schools shall be overseen by DTSC in coordination with the California Department of Education and the School Facilities Planning Division.

Final design plans shall be approved by the School Facilities Planning Division of the California Department of Education prior to commencement of construction.

All required remediation within 0.25 miles of a proposed K-12 school site within the Project Site shall be completed prior to occupancy of the school.

Conclusion with Mitigation: With implementation of **Mitigation Measures 4.G-2e and 4.G-3**, the impact related to emissions of hazardous materials within 0.25 mile of schools would be reduced to a less-than-significant level.

Impact 4.G-4: Would development be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and result in a safety hazard to the public or environment?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
SM	SM	SM	SM

SU = Significant Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = no impact

DSP, DSP-V, CPP, and CPP-V

As described above in Subsection 4.G.2, *Environmental Setting*, the Project Site includes a number of different sites that are included on databases listing hazardous materials pursuant to Government Code Section 65962.5 including the former Brisbane Landfill, OU-1 and OU-2, and the Schlage Lock facility. As mentioned above, these sites have a long history of environmental investigation and cleanup efforts with additional remediation activities occurring in the future. These sites are actively overseen by regulatory agencies (DTSC and RWQCB) to ensure that all remediation is completed to levels that protect human health and the environment. The impacts related to safety hazards to the public or environment from these sites are further discussed and analyzed above under **Impact 4.G-1 (**however impacts from soil vapor intrusion are discussed below).

Conclusion: This impact would be significant, and implementation of **Mitigation Measures 4.G-1a and 4.G-1b** is recommended under all four proposed development scenarios.

Conclusion with Mitigation: With the inclusion of **Mitigation Measures 4.G-1a and 4.G-1b**, impacts related to being located on a hazardous materials site pursuant to Government Code Section 65962.5 under any of the scenarios would be reduced to a less-than-significant level.

Impact 4.G-5: Would development result in a safety hazard for people residing or working in the project area for a project located within an airport land use plan or, where such plan has not been adopted, be within 2 miles of a public airport or public use airport; or be located within the vicinity of a private airstrip and result in a safety hazard for people residing or working in the project area?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
-	-	-	-

SU = Significant Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = no impact

DSP, DSP-V, CPP, and CPP-V

The Project Site is located more than 2 miles from the nearest public airport, the San Francisco International Airport, or airstrip, and is not located within an airport land use plan. Development under any of the proposed scenarios would not conflict with an airport land use plan nor present any other impact related to a public airport use or private airstrip.

Conclusion: Implementation of Project Site development would have no impact related to airports and airstrips.

Impact 4.G-6: Would development impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
LTS	LTS	LTS	LTS

SU = Significant Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = no impact

DSP, DSP-V, CPP, and CPP-V

As discussed in Section 4.L, *Public Services*, of this EIR, fire protection services are provided to Brisbane by the North County Fire Authority (NCFA), a Joint Powers Authority established in 2003 to serve the communities of Brisbane, Daly City, and Pacifica. The North County Fire Authority delivers emergency and non-emergency services, including rapid assistance for medical, fire, or other hazardous situations, to the member and contract communities from nine strategically located fire companies. Brisbane is served from Fire Station No. 81 located at 3445 Bayshore Boulevard, just southwest of the Project Site. Project Site development would increase the demand for fire protection and expand the geographic area within which services must be provided. Additionally, construction of the street system must be designed to accommodate emergency response and evacuation.

The circulation plan for Project site development is designed to ensure appropriate emergency access to and egress from the Project Site under all four scenarios. The DSP and DSP-V scenarios reserve a specific site within the Icehouse District for the development of institutional uses that would include a fire facility centrally located adjacent to the Roundhouse Green. Based on the analysis of police and fire protection services undertaken in Section 4.L, *Public Services*, Project site development under any of the proposed development scenarios will require an upgrade to fire facilities to serve to the Project Site. It is therefore assumed that the CPP and CPP-V scenarios would include a similar fire facility in a central location similar to that provided in the DSP and DSP-V scenarios. Adequate access to and from this facility would be provided by the roadway and circulation improvements proposed for each scenario. Section 4.N, *Traffic and Circulation*, provides a more detailed description and analysis of these proposed infrastructure improvements for all four scenarios. Additionally, all site-specific development site designs, including private internal circulation and building site plans, will be subject to review and approval by the City, as well as emergency service providers under each of the four development scenarios.

The Kinder Morgan Bulk Terminal facility has a comprehensive Integrated Contingency Plan that meets all regulatory requirements from regulatory agencies and is reviewed by emergency response agencies for completeness. The Integrated Contingency Plan is routinely updated to reflect any changes in conditions and provides for response actions and drills as well as annual training requirements for employees. Because access to and from the Kinder Morgan site will be maintained, needed transportation improvements will be provided under each development scenario, and emergency response facilities will be improved under each development scenario, Project site development would not interfere with emergency response capabilities related to the Kinder Morgan facility.

Proposed Project site development and emergency response requirements are sufficient to ensure that the potential significant health and safety effects associated with possible impairment or

implementation of any emergency response or evacuation plans would remain a less-than-significant impact.

Conclusion: This impact would be less than significant for each of the development scenarios. No mitigation is required.

Impact 4.G-7: Would development expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
-	-	-	-

SU = Significant Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = no impact

DSP, DSP-V, CPP, and CPP-V

The Project Site is located in an urban setting, has been developed with urban uses in the past, and does not adjoin any wildlands that are at risk for wildfires. As mentioned above, fire protection services are provided to the Brisbane by the North County Fire Authority, which delivers emergency and non-emergency fire response services. The City is served from Fire Station No. 81 located at 3445 Bayshore Boulevard, just southwest of the Project Site. Project Site development under any of the development scenarios would be required to adhere to applicable fire and building codes, which provide minimum safety measures that would be incorporated into all building designs.

Project Site characteristics and existing fire protection services are sufficient to ensure that the potential significant health and safety effects associated with wildfires would remain a less-than-significant impact.

Conclusion: No impact related to wildland fire hazards would result for any of the proposed development scenarios. No mitigation is required.

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4.H Surface Water Hydrology and Water Quality

4.H.1 Introduction

This section describes existing surface water resources in the Project Site vicinity. It also evaluates the impacts of proposed development of the Project Site on surface water runoff rates, water quality, and, flooding. The historic industrial uses at the Project Site – the former railyard and the Brisbane landfill – left contaminants classified as hazardous waste in the soil and groundwater in the area. Groundwater is not currently used at the Project Site and no groundwater use is proposed under Project Site development. For this reason discussion of existing groundwater conditions is limited to the impacts to water quality due to the former industrial activities at the Project Site and can be found in Section 4.G, *Hazards and Hazardous Materials*, of this EIR. Feasible mitigation measures are identified to reduce significant impacts.

4.H.2 Environmental Setting

Climate

The Project Site is located on the western margin of San Francisco Bay in northern San Mateo County. The San Francisco Bay Area has a Mediterranean climate with cool, wet winters (October through April) and relatively warm, dry summers (April through October). Sustained rainy periods can occur during the winter and coastal fog is common in summer. The temperature is moderated by proximity to San Francisco Bay and the Pacific Ocean.

The mean annual rainfall in the vicinity of the Project Site is approximately 20 inches, with January being the wettest month and the vast majority of rainfall between October and May. This mean, however, is not necessarily representative of a typical year. The San Francisco Airport station has recorded only 24 of 67 water years with total precipitation between 16 and 24 inches. This period included eight water years with over 30 inches of precipitation and two years with less than 10 inches.

Relatively short duration precipitation depths are significant to site drainage design and flood control considerations. The largest storm of record occurred January 4-5, 1982, with a measured 24-hour precipitation depth of 5.7 inches. This is estimated to be an event that would, on average, be equaled or exceeded once every 100 years. Other recent severe storms occurred December 11-12, 1995 and February 2-3, 1998. Both of these storm events had 24-hour precipitation depths of approximately 3.2 inches and would be expected to be equaled or exceeded once every five years.

Visitacion-Guadalupe Valley Watersheds

Historically, the Project Site, commonly known as the Brisbane Baylands, was part of an estuarine ecosystem through which upland drainage flowed into tidal marshes and mudflats before reaching deeper waters of San Francisco Bay. The Project Site is located within the Visitacion-Guadalupe Valley Watershed, which generally consists of a large bowl straddling San Francisco and San Mateo Counties. The watershed drains the area bounded by Bayview Hill, McLaren Ridge, and San Bruno

Mountain. The two main drainages of the watershed are Visitacion Creek and Guadalupe Creek, which originate in the upland areas to the west and drain toward San Francisco Bay. Visitacion Valley has been divided into two unnamed subwatersheds due to the fact that the northern portion is pumped northward into the San Francisco combined sanitary/stormwater sewer system. The southern portion, which includes Visitacion Creek, drains by gravity to San Francisco Bay, but much of it is channelized. Guadalupe Creek also drains by gravity to the Bay via Brisbane Lagoon.

Topography

The Project Site is located on the eastern flanks of the San Francisco Peninsula, which is characterized by a northwest-trending coastal mountain range with drainages that flow either to the Pacific Ocean or toward San Francisco Bay. Topographic elevations at the Project Site generally range from approximately 0 to 60 feet above mean sea level, except at Icehouse Hill, which reaches to approximately 200 feet above mean sea level. Slopes vary from flat, in much of the area between Bayshore Boulevard and the Caltrain tracks, to steep at Icehouse Hill, with varying slope elevations in areas of fill. Elevations east of the railroad tracks are undulating and vary due to the stockpiling of materials.

Local Surface Water Features

Figure 4.H-1 shows key existing drainage facilities in the vicinity of the Project Site. The primary surface water features on the Project Site are the open channel portion of Visitacion Creek that receives flows from Visitacion Valley via a brick arch and timber box system, and Brisbane Lagoon, which receives flows from Guadalupe Creek. Visitacion Creek receives runoff from over 1,000 acres with an outfall just north of the lagoon. Brisbane Lagoon receives runoff from approximately 2,150 acres. Both of these systems drain under US Highway 101 through box culverts into San Francisco Bay. The majority of the Project Site drains into Visitacion Creek, while a portion south of Visitacion Creek drains into Brisbane Lagoon.

Surface flows along the northern end of Tunnel Avenue and Beatty Avenue are collected in the Beatty Avenue storm drain. The Beatty Avenue storm drain serves a small portion of the northern end of the Project Site and drains into San Francisco's Sunnydale storm drain facility that detains and pumps flows for treatment.

The City of Brisbane Storm Drainage Master Plan divides the drainage area tributary to the 12-foot-by-12-foot culvert under US Highway 101 into six watersheds that are further subdivided as part of the detailed analysis in that plan (RBF, 2003). Land uses within the watersheds include undeveloped and open space areas, single-family residential, retail, government, and manufacturing districts. **Figure 4.H-2** illustrates existing land uses and the subwatershed boundaries from the City's Storm Drainage Master Plan.

Figure 4.H-1
Existing Drainage Facilities

Figure 4.H-2
Watershed Boundaries

Surface Water Quality

Surface water quality data have been collected from various locations on the Project Site, including stormwater outfalls, surface seeps along the waterways, and in receiving waters at Brisbane Lagoon.

Stormwater runoff samples have been collected from eight storm drain locations throughout the Project Site since 2002 (GeoSyntech, 2010). Stormwater monitoring was performed for compliance with the General Industrial Permit for Discharges of Storm Water Associated with Industrial Activities Excluding Construction Activities (97-03-DWQ, CAS 0000001). The Industrial General Permit is intended to regulate industrial activities that discharge stormwater runoff and requires collection and analysis of storm-water discharge samples (for a specific suite of parameters that are based on Standard Industrial Classifications), as well as visual observations of runoff in wet and dry weather. According to this permit, four indicator water quality parameters are required to be monitored, including pH, total suspended solids (TSS), specific conductance (SC), and oil and grease. Most of the pH values for the stormwater sampling locations were well within normal ranges, while a few samples exceeded the maximum contaminant level (MCL) and United States Environmental Protection Agency (U.S. EPA) Parameter Benchmarks. TSS concentrations generally exceed the U.S. EPA Parameter Benchmark and the SC data generally exceeds its MCL. The SC would be expected to be higher than the MCL, given the connectivity and tidal influence of the southern part of San Francisco Bay. TSS has been reported to be an issue in the past at the Project Site.

An assessment of sediment sources for Brisbane Lagoon identified the Project Site as a significant source of sediment. In 2004, stormwater best management practices (BMPs) began to be implemented, and there is a noticeable decreasing trend in TSS at all sampling locations from 2002 to the present (GeoSyntech, 2010). Oil and grease appear to be a more localized water quality issue (GeoSyntech, 2010).

Flooding

Flood Insurance Rate Maps prepared by the Federal Emergency Management Agency (FEMA) (Community-Panel Number 0603140001B) for San Mateo County have been recently updated in 2013. The current approved FEMA maps show only areas along Visitacion Creek and between Bayshore Boulevard and Industrial Way as being within the 100-year flood hazard area (see **Figure 4.H-3**). Flood Insurance Rate Maps show the remaining areas of the Project Site as being outside the 100-year flood hazard area. A detailed analysis completed for the Brisbane Storm Drainage Master Plan in 2003 identifies additional low-lying areas that may be flooded during a 100-year storm event (RBF, 2003). These include an area between Bayshore Boulevard and the railroad tracks, and portions of Bayshore Boulevard adjacent to the Project Site (RBF, 2003).

One of the major issues with the existing stormwater system at the Project Site is flooding in the area along Bayshore Boulevard and Main Street. According to consulting engineers, the existing brick arch sewer under Bayshore Boulevard, if cleaned of debris, may be able to handle a five-year storm, but not more significant events (BKF, 2011). Two other restrictions in the system

Figure 4.H-3
100-Year Flood Zones

which can cause flooding are the 36-inch culvert on the PG&E property and the 36-inch storm drain on Bayshore Boulevard north of Main Street. The inlets at the intersection of Industrial Way and Bayshore Boulevard were identified as needing improvements (BKF, 2011).

Tidal Influences and Sea Level Rise

Both Visitacion Creek and Brisbane Lagoon are directly connected to San Francisco Bay, and are influenced by tidal conditions on the Bay. Historically, flooding in areas affected by tides was evaluated by FEMA based on the assumption that the probability of an infrequent high tide coinciding with an infrequent storm event would not warrant combining the two events. FEMA maps showing the 100-year floodplain are thus generally based on the higher of the five-year flow during a 100-year high tide and the 100-year flow at mean higher high water (MHHW). However, a more recent analysis than these FEMA maps based on correlating peak discharge and tidal records in the vicinity of San Francisco Bay indicated that storm surges, driven by the low atmospheric pressures and strong onshore winds, make significantly higher than average tides likely during extreme wet weather conditions (RBF, 2003). Brisbane's Storm Drainage Master Plan was based on a statistically-based tidal cycle to evaluate flooding conditions and potential improvements (RBF, 2003).

Tidal conditions create backwater conditions along Visitacion Creek that restrict outflow from the Levinson Overflow Area (the off-channel detention basin located at the northwest corner of Main Street and Bayshore Boulevard), and higher tides can contribute to flooding along Bayshore Boulevard. A potential future rise in sea level could exacerbate this condition.

The science of estimating sea level rise continues through a stepwise process of refinement, and additional research will provide better estimates in the future, as the science develops. Sea level rise associated with climate change may pose a substantial risk of inundation to existing and proposed development that is located in low-lying areas close to San Francisco Bay. Climate-induced flooding could occur as a result of climate-induced increases in the level of San Francisco Bay waters, combined with other factors such as tidal cycles, wind waves and swell, or seismic waves.

The magnitude of projected sea level rise is difficult to predict and varies substantially among the thousands of scientific research documents available on climate change and sea level rise. Based on widely accepted literature from the Intergovernmental Panel on Climate Change, California Climate Change Center, and San Francisco Bay Conservation and Development Commission (BCDC), the following examples provide plausible low, medium, and high estimates of the magnitude of climate-induced sea level rise that would be likely to occur within the Bay:

- ***Low Rate of Increase*:** Sea level rise will continue to occur according to the low sea level rise projections for the emissions scenarios presented by the Intergovernmental Panel on Climate Change (IPCC, 2007). Relative to sea levels in the year 2000, sea level is projected to rise three inches by 2050 and 12 inches by 2100.
- ***Medium Rate of Increase:*** Sea level rise will continue according to predictions forwarded by the California Climate Change Center, which indicate that sea level is projected to rise

by up to 35 inches by 2100 (CEC, 2009). This is similar to mid-range projections made by Rahmstorf (Rahmstorf, 2007).

- ***High Rate of Increase:*** Sea level rise will continue at a higher rate, resulting in an increase of 16 inches by 2050 and 55 inches (or higher) by 2100 (Heberger et al., 2009). These values have been adopted as an interim standard by the California Coastal Conservancy and are consistent with recent predictions made by the Pacific Institute (Pacific Institute, 2012).

According to maps compiled by BCDC, an increase of 16 inches would not affect the Project Site outside of Brisbane Lagoon (BCDC, from Knowles, 2008). However, a projected sea level rise of 55 inches would inundate areas near the Roundhouse and along Visitacion Creek under current topographic conditions, (BCDC, from Knowles, 2008) as shown in **Figure 4.H-4**.

4.H.3 Regulatory Setting

Development within the Project Site boundaries must comply with federal, state, regional, and local regulations. This section discusses these requirements to the extent that they affect the way development occurs with the Project Site development.

Hydrology and surface water quality at the Project Site are subject to a variety of federal, state, and local regulations, as discussed below.

Federal Regulations

The City of Brisbane and San Mateo County are participants in the National Flood Insurance Program (NFIP) administered by FEMA. Participants in the NFIP must satisfy certain mandated floodplain management criteria. Established in 1968 with the passage of the National Flood Insurance Act, the NFIP is a federal program enabling property owners in participating communities to purchase insurance as a protection against flood losses in exchange for state and community floodplain management regulations that reduce future flood damages. Participation in the NFIP is based on an agreement between communities and the federal government. If a community adopts and enforces a floodplain management ordinance to reduce future flood risk to new construction in floodplains, the federal government will make flood insurance available within the community as a financial protection against flood losses. This insurance is designed to provide an affordable insurance alternative to disaster assistance to reduce the escalating costs of repairing damage to buildings and their contents caused by floods. Communities are occasionally audited by the Department of Water Resources to ensure the proper implementation of FEMA floodplain management regulations.

State Regulations

The primary responsibility for the protection and enhancement of water quality in California has been assigned by the California legislature to the State Water Resources Control Board (SWRCB) and the nine Regional Water Quality Control Boards (RWQCBs). The SWRCB provides state-level coordination of the water quality control program by establishing statewide policies and plans for the implementation of state and federal laws and regulations. The RWQCBs adopt and

Figure 4.H-4
Projected Sea Level Rise

implement water quality control plans that recognize the unique characteristics of each region with regard to natural water quality, actual and potential beneficial uses, and water quality problems.

The Project Site lies within the jurisdiction of the RWQCB-San Francisco Bay Region, which has adopted the Water Quality Control Plan for the San Francisco Bay Region (Basin Plan) to implement plans, policies, and provisions for water quality management. Beneficial uses of surface waters within the San Francisco Bay Region are described in the Basin Plan and are designated for major surface waters and their tributaries. Beneficial uses of Central San Francisco Bay include ocean, commercial, and sport fishing, estuarine habitat, industrial service supply, fish migration, fish spawning, navigation, rare and endangered species preservation, recreation, shellfish harvesting, and wildlife habitat.

Total Maximum Daily Load (TMDL) – Section 303(d) of the Clean Water Act

California has identified waters that are polluted and need further attention to support their beneficial uses. These water bodies are listed pursuant to Clean Water Act Section 303(d). Specifically, Section 303(d) requires that each state identify water bodies or segments of water bodies that are "impaired" (i.e., not meeting one or more of the water quality standards established by the state). Approximately 500 water bodies or segments have been listed in California. Once the water body or segment is listed, the state is required to establish TMDL for the pollutant causing the conditions of impairment. The TMDL is the quantity of a pollutant that can be safely assimilated by a water body without violating water quality standards. Listing of a water body as impaired does not necessarily suggest that the pollutants are at levels considered hazardous to humans or aquatic life or that the water body segment cannot support the beneficial uses. The intent of the 303(d) list is to identify the water body as requiring future development of a TMDL to maintain water quality and reduce the potential for continued water quality degradation.

In accordance with Section 303(d) of the Clean Water Act, the RWQCB-San Francisco Bay Region has identified impaired water bodies within its jurisdiction and the pollutant or stressor impairing water quality, and set priorities for developing a TMDL. San Francisco Bay is included on the Section 303(d) list. Pollutants or stressors identified on the Section 303(d) list for Central San Francisco Bay include chlordane, dichlorodiphenyltrichloroethane (DDT), dieldrin, dioxin compounds, exotic species, furan compounds, mercury, non-dioxin-like polychlorinated biphenyls (PCBs), PCBs (dioxinlike), and selenium.

A TMDL has been established for San Francisco Bay for chlordane, DDT, dieldrin, mercury, PCBs (non-dioxin-like), and the RWQCB is working on TMDLs for the Bay for dioxin compounds, excotic species, furan compounds, PCBs, and selenium, as well as a revision to the mercury TMDL. The RWQCB has also adopted a TMDL for pesticide toxicity in urban creeks.

While the Clean Water Act does not expressly require the implementation of TMDLs, the United States Environmental Protection Agency has established regulations requiring that National Pollutant Discharge Elimination System (NPDES) permits be revised to be consistent with any approved TMDL.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act works in tandem with the Clean Water Act to establish the SWRCB, which oversees the nine RWQCBs. The SWRCB, and thus each RWQCB, is responsible for protecting California's surface waters and groundwater supplies.

The Porter-Cologne Water Quality Control Act provides for Basin Plans that designate the beneficial uses of California's rivers and groundwater basins. The Basin Plans also establish narrative and numerical water quality objectives for those waters. Basin Plans are updated every three years and provide the basis for determining waste discharge requirements, taking enforcement actions, and evaluating clean water grant proposals. The Porter-Cologne Water Quality Control Act also allows the SWRCB and RWQCBs to implement Clean Water Act Sections 401-402 and 303(d).

National Pollutant Discharge Elimination System Program

Section 402 of the Clean Water Act regulates point-source discharges to surface waters through the NPDES program. In California, the SWRCB oversees the NPDES program, which is administered by the RWQCBs. The NPDES program provides for both general permits (those that cover a number of similar or related activities) and individual permits. The NPDES program covers municipalities, industrial activities, and construction activities. The NPDES program includes an industrial stormwater permitting component that covers ten categories of industrial activity that require authorization under an NPDES industrial stormwater permit for stormwater discharges. Construction activities, also administered by the SWRCB, are discussed below. Section 402(p) of the federal Clean Water Act, as amended by the Water Quality Act of 1987, requires NPDES permits for stormwater discharges from municipal separate storm sewer systems (MS4s), stormwater discharges associated with industrial activity (including construction activities), and designated stormwater discharges, which are considered significant contributors of pollutants to waters of the United States. On November 16, 1990, U. S. EPA published regulations (40 CFR Part 122), which prescribe permit application requirements for MS4s pursuant to The Clean Water Act 402(p). On May 17, 1996, U. S. EPA published an Interpretive Policy Memorandum on Reapplication Requirements for Municipal Separate Storm Sewer Systems, which provided guidance on permit application requirements for regulated MS4s. MS4 permits include requirements for construction and post-construction control of stormwater runoff in what is known as Provision C.6 and Provision C.3, respectively.

Provision C.6 states that each Permittee, such as the City of Brisbane which is part of the San Francisco Regional MS4 Permit, shall implement a construction site inspection and control program at all construction sites, with follow-up and enforcement consistent with each Permittee's respective Enforcement Response Plan, to prevent construction site discharges of pollutants and impacts on beneficial uses of receiving waters. Inspections shall confirm implementation of appropriate and effective erosion and other construction pollutant controls by construction site operators/developers; and reporting shall demonstrate the effectiveness of this inspection and problem solution activity by the Permittees.

The goal of Provision C.3 is for the Permittees, such as the City of Brisbane, to use their planning authorities to include appropriate source control, site design, and stormwater treatment measures in new development and redevelopment projects to address both soluble and insoluble stormwater runoff pollutant discharges and prevent increases in runoff flows from new development and redevelopment projects. This goal is to be accomplished primarily through the implementation of low impact development (LID) techniques.

Construction Activity Permitting – National Pollutant Discharge Elimination System

The RWQCB-San Francisco Bay Region monitors and enforces the NPDES stormwater permitting for the region. The NPDES permit program was established by the Clean Water Act to regulate municipal and industrial discharge to surface waters of the United States from their municipal stormwater systems. The SWRCB has issued the General Permit for Discharges of Stormwater Runoff Associated with Construction Activity (General Construction Permit). The General Construction permit covers any construction or demolition activity, including, but not limited to, clearing, grading, grubbing, or excavation, or any other activity that results in a land disturbance of equal to or greater than one acre. To obtain coverage under the General Construction Permit, a project sponsor must submit a Notice of Intent and a Storm Water Pollution Prevention Plan (SWPPP) to the SWRCB.

General Permit Provisions

The General Construction Permit authorizes the discharge of storm water to surface waters from construction activities that result in the disturbance of one or more acres of land, provided that the discharger satisfies all permit conditions. The General Construction Permit establishes three possible levels of risk for a construction site: Risk Level 1, Risk Level 2 and Risk Level 3. The Risk Level is calculated in two parts: (1) project sediment risk, and (2) receiving water risk. Project sediment risk is based on the location and duration of construction activities. Receiving water risk is based on whether a project drains to a sediment-sensitive water body that (1) is on the most recent 303d list for water bodies impaired for sediment, (2) has a U.S. EPA-approved TMDL implementation plan for sediment, or (3) has the beneficial uses of cold, spawn, and migratory. The risk level calculated for Project Site development will dictate monitoring and sampling requirements. Project sediment risk requires site specific calculations based on a number of factors which have not been calculated for the Project Site, but will likely end up as Risk Level 2.

The General Construction Permit defines technology-based Numeric Action Levels and Numeric Effluent Limitations for pH and turbidity. Risk Level 2 projects are subject to Numeric Action Levels and Risk Level 3 projects are subject to Numeric Effluent Limitations. Risk Level 2 and Risk Level 3 projects are required to conduct effluent monitoring and reporting for pH and turbidity in storm water discharges. Additionally, Risk Level 3 projects should sample receiving water when Numeric Effluent Limitations are exceeded.

Storm Water Pollution Prevention Plans

A SWPPP must contain a site map that shows the construction site perimeter, existing and proposed buildings, lots, roadways, stormwater collection and discharge points, general topography, and drainage patterns across the project site. Components of SWPPPs typically include project risk determination, visual inspection requirements, identification of sampling locations, collection and handling procedures (for Risk Level 2 and Risk Level 3 projects), and specifications for BMPs to be implemented during project construction for the purpose of minimizing the discharge of pollutants in stormwater from the construction area. In addition, a SWPPP includes measures to minimize the amount of pollutants in runoff after construction is completed, and identifies a plan to inspect and maintain project BMPs and facilities at the end of the construction project. This plan includes information regarding how the SWPPP will be met.

The SWPPP has two major objectives: to help identify the sources of sediment and other pollutants that affect the quality of stormwater discharges, and to describe and ensure the implementation of BMPs to reduce or eliminate sediment and other pollutants in both stormwater and in non-stormwater discharges.

BMPs include activities, practices, maintenance procedures, and other management practices that reduce or eliminate pollutants in stormwater discharges and authorized non-stormwater discharges. BMPs include treatment requirements, operation procedures, and practices to control site runoff, spillage, leaks, waste disposal, and drainage from raw materials storage. BMP implementation must take into account changing weather conditions and construction activities, and various combinations of BMPs may be used over the life of a project to maintain compliance with the Clean Water Act. The NPDES General Permit gives the owner the discretion to determine the most economical, effective, and innovative BMPs to achieve the performance-based goals of the NPDES General Permit.

There are two types of BMPs: structural and nonstructural. Structural BMPs are the specific construction, modification, operation, maintenance, or monitoring of facilities that would minimize the introduction of pollutants into the drainage system or would remove pollutants from the drainage system. Nonstructural BMPs are activities, programs, and other nonphysical measures that help reduce pollutants from nonpoint sources to the drainage system. In general, nonstructural BMPs are source control measures.

The issue of pollution in stormwater and urban runoff has been recognized by both federal and state agencies, and there has been a growing concern regarding activities that discharge water affecting California's surface water, coastal waters, and groundwater. Discharges of water are classified as either point source or nonpoint source discharges. A point source discharge usually refers to waste emanating from a single, identifiable point. Regulated point sources include municipal wastewater, oil field wastewater, winery discharges, solid waste sites, and other industrial discharges. Point source discharge must be actively managed to protect the state's waters. A nonpoint source discharge usually is a waste emanating from diffused locations. As a result, specific sources of nonpoint source pollution may be difficult to identify, treat, or regulate. The goal is to reduce the adverse impact of nonpoint source discharges on water resources

through better management of these activities. Nonpoint sources include drainage and percolation from a variety of activities such as agriculture, forestry, recreation, and storm runoff.

Local Regulations

San Francisco Bay Conservation and Development Commission– San Francisco Bay Plan

The McAteer-Petris Act is a provision under California law that preserves San Francisco Bay from indiscriminate filling. The act established the BCDC as the agency charged with preparing a plan for the long-term use of the Bay and regulating development in and around the Bay while the plan was being prepared. The San Francisco Bay Plan, completed in January 1969, includes policies on 18 issues critical to the wise use of the Bay, ranging from ports and public access to design considerations and weather. The McAteer-Petris Act authorizes BCDC to incorporate the policies of the Bay Plan into state law (BCDC, 2012). The Bay Plan has two features: policies to guide future uses of the Bay and shoreline, and maps that apply these policies to the Bay and shoreline. BCDC conducts the regulatory process in accordance with the Bay Plan policies and maps, which guide the protection and development of the Bay and its tributary waterways, marshes, managed wetlands, salt ponds, and shoreline (BCDC, 2012).

Several policies of the Bay Plan are aimed at protecting the Bay's water quality, safety of fills, and guiding the dredging activities of the Bay's sediment. The Bay Plan policies related to water quality and hydrology are as follows:

- **Water Quality**

  ***Policy 1*:** Bay water pollution should be prevented to the greatest extent feasible. The Bay's tidal marshes, tidal flats, and water surface area and volume should be conserved and, whenever possible, restored and increased to protect and improve water quality. Fresh water inflow into the Bay should be maintained at a level adequate to protect Bay resources and beneficial uses.

  Policy 2: Water quality in all parts of the Bay should be maintained at a level that will support and promote the beneficial uses of the Bay as identified in the San Francisco Bay Regional Water Quality Control Board's Basin Plan. The policies, recommendations, decisions, advice and authority of the State Water Resources Control Board and the San Francisco Bay Regional Water Quality Control Board should be the basis for carrying out BCDC's water quality responsibilities.

  Policy 3: New projects should be sited, designed, constructed and maintained to prevent or, if prevention is infeasible, to minimize the discharge of pollutants into the Bay by: (a) controlling pollutant sources at the project site; (b) using construction materials that contain nonpolluting materials; and (c) applying appropriate, accepted and effective best management practices, especially where water dispersion is poor and near shellfish beds and other significant biotic resources.projects.

  Policy 4: When approving a project in an area polluted with toxic or hazardous substances, the Commission should coordinate with appropriate local, state and federal agencies to ensure that the project will not cause harm to the public, to Bay resources, or to the beneficial uses of the Bay.

Policy 5: The Commission should support the efforts of federal, state, and local agencies in developing non point source pollution control programs.

Policy 6: To protect the Bay and its tributaries from the water quality impacts of nonpoint source pollution, new development should be sited and designed consistent with standards in municipal stormwater permits and state and regional stormwater management guidelines, where applicable, and with the protection of Bay resources. To offset impacts from increased impervious areas and land disturbances, vegetated swales, permeable pavement materials, preservation of existing trees and vegetation' planting native vegetation and other appropriate measures should be evaluated and implemented where appropriate.

Policy 7: Whenever practicable, native vegetation buffer areas should be provided as part of a project to control pollutants from entering the Bay, and vegetation should be substituted for rock riprap, concrete, or other hard surface shoreline and bank erosion control methods where appropriate and practicable.

- **Sea Level Rise**

  Risk Assessments: Sea level rise risk assessments are required when planning shoreline areas or designing larger shoreline projects. If sea level rise and storms that are expected to occur during the life of the project would result in public safety risks, the project must be designed to cope with flood levels expected by mid-century. If it is likely that the project will remain in place longer than mid-century, the applicant must have a plan to address the flood risks expected at the end of the century.

  - Risk assessments are NOT required for repairs of existing facilities, interim projects, small projects that do not increase risks to public safety, and infill projects within existing urbanized areas.
  - Risk assessments are ONLY required within BCDC's jurisdiction.
  - Risk assessments for projects located only in the shoreline band, an area within 100 feet of the shoreline, need only address risks to public access.

The portion of the Project Site within 100 feet of the shoreline of San Francisco Bay is subject to permitting regulations of the BCDC because San Francisco Bay and "all areas that are subject to tidal action from the south end of the Bay to the Golden Gate… including all sloughs, and specifically, the marshlands lying between mean high tide and five feet above mean sea level; tidelands (lands lying between mean high tide and mean low tide); and submerged lands (lands lying below mean low tide)" are included (BCDC, 2012).

The San Francisco Bay Plan, developed by BCDC in 1969, designates shoreline uses and conservation areas throughout San Francisco Bay. The Bay Plan was last amended in September 2006. The 1969 McAteer-Petris Act amendment made BCDC a permanent agency and the Bay Plan state law.

BCDC's jurisdiction within the Project Site includes the Brisbane Lagoon, Visitacion Creek, and a 100-foot shoreline band around these features, each of which are designated Waterfront Park, Beach in the Plan(see Figure 4.I-2, included in Section 4.I, *Land Use and Planning Policy*, of this EIR).

City of Brisbane General Plan

Hydrology- and Water Quality-Related Policies and Programs

The following hydrology- and water quality-related policies and programs from the Conservation Element of the Brisbane General Plan are relevant to Project site development:

Policy 130: Conserve water resources in the natural environment.

Program 130a: As an ongoing part of land use planning and CEQA analysis, determine whether proposals could affect water resources.

Program 130b: Require, as appropriate, project analysis of drainage, siltation, and impacts on vegetation and on water quality.

Policy 131: Emphasize the conservation of water quality and of riparian and other water-related vegetation, especially that which provides habitat for native species, in planning and maintenance efforts.

Program 131a: Encourage studies by responsible agencies and conservation groups of the environmental values and conservation and maintenance requirements of the various water courses in the planning area.

Policy 133: Reduce the amount of sediment entering waterways.

P*rogram 133a:* Participate in programs to improve water quality in the Lagoon and the Bay.

Program 133b: Require all development, especially that involving grading, to exercise strict controls over sediment.

Policy 134: Reduce the amount of pollutants entering waterways.

Program 134a: Cooperate with the Water Quality Control Board and County Department of Environmental Health and participate in the NPDES Program to monitor and regulate point and non-point discharges.

Program 134b: Provide public information on how individual citizens can contribute to the reduction of pollutants in the storm drain and sewer systems.

Program 134c: Encourage wetlands restoration projects to remove or fix toxicants and reduce siltation.

Program 134d: Utilize wetlands restoration projects to remove or fix toxicants and reduce siltation where appropriate.

Policies and Programs Regarding Drainage Facilities and Flood Hazards

The General Plan provides policy guidance for drainage facilities located on both public and private properties within the city that are either built or are currently undeveloped. The following General Plan policies and programs address issues related to drainage facilities and flood hazards:

Policy 153: Require the construction of new improvements and the upgrade of existing stormwater infrastructure to mitigate flood hazard. (See *Policy 130.2*.)

Program 153a: Construct improvements to the GVMID storm drainage system to accommodate stormwater from the Northeast Ridge and increase the overall capacity

of the drainage system, as required in the conditions of approval for the Northeast Ridge Development Project.

Program 153b: Work with Daly City and affected property owners to design improvements to alleviate flooding on the section of Bayshore Boulevard between Geneva Avenue and Main Streets.

Program 153c: In conjunction with design of infrastructure to serve the Baylands, require that the property owner address the issue of flooding around the open drainage channel that flows west to east across the property.

Policy 155: Pay special attention to the condition and maintenance of storm drain facilities to avoid flooding.

Program 155a: Schedule regular maintenance to remove silt and debris from storm drain facilities.

Program 155b: As a part of Capital Improvements Planning, replace and repair, as economically feasible, storm drain facilities as needed to prevent flooding.

Program 155c: Study the drainage basins to determine responsibility for siltation of storm drain facilities. Consider methods of assessing maintenance costs to responsible properties.

Policy 221: If new development occurs, require storm drain systems to be installed to City standards.

Program 221a: In conjunction with land use development applications for vacant lands, require studies to determine design requirements to collect and remove stormwater from the property or reuse stormwater to benefit the public. Require facilities to be designed and installed to City standards, at developer's expense.

Policy 222: Require that all storm drain lines be installed within dedicated public streets.

Policy 223: Storm drains in undeveloped areas where facilities do not currently exist shall be installed at the property owner or developer's expense.

Policy 226: Undertake drainage studies to determine responsibility for siltation of the system and seek opportunities to assess the responsible parties for maintenance costs.

Program 226a: Consider environmental sensitivities in conjunction with drainage studies.

Policy 227: Cooperate with Daly City, responsible property owners, and responsible agencies to develop plans to improve the storm facilities on Bayshore Boulevard to relieve flooding.

Policy 228: Establish requirements in the Municipal Code for the installation of stormwater collection systems on private properties.

Program 228a: Require new construction and substantial renovation projects to provide roof gutters and leaders that direct stormwater through the curb to the City street so that the water can be collected in City facilities.

Program 228b: Require drainage plans to be submitted in conjunction with land use development applications, including those for building permits, as applicable to the project.

Program 228c: Provide public information on the safety aspects of dealing with stormwater and encourage homeowners and businesses to make necessary improvements and repairs.

Program 228d: Comply with National Pollutant Discharge Elimination System, as required.

San Mateo Countywide Water Pollution Prevention Program

The San Mateo Countywide Water Pollution Prevention Program is administered by the City/County Association of Governments of San Mateo County including the City of Brisbane. The program's former name was the San Mateo Countywide Stormwater Pollution Prevention Program. Municipalities are listed as co-permittees in a Municipal Regional Stormwater NPDES Permit (MRP) adopted by the RWQCB-San Francisco Bay Region in November 2011. The MRP includes more prescriptive requirements for incorporating post-construction stormwater control/ LID measures into new development and redevelopment projects than those included in the previous countywide stormwater permit. These requirements are known as Provision C.3 requirements. Beginning December 1, 2011, the MRP requires stormwater treatment requirements to be met by using evapotranspiration, infiltration, rainwater harvesting and reuse. Where this is infeasible, landscape-based biotreatment will be allowed.

Project Site development will require preparation of a Stormwater Management Plan that identifies specific measures to meet Provision C.3 of the NPDES permit.

4.H.4 Impacts and Mitigation Measures

Significance Criteria

Criteria outlined in the CEQA Guidelines were used to determine the level of significance of identified impacts on hydrology and water quality. Appendix G of the CEQA Guidelines indicates that a project would have a significant effect on the environment if it were to:

- Violate any water quality standards or waste discharge requirements;
- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted);
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site;
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;
- Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff;

- Otherwise substantially degrade water quality;
- Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map;
- Place within a 100-year flood hazard area structures which would impede or redirect flood flows;
- Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam; or
- Cause inundation by seiche, tsunami, or mudflow.

Impact Assessment Methodology

The conceptual grading and storm drain system plan provided in the draft Brisbane Baylands Specific Plan and the Infrastructure Plan (see Appendices B and C of this EIR) were used to assess hydrology impacts of the four Project Site development scenarios since it was determined that site grading requirements would be similar for each scenario, and that drainage facility requirements for each scenario would also be similar, as described in Chapter 3, *Project Description,* of this EIR. Additionally, models for existing conditions drainage system analysis prepared as part of the Brisbane Storm Drainage Master Plan by RBF Consulting in 2003 and proposed conditions analysis prepared by BKF Engineers in 2008 were compared to assess impacts.

Site preparation activities and backbone infrastructure construction would be relatively similar for all four development scenarios in terms of significant changes to existing conditions and regulations that would apply. Therefore, alteration of the Project Site in ways that would alter hydrology and impact water quality would be similar under each of the proposed scenarios. As a result, the analysis of impacts associated with each of the four proposed Project Site development scenarios, each of which include remediation of existing contamination, is grouped together in this section. The proposed water transfer agreement would result in changes to flow rates in the Tuolomne River below Hetch-Hetchy reservoir that could reduce groundwater recharge during drought years and impact streamside meadows and other alluvial deposits. This impact is discussed in *Section 4.O, Utilities, Service Systems, and Water Supply,* and would be considered a significant but mitigable impact as a result of implementation of Mitigation Measure 4.O-1b. Thus, no additional discussion of flooding hazards related to the proposed water supply agreement needs to be undertaken.

Project Impacts and Mitigation Measures

Impact 4.H-1: Would the Project violate water quality standards or waste discharge requirements?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
SM	SM	SM	SM

SU = Significant Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = no impact

DSP, DSP-V, CPP, and CPP-V

A project's impacts on water quality generally occur during three time periods: (1) during the earthwork and construction phase of project site development, when the potential for erosion, siltation and sedimentation is the greatest; (2) following

construction, prior to the establishment of any ground cover, when erosion potential remains relatively high; and (3) following completion of future development, when impacts related to sedimentation decrease markedly, but those associated with urban runoff and waste discharges increase. In the case of Project Site development, remediation activities would also be a source of potential erosion, similar to grading activities. All four Project Site development scenarios are analyzed together because while they vary in scope of development and increased amount of impervious surfaces (and resulting runoff) onsite, they all include substantial changes to existing drainage patterns as well as remediation of existing contamination and would all be subject to similar stormwater runoff and waste discharge requirements.

Water Quality Impacts of Construction Activities

Erosion and Sedimentation. Construction and grading within the Project Site would require temporary disturbance of surface soils. During the construction period, grading, excavation, and remediation activities would result in exposure of soil to runoff, causing erosion and entrainment of sediment and contaminants in the runoff. Soil stockpiles and excavated areas within the Project Site would be exposed to runoff from initial demolition and site clearing until grading, excavation, and remediation activities are completed and ground cover (landscaping, hardscape, paving, buildings) is established. If not managed properly, runoff from exposed ground would cause erosion and increased sedimentation and pollutants in stormwater. The potential for chemical releases is present at most construction sites given the types of materials used, including fuels, oils, paints, and solvents. Because of contaminants within surface soils[1], erosion could also result in release of those contaminants. Once released, these substances could be transported to the Bay in stormwater runoff, causing an incremental reduction in water quality. The proximity of the Project Site to the Bay reduces the chances that the pollutants in stormwater runoff (e.g., sediment, petroleum hydrocarbons, and lubricants) would be naturally attenuated prior to discharge to the Bay.

Contaminated Groundwater Encountered During Construction. As discussed in Section 4.G, *Hazards and Hazardous Materials*, of this EIR, groundwater beneath various portions of the Project Site, including the former landfill and railyards (Operable Unit No. 1 and Operable Unit No. 2) contains certain pollutants at concentrations above regulatory action levels (see Tables 4.G-1 through 4.G-6 for a listing of contaminants present within the Project Site). In addition, the Recology site and Schlage Lock site located north of the Project Site are also undergoing active groundwater remediation, as described in Section 4.G, *Hazards and Hazardous Materials,* of this EIR.

While the investigation and remediation efforts described in Section 4.G, *Hazards and Hazardous Materials,* are looking at both shallow and deeper aquifer systems, the shallow groundwater aquifer would be the one encountered during Project Site construction. The depths to the shallow groundwater range from approximately less than one foot up to 16 feet below the current ground surface. The construction of some of buildings, utilities, and infrastructure within the Project Site

[1] See Section 4.G, *Hazards and Hazardous Materials,* of this EIR, for a discussion of onsite contamination and remediation requirements.

may require excavation to depths that would encounter shallow groundwater. The excavations would have to be dewatered through temporary pumping to enable construction.

While the groundwater is being actively remediated, the extracted groundwater could contain constituents above action levels that, without proper handling procedures, could expose workers to adverse effects or reach downstream natural waters, resulting in water quality degradation. However, dewatering activities would be subject to site specific NPDES permit requirements that prohibits discharge of contaminated groundwater. In addition, General Construction permit requirements also contain measures to protect water quality. Implementation of these mandatory measures as required by the mitigation measures below would be adequate to ensure that construction within the Project Site would not violate water quality standards or waste discharge requirements.

Conclusion: With the substantial amount of earthwork, grading, and remediation activities required under construction for any of the four Project Site development scenarios, water quality standards would be violated, resulting in a significant impact. **Mitigation Measures 4.H-1a** and **4.H-1b** would be required for all Concept Plan scenarios to avoid the significant impact of water quality violations.

Mitigation

Mitigation Measure 4.H-1a: Prior to issuance of a grading permit, an applicant for any site specific development project to be constructed within the Project Site shall file a Notice of Intent to the RWQCB to comply with the statewide General Permit for Discharges of Storm Water Associated with Construction Activities and shall prepare and implement a SWPPP for construction activities on the Project Site in accordance with the NPDES General Construction Permit and the demonstrate compliance with the City of Brisbane's Municipal Regional Stormwater Permit Order No. 2011-0083 Provision C.3. The SWPPP shall include all provisions of the Erosion and Sediment Control Plan submitted as part of grading and construction permits. In addition to meeting the regulatory requirements for the SWPPP, the site-specific SWPPP shall include provisions for the minimization of sediment disturbance (i.e., production of turbidity) and release of chemicals to the Bay.

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	✓	✓
✓ = measure applies - = measure does not apply			

Mitigation Measure 4.H-1b: Prior to issuance of a grading permit, an applicant for any site specific development project to be constructed within the Project Site shall comply with any site-specific NPDES permit requirements for dewatering activities, as administered by the RWQCB. The RWQCB could require compliance with certain provisions in the permit, such as treatment of the flows prior to discharge, depending on the particular site conditions. Discharge of the groundwater generated

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	✓	✓
✓ = measure applies - = measure does not apply			

during dewatering to the sanitary sewer or storm drain system shall only occur with authorization of and required permits from the applicable regulatory agencies, including the Bayshore Sanitary District or the RWQCB.

Conclusion with Mitigation: Implementation of **Mitigation Measures 4.H-1a** and **4.H-1b** would ensure that Project Site development construction would not violate water quality standards and that the impact would be less than significant.

Water Quality Impacts During Post-Construction and Project Operation

Sedimentation would not be considered a significant impact during post-construction and operation of Project Site development because most of the site would be paved or landscaped, which would stabilize soils for the long term. However, paved areas would result in an increase in the amount of impervious surfaces within the Project Site and would increase stormwater runoff generation and flows. In addition, Project Site development would result in greater vehicular use of new and existing nearby roadways, which would lead to the accumulation and release of petroleum hydrocarbons, lubricants, sediments, and metals (generated by the wear of automobile parts). The management of landscaped areas would in runoff and/or infiltration of herbicides and pesticides. These types of common urban pollutants would be transported in runoff, adversely affecting the quality of waters of the Bay or groundwater. Therefore, after construction and during the life of Project Site development, nonpoint source pollutants would be the primary contributors to potential water quality degradation. Nonpoint source pollutants would be washed by rainwater from rooftops and landscaped areas into onsite and local drainage networks. Potential nonpoint source pollutants include products used in landscaping (e.g., pesticides, herbicides and fertilizers); oil, grease, and heavy metals from automobiles; and petroleum hydrocarbons from fuels.

Pollutant concentrations in runoff from a site depend on numerous factors, including:

- Land use conditions;
- Implementation of BMPs;
- Site drainage conditions;
- Intensity and duration of rainfall; and
- Climatic conditions preceding a rainfall event.

Nonpoint source pollutants in runoff that reaches San Francisco Bay would result in a significant impact. However, to reduce impacts, stormwater control/LID[2] measures would be required as standard conditions of approval for Tentative Subdivision Map and building permit application submittals, along with compliance with RWQCB Municipal Regional Stormwater Permit Order No. 2011-0083 Provision C.3 (Provision C.3). As required by the permit, the specific project applicant would incorporate LID strategies, such as stormwater reuse, onsite infiltration, and

[2] The goal of LID is to reduce runoff and mimic a site's predevelopment hydrology by minimizing disturbed areas and impervious cover and then infiltrating, storing, detaining, evapotranspiring, and/or biotreating stormwater runoff close to its source. LID employs principles such as preserving and recreating natural landscape features and minimizing imperviousness to create functional and appealing site drainage that treats stormwater as a resource, rather than a waste product. Practices used to adhere to these LID principles include measures such as rain barrels and cisterns, green roofs, permeable pavement, preserving undeveloped open space, and biotreatment through rain gardens, bioretention units, bioswales, and planter/tree boxes.

evapotranspiration as initial stormwater management strategies. Secondary methods would include the use of natural, landscape based stormwater treatment measures, as identified by Provision C.3.

Stormwater treatment measures would also be required in the final design plans in accordance with the San Mateo Countywide Water Pollution Prevention Program C.3 Stormwater Technical Guidebook. The treatment measures would vary from "local" improvements at individual building sites to "areawide" concepts such as stormwater treatment wetlands with large open space areas. The treatment BMPs would be required to include one or more of the following: bioretention areas (including bioretention swales), flow-through planters, tree well filters, vegetated buffer strips, infiltration trenches, extended detention basins, pervious paving, green roofs, and media filter. Areas located above the former landfill would not be able to incorporate features that encourage infiltration due to the low permeability cap and the need to avoid creation of leachate within the waste materials. However, green roofs, planter boxes, and other treatment measures such as mechanical filters, retention basins and other similar methods could still be applied.

Activities that take place at industrial facilities within the Project Site, such as hazardous material handling and storage, can be exposed to the weather. Stormwater runoff that comes into contact with these activities can pick up pollutants and transport them offsite if not managed appropriately. To minimize the impact of stormwater discharges from industrial facilities, the NPDES program includes an industrial stormwater permitting component that covers 10 categories of industrial activity that require authorization under an NPDES industrial stormwater permit for stormwater discharges. If an industrial facility can demonstrate that its materials and operations are not exposed to stormwater, it can be exempt from NPDES permitting program with continued notification every five years. Industrial activities would also include discharges of wastewater produced during operation of the proposed onsite recycled water plant that would be required to adhere to a Waste Discharge Requirements permit from the RWQCB. A Waste Discharge Requirement permit can be specific to a facility's operation or fall under one of the general industry category permits for certain common types of industry. The Industrial General Permit requires that each facility notify the state, prepare and implement a SWPPP, and monitor to determine the amount of pollutants leaving the site. Although the plan does not have to be submitted to the SWRCB it must be available at each facility. The permitted company must also submit an annual report to the RWQCB.

Each of the four development scenarios includes development of an onsite recycled water plant that would produce recycled water upon completion, which could be as late as 15 years into Project Site development due to the need to generate sufficient onsite wastewater flows from new development to provide for efficient operation of the facility and sufficient recycled water supply for irrigation purposes. Construction and operation of an onsite recycled water plant would require detailed engineering design, development and approval of wastewater treatment requirements by RWQCB, and further project-level environmental evaluation specific to recycled water plant construction and operation. The facility would be designed and engineered to produce tertiary treated effluent that conforms to the requirements of California Code of Regulations Title 22 for unrestricted reuse. Construction and operation of an onsite recycled water plant would be required to comply with all applicable requirements of the RWQCB and would include

the preparation of separate CEQA documents specific to the design, operation, and maintenance of the recycled water plant.

Conclusion: Development that would occur under Project Site development would result in changes to existing drainage patterns that could affect water quality of stormwater runoff. **Mitigation Measure 4.H-1c** would be required to avoid the significant impact of water quality violations.

Mitigation

Mitigation Measure 4.H-1c: Applicants for site-specific development projects to be constructed within the Project Site shall prepare and implement a Final Stormwater Management Plan (SMP) in accordance with the most recent NPDES C.3 requirements to be reviewed and approved by the City Engineer prior to approval of final design plans. The SMP shall be prepared by licensed professionals and act as the guiding document detailing best management practices for mitigating water quality impacts in the post-construction phase. Industrial uses shall prepare a SMP in accordance with NPDES permit requirements for Industrial Activity. Industrial applicants shall include management measures that will achieve the performance standard of best available technology economically achievable and best conventional pollutant control technology in accordance with the General Industrial Permit as approved by the RWQCB and shall demonstrate compliance within an annual report be submitted each July 1. The SMP shall provide operations and maintenance guidelines for all of the BMPs identified in the SMP, including LID measures and other BMPs designed to mitigate potential water quality degradation of runoff from all portions of the completed development, and shall clearly identify the funding sources for the required ongoing maintenance. The SMP shall be developed in conjunction with the Storm Drain Master Plan to ensure that the treatment designs support the hydraulics and hydrology of the proposed storm drainage system.

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	✓	✓
✓ = measure applies - = measure does not apply			

Conclusion with Mitigation: Implementation of **Mitigation Measure 4.H-1c** would be adequate to ensure that operation of Project Site development would not violate water quality standards or waste discharge requirements and that this impact would be less than significant.

Overall Conclusion

With implementation of **Mitigation Measures 4.H-1a, 4.H-1b,** and **4.H-1c,** construction, post-construction, and operational impacts related to water quality and waste discharge requirements would be less than significant.

Impact 4.H-2: Would the Project substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
LTS	LTS	LTS	LTS

SU = Significant Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = no impact

DSP, DSP-V, CPP, and CPP-V

Depletion of Groundwater Supplies

Project Site development would increase demands for water supplies. Groundwater is not currently used at the Project Site and no groundwater use is proposed under any of the scenarios (see Section 4.G, *Hazards and Hazardous Materials*, for full discussion of groundwater at the Project Site). The City does not have its own groundwater water supplies, and purchases potable water from the San Francisco Public Utilities Commission (SFPUC), which obtains its water supplies primarily from the Hetch Hetchy Reservoir in Yosemite National Park; however, occasionally the water may be supplemented or come directly from SFPUC's reservoirs in the East Bay or San Mateo Peninsula. As discussed in Section 4.O, *Utilities, Service Systems, and Water Supply* of this EIR, water supply for Project Site development would come from a proposed water transfer agreement with the Oakdale Irrigation District. Therefore, Project Site development would not substantially deplete groundwater supplies.

Interference with Groundwater Recharge

Project Site development would ultimately result in the construction of new impervious surfaces even with the implementation of LID stormwater drainage improvements that would allow for some onsite infiltration. The net increase in impervious surfaces would reduce the amount of direct groundwater recharge at the site by reducing the amount of area available for infiltration such that there could be a net deficit in aquifer volume or a lowering of the local groundwater table level.

However, groundwater is not currently used at the Project Site, and no groundwater use is proposed for Project Site development. As part of the proposed Final Closure and Postclosure Maintenance Plan for the former landfill required under Title 27 of the California Code of Regulations and the RWQCB Waste Discharge Order 01-041 (described in Section 4.G, *Hazards and Hazardous Materials*), the design of the soil cap will in fact require that infiltration is minimized to the maximum extent possible in order to prevent accumulation of leachate within the underlying waste material.

In addition, there are no downstream users of groundwater because the Project Site is immediately adjacent to Brisbane Lagoon and San Francisco Bay. As such, even if groundwater levels were to be reduced (and with its close proximity to the lagoon and Bay there may be a negligible effect), there are no potential groundwater uses or users that would be affected. Therefore, Project Site development would not interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level.

Conclusion: Project Site development would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge, and the impact would be less than significant. No mitigation is required.

Impact 4.H-3: Would the Project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
SM	SM	SM	SM

SU = Significant Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = no impact

DSP, DSP-V, CPP, and CPP-V

Changes to Existing Drainage Patterns

The Project Site is located within three existing drainage areas: Bayshore, Brisbane Lagoon, and Beatty Avenue. The site area within the Bayshore drainage area drains to the Visitacion Creek; the site area within the Brisbane Lagoon drainage area drains to Brisbane Lagoon, and the Beatty Avenue site area drains to the Beatty Avenue storm drain system.

The DSP and DSP-V scenarios would retain the existing drainage pattern of the Bayshore and Brisbane Lagoon drainage areas, but would alter the Beatty Avenue drainage area by redirecting runoff from approximately 47 acres (see watershed no. 19 on Figure 4.H-2) away from Beatty Avenue to a proposed storm drain discharging to the Visitacion Creek. The CPP and CPP-V scenarios would result in similar substantial changes to existing drainage patterns although by preserving a larger amount of open space, the total amount of impervious surface area in the CPP and CPP-V scenarios would be less than in the DSP and DSP-V scenarios.

Project Site development would collect and convey onsite runoff through a modified storm drainage system that would be constructed in accordance with the City's requirements and regional MS4 NPDES permit requirements to accommodate the increase in runoff due to the net addition of impervious area and changes to existing drainage patterns. Since the developed site would consist of ground covered either by paved areas, building, or landscape that is subject to post-construction drainage control requirements that minimize erosion, impacts related to the potential for erosion and siltation would be less than significant.

Impacts from Construction and Grading

Erosion and Sedimentation. Project Site development involves construction and grading activities that would result in exposure of disturbed surface soils to runoff, potentially causing erosion and entrainment of sediment into natural water bodies including Visitation Creek during site remediation and day-lighting of the creek channel to accommodate anticipated sea level rise. Soil stockpiles and excavated areas on the Project Site would be exposed to runoff and, if not managed properly, the runoff could cause erosion and increased sedimentation and pollutants in stormwater and waters that drain to natural water bodies. As previously discussed under Impact

4.H-1, implementation of **Mitigation Measure 4.H-1a** (Storm Water Pollution Prevention Plan) would be required to mitigate this impact during construction.

Impacts on Visitacion Creek. Project Site development would not alter the actual existing course (location) of Visitacion Creek east of the railroad right of way which traverses the site from north to south along the western portion of the Baylands, but would daylight the currently subsurface portion of the creek from the railroad right of way east and extending to the Roundhouse. This proposed design accommodates the 100-year design storm event incorporating anticipated changes to tidal flow considering the estimated sea level rise which is anticipated to occur over the next century. While the proposed creek enhancements could cause potential erosion of creek banks during construction if not implemented correctly, design and construction activities would be subject to specific standards contained in BMPs required for site grading as well as the standards established by the City's Municipal Code that are designed to protect watercourses and riparian areas[3]. With implementation of appropriate construction and operation-related BMPs (see **Mitigation Measures 4.H-1a** and **4.C-1g**), regulatory agency's post-construction re-vegetation requirements (see **Mitigation Measures 4.C-2a** through **4.C-2c**), and habitat restoration requirements as discussed further in Section 4.C, *Biological Resources*, erosion and sedimentation during and after construction would be minimized. Furthermore, Project Site development in the Visitation Creek corridor would be subject to requirements to prepare and implement a Wetland Mitigation and Monitoring Program as part of obtaining Army Corps of Engineers permit approvals. And because the work would occur within the 100-foot shoreline band that defines BCDC jurisdiction (see Section 4.C discussion of Regulatory Setting) coordination and approval from that agency would also be required. Therefore, creek enhancements proposed to accommodate the 100-year design storm event with tidal flow and 100 years of anticipated sea level rise would serve to increase the onsite length as well as the riparian functions and values provided by the on-site riparian corridor composed of Visitation Creek and would not result in an increase in sediment or stormwater runoff into natural water bodies. With Project Site development compliance with these requirements, erosion impacts in the Visitacion Creek drainage areas would be less than significant.

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[3] Site remediation and creek improvement remediation would be subject to on-site restoration to restore habitat functions and values of impacted areas pursuant to Section 404 of the Clean Water Act, and were previously addressed in a 2006 Nationwide Permit (File no: 28050S) that subsequently expired with no action recorded. Since issuance of the 2006 permit, Nationwide 404 Permits have been modified and updated. Therefore, the previous permit mechanism for cleanup at the creek is no longer valid, and a new permit must be secured as part of Project Site development.

Impact 4.H-4: Would the Project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
SM	SM	SM	SM

SU = Significant Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = no impact

DSP, DSP-V, CPP, and CPP-V

Bayshore Boulevard near Industrial Way, at the western boundary of the site, experiences flooding during the 100-year storm event due to overflow of the Levinson Overflow Area and surface flows from the Pacific Gas & Electric (PG&E) substation. Approximately 2.2 feet of flooding is expected during a 100-year storm event. Flooding effects have also been observed on the Project Site during large storm events, due to capacity deficiencies in the existing storm drain system.[4]

Each of the proposed Project Site development scenarios would add a substantial amount of new impervious area that would reduce the rate of infiltration of precipitation and increase the amount of runoff generated during a rain event. Thus, if not properly designed, development would exacerbate existing flooding onsite and offsite.

The proposed Project Site storm drainage collection system for the DSP and DSP-V scenarios would be designed in compliance with City of Brisbane, NPDES, and the City of Brisbane Storm Drainage Master Plan (SDMP) requirements. Runoff from most of the Project Site would be conveyed through onsite storm drain facilities that would discharge to an improved Visitacion Creek. Per the requirements of **Mitigation Measure 4.H-4a**, drainage facilities are to be provided that accommodate an increase in peak runoff during the 100-year design storm event with tidal flow, and with consideration of estimated sea level rise over the next century in accordance with City of Brisbane, NPDES, and SDMP regulations. The drainage plan for Project Site development would also include LID measures, as required to comply with Provision C.3 requirements, which include measures to minimize offsite flows.

The CPP and CPP-V scenarios would also add a substantial amount of new impervious area that would increase runoff generated onsite, although not to the same extent as the DSP and DSP-V scenarios. This is because the CPP and CPP-V scenarios propose more open space acreage than the DSPP and DSP-V scenarios, which would also have some development south of Visitacion Creek. The CPP and CPP-V scenarios do not propose development south of Visitacion Creek, except for a small park concession area (see figures in Chapter 3, *Project Description*, of this EIR).

[4] It should be noted that some improvements to the existing drainage system are already in progress, such as the San Francisco Public Utilities Commission's improvements to the combined sewer/storm line along Sunnydale Avenue that includes the intersection of Bayshore Boulevard and Sunnydale Avenue. These improvements will assist in alleviating some flooding issues. However, because SFPUC requirements do not permit Brisbane to discharge combined wastewater/drainage flows to SFPUC facilities, drainage from the Recology site drainage would be directed to a new separated drainage system that would keep stormwater separate from wastewater flows.

To further minimize flooding impacts, final design plans would include systemwide drainage improvements that accommodate all increased runoff in accordance with City of Brisbane SDMP requirements and correct known existing deficiencies as described above including the Levinson Overflow Area and the existing Brick Arch Sewer system The specifics for the CPP and CPP-V drainage plans would be developed as part of the required specific plan should either the CPP or CPP-V Concept Plan be selected by the City, but would similarly be required to adhere to City of Brisbane SDMP requirements.

Conclusion: Project Site development would result in changes to existing drainage patterns which could potentially result in flooding impacts onsite and offsite. **Mitigation Measures 4.H-4a, 4.H-4.b,** and **4.H-4c** would be required for Project Site development to avoid the significant impact of flooding onsite and offsite.

Mitigation

Mitigation Measure 4.H-4a: Prior to issuance of a building permit, all site-specific development plans within the Project Site shall include systemwide drainage improvements that shall accommodate all increased runoff in accordance with City requirements and correct known existing deficiencies (e.g., Levinson Overflow Area and the PG&E property). On-site storm drainage collection facilities shall be sized to convey the peak flow rate from a 25-year storm event entirely within the piping system. Drainage improvements shall accommodate the 100-year peak storm event within the piping system and streets such that building finished floor elevations provide a minimum of 1-foot of freeboard above the 100-year storm event hydraulic grade line water elevation with tidal flow and 100 years of estimated sea level rise. The proposed system design shall be submitted to the City Engineer for approval and shall hydraulically isolate existing drainage inlets fronting Levinson Overflow Area and the PG&E property from existing Brick Arch Sewer system.

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	✓	✓
✓ = measure applies - = measure does not apply			

Mitigation Measure 4.H-4b: Prior to issuance of a building permit, all site-specific development plans within the Project Site shall include additional conveyance capacity by incorporating new storm drain facilities along Bayshore Boulevard north of Industrial Avenue. Development plans shall also require addition of a new inlet near the Bayshore Boulevard and Industrial Way intersection that is large enough to intercept surface flows from Levinson Overflow Area and the PG&E property in accordance with and as approved by the City. Review and approval by the City engineer shall be required to confirm that conveyance capacity is sufficient to accommodate the 100-year peak storm event within the piping system and streets such that building finished floor elevations provide a minimum of 1-foot of freeboard above the 100-year storm event hydraulic grade line water elevation with tidal flow and 100 years of estimated sea level rise.

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	✓	✓
✓ = measure applies - = measure does not apply			

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	✓	✓
✓ = measure applies - = measure does not apply			

Mitigation Measure 4.H-4c: Prior to issuance of a building permit, all development plans in the Baylands shall include conveyance improvements to existing Visitacion Creek in the final drainage plan design and extend it further west of Tunnel Road to the Roundhouse area as approved by the City and in accordance with Army Corps of Engineers and California Department of Fish and Wildlife requirements. Improvements to tidal portions of Visitacion Creek will be made in accordance with requirements stipulated in permits from the BCDC. Project Site development and infrastructure design shall also incorporate a detention zone within the newly extended channel. Project Site development shall remove the existing Timber Box Culvert between Tunnel Road and the Caltrain mainline tracks and replace it with an open channel system prior to Project site development completion. The design shall accommodate increases in peak runoff during 100-year design storm event with tidal flow, and with consideration of estimated sea level rise over the next century and provide protection of new structures for human occupancy from the 100-year design storm event throughout and after Project Site development.

Conclusion with Mitigation: With the inclusion of **Mitigation Measures 4.H-4a, 4.H-4.b,** and **4.H-4c**, impacts related to onsite or offsite flooding would be less than significant.

Impact 4.H-5: Would the Project create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
SM	SM	SM	SM
SU = Significant Unavoidable SM = Significant but Mitigable LTS = Less than Significant - = no impact			

DSP, DSP-V, CPP, and CPP-V

Project Site development would result in a net increase of impervious area and therefore would result in increases in the peak volume of runoff generated onsite.

Exceedance of Storm Drainage System Capacity

The capacity of the existing stormwater system, specifically the Brick Arch Sewer, Visitacion Creek, Timber Box Culvert, and Bayshore Boulevard drainage system, is currently exceeded during large storm events in which runoff floods low-lying areas of the Bayshore Drainage Area including areas of the Project Site. Under current conditions, substantial improvements would be required to accommodate the 100-year peak storm event within drainage systems and streets with tidal flow and 100 years of estimated sea level rise.

Under all of the proposed development scenarios, Project Site development would include adding substantial increases in impervious surfaces as discussed above that would result in additional stormwater runoff volumes. Preliminary drainage calculations were prepared for the DSP and DSP-V scenarios demonstrating the lack of adequate capacity of the Project Site's existing storm drainage system, quantifying increases in runoff, and providing preliminary design for needed

drainage improvements (see **Appendix B**, *Infrastructure Plan*). While the CPP and CPP-V scenarios would result in a lesser increase in stormwater runoff than would the DSP and DSP-V scenarios, it would still exceed the capacity of the existing system, which does not have capacity to handle any increases in runoff rates and volumes as evidenced by existing problem areas.

As noted above, Project Site development design would incorporate upgrades to the existing storm drainage system in order to accommodate increases in runoff from the Project Site following proposed development. As noted above, future development would be required to safely convey the 25-year storm event entirely within the piping system, and accommodate the 100-year peak storm event within the piping system and streets such that building finished floor elevations provide a minimum of 1-foot of freeboard above the 100-year storm event hydraulic grade line water elevation with tidal flow and 100 years of estimated sea level rise. Additionally, as noted above, **Mitigation Measure 4.H-1c** requires a Final Stormwater Management Plan to be prepared and submitted to the City of Brisbane for approval prior to the submittal of any grading permits to meet the drainage criteria cited at the beginning of this paragraph. **Mitigation Measures 4.H-4a, 4.H-4b,** and **4.H-4c** also require improvements on specific areas of current undersized or inadequate facilities to meet this performance standard. Meeting the performance standard will involve calculation of increases in impervious surface area, the total estimated stormwater flows from the site, a detailed review of the stormwater treatment alternatives, hydraulic calculations, BMPs, system layouts, phasing, plans, and maintenance requirements in accordance with the City of Brisbane Stormwater Master Plan. The plan also would demonstrate compliance with the performance standards set in the EIR mitigation measures, as well as compliance with existing City of Brisbane stormwater regulations and policies and applicable Municipal Storm Water NPDES Permit requirements. According to modeling performed by BKF Engineers, the proposed infrastructure and Central Drainage Canal is capable of supporting the onsite 25-year design storm drain runoff without ponding and would reduce offsite flooding on Bayshore Boulevard for the 100-year storm event (BKF, 2011).

Conclusion: Project Site development would result in changes to existing drainage patterns that would result in flooding impacts onsite and offsite. **Mitigation Measures 4.H-4a, 4.H-4.b,** and **4.H-4c** establish criteria that new development would be required to meet to ensure adequate protection of uses onsite, including criteria for the performance of any stormwater conveyance improvements to avoid the significant impact of flooding onsite and offsite.

Polluted Runoff

Project Site development would introduce new impervious surfaces that would be the source of new stormwater runoff pollutants typical of urban settings, such as pollutants associated with automobiles (rubber residue from tires, oil, grease, gasoline, metals and other automotive fuels), which, if not managed appropriately, would violate water quality standards. The management of landscaped areas would also present the potential for runoff and/or infiltration of herbicides and pesticides. These types of common urban pollutants could be transported in runoff, potentially adversely affecting the quality of waters of receiving surface waters or groundwater. Nonpoint source pollutants would be washed by rainwater from rooftops and landscaped areas into onsite and local drainage networks. Runoff from landscaped areas, including roadway parkways, parks,

and other irrigated open space areas would carry various pesticides and herbicides typically used in landscape maintenance. Discharge of these source pollutants to the Bay could further impair the water quality of the Bay and would be considered a significant impact if not addressed in the Project Site development design and stormwater infrastructure.

The introduction of new paved areas, building rooftops, parking lots etc., would present the potential for accumulation and release of petroleum hydrocarbons, lubricants, sediments, and metals (generated by the wear of automobile parts). Pollutant concentrations in runoff from a site depend on numerous factors, including:

- Land use conditions;
- Implementation of BMPs;
- Site drainage conditions;
- Intensity and duration of rainfall; and
- Climatic conditions preceding a rainfall event.

However, in general, existing local stormwater management plans and policies, and State Water Board requirements, which implement CWA requirements, would minimize the creation of pollution generating surfaces. CWA Section 402 NPDES MS4 permits require stormwater management plans, which in turn require source and treatment control measures. NPDES MS4 requirements include measures to reduce the severity of impacts by requiring stormwater drainage control/ LID design measures that are in compliance with RWQCB Municipal Regional Stormwater Permit Order No. 2011-0083 Provision C.3 (Provision C.3). As required by Provision C.3, for new development that would introduce 10,000 square feet of new impervious surfaces, the specific project applicant would incorporate LID strategies, such as stormwater reuse, onsite infiltration, and evapotranspiration as initial stormwater management strategies. Secondary methods would include the use of natural, landscape based stormwater treatment measures, as identified by Provision C.3. Treatment control measures may include use of vegetated swales and buffers, grass median strips, detention basins, wet ponds, or constructed wetlands, infiltration basins, and other measures. Filtration systems may be either mechanical (e.g., oil/water separators) or natural (e.g., bioswales and settlement ponds). Redevelopment projects may even result in improved water quality compared to existing conditions where existing development was constructed under older less stringent stormwater requirements.

The City of Brisbane operates under the 2011 RWQCB San Francisco Bay Region Municipal Regional Stormwater NPDES MS4 Permit (Order R2-2011-0083, NPDES Permit No. CAS612008). As required by the permit, the City implements specific BMPs to help reduce pollutants and eliminate non-stormwater discharges to the storm drain system (RWQCB, 2011). As described above, Project Site development would be required to comply with Provision C.3 of NPDES Permit No. CAS612008 to include operational BMPs such as LID measures to minimize the potential impact from polluted stormwater runoff, including:

- **Source Control Requirements**

  Source control measures are required, at a minimum, to include the following:

- Minimize stormwater pollutants of concern in urban runoff through measures that may include plumbing of the following discharges to the sanitary sewer:
  - Discharges from indoor floor mat/equipment/hood filter wash racks or covered outdoor wash racks for restaurants;
  - Dumpster drips from covered trash, food waste and compactor enclosures;
  - Discharges from covered outdoor wash areas for vehicles, equipment, and accessories;
  - Swimming pool water, if discharge to onsite vegetated areas is not a feasible option; and
  - Fire sprinkler test water, if discharge to onsite vegetated areas is not a feasible option;
- Properly designed covers, drains, and storage precautions for outdoor material storage areas, loading docks, repair/maintenance bays, and fueling areas;
- Properly designed trash storage areas;
- Landscaping that minimizes irrigation and runoff, promotes surface infiltration, minimizes the use of pesticides and fertilizers, and incorporates other appropriate sustainable landscaping practices and programs such as Bay-Friendly Landscaping;
- Efficient irrigation systems; and
- Storm drain system stenciling or signage.

- **Site Design and Stormwater Treatment Requirements**
  - Implement at least the following onsite:
    - Limit disturbance of natural water bodies and drainage systems; minimize compaction of highly permeable soils; protect slopes and channels; and minimize impacts from stormwater and urban runoff on the biological integrity of natural drainage systems and water bodies;
    - Conserve natural areas, including existing trees, other vegetation, and soils;
    - Minimize impervious surfaces;
    - Minimize disturbances to natural drainages; and
    - Minimize stormwater runoff through one or more of the following:
      - Direct roof runoff into cisterns or rain barrels for reuse.
      - Direct roof runoff onto vegetated areas.
      - Direct runoff from sidewalks, walkways, and/or patios onto vegetated areas.
      - Direct runoff from driveways and/or uncovered parking lots onto vegetated areas.
      - Construct sidewalks, walkways, and/or with permeable surfaces.
      - Construct driveways, bike lanes, and/or uncovered parking lots with permeable surfaces.

- Treat runoff with LID treatment measures.
    - LID treatment measures are harvesting and re-use, infiltration, evapotranspiration, or biotreatment.
    - A properly engineered and maintained biotreatment system may be employed only if it is infeasible to implement onsite harvesting and re-use, infiltration, or evapotranspiration.

Conclusion: Project Site development would result in creation of new impervious surfaces that would increase stormwater runoff volumes and present potential sources of polluted runoff. This would result in a significant impact. Implementation of **Mitigation Measures 4.H-1c, 4.H-4a, 4.H-4b, 4.H-4c** and **4.H-5** is recommended to reduce this impact to a less-than-significant level.

Mitigation

Mitigation Measure 4.H-5: Prior to issuance of an occupancy permit for site-specific development within the Project Site, an integrated pest management plan shall be prepared and implemented, subject to City review and approval, to set forth a preventative, long-term, low toxicity program to control pests. The plan shall provide guidelines for landscape and building maintenance with the emphasis on minimizing the use of pesticides while controlling pests. At a minimum, the integrated pest management plan shall include:

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	✓	✓
✓ = measure applies - = measure does not apply			

- ***Identification of acceptable pest levels*** (action thresholds) with an emphasis on *control*, not *eradication*, identifying site and pest specific action thresholds, and the controls to be use if those thresholds are exceeded.
- ***Preventive practices*****:** Design, construction, and maintenance of landscape facilities, and buildings, as well as operation of uses that prevent or minimize pest problems.
- ***Monitoring*****:** Regular observation, including inspection and identification.
- ***Mechanical controls*****:** Should a pest reach an unacceptable level, provide for mechanical methods as the first options, including include simple hand-picking, erecting insect barriers, using traps, vacuuming, and tillage to disrupt breeding.
- ***Biological Controls*****:** Provide for use of natural biological processes and materials for control, including promoting beneficial insects that prey on eat target pests and biological insecticides derived from naturally occurring microorganisms.
- ***Responsible Pesticide Use*****:** Provide for use of synthetic pesticides generally only as required when preferred methods are infeasible or ineffective, including use of the least toxic pesticide that will do the job and is the safest for other organisms and for air, soil, and water quality; use of pesticides in bait stations rather than sprays; or spot-spraying rather than general application.

Conclusion with Mitigation: With the inclusion of **Mitigation Measures 4.H-1c, 4.H-4a, 4.H-4.b, 4.H-4c**, and **4H-5**, the stormwater drainage design would be required to minimize potential

sources of pollution such that impacts related to increased stormwater runoff and polluted runoff would be less than significant for Project Site development.

Impact 4.H-6: Would the Project place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
SM	SM	-	-

SU = Significant Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = no impact

CPP and CPP-V

The CPP and CPP-V propose no residential development and therefore would have no impact in relation to this criterion.

DSP and DSP-V

Flood Insurance Rate Maps prepared by FEMA (Community-Panel Number 0603140001B) for the Project Site region have been recently updated in 2013. The current approved FEMA maps show only areas along Visitacion Creek and between Bayshore Boulevard and Industrial Way that are within the 100-year flood hazard area; the maps for the remaining areas of the Project Site are shown as being outside the 100-year flood hazard area. A detailed analysis completed for the Brisbane Storm Drainage Master Plan in 2003 identifies additional low-lying areas that may be flooded during a 100-year storm event (RBF, 2003). These include an area between Bayshore Boulevard and the railroad tracks, and portions of Bayshore Boulevard adjacent to the Project Site (RBF, 2003).

The DSP and DSP-V scenarios propose housing in areas that have been mapped as 100-year flood hazard areas based on existing topography. However, these areas are prone to flooding primarily due to insufficient capacities in the existing drainage system, which would be corrected through implementation of **Mitigation Measures 4.H-1c, 4.H-4a, 4.H-4b,** and **4.H-4c,** as well as regulatory compliances discussed in Impact 4.H-1, Impact 4.H-3 and Impact 4.H-4. In addition, the finished floor elevations for housing under the DSP and DSP-V scenarios are proposed to be 13 feet and higher than current ground levels, which would be well above the existing flood-prone areas. Therefore the potential for flooding is considered low.

Conclusion: Development that would occur under the DSP and DSP-V scenarios would construct housing in areas currently mapped as within the 100-year flood zone. As mentioned above, **Mitigation Measures 4.H-1c, 4.H-4a, 4.H-4b,** and **4.H-4c,** which is recommended under all four proposed development scenarios, would require a Final Stormwater Management Plan and improvements to existing system deficiencies as mentioned above.

Conclusion with Mitigation: With the inclusion of **Mitigation Measures 4.H-1c, 4.H-4a, 4.H-4.b,** and **4.H-4c**, impacts related to placement of housing in a 100-year flood zone would be less than significant under the DSP and DSP-V scenarios.

Impact 4.H-7: Would the Project place structures within a 100-year flood hazard area that would impede or redirect flood flows?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
SM	SM	SM	SM

SU = Significant Unavoidable
SM= Significant but Mitigable
LTS = Less than Significant
- = no impact

DSP, DSP-V, CPP, and CPP-V

Project Site development would allow construction of structures in areas between Bayshore Boulevard and the Caltrain tracks that, as described under Impact 4.H-6 above, could become flooded during a 100-year storm event. As also discussed under Impact 4.H-4 above, Project Site development would be required to improve the existing system conveyance capacity to reduce flooding onsite and offsite.

With incorporation of the design features described above under Impact 4.H-4 and in Section 4.O, *Utilities, Service Systems, and Water Supply*, of this EIR, placement of fill materials that raises ground elevations to minimum requirements above flood zone levels, along with implementation of applicable agency permitting requirements, Project Site development would not result in significant environmental effects related to placing structures within a 100-year flood hazard area that would impede or redirect flood flows.

Conclusion: Development that would occur under the all of the proposed scenarios would construct structures in areas currently mapped as within the 100-year flood zone. As mentioned above, **Mitigation Measures 4.H-1c, 4.H-4a, 4.H-4b,** and **4.H-4c** would require a Final Stormwater Management Plan and improvements to existing system deficiencies as mentioned above. Implementation of these mitigation measures is recommended under all four proposed development scenarios to reduce impacts related to the placement of structures within the flood zone.

Conclusion with Mitigation: With the inclusion of **Mitigation Measures 4.H-1c, 4.H-4a, 4.H-4.b,** and **4.H-4c**, impacts related to placement of structures in a 100-year flood zone would be less than significant under Project Site development.

Impact 4.H-8: Would the Project expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
SM	SM	SM	SM

SU = Significant Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = no impact

DSP, DSP-V, CPP, and CPP-V

Flooding Due to Levee or Dam Failure

The Project Site is located adjacent to the Levinson Overflow Area (the off-channel detention basin located at the northwest corner of Main Street and Bayshore Boulevard). This detention basin is designed to detain high flows during large storm events and alleviate downstream flows. When flows reach elevations above the weir, water is redirected into the Levinson Overflow Area. The weir elevation of the Levinson Overflow Area eastern berm is 11.8 feet National Geodetic

Vertical Datum 29 (NGVD 29). Under existing conditions, during a 100-year design storm event, the water surface elevation reaches 12.52 feet, which is approximately 1.48 feet below the surrounding lowest proposed pad elevation (BKF, 2011). Therefore, even if the berm were to fail during a 100-year storm event, flows would flood Bayshore Boulevard and surrounding areas that are below 12.52 feet but would not inundate proposed structures which would have finished floor elevations of at least 14 feet. In addition, Project improvements to drainage capacities of the system that incorporate Levinson Overflows would also reduce the potential for flooding in this area.

Conclusion: According to maps compiled by the Association of Bay Area Governments, the Project Site is not otherwise located in any inundation area for any dams or reservoirs (ABAG, 2012). Therefore, impact due to failure of a levee or dam would be less than significant for Project Site development.

Flooding Due to Sea Level Rise

Project Site development could expose people or structures to flooding or tidal events that may result from rising sea levels.

Over the last 100 years, the temperature of the earth's surface has risen approximately 0.6 degree Celsius (1.8 degrees Fahrenheit). Global warming causes melting of the earth's glaciers and polar ice fields, as well as thermal expansion of the upper layers of the ocean, which increases the volume of water. Historically, global sea level has been rising at a rate of 0.5 to 0.6 foot per century. Over the past decade there has been a growing concern that increased emissions of carbon dioxide and other greenhouse gasses will cause an increase in global temperature that could accelerate the rate of sea level rise.

Such increases in sea level, if sustained over long periods of time (e.g., 50 to 100 years or more), could create or exacerbate existing coastal flooding hazards for the Project Site by elevating mean sea levels. The most recent region-specific estimate from BCDC predicts an increase of 16 inches by mid-century and 55 inches at the end of century. BCDC models indicate that an 11.8-inch rise in sea level would shift the 100-year storm surge-induced flood event to once every 10 years.

It is not possible to project exactly what the future effects of sea level rise will be within the Brisbane Baylands, largely due to the uncertainty surrounding groundwater movements that would occur in response to gradual rise in sea level (LaClair, 2012). BCDC is currently researching this issue, but has not completed that work (LaClair, 2012). The storm drainage model prepared by BKF Engineers uses a tidal cycle with a maximum elevation of 6.0 feet (NGVD 29) overlapped with the 100-year storm event when developing the water levels and hydraulic grade line within Visitacion Creek. A model was completed by BKF to assess the impacts of sea level rise on the water levels in Visitaction Creek as part of the conceptual drainage plan for the DSP and DSP-V scenarios (BKF, 2011). When the anticipated sea level rise is incorporated into the model, the maximum 100-year water surface elevation in Visitacion Creek at the Roundhouse rises to approximately 9.9 feet by mid-century and 11.9 feet by the end of the century compared to the lowest elevation of 14 feet for any proposed structure (BKF, 2011). The Roundhouse itself is at a sufficiently high elevation as to

not be affected by sea level rise and other existing lower lying existing structures that could be affected are proposed for demolition.

As noted in Section 4.G, *Hazards*, sea level rise may cause changes to groundwater conditions at the Project Site, although it is not possible to project exactly what future effects would be (LaClair, 2012). Water infiltration from either groundwater or flood waters from the Bay could potentially mobilize contaminants and affect water quality of the surrounding groundwater and even the Bay. However, the Project Site as well as some surrounding areas are currently under cleanup orders from the RWQCB and the Department of Toxic Substances Control. Final landfill closure and remediation would not occur until the potential exposure risk from any remaining contamination has been reduced to less-than-significant levels and would incorporate the potential for higher groundwater levels due to sea level rise.

According to the conceptual grading plan for the Project Site (see Appendix B of this EIR), development of the Project Site would re-grade the low-lying portions of the Project Site by adding fill materials so that the site would be more resilient to flooding from sea level rise. The mounded elevation of the landfill area from decades of use as a municipal landfill and clean fill storage area has already raised the area out of the projected 55-inch sea level rise flood zone. The grading plan would also provide additional soil to be imported to the western portion (former railyard) of the Project Site would protect the upland portions of the site from flooding due to sea level rise. Lower-lying areas would be part of the proposed open space network, or include substantial landscaped areas, which would provide areas for stormwater filtration. In addition, as required by **Mitigation Measure 4.H-8**, development would require compliance with BCDCs Bay Plan policies related to sea level rise for areas located within their jurisdiction.

Conclusion: Over time, Project Site development could be subject to impacts related to sea level rise. Implementation of **Mitigation Measure 4.H-8** is recommended to avoid impacts related to the exposure of people or structures to a significant risk of loss, injury, or death involving flooding.

Mitigation

Mitigation Measure 4.H-8: Concurrent with submittal of development applications, site-specific development projects within the area south of the proposed Geneva extension shall submit design plans along with a Sea Level Rise Risk Assessment Report to the City. Site specific development projects within portion of the Project Site under BCDC jurisdiction shall submit design plans and a Sea Level Rise Risk Assessment Report to BCDC in accordance with the most current San Francisco Bay Plan policies. Site-specific development within the Project Site shall incorporate protection measures that demonstrate ability to handle the flood levels expected by mid-century in accordance with the San Francisco Bay Plan. Any BCDC requirements after review of the Sea Level Rise Risk Assessment report shall also be incorporated into Project design prior to issuance of a building permit. Sea level rise analyses shall be based on the California Climate Action Team's sea level rise projections for the West Coast, unless otherwise substantiated to the satisfaction of BCDC. For site-specific development projects

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	✓	✓
✓ = measure applies - = measure does not apply			

within the area subject to BCDC jurisdiction, discretionary permits from the City such as grading or building permits shall be obtained prior to final approval of the BCDC permit.[5]

Conclusion with Mitigation: With the inclusion of **Mitigation Measure 4.H-8**, implementation of Project Site development would not result in significant environmental impacts related to sea level rise and this impact would be less than significant**.**

Overall Conclusion

Impacts related to failure of a levee or dam would be less than significant for all four scenarios. With implementation of **Mitigation Measure 4.H-8**, environmental impacts related to sea level rise would be less than significant for all four scenarios.

Impact 4.H-9: Would the Project expose people or structures to a significant risk of loss, injury or death involving inundation by seiche, tsunami, or mudflow?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
LTS	LTS	LTS	LTS

SU = Significant Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = no impact

DSP, DSP-V, CPP, and CPP-V

Tsunami and Seiche Impacts

According to FEMA, tsunamis are a series of large waves created by an underwater disturbance such as an earthquake, landslide, volcanic eruption, or meteorite. A tsunami can move hundreds of miles per hour in the open ocean and reach land with waves as high as 100 feet or more. According the United States Geological Survey, a seiche is a standing wave in an enclosed or partly enclosed body of water. Seiches are normally caused by an earthquake or high wind activity and can affect harbors, bays, lakes, rivers and canals. Coastal developments are sometimes at risk of inundations associated with tsunamis or other large wave events.

A total of 51 tsunamis have been recorded or observed within the San Francisco Bay since 1850 (CGS, 2005).[6] Of these, only the tsunamis generated by the 1960 Chile earthquake and the 1964 Alaska earthquake caused damage in San Francisco Bay. The 1964 tsunami event caused the most damage of the two most notable events and had a recorded amplitude of approximately 3.7 feet at

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5 Depending on the site specific development project, BCDC would issue one of three types of permits:

Regionwide Permit for *routine maintenance* work that qualifies for approval under an existing Commission regionwide permit can be authorized by the Commission's executive director without Commission review or a public hearing.

Administrative Permit can be issued for an activity that qualifies as a *minor repair or improvement* without a public hearing on the application. The project is reviewed against the same policies that are used to determine whether a major permit can approved.

Major Permit A major permit is issued for work that is more extensive than a minor repair or improvement. A public hearing is held on an application for a major permit and the application may be reviewed at hearings held by the engineers and designers who advise the Commission.

6 This total does not include the more recent March 2011 earthquake in Japan, which produced a small but noticeable tsunami wave that entered the Bay.

the Presidio in San Francisco. According to newspaper articles in the San Francisco Chronicle (March 29, 1964) and Marin Independent Journal (March 30, 1964), damage in San Francisco Bay was largely to small boats.

Given the history of tsunamis in San Francisco Bay which has never reported any significant damage, the risk of a tsunami exceeding the height observed in 1964 at the Project Site is considered low (CGS, 2005). The potential hazard related to tsunamis within San Francisco Bay has been analyzed in regional studies and mapped for South San Francisco USGS quadrant which shows no inundation areas that coincide with the Project Site (CalEMA, 2009). As noted, the finished floor elevation of Project Site development would be 14 feet and higher. Therefore, the risk of flooding due to a tsunami event is considered low, and the impact would be less than significant.

The Project Site is located in the western part of San Francisco Bay, which is not subject to potential flooding by wind-induced seiches because of the predominant eastward winds. In addition, no seismically induced seiche waves have been documented in the Bay.

Mudflow Impacts

The Project Site is located in a relatively low-lying area in a developed urbanized region that is not susceptible to mudflows, and therefore the impact of Project Site development would be less than significant.

Conclusion: Project Site development would not expose people or structures to a significant risk of loss, injury, or death involving inundation by seiche, tsunami, or mudflow. Therefore, this impact would be less than significant.

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4.I Land Use and Planning Policy

4.I.1 Introduction

This section describes the existing land uses on the Project Site and in the vicinity and evaluates the land use impacts of Project Site development as described in Chapter 3, *Project Description*, of this EIR. Feasible mitigation measures are identified to reduce significant impacts. This section also discusses the impacts of the Project Site development on existing communities and its consistency with applicable land use plans, policies, and regulations.

4.I.2 Environmental Setting

Historic Setting

According to the Brisbane General Plan, the earliest recorded land use in what is now Brisbane was ranching. The Guadalupe Valley, within which Central Brisbane, Crocker Park, and the Northeast Ridge are located, was part of an 1838 Mexican land grant known as *Rancho Canada de Guadalupe la Visitacion y Rodeo Viejo*. Charles Crocker purchased most of this land grant in 1884 and called it Visitacion Ranch. The Project Site was added to this area through a series of historic landfills along the San Francisco Bay shoreline.

Historic uses of the Project Site include the former Brisbane Landfill and the former Southern Pacific Bayshore Railyard. The former landfill area is located on the east side of the Caltrain tracks which bisect the Project Site. This area was operated as a landfill from 1932 to 1967; after its closure, the landfill was buried with 20 to 30 feet of soil cover. Several buildings have been constructed on the former landfill, including portions of the Recology facility, Sierra Point Lumber and Van Arsdale Lumber, which still remain. Much of the former landfill is used for soil and construction material recycling.

The former railyard on the west side of the tracks was occupied by the Southern Pacific Bayshore Railyard. This 228-acre railyard area was operated by Southern Pacific Railroad (SPRR) for freight train activity into and out of San Francisco between 1914 and 1960. The majority of this area is now vacant with remnant railroad buildings, such as a Roundhouse, remaining. The historic significance of these railyard remnants is described in detail in Chapter 4.D, *Cultural Resources*, of this EIR.

Prior activities on the former landfill and railyard areas have resulted in soil and groundwater contamination within the Project Site, necessitating remediation and final landfill closure, prior to site development. Proposed remedial actions are described in Chapter 3, *Project Description*, of this EIR, and analyzed in detail in Section 4.G, *Hazards and Hazardous Materials*, of this EIR.

Existing Setting

The Project Site boundaries extend from the northern edge of the existing Recology site (located within the limits of the City and County of San Francisco [San Francisco]) to the southern tip of

Brisbane Lagoon (see Figure 3-2). The site is bounded on the east by US Highway 101 and on the west by Bayshore Boulevard. The Project Site comprises 597 acres of land and 136 acres of water and lagoon area, for a total of 733 acres. However, the acreage proposed for development under the DSP and DSP-V scenarios is 49 acres less than that proposed under the CPP and CPP-V scenarios. The exclusion from the DSP and DSP-V of the existing 44.2-acre Recology site and adjacent roadway rights-of-way (as shown in Figures 3-8 and 3-9) accounts for this difference.

Existing Development on the Project Site

While the Project Site is surrounded on three sides by residential, commercial, and industrial development within Brisbane, San Francisco, and Daly City, the site itself is almost completely undeveloped, containing mainly disturbed dirt areas that were formerly part of the Brisbane Landfill (east of the rail corridor) and the SPRR yard (west of the rail corridor). Since the landfill's closure in 1967, the eastern portion of the Project Site has been used as a repository and recycling area for materials from construction sites in the region, such as sand, dirt, and gravel. Within this eastern portion of the Project Site, two lumberyards—Sierra Point Lumber and Van Arsdale-Harris Lumber—and the Recology solid waste transfer facility continue to operate.

Use of the railyard began to decline in the 1960s and it was mostly idle when SPRR sold the property to UPC (formerly known as Tuntex Corporation) in 1989. Today, this portion of the Project Site is vacant except for several remaining buildings from the railroad era, including the Roundhouse and the Lazzari Fuel Company building (see further discussion in Section 4.D, *Cultural Resources*, of this EIR), as well as a native plant nursery operated by the Friends of San Bruno Mountain.

The remainder of development in the western portion of the Project Site consists of the Brisbane Bayshore Industrial Park, which contains warehousing- and supply-related service uses that occupy the stretch of UPC-owned property between Bayshore Boulevard and Industrial Way.

Overall, existing land uses include approximately 632,900 square feet of commercial, industrial, resource recovery or retail (lumberyard) space over approximately 133 acres of developed land (see Chapter 3, *Project Description*, Section 3.2.3), open space, and other public land including rights-of-way.

Other Project Site Features

The Project Site contains several other existing facilities and natural features. The Caltrain station platform is located at the northernmost portion of the site, with the parking lot located immediately to the north of the Project Site boundary, west of Tunnel Avenue.

Natural features on the Project Site include Brisbane Lagoon, Visitacion Creek, and Icehouse Hill. The 136-acre lagoon includes water area and lagoon wetland area. Visitacion Creek bisects the eastern half of the Project Site and includes the waterway and bank between US Highway 101 and Tunnel Avenue. To the west of the rail corridor is Icehouse Hill, most of which is undisturbed natural area.

Surrounding Development and Land Uses

The Project Site boundary completely surrounds the 23.5-acre Kinder Morgan Energy Tank Farm (fuel storage facility), which is not part of the Project Site development (see **Figure 4.I-1**). This facility, located near the center of the Project Site between the Caltrain tracks and Tunnel Avenue, supplies jet fuel for aircraft at San Francisco International Airport, located south of Brisbane. Just to the west of the Kinder Morgan Energy Tank Farm site and across the railroad tracks is the Machinery & Equipment, Inc. site. The Machinery & Equipment, Inc. site is also not a part of the proposed Project.

Outside of the Project Site, uses vary from industrial to residential. To the north, existing uses include the former Schlage Lock facility. Farther north and to the east across US Highway 101 is Candlestick Park, an outdoor sports and entertainment stadium located in the Bayview Heights area of San Francisco. As mentioned earlier, the Caltrain station parking lot is located along the rail corridor immediately north of the Project Site. Along Bayshore Boulevard, uses to the northwest of the Project Site include San Francisco's Visitacion Valley residential neighborhood, and to the west, land uses include residential, commercial, and manufacturing uses within Daly City (within Daly City's former Bayshore Redevelopment Area) and the PG&E Martin substation. Also located within Daly City's former Bayshore Redevelopment Area is the Cow Palace, an indoor arena used for public events such as concerts, sporting events, and conventions. The Cow Palace is located off of Geneva Avenue, approximately five blocks west of the northwestern boundary of the City of Brisbane. The Northeast Ridge residential area in Brisbane is south of the PG&E substation and the 250-acre Crocker Industrial Park is nestled between the Northeast Ridge area and Central Brisbane. Central Brisbane is located at the southwest edge of the Project Site, west of Brisbane Lagoon. Land uses in Central Brisbane are primarily residential, with retail located along Old Country Road and Visitacion Avenue.

Southeast of the Project Site and east of US Highway 101 is the Sierra Point Business Center. The majority of the existing buildings at Sierra Point are office buildings, with the exception of two hotels (the Radisson Hotel and Homewood Suites) at the southwest corner of Sierra Point Parkway and Marina Boulevard. Large undeveloped properties remain within the southern, northwestern, and northeastern portions of the Sierra Point Business Center. In addition to the existing buildings, there are two approved but unbuilt projects: a biotech campus consisting of five buildings on approximately 23 acres along the south edge of Sierra Point approved in May 2008, and two office towers (Opus Office Project) on approximately nine acres at the northwestern corner of Sierra Point, approved in April 2009 (City of Brisbane, 2009).

4.I.3 Regulatory Setting

Development of the Project Site must comply with federal, state, regional, and local regulations. This section discusses requirements related to land use and planning policy, to the extent these requirements affect Project Site development.

Figure 4.I-1
Existing Project Site and Surrounding Land Uses

State Regulations

State Lands Commission

The State Lands Commission (SLC) has jurisdiction and control over state-owned tidelands, submerged lands, and navigable waterways. The SLC's authority and responsibility over these lands includes the management and protection of the important natural and cultural resources, as well as public access. The State of California acquired sovereign ownership of these lands upon becoming a state in 1850. The state holds these lands for the benefit of its citizens, subject to the public trust, for water-related commerce, navigation, fisheries, recreation, and open space. The state-owned sovereign land establishes a public trust easement, which reserves the right for public recreational use and activities. Any physical improvements to the land would need to be submitted to, reviewed, and authorized by the SLC. Authorization for improvements is granted in the form of a lease agreement with the SLC. A 30-acre area at the north end of Brisbane Lagoon is under state ownership (see Figure 3-8 in Chapter 3, *Project Description*, of this EIR).

California Department of Resources Recycling and Recovery

The California Department of Resources Recycling and Recovery (CalRecycle) requires submission of land use plans to a Local Enforcement Agency (LEA) or county Department of Environmental Health for approval of future land uses for post-closure landfill sites per state requirements to ensure public health and safety and prevent future contamination. Land use plans for development within Project Site would be subject to approval by the San Mateo County Health System Environmental Health Division.

Whereas CalRecycle places requirements on the land use plan for the Baylands (submittal to a LEA or county Department of Environmental Health for approval of future land uses for post-closure landfill sites per state requirements), the Regional Water Quality Control Board (RWQCB) and Department of Toxic Substances Control (DTSC) enforce regulations regarding remediation of contaminated portions of the Project Site. A detailed discussion of existing hazardous waste and proposed remedial actions can be found in Section 4.G, *Hazards and Hazardous Materials*, of this EIR.

Regional Regulations

San Francisco Bay Plan

The portion of the Project Site within 100 feet of the shoreline of San Francisco Bay is subject to permitting regulations of the San Francisco Bay Conservation and Development Commission (BCDC). BCDC is the designated state coastal management agency for the San Francisco Bay segment of the California Coastal Zone. BCDC's purpose is to protect and enhance San Francisco Bay for public and environmental benefit, and to encourage responsible use.

The San Francisco Bay Plan, developed by BCDC in 1969, designates shoreline uses and conservation areas throughout San Francisco Bay. The Bay Plan was last amended in September 2006. The 1969 McAteer-Petris Act amendment made BCDC a permanent agency and the Bay Plan state law.

BCDC's jurisdiction within the Project Site includes Brisbane Lagoon, Visitacion Creek, and a 100-foot shoreline band around these features, each of which are designated Waterfront Park, Beach in the Bay Plan (see **Figure 4.I-2**). Relevant policies include:

16. **(Area along U.S. 101 Adjacent to the Brisbane Lagoon) –** Provide safe, accessible pedestrian access across freeway.

17. **(East Side of U.S. 101 North of Brisbane Lagoon) –** No roadway in Bay east of U.S. 101.

18. **U.S. 101 Causeway –** Develop scenic frontage road and turnouts for fishing and viewing. Protect shellfish beds offshore.

19. **Bay View Park –** Provide trail link to waterfront.

Plan Bay Area (Including Sustainable Communities Strategy)

Plan Bay Area is an integrated long-range transportation and land use/housing plan for the San Francisco Bay Area. It includes the Bay Area's Regional Transportation Plan, which the Metropolitan Transportation Commission (MTC) updates every four years, and the Association of Bay Area Governments (ABAG) demographic and economic forecast, which is updated every two years.

Plan Bay Area also includes a Sustainable Communities Strategy, which will coordinate land use and transportation in the regional transportation plan pursuant to the requirements of Senate Bill (SB) 375. Taken together, the land use patterns and transportation investments aim to reduce greenhouse gas emissions for cars and light-duty trucks in the nine-county region. Due for adoption in spring 2013, Plan Bay Area addresses regional land use and transportation planning through 2040. State law requires that the Regional Housing Need Allocation (RHNA) be consistent with the Sustainable Communities Strategy.

Plan Bay Area grew out of the California Sustainable Communities and Climate Protection Act of 2008 (SB 375), which requires each of the state's 18 metropolitan areas – including the San Francisco Bay Area – to reduce greenhouse gas emissions from cars and light trucks. The law requires that the Sustainable Communities Strategy promote compact, mixed-use commercial and residential development. To meet the goals of SB 375, Plan Bay Area calls for future development to be walkable and bikeable and in close proximity to public transit, jobs, schools, shopping, parks, recreation and other amenities.

Plan Bay Area also addresses the challenge of accommodating the Bay Area's future growth. Regional population is expected to increase from about seven million in 2011 to approximately nine million in 2040.

To develop Plan Bay Area, MTC and ABAG are collaborating with numerous partners, including the Bay Area's nine counties and 101 cities and towns. The agencies also are working with the Bay Area Air Quality Management District (BAAQMD) and BCDC to help ensure the plan is consistent with efforts to improve regional air quality and the health of San Francisco Bay.

Figure 4.I-2
Areas Subject to BCDC Jurisdiction

Included in Plan Bay Area are employment and housing projections for cities and counties throughout the Bay Area. The proposed land use scenario for Plan Bay Area projects an increase in the number of households from 1,821 households in 2010 to 2,087 households in 2040 (increase of 266 households). Employment is projected to increase from 7,222 jobs in Brisbane in 2010 to 8,277 jobs in 2040(increase of 1,055 jobs).

Local Regulations

City of Brisbane Plans and Regulations

General Plan

The City of Brisbane is the local entity with land use control over the Project Site, with the exception of the northern portion of the Recology site that is within San Francisco and subject to San Francisco's land use controls. The Brisbane General Plan is the primary governing policy document over land use on the Project Site and throughout Brisbane as a whole. The General Plan provides the blueprint for development in the city and addresses land use and community character, housing, traffic and transportation, natural resources, open space, safety, noise, local economic development, community services, and recreation. The portion of the Project Site within Brisbane is located in the Baylands Subarea, portions of the Northeast Bayshore Subarea, and the Beatty Subarea, as defined in the General Plan.

Land Use Designations. Brisbane General Plan land use diagram (City of Brisbane, 1994) indicates that the Project Site is designated primarily as *Planned Development-Trade Commercial* (Baylands Subarea), with one small section on the western border adjacent to Bayshore Boulevard (Northeast Bayshore Subarea) designated *Trade Commercial* with no planned development overlay (see Figure 3-9 in Chapter 3, *Project Description*, of this EIR) and the portion of the Project Site occupied by Recology designated *Heavy Commercial*. The *Trade Commercial* designation provides for retail sales, offices, residential uses, bulk sales, open space, recreational facilities, statuary, public and quasi-public facilities, services and utilities, commercial services, hotels, research and development, educational institutions, and lagoon/bayfront.

The *Planned Development* (PD) designation, which applies to the Baylands Subarea, requires that a specific plan be prepared and adopted prior to development of the property. The PD designation also requires that a minimum of 25 percent of the surface land within any of the subareas designated PD shall be in open space and/or open area. The *Trade Commercial* designation allows a mix of commercial uses including warehouses, distribution facilities, offices, retail uses, restaurants, commercial recreation, personal services, light industrial uses, research and development, and uses of a similar character. Brisbane Municipal Code Section 17.15.040A, which sets forth development regulations for the Beatty Subarea, also requires preparation of a specific plan prior to expansion of the square footage of building area within that subarea.

As noted above, the portion of the Recology site within Brisbane, located at the northern end of the Project Site within the Beatty Subarea, is designated *Heavy Commercial*,[1] which is described in the General Plan as providing for "bulk sales, offices, meeting halls, vehicle storage and equipment maintenance. It also allows outside storage of vehicles and equipment. No materials storage, other than that associated with bulk sales and no processing of materials are permitted. Subareas designated Heavy Commercial are required to have an adopted specific plan to guide development in the area."

Brisbane Lagoon is designated *Marsh/Lagoon/Bayfront*, including *Lagoon* and *Bayfront* in the Baylands Subarea and *Bayfront* in the Beatty Subarea.

Development Intensity. The General Plan limits the maximum building intensity for site-specific development and sets open space requirements for each of the land use designations within the Project Site as follows:

- ***Baylands Subarea***
  - *Planned Development-Trade Commercial*: Maximum floor area ratio (FAR)[2] of 2.4 south of Visitacion Creek and a maximum FAR of 4.8 north of the creek. A minimum of 25 percent of the area to be retained as open space/open area.
  - *Bayfront* and *Lagoon*: 100 percent of the area is to be retained as open space/open area. The maximum floor area ratio is therefore 0.0.
- ***Northeast Bayshore Subarea***
  - *Trade Commercial*: Maximum floor area ratio of 2.0. Open space/open area to be provided per zoning ordinance requirements.
- ***Beatty Subarea***
  - *Heavy Commercial*: Allowable floor area ratio of 0 - 1.0. Open space/open area to be provided per zoning ordinance requirements.
  - *Bayfront*: 100 percent of the area to be retained as open space/open area.

The density/intensity of the buildout for the Baylands is described in the General Plan in terms of the maximum impact of development, particularly traffic impacts. The anticipated buildout of the Baylands Subarea is described in the EIR prepared for the 1994 General Plan. As described in the EIR, the General Plan near-term (10-year) development was to consist of a total of 650,000 square feet of new commercial development, with an increase of between 1.0 million square feet and 4.2 million square feet at ultimate buildout, depending on the mix of land uses (City of Brisbane, 1994). The General Plan EIR calculated the hypothetical carrying capacity of the Baylands Subarea by defining the range of square footage of development that "could be accommodated without producing more traffic than could reasonably be mitigated to within the City's level-of-service standard LOS 'D.' The low end of the range of square footage, one million square feet, related to high trip generating land use, such as certain types of retail, and the high

1 The Recology facility is situated within the Project Site boundaries and is a part of the CPP and CPP-V scenarios, but is not a part of the DSP or DSP-V scenarios.
2 FAR refers to the total gross floor area of buildings divided by gross area of a given site.

end, 4.2 million square feet to a low trip-generating land use such as warehouse-type commercial. The actual trip generation and corresponding allowable square footage of development would lie somewhere between the hypothetical 'high' and 'low' and would reflect a mix of land use on the Baylands, as reflected in all three of the hypothetical long-term land use alternatives."

Based on the traffic generation described for the Baylands in the General Plan EIR, for purposes of analysis in this EIR, the theoretical commercial/industrial buildout permitted by the General Plan is estimated to be:

- ***Baylands Subarea:*** 56,505 square feet of existing retail development
  600,000 square feet of new retail development
  400,000 square feet of new office development
  189,331 square feet of existing industrial development
  200,000 square feet of new laboratory and industrial development
  1,056,505 total square feet of commercial/office development
  389,331 total square feet of industrial development
  1,445,836 total square feet of total development[3]

- ***Beatty Subarea:*** retention of the existing Recology facility, identified in the General Plan EIR as 245,836 square feet of industrial development

- ***Northeast Bayshore Subarea:*** retention of existing industrial development, identified in the General Plan EIR as 326,616 square feet of industrial development

Policies. In addition to land use designations and development intensity, the General Plan sets forth a number of policies affecting development within the Project Site. These policies, along with consistency of proposed Project Site development with those policies, is addressed in Table 4.I-1.

Zoning Ordinance (Title 17 of the Brisbane Municipal Code)

The City's Zoning Map shows that the majority of the Project Site within Brisbane (Baylands Subarea) is zoned Commercial-Mixed Use District (C-1), while the westernmost portion (Northeast Bayshore Subarea) is zoned Manufacturing District (M-1). The northeast portion of the Project Site (Beatty Subarea) is zoned Heavy Commercial District (C-3). Brisbane Lagoon is zoned Marsh Lagoon Bayfront District (MLB). Zoning classifications are mapped in Figure 3-10 (Zoning Map) in Chapter 3, *Project Description,* of this EIR and are further described as follows:

1. **Commercial Mixed Use District (C-1):** The purpose of the C-1 District is to (A) "provide a suitable environment for the development of tax revenue-producing commercial enterprise and to encourage the orderly development of the area so that opportunities are present to establish a mix of uses that support, enhance and otherwise encourage the success of the district. There shall be no fabrication, manufacture, processing or treatment of materials in this district other than that which is clearly incidental to a business where all products there from are sold on the premises;" and (B) "establish procedures to integrate

[3] This buildout has a trip generation equivalent to the 1.0 million square feet of retail use and 4.2 million square feet of industrial use described in the General Plan EIR as the basis for determining General Plan buildout.

commercial mixed-uses and structures that produce an attractive and safe environment which are superior to those which would result from standard district regulations."

The C-1 District (Section 17.12.030 of the Brisbane Municipal Code) requires a conditional use permit for all development, with allowable conditional uses including retail sales, offices, residential uses, bulk sales, open space, recreational facilities, statuary, public and quasi-public facilities, service and utility uses, commercial services, hotels, research and development, and educational facilities. Under Section 17.13.040 of the Municipal Code, any development and design standards within an area zoned C-1 must be established in a specific plan adopted by resolution of the City Council for the parcels proposed for development. Section 17.13.040 states that to the extent that standards in the specific plan are inconsistent with other zoning regulations, the standards in the specific plan shall prevail.

2. **Heavy Commercial District (C-3):** The purpose of the C-3 District is to:

   A. "create a zoning district for the Beatty subarea that serves to protect and enhance its character and provide for orderly development consistent with the direction in the city's general plan;"

   B. "establish an attractive and safe environment for heavy commercial uses that is superior to that which would result from standard district regulations;"

   C. "provide a buffer between the industrial uses on adjacent properties in San Francisco and the planned development-trade commercial uses of the Baylands subarea;"

   D. "provide for heavy commercial uses that need large areas of land to accommodate outdoor storage of goods and equipment;"

   E. "maintain a scale, character and intensity of use that can accommodate the desired uses for the district and be compatible with development in the other subareas of the city;" and

   F. "protect the community health and safety by establishing permit requirements and performance standards that address potential impacts of heavy commercial activity."

   The C-3 District requires a specific plan to be prepared and approved prior to development and a conditional use permit for all uses. Conditionally permitted uses include heavy equipment repair, meeting halls, offices, organics reload operations, outdoor storage of vehicles and equipment, outdoor storage of materials only in association with bulk sales, and plastic pipe sales.

3. **Manufacturing District (M-1):** The M-1 District permits research and development, light manufacturing, assembling, processing, offices, warehousing, printing, and accessory retail uses. Conditional uses, which would require a use permit, include restaurant and bars connected with restaurant use, outside storage of trucks and equipment when properly screened, service stations, and destination retail uses. The district establishes a maximum floor area ratio of 2.0 and a maximum building height of 50 feet. Additional development regulations for the M-1 District are provided in Municipal Code Section 17.20.030.

4. **Marsh Lagoon Bayfront District (MLB):** The MLB District was established to protect areas with unique aquatic resources, distinguish uses that rely on adjacency and access to aquatic and riparian areas, and establish application requirements to assure that proposed projects address the City's environmental goals for aquatic areas The district requires a conditional use permit for all allowed uses, which include commercial recreation, personal services, retail sales and rental, educational facilities, scientific research, habitat restoration

and wildlife protection, transit/transportation facilities, and marinas. Development regulations are determined by the use permit.

Draft Public Space Master Plan

The City's Draft Public Space Master Plan was developed in tandem with the CPP and CPP-V scenarios and is included as **Appendix O** of this EIR. Although the plan has not been formally adopted by the City Council, its draft form describes a community-proposed direction for public and open space on the Project Site. The Draft Public Space Master Plan calls for development on the Project Site to draw inspiration from the historic connection to the Bay and from key natural land forms and drainage patterns. Defining features identified in the Draft Public Space Master Plan, such as Brisbane Lagoon, Icehouse Hill, the Roundhouse, and the Visitacion Creek tidal channel and wetlands, are recommended for permanent protection and enhancement as public open space amenities.

Plans and Programs of Surrounding Jurisdictions

While most of the San Francisco, Daly City, and San Mateo County plans and regulations listed below are not directly applicable to the Project Site development, they provide an understanding of the surrounding context of the Project Site. The portion of the Recology site that is within San Francisco is subject to San Francisco regulations, however.

City and County of San Francisco

San Francisco – in particular, the Visitacion Valley neighborhood – is adjacent to the northern boundary of the Project Site. The following plans govern areas within San Francisco that are within close proximity to the Project Site, including those within the San Francisco portion of the Recology site.

San Francisco General Plan. Recology (formerly Nor-Cal Solid Waste Systems) operates a solid waste transfer and recycling facility on 44 acres of land in San Francisco and Brisbane. The portion of the Recology site within San Francisco is governed by the San Francisco General Plan, which designates the area as *Light Industry.*[4] The San Francisco zoning classification for the site is M-1, Light Industrial. The existing Recology facility is within the Project Site and is a part of the CPP and CPP-V scenarios. It is not, however, part of the DSP or DSP-V scenarios.

San Francisco Executive Park Subarea. Executive Park is a subarea of the Bayview/Hunters Point neighborhood in southeastern San Francisco. The Executive Park Subarea comprises the southernmost 71 acres of Bayview, bounded on the west by US Highway 101, on the east by the Candlestick Point Special Use District, on the north by Bayview Hill, and on the south by Candlestick Point State Recreation Area and San Francisco Bay. The Executive Office Park Subarea is a mixed-use residential project that consists of an existing office park development and proposed primarily residential area with 1,600 residential units and about 73,000 gross square feet

[4] As previously noted, the Brisbane portion of the Recology site is designated *Heavy Commercial* and zoned C-3, Heavy Commercial.

of retail. Zoning within the subarea includes C-2 (Community Business) District and RC-3 (Residential-Commercial Combined, Medium Density) District.

Visitacion Valley Redevelopment Program. Since the fall of 2001, residents of Visitacion Valley have worked with the San Francisco Redevelopment Agency, the San Francisco Planning Department, the Mayor's Office of Economic and Workforce Development, and the City Supervisor's office on plans for the redevelopment of the former Schlage Lock site on the border of San Francisco and San Mateo Counties. While the entire former Visitacion Valley Redevelopment Area comprises 40 acres, the former Schlage Lock site encompasses approximately 20 acres and includes Third Street Light Rail connections and Leland Avenue. The site contains contaminated soil and is subject to remediation requirements. The plan for the site proposes 1,250 residential units and 120,000 square feet of commercial and institutional development. Another 335 residential units and 2,600 square feet of commercial and institutional development were contemplated in an adjacent portion of the former redevelopment area.

Candlestick Point and Hunters Point Shipyard Combined Plan. Candlestick Point and Hunters Point Shipyard are located about 1 mile and 1.5 miles east, respectively, of the Project Site within the City and County of San Francisco limits. The redevelopment plan for Candlestick Point and Hunters Point Shipyard proposes 10,500 new housing units, 2.5 million square feet of commercial office and research and development (R&D) space, 700,000 square feet of destination retail and entertainment space, over 300 acres of open space, and the current San Francisco 49ers football stadium.

City of Daly City

Low-intensity residential and commercial development and manufacturing uses within Daly City border a small stretch of Bayshore Boulevard northwest of the Project Site. In addition, Daly City's Geneva Avenue Urban Design Plan envisions higher-density uses along the Bayshore Boulevard corridor in the future, with Geneva Avenue acting as a commercial corridor for that area.

The Cow Palace/Carter Martin Area Community Development Program identifies the Cow Palace Carter Street area, located a mile west of the Project Site, as an opportunity site in the former Bayshore Redevelopment Plan. This area is identified as an opportunity site to create more employment opportunities by incorporating additional commercial space into the site.

San Mateo County

San Mateo County Comprehensive Airport Land Use Plan. The San Mateo County Airport Land Use Commission (ALUC) develops and implements the San Mateo County Comprehensive Airport Land Use Plan (CLUP). In San Mateo County, the City/County Association of Governments of San Mateo County (C/CAG) is the designated ALUC.

The CLUP establishes the procedures that C/CAG uses in reviewing proposed local agency actions that affect land use decisions in the vicinity of San Mateo County's airports. Airport planning boundaries define the area where height, noise, and safety standards, policies, and criteria are applied to certain proposed land use policy actions.

Airport Land Use Compatibility Plan for the Environs of San Francisco International Airport. In 2012, the ALUC adopted the Airport Land Use Compatibility Plan (ALUCP) for the Environs of San Francisco International Airport. The plan includes the 2008 Federal Aviation Administration (FAA)-accepted Noise Exposure Maps. It also includes a diagram that illustrates the configuration of the preliminary Airport Influence Area (AIA) boundary for San Francisco International Airport (SFO) as well as an updated diagram of the Federal Aviation Regulations Part 77 airspace protection surfaces.

The Project Site is located within SFO Area A of the AIA. Airport AIA is defined as an area that is flown by an aircraft at an altitude of 10,000 feet or less above mean sea level a minimum of once weekly. The Project Site is located in an area with 3,651 or more flights per year, or an average of 10 or more flights per day, originating from or returning to SFO (C/CAG, 2012). In accordance with California Business and Professions Code Section 11010 and SFO's Comprehensive Airport Land Use Plan, proposed development at the Project Site would require real estate disclosure of potential airport/aircraft impacts such as noise and other impacts due to the property's location within an AIA, as part of any real estate transaction. The area is not located within Federal Aviation Regulations Part 77 or the noise and runway safety compatibility zones. The entire Project Site is within seven aircraft overflight paths of departures, which include four from SFO and three from Oakland International Airport (C/CAG, 2012). Noise issues related to the overflight routes are addressed in Section 4.J, *Noise and Vibration*, of this EIR.

4.I.4 Impacts and Mitigation Measures

Significance Criteria

Criteria outlined in the CEQA Guidelines were used to determine the level of significance of land use impacts. Appendix G of the CEQA Guidelines indicates that a project would have a significant effect on the environment if it were to:

- Physically divide an established community;
- Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect; or
- Conflict with any applicable habitat conservation plan or natural community conservation plan.

An inconsistency with a land use policy is not, in and of itself, an environmental impact and does not mandate a finding of significance. Rather, a planning inconsistency is a factor that the agency should consider in determining the significance of changes in the physical environment caused by the Project Site development. These physical impacts related to General Plan policies are considered in the evaluation of specific environmental topics in this EIR, including Section 4.B, *Air Quality*; Section 4.C, *Biological Resources*; Section 4.G, *Hazards and Hazardous Materials*;

Section 4.J, *Noise and Vibration*, Section 4.M, *Recreational Resources*; Section 4.N, *Traffic and Circulation*; and Section 4.O, *Utilities, Service Systems, and Water Supply*.

Impact Assessment Methodology

Proposed development of the Project Site as described in Chapter 3, *Project Description*, was compared to existing land use conditions and the existing regulatory context to determine whether implementation of Project Site development would trigger any impacts based on the identified significance criteria.

The DSP, DSP-V, CPP, and CCP-V scenarios would have no impacts related to division of established communities and would create no conflicts with habitat conservation plans or certain other plans, as discussed below. Therefore, these issues are not analyzed in detail within this section.

Division of Established Communities

Development of the Project Site would have no impacts related to division of an existing community, because the Project Site sits along the edge of San Francisco Bay and is separated from lands to the west by Bayshore Boulevard, vegetated lands, and the office and light industrial buildings at Crocker Industrial Park; from lands to the north by the Recology facility; and from lands to the south by the Brisbane Lagoon (see Figure 4.I-1). None of the proposed development scenarios could physically divide or create a physical barrier to an established community because (1) the Baylands is already physically divided from the rest of the Brisbane community and surrounding lands by Bayshore Boulevard, the Recology facility, and Brisbane Lagoon; (2) there is no existing community within the Baylands; and (3) the Baylands is already divided into east and west areas by the Caltrain rail line.

Consistency with Habitat Conservation Plans

The Project Site is not subject to a habitat conservation plan, and therefore the Project Site development would not create any direct conflicts with such a plan. Icehouse Hill, located within the Project Site, is, however, situated adjacent to the boundary of the San Bruno Mountain Habitat Conservation Plan (SBMHCP) area. As described in Section 4.C, *Biological Resources*, of this EIR, the Project Site development is not required to comply with the SBMHCP. However, a conflict with the SBMHCP would be considered to occur if uses proposed within the Baylands would interfere with implementation of policies and measures intended to promote the conservation proposed by the plan. Because Icehouse Hill and areas adjacent to the SBMHCP planning area would remain in open space following Project Site development, the Project Site development would not interfere with implementation of the SBMHCP. Further, management of construction activities and Project operations on and adjacent to Icehouse Hill consistent with the provisions of the Brisbane General Plan as described in Section 4.C, *Biological Resources*, of this EIR, as well as with the mitigation measures set forth in that section, would ensure that any impacts on covered species are avoided.

Project Impacts and Mitigation Measures

Impact 4.I-1: Would the Project conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the Project adopted for the purpose of avoiding or mitigating an environmental effect?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
SM	SM	SM	SM

SU = Significant Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = no impact

DSP, DSP-V, CPP, and CPP-V

The analysis below evaluates the consistency of Project Site development with existing Brisbane plans and policies governing development of the area, as well as with the provisions of applicable land use plans, policies, and regulations of other agencies with jurisdiction over the Project Site (see **Table 4.I-1**). An inconsistency with a General Plan policy is not, in and of itself, an environmental impact and does not mandate a finding of significance. Therefore, while all inconsistencies with the Brisbane General Plan are identified in Table 4.I-1, only those inconsistencies that result in physical impacts were used in determining the significance of impacts related to General Plan consistency. The evaluations contained in Table 4.I-1 related to consistency with policies that do not result in physical impacts represent factors that the agency should consider in its planning review of proposed Project Site development.

Inconsistencies of the DSP and DSP-V Scenarios and the Brisbane Baylands Specific Plan with the Brisbane General Plan

As described in Table 4.I-1, by proposing residential development, the DSP and DSP-V scenarios are not consistent with Brisbane General Plan Policy 330.1 or the provisions of the Brisbane Zoning Ordinance, both of which prohibit residential development within the Baylands Subarea. This inconsistency could be resolved by amending General Plan and zoning provisions to eliminate the prohibition, or by modifying proposed development to comply with the prohibition. The applicant for the Brisbane Baylands Specific Plan (DSP and DSP-V scenarios) proposes to resolve this inconsistency with a General Plan amendment removing Policy 330.1 from the General Plan.

In addition, the DSP and DSP-V scenarios are inconsistent with the allowable buildout of the General Plan, which was described above as the traffic-generating equivalent of one million square feet of commercial use or 4.2 million square feet of industrial use. In terms of a mix of commercial and industrial uses, this translates into a total of 2.02 million square feet of development, including 1.05 million square feet of commercial/office uses and 0.97 million square feet of industrial uses. The DSP and DSP-V scenarios propose 4,434 residential dwelling units along with 6,945,900 square feet of commercial development (6,899,000 square feet in the DSP-V scenario) and 142,500 square feet of industrial development (i.e., the relocated lumberyards).

The General Plan also indicates that the maximum permitted building intensity is a FAR of 2.4 south of Visitacion Creek and an FAR of 4.8 north of Visitacion Creek. The DSP and DSP-V conflict with the maximum FAR established by the General Plan for the area north of Visitacion Creek.

TABLE 4.I-1
CONSISTENCY OF PROJECT COMPONENTS[5] WITH APPLICABLE LOCAL AND REGIONAL LAND USE POLICIES

Existing Plan and Policies	Consistency of Project Components with Existing Policy	
	DSP/DSP-V Scenarios	**CPP/CPP-V Scenarios**
San Francisco Bay Plan		
The surface area of the Bay and the total volume of water should be kept as large as possible in order to maximize active oxygen interchange, vigorous circulation, and effective tidal action. Filling and diking that reduce surface area and water volume should therefore be allowed only for purposes providing substantial public benefits and only if there is no reasonable alternative.	Consistent. No filling or diking of the Bay is proposed.	Consistent. No filling or diking of the Bay is proposed.
#19. Bay View Park - Provide trail link to waterfront.	Consistent. The DSP and DSP-V would provide trail extensions from the lagoon through the site north to connect to the Bay Trail north of the Project Site.	Consistent. The CPP and CPP-V would provide trail extensions that would extend from the lagoon through the site to connect to the Bay Trail north of the Project Site.
San Francisco International Airport Land Use Compatibility Plan (SFO ALUCP)		
IP-1. AIRPORT INFLUENCE AREA A – REAL ESTATE DISCLOSURE AREA. Within Area A, the real estate disclosure requirements of state law apply Section 11010 of the Business and Professions Code requires people offering subdivided property for sale or lease to disclose the presence of all existing and planned airports within two miles of the property. The law requires that, if the property is within an "airport influence area" designated by the airport land use commission, the following statement must be included in the notice of intention to offer the property for sale: NOTICE OF AIRPORT IN VICINITY. This property is presently located in the vicinity of an airport, within what is known as an airport influence area. For that reason, the property may be subject to some of the annoyances or inconveniences associated with proximity to airport operations (for example: noise, vibration, or odors). Individual sensitivities to those annoyances can vary from person to person. You may wish to consider what airport annoyances, if any, are associated with the property before you complete your purchase and determine whether they are acceptable to you.	Consistent. By law, property owners are required to provide real estate disclosure regarding airport impacts.	Consistent. By law, property owners are required to provide real estate disclosure regarding airport impacts.

5 See Table 3-1, Project Components Analyzed in this EIR, for a listing of specific project components analyzed in this Table.

TABLE 4.I-1 (Continued)
CONSISTENCY OF PROJECT COMPONENTS[5] WITH APPLICABLE LOCAL AND REGIONAL LAND USE POLICIES

Existing Plan and Policies	Project Consistency with Existing Policy	
	DSP/DSP-V	CPP/CPP-V
City of Brisbane 1994 General Plan		
Chapter IV, Local Economic Development		
Policy 9: Seek fuller employment of Brisbane residents.	Consistent. By increasing non-residential development area within the Project Site, the DSP and DSP-V scenarios would assist in increasing employment opportunities for Brisbane residents.	Consistent. By increasing non-residential development area within the Project Site, the CPP CPP-V scenarios would assist in increasing employment opportunities for Brisbane residents.
Chapter V, Land Use		
Policy 11: Development south of the Bayshore Basin drainage channel shall maintain a low profile, permitting low or mid-rise buildings, not to exceed six stories in height, in order to preserve the existing views of San Francisco and San Francisco Bay as seen from Central Brisbane, and to maximize the amount of landscape and open space or open area in this portion of the subarea.	Consistent. The DSP and DSP-V scenarios provide for Open Space, R&D, Renewable Energy Generation, and Retail uses in the area south of the Bayshore Basin drainage channel. The majority of the area is proposed to be dedicated to open space and energy generation (solar PV) and R&D. Uses are proposed to be low-profile (two to three stories), with maximum building heights of 35 to 45 feet.	Consistent. The CPP and CPP-V designate Public Use Envelope, R&D, and Cultural/Entertainment uses south of the Bayshore Basin drainage channel. The Public Use Envelope designation allows a maximum height of 25 feet. For the other uses, the Public Space-Oriented Overlay limits building heights to 55 feet, regardless of the underlying base land use, except in the Lagoon Park Concession area, where the maximum building height is 25 feet.
Policy 12: Establish a mix of land uses that best serves the needs of the community.	Consistent. Policy 12 considers a citywide mix of land uses, rather than the specific location of any particular use. The overall mix of uses proposed in the DSP and DSP-V scenarios is compatible with those proposed throughout the city. As such, the DSP and DSP-V scenarios are consistent with Policy 12. As such, the DSP and DSP-V are consistent with the city's overall mix of uses; the DSP and DSP-V scenarios are inconsistent with General Plan policy prohibiting the location of residential uses within the Baylands.	Consistent. Policy 12 considers a citywide mix of land uses, rather than the specific location of any particular use. The CPP and CPP-V scenarios were developed with a substantial amount of community input and discussion as to what mix of uses within the Baylands would best serve the needs of the community. Thus, the CPP and CPP-V scenarios are consistent both with Policy 12 in relation to the city's overall mix of uses and with applicable General Plan policy prohibiting the location of residential uses within the Baylands.
Policy 13: Integrate physical, social, environmental and financial elements of the community for the benefit of current and future residents.	Consistent. Policy 13 considers integration of the physical, social, environmental, and financial systems that contribute to Brisbane's sense of community, rather than the uses or design of any particular area or development. By providing for vehicular, pedestrian, and bicycle connections between the existing Brisbane community and the area east of Bayshore Boulevard, the DSP and DSP-V scenarios would contribute to the integration of physical places in the community.	Consistent. Policy 13 considers integration of the physical, social, environmental and financial systems that contribute to Brisbane's sense of community, rather than the uses or design of any particular area or development. By providing for vehicular, pedestrian, and bicycle connections between the existing Brisbane community and the area east of Bayshore Boulevard, the CPP and CPP-V scenarios would contribute to the integration of physical places in the community.

TABLE 4.I-1 (Continued)
CONSISTENCY OF PROJECT COMPONENTS[5] WITH APPLICABLE LOCAL AND REGIONAL LAND USE POLICIES

Existing Plan and Policies	Project Consistency with Existing Policy	
	DSP/DSP-V	**CPP/CPP-V**
City of Brisbane 1994 General Plan (cont.)		
Chapter V, Land Use (cont.)		
Policy 14: Establish a mix of uses with a diversified economic base to maintain and increase tax revenues and contribute to the City's ability to provide services.	Potentially Consistent. The amount and range of commercial and industrial land use types proposed in the DSP and DSP-V scenarios would assist in expanding and diversifying the City's economic base. While proposed uses would increase tax revenues, the extent to which proposed Baylands development would contribute to the City's ability to provide services depends upon the extent to which revenues attributable to Project Site development would exceed the cost of providing services to development within the Baylands. Such cost/revenue analysis requires identifying the services and specific infrastructure needed to support site development. To ensure consistency with General Plan Policy 14, preparation of a fiscal impact analysis analyzing short-term and long-term municipal costs and revenues associated with development of the Baylands and the costs involved in providing the services and maintaining Project Site infrastructure would need to be prepared.	Potentially Consistent. The amount and range of commercial and industrial land use types proposed in the CPP and CPP-V scenarios would assist in expanding and diversifying the City's economic base. While proposed uses would increase tax revenues, the extent to which proposed Baylands development would contribute to the City's ability to provide services depends upon the extent to which revenues attributable to Baylands development would exceed the cost of providing services to development within the Project Site. Such cost/revenue analysis requires identifying the services and specific infrastructure needed to support site development. To ensure consistency with General Plan Policy 14, preparation of a fiscal impact analysis analyzing short-term and long-term municipal costs and revenues associated with development of the Baylands and the costs involved in providing the services and maintaining Project Site infrastructure would need to be prepared.
Policy 20: Retain diversity of development and individual expression in residential and commercial development, especially in Central Brisbane.	Consistent. A diversity of development is proposed in the DSP and DSP-V scenarios. The design guidelines set forth in the specific plan for the DSP and DSP-V scenarios would provide for the individual expression called for in Policy 20.	Potentially Consistent. A diversity of development is proposed in the CPP and CPP-V scenarios. Because Concept Plans address land use, rather than design issues, guidelines to retain individual expression of proposed uses are intended to be addressed in the specific plan that will be required prior to development should either the CPP or CPP-V scenario be selected.
Policy 23: Encourage the maintenance and upgrading of structures and sites that have played important roles in the City's history.	Consistent. The DSP and DSP-V scenarios includes rehabilitation and adaptive reuse of the historic Roundhouse building and the Lazzari Fuel Company building.	Consistent. Rehabilitation and adaptive reuse of the historic Roundhouse building and the Lazzari Fuel Company building are part of the CPP and CPP-V scenarios.
Policy 27: Provide centrally located public facilities for public services and community events so as to maximize use by Brisbane residents and businesses.	Consistent. Facilities within the Project Site proposed for public services under the DSP and DSP-V scenarios are centrally located within the area east of Bayshore Boulevard and designed to serve the Baylands.	Consistent. Facilities within the Project Site proposed for public services under the CPP and CPP-V scenarios are centrally located within the area east of Bayshore Boulevard and designed to serve the Baylands.

TABLE 4.I-1 (Continued)
CONSISTENCY OF PROJECT COMPONENTS[5] WITH APPLICABLE LOCAL AND REGIONAL LAND USE POLICIES

Existing Plan and Policies	Project Consistency with Existing Policy	
	DSP/DSP-V	CPP/CPP-V
City of Brisbane 1994 General Plan (cont.)		
Chapter VI, Transportation and Circulation		
Policy 38: Maintain a level of service on arterial streets that allows Brisbane residents and businesses to comfortably travel across town and to gain access to U.S. 101.	Consistent. By providing for the extension of Geneva Avenue from Bayshore Boulevard to US Highway 101, the DSP and DSP-V scenarios would increase the ability of Brisbane residents and businesses to gain access to US Highway 101.	Consistent. By providing for the extension of Geneva Avenue from Bayshore Boulevard to US Highway 101, the CPP and CPP-V scenarios would increase the ability of Brisbane residents and businesses to gain access to US Highway 101.
Policy 38.1: The level of service for all arterial streets within the City shall not be less than LOS "D" except for the intersections on Bayshore Boulevard at Old County Road and San Bruno Avenue, which shall not be less than LOS "C." The two intersections having LOS "C" shall not be degraded below that level as a result of increased impacts from other intersections within the City and such impacts shall be mitigated as necessary to maintain the LOS "C" standard at the identified intersections.	Inconsistent. As noted in Section 4.N, *Traffic and Circulation*, Project impacts on the cumulative traffic operations at intersections on Bayshore Boulevard in the Project Site vicinity would be partially mitigated but would still exceed applicable level of service standards.	Inconsistent. As noted in Section 4.N, *Traffic and Circulation*, Project impacts on the cumulative traffic operations at intersections on Bayshore Boulevard in the Project Site vicinity would be partially mitigated but would still exceed applicable level of service standards.
Policy 39: Plan for an additional east-west corridor to redirect non-destination traffic away from Bayshore Boulevard and to provide more direct access to U.S. 101.	Consistent. The DSP and DSP-V scenarios each provide for extension of Geneva Avenue from the Candlestick interchange along the US Highway 101 freeway to Bayshore Boulevard, providing more direct access to US Highway 101.	Consistent. The CPP and CPP-V scenarios each provide for extension of Geneva Avenue from the Candlestick interchange along the US Highway 101 to Bayshore Boulevard, providing more direct access to US Highway 101.
Policy 39.2: Establish an alternative access route to the Tunnel Avenue overcrossing for emergency vehicles.	Consistent. The Geneva Avenue extension that is included in the DSP and DSP-V scenarios would provide the alternative access route called for in Policy 39.2.	Consistent. The Geneva Avenue extension that is included in the CPP and CPP-V scenarios would provide the alternative access route called for in Policy 39.2.
Policy 41: Require a minimum unobstructed street width of 20 feet, as required by the California Fire Code.	Consistent. Development within the Project Site would be required to comply with the provisions of all applicable code provisions.	Consistent. Development within the Project Site would be required to comply with the provisions of all applicable code provisions.
Policy 42: In addition to the above, develop residential and commercial City street standards that take into account the following factors as they apply to all streets, but particularly to hillside streets: • Grade • Topography • Average lot frontage size • Number of lots and potential intensity of development • Maximum block length	Consistent. Streets within the Project Site would be required to comply with all applicable City street standards.	Consistent. Streets within the Project Site would be required to comply with all applicable City street standards.

TABLE 4.I-1 (Continued)
CONSISTENCY OF PROJECT COMPONENTS[5] WITH APPLICABLE LOCAL AND REGIONAL LAND USE POLICIES

Existing Plan and Policies	Project Consistency with Existing Policy	
	DSP/DSP-V	**CPP/CPP-V**
City of Brisbane 1994 General Plan (cont.)		
Chapter VI, Transportation and Circulation (cont.)		
• Maximum length of cul-de-sac streets • Length of street in relation to number of units served • Turnarounds • Parking • Secondary access		
Policy 44: Maintain and improve local residential streets to accommodate safe access for emergency vehicles and evacuation routes for residents.	Consistent. The design of all local streets within the Project Site proposed to serve residential uses in the DSP and DSP-V scenario would be reviewed by the City's Public Works Department as well as by the North County Fire Authority to ensure adequate emergency access and appropriate evacuation routes.	Not Applicable. Residential uses are not proposed as part of the CPP and CPP-V scenarios.
Policy 52: Seek opportunities to install and improve transit facilities and establish multi-modal connections.	Consistent. The DSP and DSP-V scenarios would improve transit facilities through the installation of bus rapid transit facilities along the extension of Geneva Avenue and by providing for improved connections between the Caltrain station and area vehicular, pedestrian, and bicycle systems.	Consistent. The CPP and CPP-V scenarios would improve transit facilities through the installation of bus rapid transit facilities along the extension of Geneva Avenue and by providing for improved connections between the Caltrain station and area vehicular, pedestrian, and bicycle systems.
Policy 59: Provide bicycle access to all areas of the City. Connect Brisbane's bikeway system to the County bikeway network.	Consistent. The DSP and DSP-V scenarios would provide bicycle connections both within the Project Site to areas outside, as well as to City and regional bicycle systems.	Consistent. The CPP and CPP-V scenarios would provide bicycle connections both within the Project Site to areas outside, as well as to City and regional bicycle systems.
Chapter VII, Open Space		
Policy 81: The City shall conduct an on-going effort to identify sites or portions of sites having particular value as open space, wildlife habitat, wetlands, or other environmental qualities that should be preserved and protected. In such cases, the City shall explore the feasibility of acquisition of these areas by the City or by other public or private agencies that are engaged in the ownership and preservation of open space, and, when legally possible, imposing a requirement that such areas be dedicated by the owner to the public for open space purposes.	Consistent. The environmental studies undertaken as part of this EIR evaluate whether those areas of the Baylands that should be preserved and protected as the result of their particular value as open space, wildlife habitat, wetlands, or other environmental qualities would, in fact, be preserved, including establishment of mitigation measures to ensure appropriate preservation of resources. To implement the provisions of Policy 81, the City could consider requirements for dedication of those areas intended to remain in open space for the protection of resources.	Consistent. The environmental studies undertaken as part of this EIR evaluate whether those areas of the Baylands that should be preserved and protected as the result of their particular value as open space, wildlife habitat, wetlands, or other environmental qualities would, in fact, be preserved, including establishment of mitigation measures to ensure appropriate preservation of resources. To implement the provisions of Policy 81, the City could consider requirements for dedication of those areas intended to remain in open space for the protection of resources.

TABLE 4.I-1 (Continued)
CONSISTENCY OF PROJECT COMPONENTS[5] WITH APPLICABLE LOCAL AND REGIONAL LAND USE POLICIES

Existing Plan and Policies	Project Consistency with Existing Policy	
	DSP/DSP-V	CPP/CPP-V
City of Brisbane 1994 General Plan (cont.)		
Chapter VII, Open Space (cont.)		
Policy 81.1: Work to preserve open space lands to protect the natural environment and to provide outdoor educational and recreational opportunities consistent with the sensitivity of the resource.	Partially Consistent. The evaluations set forth in this EIR analyze impacts of the proposed DSP and DSP-V scenarios on the natural environment consistent with the sensitivity of the resources being evaluated. Goal 5.1 of the Brisbane Baylands Specific Plan includes providing the community "with multiple opportunities for recreation and education." According to the Specific Plan, "Public programming amenities (within open space areas) may include a nature and interpretive center, a habitat observation area, and a youth education center with associated trails, boardwalks, and overlooks to enrich the public's experience and understanding of the local ecology." To ensure consistency with Policy 81.1, the Specific Plan should be revised to provide a clear commitment to including educational opportunities related to onsite resources.	Potentially Consistent. The evaluations set forth in this EIR analyze impacts of the proposed CPP and CPP-V scenarios on the natural environment consistent with the sensitivity of the resources being evaluated. Because the Concept Plan is intended to focus on the distribution of land uses, planning for outdoor educational and recreational opportunities consistent with the sensitivity of onsite resources such as the lagoon would occur as part of the specific plan required for development within the Baylands. By providing for open space in excess of the minimum required under the General Plan and providing land use buffers adjacent to the lagoon, Ice House Hill, and other sensitive resources, the CPP and CPP-V scenarios provide ample opportunity to implement this policy as part of the preparation of a specific plan should either the CPP or CPP-V scenario be selected.
Policy 82: Encourage the preservation, conservation and restoration of open space to retain existing biotic communities, including rare and endangered species habitat, wetlands, watercourses and woodlands.	Consistent. Sensitive biotic communities within the Baylands would be appropriately protected, relocated, and/or restored in the DSP and DSP-V scenarios, as confirmed by the evaluations set forth in this EIR (see Section 4.C, *Biological Resources*).	Consistent. Sensitive biotic communities within the Baylands would be appropriately protected, relocated, and /or restored in the CPP and CPP-V scenarios, as confirmed by the evaluations set forth in this EIR (see Section 4.C, *Biological Resources*).
Policy 85: Encourage the preservation and conservation of aquatic resources in Brisbane: the Lagoon, the Bayfront and the Marsh.	Consistent. Aquatic resources within the Baylands, including the lagoon, bayfront, and marsh, would be appropriately preserved, as confirmed by the evaluations and mitigation measures set forth in this EIR (see Section 4.C, *Biological Resources*).	Consistent. Aquatic resources within the Baylands, including the lagoon, bayfront, and marsh, would be appropriately preserved, as confirmed by the evaluations and mitigation measures set forth in this EIR (see Section 4.C, *Biological Resources*).
Policy 86: Provide access to natural areas consistent with the nature of the resource.	Consistent. The DSP and DSP-V scenarios provide for trails and use of natural areas, such as the lagoon. The evaluations and associated mitigation measures set forth in this EIR (see Section 4.C, *Biological Resources*) would ensure that such use is compatible with protecting resource values.	Consistent. The CPP and CPP-V scenarios provide for trails and use of natural areas, such as the lagoon. The evaluations and associated mitigation measures set forth in this EIR (see Section 4.C, *Biological Resources*) would ensure that such use is compatible with protecting resource values.

TABLE 4.I-1 (Continued)
CONSISTENCY OF PROJECT COMPONENTS[5] WITH APPLICABLE LOCAL AND REGIONAL LAND USE POLICIES

Existing Plan and Policies	Project Consistency with Existing Policy	
	DSP/DSP-V	**CPP/CPP-V**
City of Brisbane 1994 General Plan (cont.)		
Chapter VII, Open Space (cont.)		
Policy 87: Maintain parks and open space to serve the community equivalent to or greater than the acreage/population standards set by the National Recreation and Parks Association.	Inconsistent. As set forth in Section 4.M, *Recreational Resources*, of this EIR, the DSP and DSP-V scenarios fall short of the recreational parks acreage recommended by the National Recreation and Parks Association. In addition, while the DSP and DSP-V scenarios provide for large open space areas providing trails and passive open space, they provide approximately 77 acres of active parks, short of the standards of the National Recreation and Parks Association. To resolve this inconsistency, the Specific Plan applicant is proposing a General Plan amendment to replace the City's park standards with those of the Specific Plan. Approval of this amendment would eliminate this General Plan inconsistency. Alternatively, adding park land, including active recreation facilities, to the DSP and DSP-V scenarios would also resolve this General Plan inconsistency.	Not Applicable. Because residential development is not proposed in the CPP and CPP-V scenarios, the acreage/population standards set by the National Recreation and Parks Association do not apply to these scenarios.
Policy 88: Develop parks to maximize passive recreational opportunities.	Consistent. The land use plans for the DSP and DSP-V scenarios provide for large areas of passive recreational open space.	Consistent. The land use plans for the CPP and CPP-V scenarios provide for large areas of passive recreational open space.
Policy 89: Work with local employers to preserve open space and to develop outdoor open areas that would benefit employees as well as residents during and after the work day.	Consistent. The land use plans for the DSP and DSP-V scenarios provide for open space areas within the non-residential employment-generating portions of the Project Site.	Consistent. The land use plans for the CPP and CPP-V scenarios provide for open space areas within the non-residential employment-generating portions of the Project Site.
Policy 91: Explore the widest range of options for preserving open space lands, including acquisition, dedication, and exactions on development projects.	Consistent. The evaluations set forth in this EIR analyze impacts of the proposed DSP and DSP-V scenarios on open space land. In cases where the proposed preservation of open space lands falls short of what would be required to mitigate Project-related impacts, appropriate mitigation measures are recommended in this EIR. Because of applicable nexus requirements under the law, acquisition of land in addition to that required to mitigate Project-related impacts can only be achieved through voluntary dedications or through approval of a development agreement.	Consistent. The evaluations set forth in this EIR analyze impacts of the proposed CPP and CPP-V scenarios on open space land. In cases where the proposed preservation of open space lands falls short of what would be required to mitigate project-related impacts, appropriate mitigation measures are recommended in this EIR. Because of applicable nexus requirements under the law, acquisition of land in addition to that required to mitigate Project-related impacts can only be achieved through voluntary dedications or through approval of a development agreement.

TABLE 4.I-1 (Continued)
CONSISTENCY OF PROJECT COMPONENTS[5] WITH APPLICABLE LOCAL AND REGIONAL LAND USE POLICIES

Existing Plan and Policies	Project Consistency with Existing Policy	
	DSP/DSP-V	CPP/CPP-V
City of Brisbane 1994 General Plan (cont.)		
Chapter VIII, Recreation and Community Services		
Policy 95: Provide recreational facilities that accommodate community activities, meet national standards, are accessible in accordance with State and National standards, and contain the necessary components for multiple uses and community enjoyment.	Inconsistent. As set forth in Section 4.M, *Recreational Resources*, of this EIR, the DSP and DSP-V scenarios fall short of the recreational acreage recommended by the National Recreation and Parks Association. In addition, while the DSP and DSP-V scenarios provide for large open space areas providing trails and passive open space, they provide approximately 77 acres of active parks, short of the standards of the National Recreation and Parks Association. To resolve this inconsistency, the Specific Plan applicant is proposing a General Plan amendment to replace the City's park standards with those of the Specific Plan. Alternatively, additional park land, including active recreation facilities, could be added to the DSP and DSP-V scenarios to resolve this General Plan inconsistency.	Not Applicable. Because residential development is not proposed in the CPP and CPP-V scenarios, the acreage/population standards set by the National Recreation and Parks Association do not apply to these scenarios.
Policy 96: Condition, as appropriate, new developments to construct, maintain or provide for new recreational facilities, amenities and opportunities.	Consistent. Requirements for new development within the Baylands to construct, maintain, or provide for new recreational facilities, amenities and opportunities are contained within the Brisbane Baylands Specific Plan and the mitigation measures contained in this EIR.	Not Applicable. Requirements for new development within the Baylands to construct, maintain, or provide for new recreational facilities, amenities and opportunities would be set forth as part of the required specific plan(s) for the Baylands should either the CPP or CPP- V scenario be selected.
Policy 101: Maintain the neighborhood school concept for all children, from kindergarten through high school in Brisbane.	Consistent. Adequate classroom space can be developed to accommodate students within the Baylands for the DSP and DSP-V scenarios allowing students to attend school within their neighborhood.	Not Applicable. Because residential development is not proposed in the CPP and CPP-V scenarios, the neighborhood school concept is not applicable.
Chapter IX, Conservation		
Policy 118: Preserve areas containing rare and endangered species habitat to the extent allowed by law and available resources.	Consistent. Areas supporting the habitats described in Policy 118 would be appropriately preserved, as confirmed by the evaluations and mitigation measures set forth in this EIR (see Section 4.C, *Biological Resources*).	Consistent. Areas supporting the habitats described in Policy 118 would be appropriately preserved, as confirmed by the evaluations and mitigation measures set forth in this EIR (see Section 4.C, *Biological Resources*).
Policy 120: Cooperate with local, State and Federal agencies in conservation efforts for biological resources.	Consistent. Policy 120 provides for overall cooperation with state and federal agencies in relation to biological resources conservation efforts. In the context of specific development projects, such as is proposed of the Baylands, implementation of this policy requires that the City consult	Consistent. Policy 120 provides for overall cooperation with state and federal agencies in relation to biological resources conservation efforts. In the context of specific development projects, such as is proposed of the Baylands, implementation of this policy requires

TABLE 4.I-1 (Continued)
CONSISTENCY OF PROJECT COMPONENTS[5] WITH APPLICABLE LOCAL AND REGIONAL LAND USE POLICIES

Existing Plan and Policies	Project Consistency with Existing Policy	
	DSP/DSP-V	**CPP/CPP-V**
City of Brisbane 1994 General Plan (cont.)		
Chapter IX, Conservation (cont.)		
Policy 120 (cont.)	with state and federal resource agencies in the evaluation of project-related impacts and required mitigation. Such consultation has occurred for this EIR through requests for input on the content of the EIR, review of state and federal biological resources databases during EIR preparation, and soliciting input of the evaluations and conclusions set forth in this EIR.	that the City consult with state and federal resource agencies in the evaluation of project-related impacts and required mitigation. Such consultation has occurred for this EIR through requests for input on the content of the EIR, review of state and federal biological resources databases during EIR preparation, and soliciting input of the evaluations and conclusions set forth in this EIR.
Policy 122: Cooperate with other agencies in conservation efforts.	Consistent. Policy 122 provides for overall cooperation with agencies involved in biological resources conservation efforts. In the context of specific development projects, such as is proposed of the Baylands, implementation of this policy requires that the City consult with such agencies in the evaluation of project-related impacts and required mitigation. Such consultation has occurred for this EIR through requests for input on the content of the EIR, review of available biological resources databases during EIR preparation, and soliciting input of the evaluations and conclusions set forth in this EIR.	Consistent. Policy 122 provides for overall cooperation with agencies involved in biological resources conservation efforts. In the context of specific development projects, such as is proposed of the Baylands, implementation of this policy requires that the City consult with such agencies in the evaluation of project-related impacts and required mitigation. Such consultation has occurred for this EIR through requests for input on the content of the EIR, review of available biological resources databases during EIR preparation, and soliciting input of the evaluations and conclusions set forth in this EIR.
Policy 123: Conserve important biological communities through sensitive project design.	Consistent. The land use plan for the DSP and DSP-V scenarios provides for conservation of important biological communities within the Baylands, including the lagoon, bayfront, and marsh, as confirmed by the evaluations and mitigation measures set forth in this EIR (see Section 4.C, *Biological Resources*).	Consistent. The land use plan for the CPP and CPP-V scenarios provides for conservation of important biological communities within the Baylands, including the lagoon, bayfront, and marsh, as confirmed by the evaluations and mitigation measures set forth in this EIR (see Section 4.C, *Biological Resources*).
Policy 127*:* Encourage the use of plants that are compatible with the natural flora in landscape programs.	Consistent. The plant palette proposed as part of the Specific Plan is consistent with planned protection of natural vegetation within the Baylands, as confirmed by the evaluations undertaken for this EIR (see Section 4.C, *Biological Resources*).	Not Applicable. Establishment of proposed plant palettes for future development under the CPP and CPP-V scenarios would be undertaken as part of the required specific plan should the CPP or CPP-V scenario be selected.
Policy 128: Encourage the use of native plants in landscape programs that provide food and shelter to indigenous wildlife.	Consistent. The plant palette proposed as part of the Specific Plan includes vegetation that provides food and shelter to indigenous wildlife, as confirmed by the evaluations undertaken for this EIR (see Section 4.C, *Biological Resources*).	Not Applicable. Establishment of proposed plant palettes for future development under the CPP and CPP-V scenarios would be undertaken as part of the required specific plan should the CPP or CPP-V scenario be selected.

TABLE 4.I-1 (Continued)
CONSISTENCY OF PROJECT COMPONENTS[5] WITH APPLICABLE LOCAL AND REGIONAL LAND USE POLICIES

Existing Plan and Policies	Project Consistency with Existing Policy	
	DSP/DSP-V	CPP/CPP-V
City of Brisbane 1994 General Plan (cont.)		
Chapter IX, Conservation (cont.)		
Policy 130: Conserve water resources in the natural environment.	Consistent. The DSP and DSP-V scenarios contain a series of water conservation measures, including construction an onsite recycled water plant, as well as requirements for use of recycled water for non-potable uses within the Baylands. As discussed in Section 4.O, *Utilities, Service Systems, and Water Supply*, implementation of a series of water conservation measures, including provision and use of recycled water supplies generated at an onsite recycled water plant, ensures an adequate water supply for development of the Project Site.	Consistent. The CPP and CPP-V scenarios propose construction an onsite recycled water plant, which would provide a source of recycled water for non-potable uses within the Baylands. As discussed in Section 4.O, *Utilities, Service Systems, and Water Supply*, implementation of a series of water conservation measures, including provision and use of recycled water supplies generated at an onsite recycled water plant, ensures an adequate water supply for development of the Project Site. These water conservation measures would be included in the required specific plan should the CPP or CPP-V scenario be selected.
Policy 131: Emphasize the conservation of water quality and of riparian and other water-related vegetation, especially that which provides habitat for native species, in planning and maintenance efforts.	Consistent. To ensure that development within the Baylands is protective of water quality and water-related vegetation, evaluations have been undertaken in this EIR, including establishment of appropriate mitigation measures (see Section 4.C, *Biological Resources*, and Section 4.H, *Hydrology and Water Quality*).	Consistent. To ensure that development within the Baylands is protective of water quality and water-related vegetation, evaluations have been undertaken in this EIR, including establishment of appropriate mitigation measures (see Section 4.C, *Biological Resources*, and Section 4.H, *Hydrology and Water Quality*).
Policy 132: Recognize the importance of the Brisbane Lagoon and the Levison Marsh as wildlife habitats, valuable community resources and drainage basins, and cooperate with responsible agencies in their conservation.	Consistent. The DSP and DSP-V scenarios provide for protection of Brisbane Lagoon and drainage areas, as confirmed by the evaluations undertaken as part of this EIR (see Section 4.C, *Biological Resources*, and Section 4.H, *Hydrology and Water Quality*). Cooperation with responsible agencies has included discussion with the RWQCB regarding site remediation and the content and analyses to be undertaken as part of this EIR. To implement this policy, the City has also sought input from responsible agencies regarding the evaluations contained in this EIR as part of the public review of this EIR.	Consistent. The CPP and CPP-V scenarios provide for protection of Brisbane Lagoon and drainage areas, as confirmed by the evaluations undertaken as part of this EIR (see Section 4.C, *Biological Resources*, and Section 4.H, *Hydrology and Water Quality*). Cooperation with responsible agencies has included discussion with the RWQCB regarding site remediation and the content and analyses to be undertaken as part of this EIR. To implement this policy, the City has also sought input from responsible agencies regarding the evaluations contained in this EIR as part of the public review of this EIR.
Policy 133: Reduce the amount of sediment entering waterways.	Consistent. The evaluations contained in this EIR along with applicable mitigation measures (see Section 4.E, *Geology, Soils, and Seismicity*, and Section 4.H, *Hydrology and Water Quality*) would ensure that development within the Project Site would be designed to minimize the amount of sediment entering waterways.	Consistent. The evaluations contained in this EIR along with applicable mitigation measures (see Section 4.E, *Geology, Soils, and Seismicity,* and Section 4.H, *Hydrology and Water Quality*) would ensure that development within the Project Site would be designed to minimize the amount of sediment entering waterways.

TABLE 4.I-1 (Continued)
CONSISTENCY OF PROJECT COMPONENTS[5] WITH APPLICABLE LOCAL AND REGIONAL LAND USE POLICIES

Existing Plan and Policies	Project Consistency with Existing Policy	
	DSP/DSP-V	**CPP/CPP-V**
City of Brisbane 1994 General Plan (cont.)		
Chapter IX, Conservation (cont.)		
Policy 134: Reduce the amount of pollutants entering waterways.	Consistent. The evaluations contained in this EIR along with applicable mitigation measures (see Section 4.H, *Hydrology and Water Quality*) would ensure that development within the Project Site would be designed to minimize the amount of pollutants entering waterways.	Consistent. The evaluations contained in this EIR along with applicable mitigation measures (see Section 4.H, *Hydrology and Water Quality*) would ensure that development within the Project Site would be designed to minimize the amount of pollutants entering waterways.
Policy 136: Encourage the maintenance and rehabilitation of structures important to the history of Brisbane.	Consistent. The Specific Plan states that rehabilitation and adaptive reuse of the historic Roundhouse building would occur and that rehabilitation and adaptive reuse of the Lazzari Fuel Company building would be part of the DSP and DSP-V scenarios.	Consistent. Rehabilitation and adaptive reuse of the historic Roundhouse building and the Lazzari Fuel Company building would be part of the CPP and CPP-V scenarios.
Policy 137: Conserve prehistoric resources in accordance with State and Federal requirements.	Consistent. No known significant archaeological resources are located in the Project Site. While the DSP and DSP-V each could have an impact on as-yet undiscovered archaeological resources, Mitigation Measure 4.D-2 has been recommended to ensure that impacts would be reduced to a less-than-significant level (see Section 4.D, *Cultural Resources*, of this EIR).	Consistent. No known significant archaeological resources are located in the Project Site. While the CPP and CPP-V each could have an impact on as-yet undiscovered archaeological resources, Mitigation Measure 4.D-2 has been recommended to ensure that impacts would be reduced to a less-than-significant level (see Section 4.D, *Cultural Resources*, of this EIR).
Policy 138: Encourage conservation of domestic water.	Consistent. The Water Supply Assessment prepared for the Project Site development identifies a wide array of water conservation measures that would be undertaken, including an onsite recycled water plant that would supply recycled water for non-potable use.	Consistent. The Water Supply Assessment prepared for the Project Site development identifies a wide array of water conservation measures that would be undertaken, including an onsite recycled water plant that would supply recycled water for non-potable use.
Policy 139: Promote the conservation of non-renewable energy resources.	Consistent. In addition to meeting the energy conservation requirements contained in the building code, Project Site development would provide for onsite renewable energy generation to reduce reliance on non-renewable energy resources.	Consistent. In addition to meeting the energy conservation requirements contained in the building code, Project Site development would provide for onsite renewable energy generation to reduce reliance on non-renewable energy resources.
Policy 143: Maximize opportunities to recycle solid waste.	Consistent. Development of the Project Site would be required to implement all ongoing City programs to maintain waste diversion in accordance with the provisions of AB 939.	Consistent. Development of the Project Site would be required to implement all ongoing City programs to maintain waste diversion in accordance with the provisions of AB 939. In addition, the CPP-V scenario provides for the expansion of the Recology facility, which would increase diversion rates within Recology's service area.

TABLE 4.I-1 (Continued)
CONSISTENCY OF PROJECT COMPONENTS[5] WITH APPLICABLE LOCAL AND REGIONAL LAND USE POLICIES

Existing Plan and Policies	Project Consistency with Existing Policy	
	DSP/DSP-V	CPP/CPP-V
City of Brisbane 1994 General Plan (cont.)		
Chapter X, Community Health and Safety		
Policy 146: Require that developers and property owners in undeveloped areas who wish to build on their land provide infrastructure at their own expense, including water, sewer, storm drains and paved streets to City standards.	Consistent. Infrastructure required to support Project Site development would be funded by that development. In cases where infrastructure serving the Project Site also serves a larger area (e.g., Geneva extension), Project Site development would be required to pay its fair share for such improvements.	Consistent. Infrastructure required to support Project Site development would be funded by that development. In cases where infrastructure serving the Project Site also serves a large area (e.g., Geneva extension), Project Site development would be required to pay its fair share for such improvements.
Policy 149: Construct new buildings and retrofit existing ones to withstand seismic forces.	Consistent. New construction and adaptive reuse of the historic Roundhouse building and the Lazzari Fuel Company building would be required to comply with applicable building codes, which would ensure appropriate ability to withstand seismic forces.	Consistent. New construction and adaptive reuse of the historic Roundhouse building and the Lazzari Fuel Company building would be required to comply with applicable building codes, which would ensure appropriate ability to withstand seismic forces.
Policy 152: Consider issues of slope stability in conjunction with development applications.	Consistent. New development within the Baylands would occur on the flatter portions of the Project Site; Ice House Hill would be preserved in open space.	Consistent. New development within the Baylands would occur on the flatter portions of the Project Site; Ice House Hill would be preserved in open space.
Policy 153: Require the construction of new improvements and the upgrade of existing stormwater infrastructure to mitigate flood hazard.	Consistent. Appropriate infrastructure to mitigate flood hazards would be provided, as confirmed by the evaluations and mitigation measures contained in this EIR (see Section 4.H, *Hydrology and Water Quality*).	Consistent. Appropriate infrastructure to mitigate flood hazards would be provided, as confirmed by the evaluations and mitigation measures contained in this EIR (see Section 4.H, *Hydrology and Water Quality*).
Policy 155: Pay special attention to the condition and maintenance of storm drain facilities to avoid flooding.	Consistent. Appropriate infrastructure to mitigate flood hazards would be provided, as confirmed by the evaluations and mitigation measures contained in this EIR (see Section 4.H, *Hydrology and Water Quality*).	Consistent. Appropriate infrastructure to mitigate flood hazards would be provided, as confirmed by the evaluations and mitigation measures contained in this EIR (see Section 4.H, *Hydrology and Water Quality*).
Policy 158: Provide a level of fire protection proportional to the size, risks and service demands of the community within budgetary constraints.	Consistent: Project Site development would require expansion of fire facilities. With implementation of the mitigation measures contained in this EIR, appropriate levels of fire protection relative to the size, risks, and service demands of Project Site development would be provided.	Consistent. Project Site development would require expansion of fire facilities. With implementation of the mitigation measures contained in this EIR, appropriate levels of fire protection relative to the size, risks, and service demands of Project Site development would be provided.
Policy 160: Provide a level of police protection of persons and property proportional to the size and law enforcement needs of the community within budgetary constraints.	Potentially Consistent. The levels of police protection and facilities needed to support development of the DSP and DSP-V scenarios are evaluated in Section 4.L, *Public Services*, of this EIR. The DSP and DSP-V scenarios would be considered to be consistent with Policy 160 if they would generate sufficient municipal income to offset the costs of	Potentially Consistent. The levels of police protection and facilities needed to support development of the CPP and CPP-V scenarios are evaluated in Section 4.L, *Public Services*, of this EIR. The CPP and CPP-V scenarios would be considered to be consistent with Policy 160 if they would generate sufficient municipal

TABLE 4.I-1 (Continued)
CONSISTENCY OF PROJECT COMPONENTS[5] WITH APPLICABLE LOCAL AND REGIONAL LAND USE POLICIES

Existing Plan and Policies	Project Consistency with Existing Policy	
	DSP/DSP-V	**CPP/CPP-V**
City of Brisbane 1994 General Plan (cont.)		
Chapter X, Community Health and Safety (cont.)		
Policy 160 (cont.)	providing municipal services, including police services to the Baylands. Because CEQA focuses on *physical* rather than financial impacts, analysis of municipal costs and revenues is not included in this EIR.	income to offset the costs of providing municipal services, including police services to the Baylands. Because CEQA focuses on *physical* rather than financial impacts, analysis of municipal costs and revenues is not included in this EIR.
Policy 163: Continue to ensure a three minute emergency response average and a ten minute average response to other calls for service.	Consistent. Development of the DSP or DSP-V scenario would require expansion of the Brisbane Police Department to provide two additional 24/7 shifts to its existing patrol staffing, thus requiring an additional 10 officers plus additional civilian employees. Because desired response times could not be maintained under the DSP and DSP-V scenarios, given the location of the Project Site in relation to existing police facilities, the construction of new facilities would be required within the Baylands. With implementation of the mitigation measures contained in this EIR, the response time standard would be met.	Consistent. Development of the CPP or CPP-V scenario would require expansion of the Brisbane Police Department to provide one additional 24/7 shift to its existing patrol staffing, thus requiring an additional eight officers and an additional civilian employee. Because desired response times could not be maintained under the CPP and CPP-V scenarios, given the location of the Project Site in relation to existing police facilities, the construction of new facilities would be required within the Baylands. With implementation of the mitigation measures contained in this EIR, the response time standard would be met.
Policy 166: Protect the community's health, safety, welfare, natural resources and property through regulation of the handling and storage of hazardous materials, with specific focus on prevention of accidents.	Consistent. This EIR has evaluated impacts related to the potential handling and storage of hazardous materials within the Baylands and has concluded that compliance with applicable federal, state, and local regulations would ensure that impacts are less than significant and that the community's health, safety, welfare, natural resources, and property will be adequately protected.	Consistent. This EIR has evaluated impacts related to the potential handling and storage of hazardous materials within the Baylands and has concluded that compliance with applicable federal, state, and local regulations would ensure that impacts are less than significant and that the community's health, safety, welfare, natural resources, and property would be adequately protected.
Policy 172: Establish that it is of the highest priority that contaminated lands in Brisbane be remediated.	Consistent. Remediation of contamination within Operable Unit 1 and Operable Unit 2, along with landfill closure, is included as part of the Project Site development (see Section 3.11, Remedial Actions, in Chapter 3, *Project Description*, of this EIR).	Consistent. Remediation of contamination within Operable Unit 1 and Operable Unit 2, along with landfill closure, is included as part of the Project Site development (see Section 3.11, Remedial Actions, in Chapter 3, *Project Description*, of this EIR).
Policy 173: The City shall not grant approval of a development project on a contaminated site unless a plan for remediation of the site has first been approved and adopted by all Federal, State and local agencies having jurisdiction over the remediation plan.	Consistent: Neither the DSP nor the DSP-V constitutes a development project as that term is used in this policy. Instead, the Concept Plans they represent define the land use plan that would guide development of the required specific plan, which would, in turn, provide specific development regulations for future development projects	Consistent: Neither the CPP nor the CPP-V constitutes a development project as that term is used in this policy. Instead, the Concept Plans they represent define the land use plan that would guide development of the required specific plan, which would, in turn, provide specific development regulations for future

TABLE 4.I-1 (Continued)
CONSISTENCY OF PROJECT COMPONENTS[5] WITH APPLICABLE LOCAL AND REGIONAL LAND USE POLICIES

Existing Plan and Policies	Project Consistency with Existing Policy	
	DSP/DSP-V	CPP/CPP-V
City of Brisbane 1994 General Plan (cont.)		
Chapter X, Community Health and Safety (cont.)		
Policy 173 (cont.)	that would be subject to the provisions of this policy. Prior to approval of any site-specific development project within the Project Site, approval of Remedial Action Plans (RAPs) by the appropriate state and local agencies would be required pursuant to this policy. Because the remediation requirements and cleanup levels to be established by the regulatory agencies having jurisdiction are dependent on the type(s) of future land uses, moving forward with Concept Plan and Specific Plan approval prior to approvals of RAPs is appropriate, provided that no site-specific developments are approved prior to approval of the RAPs.	development projects that would be subject to the provisions of this policy. Prior to approval of any site-specific development project within the Project Site, approval of RAPs by the appropriate state and local agencies would be required pursuant to this policy. Because the remediation requirements and cleanup levels to be established by the regulatory agencies having jurisdiction are dependent on the type(s) of future land uses, moving forward with Concept Plan and Specific Plan approval prior to approvals of RAPs is appropriate, provided that no site-specific developments are approved prior to approval of the RAPs.
Policy 174: Include the remediation requirements of Federal, State and local agencies in the process of making determinations on land use designations and development applications.	Consistent. As noted in Chapter 3, *Project Description* (Section 3.10, Remedial Actions), and Section 4.G, *Hazards and Hazardous Materials*, of this EIR, the specific remediation technologies, actions, and levels of cleanup to be employed within the Baylands will be determined by the agencies with jurisdiction over site remediation (DTSC and RWQCB). DTSC and the RWQCB would set specific standards for the various types of land uses proposed in the DSP and DSP-V scenarios and the Brisbane Baylands Specific Plan to provide adequate safety for the specific land uses proposed for the DSP and DSP-V scenarios as they may ultimately be approved by the City. To ensure implementation of Policy 174, applicable DTSC and RWQCB requirements would be required to be included in the Brisbane Baylands Specific Plan should it be approved. As noted in Section 4.G, *Hazards and Hazardous Materials*, of this EIR, the institutional requirements of the regulatory agencies with oversight of Baylands remediation should be included in the required specific plan(s) for the Baylands in respect to restrictions on land uses within the area.	Consistent. As noted in Chapter 3, *Project Description* (Section 3.10, Remedial Actions), and Section 4.G, *Hazards and Hazardous Materials*, of this EIR, the specific remediation technologies, actions, and levels of cleanup to be employed within the Baylands will be determined by the agencies with jurisdiction over site remediation (DTSC and RWQCB). DTSC and the RWQCB would set specific standards for the various types of land uses proposed in the CPP and CPPP-V scenarios to provide adequate safety for the specific land uses proposed for the CPP and CPP-V scenarios as they may ultimately be approved by the City. To ensure implementation of Policy 174, applicable DTSC and RWQCB requirements would be required to be included in the required specific plan should the CPP or CPP-V scenario be selected. Requirements of the regulatory agencies with oversight of Baylands remediation should be included in the required specific plan(s) for the Baylands in respect to restrictions on land uses within the area.

TABLE 4.I-1 (Continued)
CONSISTENCY OF PROJECT COMPONENTS[5] WITH APPLICABLE LOCAL AND REGIONAL LAND USE POLICIES

Existing Plan and Policies	Project Consistency with Existing Policy	
	DSP/DSP-V	**CPP/CPP-V**
City of Brisbane 1994 General Plan (cont.)		
Chapter X, Community Health and Safety (cont.)		
Policy 175: Assure that any development otherwise permitted on lands filled with municipal waste is safe by implementing the following programs. • *Program 175a: Exchange information with the California Integrated Waste Management Board, San Mateo County Health System Environmental Health Division and other responsible agencies regarding the requirements for safe and successful landfill development, utilizing the experience of Sierra Point.* • *Program 175b: Require evidence that scientific testing and verification has taken place to the satisfaction of regulatory agencies.* • *Program 175c: Encourage property owners of filled lands to complete all testing and related requirements of the Federal, State and local agencies well in advance of requesting land use permits from the City*	Consistent. The exchange of information called for in Program 175a has been ongoing as part of the development of remediation programs for the landfill and preparation of this EIR. Also included in that exchange of information are DTSC and the RWQCB. In addition, the City is reviewing proposed remediation plans and maintaining close communications with appropriate agencies to ensure that scientific testing and verification would occur to the satisfaction of regulatory agencies prior to permitting any ground-disturbing activities for proposed development in the Baylands. In recognition of Program 175c, the analysis testing required for remediation of contamination within the Project Site would be completed to the satisfaction of regulatory agencies and specific technologies and levels of cleanup required by each land use proposed would be determined prior to any approval of site-specific development or ground-disturbing activities within the Baylands. In addition, pursuant to the provisions of General Plan Policy 173, approval of RAPs by the appropriate state and local agencies would be required prior to approval of any site-specific development project within the Project Site.	Consistent. The exchange of information called for in Program 175a has been ongoing as part of the development of remediation programs for the landfill and preparation of this EIR. Also included in that exchange of information are DTSC and the RWQCB. In addition, the City is reviewing proposed remediation plans and maintaining close communications with appropriate agencies to ensure that scientific testing and verification would occur to the satisfaction of regulatory agencies prior to permitting any ground-disturbing activities for proposed development in the Baylands. In recognition of Program 175c, the analysis testing required for remediation of contamination within the Project Site would be completed to the satisfaction of regulatory agencies and specific technologies and levels of cleanup required by each land use proposed would be determined prior to any approval of site-specific development or ground-disturbing activities within the Baylands. In addition, pursuant to the provisions of General Plan Policy 173, approval of RAPs by the appropriate state and local agencies would be required prior to approval of any site-specific development project within the Project Site.
Policy 176: Minimize the intrusion of unwarranted and intrusive noise on community life.	Consistent. Noise impacts that would result from implementation of the DSP and DSP-V scenarios have been evaluated in Section 4.J, *Noise and Vibration*) of this EIR, which concluded that, with the implementation of the mitigation requirements set forth in that section, Project-related noise impacts would be less than significant. Thus, intrusion of unwarranted and intrusive noise on community life would not occur.	Consistent. Noise impacts that would result from implementation of the CPP and CPP-V scenarios have been evaluated in Section 4.J, *Noise and Vibration*, of this EIR, which concluded that, with the implementation of the mitigation requirements set forth in that section, Project-related noise impacts would be less than significant. Thus, intrusion of unwarranted and intrusive noise on community life would not occur.
Policy 179: Require the incorporation, when feasible, of new road or landscaping features that buffer noise impacts on adjacent areas.	Consistent. Noise impacts that would result from implementation of the DSP and DSP-V scenarios have been evaluated in Section 4.J, *Noise and Vibration*, of this EIR, which concluded that, with the implementation of the mitigation requirements (including measures aimed at establishing noise buffering features) set forth in that section, Project-related noise impacts would be less than significant.	Consistent. Noise impacts that would result from implementation of the CPP and CPP-V scenarios have been evaluated in Section 4.J, *Noise and Vibration*, of this EIR, which concluded that, with the implementation of the mitigation requirements (including measures aimed at establishing noise buffering features) set forth in that section, Project-related noise impacts would be less than significant.

TABLE 4.I-1 (Continued)
CONSISTENCY OF PROJECT COMPONENTS[5] WITH APPLICABLE LOCAL AND REGIONAL LAND USE POLICIES

Existing Plan and Policies	Project Consistency with Existing Policy	
	DSP/DSP-V	CPP/CPP-V
City of Brisbane 1994 General Plan (cont.)		
Chapter X, Community Health and Safety (cont.)		
Policy 180: Establish and enforce truck routes and times of operation for haul routes to minimize impacts on residential areas.	Consistent. Policy 180 establishes a citywide program that future development within the Baylands would be required to adhere to.	Consistent. Policy 180 establishes a citywide program that future development within the Baylands would be required to adhere to.
Policy 182: Support efforts to reduce vehicle trips and keep smooth traffic flow to the extent that the number of trips and stop-and-start traffic contribute to traffic noise.	Consistent. By providing improved access to and a mix of residential and commercial uses near transit, the DSP and DSP-V scenarios would assist in reducing vehicle trips. In addition, providing improved access to US Highway 101, along with proposed offsite roadway improvements, would assist in reducing congestion that contributes to traffic noise.	Consistent. By providing improved access to transit, including concentrated employment in close proximity to transit, the CPP and CPP-V scenarios would assist in reducing vehicle trips. In addition, providing improved access to US Highway 101, along with proposed offsite roadway improvements, would assist in reducing congestion that contributes to traffic noise.
Policy 183: Coordinate land uses and construction conditions to minimize noise impacts of the Caltrain corridor and major highway arterials on adjacent land uses.	Consistent. The DSP and DSP-V scenarios propose development of multi-family residential uses as close as 50 feet from the Caltrain tracks, which is considered "normally unacceptable" for such uses. To minimize noise impacts, Section 4.J, *Noise and Vibration*, of this EIR recommends mitigation for the residential uses proposed in the DSP and DSP-V scenarios, including: • Use of acoustically rated building materials (insulation and windows); • Construction of architectural noise barriers between sources and receptors; and • Implementation of landscaping or other non-noise sensitive buffer zones between sources and receptors.	Potentially Consistent. The CPP and CPP-V scenarios propose land uses adjacent to the Caltrain corridor that are compatible with Caltrain-related noise. Policy 183 aims to coordinate land development with site-specific project requirements. As such, it would be implemented through requirements set forth in the required specific plan should the CPP or CPP-V scenario be selected.
Policy 184: In conjunction with development applications and other land use decisions, consider the potential for noise generation from, as well as noise impacts on, the project or area.	Consistent. The evaluations contained in Section 4.J, *Noise and Vibration*, of this EIR identify noise-related impacts that could result from the DSP and DSP-V scenarios and recommend mitigation measures needed to reduce impacts to less-than-significant levels.	Consistent. The evaluations contained in Section 4.J, *Noise and Vibration*, of this EIR identify noise-related impacts that could result from the CPP and CPP-V scenarios and recommend mitigation measures needed to reduce impacts to less-than-significant levels.
Policy 193: As a part of land use development analysis, consider the impacts on air resources that will be generated by a project through mobile sources.	Consistent. The evaluations contained in Section 4.B, *Air Quality*, of this EIR identify mobile source air quality impacts that could result from the DSP and DSP-V scenarios and recommend mitigation measures to reduce impacts.	Consistent. The evaluations contained in Section 4.B, *Air Quality*, of this EIR identify mobile source air quality impacts that could result from the CPP and CPP-V scenarios and recommend mitigation measures to reduce impacts.

TABLE 4.I-1 (Continued)
CONSISTENCY OF PROJECT COMPONENTS[5] WITH APPLICABLE LOCAL AND REGIONAL LAND USE POLICIES

Existing Plan and Policies	Project Consistency with Existing Policy	
	DSP/DSP-V	CPP/CPP-V
City of Brisbane 1994 General Plan (cont.)		
Chapter X, Community Health and Safety (cont.)		
Policy 194: Attempt to minimize dependence on automobile travel by encouraging transit, bicycle and pedestrian alternatives and incorporating alternatives to the automobile in land use planning and project design.	Consistent. By providing improved access to transit, along with improved bicycle and pedestrian connections, the DSP and DSP-V scenarios aim to minimize dependence on automobile travel. In addition, by providing residential uses within a mixed use context, the DSP and DSP-V scenarios reduce overall per capita vehicle miles travelled, as evidenced in Section 4.F, *Greenhouse Gas Emissions*, of this EIR.	Consistent. By providing improved access to transit, along with improved bicycle and pedestrian connections, the CPP and CPP-V scenarios aim to minimize dependence on automobile travel.
Policy 197: Continue to improve existing roadways to reduce congestion in order to reduce emissions generated by "stop-and-go" driving.	Consistent. Based on the traffic analyses undertaken for the DSP and DSP-V scenarios, this EIR recommends mitigation measures to reduce congestion and resulting air pollutant emissions (see Section 4.N, *Traffic and Circulation*).	Consistent. Based on the traffic analyses undertaken for the CPP and CPP-V scenarios, this EIR recommends mitigation measures to reduce congestion and resulting air pollutant emissions (see Section 4.N, *Traffic and Circulation*).
Policy 198: Actively participate in and support the development and implementation of transportation system management plans (TSMs) and transportation demand management measures (TDMs).	Consistent. Section 10.52.060 of the Brisbane Municipal Code requires employers that are subject to BAAQMD Regulation 13, Rule 1 (regional employer-based trip reduction rule) to conform to the employer-based reduction requirements established and enforced by BAAQMD. Moreover, each employer of 25 or more employees is required to follow the progression of current and new rules under Regulation 13 so as to be prepared to comply with new mandates that may come into effect for such employer's worksite. Development of the Project Site is also subject to subject to the TDM program requirements established by the C/CAG of San Mateo County. A TDM program is included in the Specific Plan prepared for the DSP and DSP-V scenarios.	Consistent. Section 10.52.060 of the Brisbane Municipal Code requires employers that are subject to BAAQMD Regulation 13, Rule 1 (regional employer-based trip reduction rule) to conform to the employer-based reduction requirements established and enforced by BAAQMD. Moreover, each employer of 25 or more employees is required to follow the progression of current and new rules under Regulation 13 so as to be prepared to comply with new mandates that may come into effect for such employer's worksite. Development of the Project Site is also subject to subject to the TDM program requirements established by the C/CAG of San Mateo County.
Policy 199: Encourage County and regional transportation agencies to improve transit and transportation systems in ways that reduce mobile source emissions.	Consistent. The DSP and DSP-V scenarios are consistent with Policy 199 in that they provide for development in close proximity to transit along with improved connections from the existing community to existing and proposed transit facilities.	Consistent. The CPP and CPP-V scenarios are consistent with Policy 199 in that they provide for development in close proximity to transit along with improved connections from the existing community to existing and proposed transit facilities.
Policy 203: Consider issues of stationary emissions in land use planning and project review.	Consistent. The evaluations undertaken as part of this EIR provide consideration of stationary source emissions as part of the review of future development within the Baylands.	Consistent. The evaluations undertaken as part of this EIR provide consideration of stationary source emissions as part of the review of future development within the Baylands.

TABLE 4.I-1 (Continued)
CONSISTENCY OF PROJECT COMPONENTS[5] WITH APPLICABLE LOCAL AND REGIONAL LAND USE POLICIES

Existing Plan and Policies	Project Consistency with Existing Policy	
	DSP/DSP-V	CPP/CPP-V
City of Brisbane 1994 General Plan (cont.)		
Chapter X, Community Health and Safety (cont.)		
Policy 208: If new development occurs, require infrastructure to be installed to City standards.	Consistent: All new infrastructure required to support Project Site development would be constructed to the standards of the City.	Consistent: All new infrastructure required to support Project Site development would be constructed to the standards of the City.
Policy 210: Developers and property owners who wish to build on their land in undeveloped areas where infrastructure does not currently exist shall provide the infrastructure for water distribution, fire protection and water connections to the City's service at their own expense.	Consistent. Infrastructure required to support Project Site development would be funded by that development. In cases where infrastructure serving the Project Site also serves a larger area, Project Site development would be required to pay its fair share for such improvements.	Consistent. Infrastructure required to support Project Site development would be funded by that development. In cases where infrastructure serving the Project Site also serves a larger area, Project Site development would be required to pay its fair share for such improvements.
Policy 213: If new development occurs, require trunk and lateral lines to be installed to City standards.	Consistent. All future development within the Baylands would be required to comply with applicable City standards.	Consistent. All future development within the Baylands would be required to comply with applicable City standards.
Policy 215: Sanitary sewer service to undeveloped areas where facilities do not currently exist shall be installed and connected to the City's system at the property owner or developer's expense.	Consistent. Infrastructure required to support Project Site development would be funded by that development. In cases where infrastructure serving the Project Site also serves a larger area, Project Site development would be required to pay its fair share for such improvements.	Consistent. Infrastructure required to support Project Site development would be funded by that development. In cases where infrastructure serving the Project Site also serves a larger area, Project Site development would be required to pay its fair share for such improvements.
Policy 221: If new development occurs, require storm drain systems to be installed to City standards.	Consistent. All future development within the Project Site would be required to comply with applicable City standards.	Consistent. All future development within the Project Site would be required to comply with applicable City standards.
Policy 222: Require that all storm drain lines be installed within dedicated public streets.	Consistent. All future development within the Project Site would be required to comply with applicable City standards, including locating storm lines within dedicated public streets.	Consistent. All future development within the Project Site would be required to comply with applicable City standards, including locating storm lines within dedicated public streets.
Policy 223: Storm drains in undeveloped areas where facilities do not currently exist shall be installed at the property owner or developer's expense.	Consistent. All future development within the Project Site would be required to comply with applicable City standards, including requirements that required drainage facilities be installed at the developer's expense.	Consistent. All future development within the Project Site would be required to comply with applicable City standards, including requirements that required drainage facilities be installed at the developer's expense.

TABLE 4.I-1 (Continued)
CONSISTENCY OF PROJECT COMPONENTS[5] WITH APPLICABLE LOCAL AND REGIONAL LAND USE POLICIES

Existing Plan and Policies	Project Consistency with Existing Policy	
	DSP/DSP-V	CPP/CPP-V
City of Brisbane 1994 General Plan (cont.)		
Chapter X, Community Health and Safety (cont.)		
Policy 226: Undertake drainage studies to determine responsibility for siltation of the system and seek opportunities to assess the responsible parties for maintenance costs.	Consistent. All future development within the Project Site would be required to comply with applicable City standards, including requirements that final system design take account of siltation. To ensure consistency with Policy 226, final drainage design studies will also be required to determine the extent to which siltation within the Project Site drainage system is the responsibility of Baylands development.	Consistent. All future development within the Project Site would be required to comply with applicable City standards, including requirements that final system design take account of siltation. To ensure consistency with Policy 226, final drainage design studies will also be required to determine the extent to which siltation within the Project Site drainage system is the responsibility of Baylands development.
Policy 227: Cooperate with Daly City, responsible property owners, and responsible agencies to develop plans to improve the storm facilities on Bayshore Boulevard to relieve flooding.	Consistent. All future development within the Project Site would be required to comply with applicable City standards, including requirements for coordination with Daly City should final design of drainage facilities for the Project Site require connection to drainage facilities within Bayshore Boulevard.	Consistent. All future development within the Project Site would be required to comply with applicable City standards, including requirements for coordination with Daly City should final design of drainage facilities for the Project Site require connection to drainage facilities within Bayshore Boulevard.
Chapter XII, Policies and Programs by Subarea (Northeast Bayshore Subarea Land Use)		
Policy 325: Retain and enhance landscaping along Bayshore Boulevard to buffer traffic noise and to screen the industrial uses from through traffic.	Consistent. The proposed Specific Plan for the DSP and DSP-V scenarios provides for landscaping along Bayshore Boulevard.	Potentially Consistent. Implementation of Policy 325 would occur as part of the required specific plan for the CPP or CPP-V scenario should either be selected.
Policy 326: Assist the property owners in developing an improved circulation plan for the businesses that front on Industrial Way to facilitate truck loading and turning movements.	Consistent: By incorporating the Northeast Bayshore Subarea into a comprehensive development plan for the Project Site, improved circulation would be provided to the area.	Consistent: By incorporating the Northeast Bayshore Subarea into a comprehensive development plan for the Project Site, improved circulation would be provided to the area.
Policy 327: Examine opportunities to improve circulation in Northeast Bayshore in conjunction with development of the Baylands.	Consistent. By incorporating the Northeast Bayshore Subarea into a comprehensive development plan for the Project Site, improved circulation would be provided to the area.	Consistent: By incorporating the Northeast Bayshore Subarea into a comprehensive development plan for the Project Site, improved circulation would be provided to the area.
Chapter XII, Policies and Programs by Subarea (Northeast Bayshore Community health and Safety)		
Policy 328: Through the appropriate regulatory agencies, control the handling of toxic materials and the remediation of any contamination.	Consistent. Included in the Project description for the DSP and DSP-V scenarios is remediation of existing contamination pursuant to the authority of the DTSC and RWQCB.	Consistent. Included in the Project description for the CPP and CPP-V scenarios is remediation of existing contamination pursuant to the authority of the DTSC and RWQCB.

TABLE 4.I-1 (Continued)
CONSISTENCY OF PROJECT COMPONENTS[5] WITH APPLICABLE LOCAL AND REGIONAL LAND USE POLICIES

Existing Plan and Policies	Project Consistency with Existing Policy	
	DSP/DSP-V	CPP/CPP-V
City of Brisbane 1994 General Plan (cont.)		
Chapter XII, Policies and Programs by Subarea (Baylands Subarea Local Economic Development)		
Policy 328.2: Require a program by the developer encouraging employment of Brisbane residents in the construction phase and in the operation of future businesses.	Consistent. All future development within the Project Site would be required to comply with applicable City programs and standards.	Consistent. All future development within the Project Site would be required to comply with applicable City programs and standards.
Chapter XII, Policies and Programs by Subarea (Baylands Subarea Land Use)		
Policy 329: Prior to or in conjunction with the first Specific Plan for the Baylands subarea, a Concept Plan shall be submitted, which shows the disposition of the entire site. The Concept Plan shall include the following; 1. an overall conceptual plan, illustrative in nature, showing uses and locations by means of bubble and schematic diagrams with an accompanying text; 2. a general description of conceptual uses, densities, intensities and locations consistent with the adopted General Plan; 3. a listing of responsible State, Federal or local agencies which have jurisdiction over the development of the site in the manner contemplated by the Concept Plan and a description of the studies to be concluded and the issues to be resolved with such agencies. Prior to or in conjunction with any subsequent Specific Plan, the applicant shall provide an updated Concept Plan for City consideration. The conceptual plan need not represent a commitment by the owner to any form of development. In no event shall a submitted Concept Plan be deemed an application for any form of development project approval under the City's subdivision or Zoning regulations.	Consistent. Concept plans for the DSP and DSP-V scenarios are included in the Specific Plan and are described in Chapter 3, *Project Description*, of this EIR.	Consistent. Concept plans for the CPP and CPP-V scenarios have been prepared and are described in Chapter 3, *Project Description*, of this EIR.
Policy 329.1: Adopt one or more Specific Plans and accompanying environmental impact reports prior to any development of the subarea.	Consistent. A Specific Plan is proposed for the DSP and DSP-V scenarios.	Not Applicable. As permitted by the General Plan, concept plans for the CPP and CPP-V scenarios are being proposed prior to development of a specific plan. Since the General Plan requires preparation of a specific plan prior to development within the Baylands, the CPP or CPP-V scenarios would require future preparation and environmental analysis of a specific plan.

TABLE 4.I-1 (Continued)
CONSISTENCY OF PROJECT COMPONENTS[5] WITH APPLICABLE LOCAL AND REGIONAL LAND USE POLICIES

Existing Plan and Policies	Project Consistency with Existing Policy	
	DSP/DSP-V	CPP/CPP-V
City of Brisbane 1994 General Plan (cont.)		
Chapter XII, Policies and Programs by Subarea (Baylands Subarea Land Use) (cont.)		
Policy 330.1: Prohibit housing on the Baylands.	Inconsistent. The DSP and DSP-V propose development of 4,434 housing units within the Baylands Subarea, which is inconsistent with this policy. The applicant for these scenarios proposes to resolve the inconsistency through a General Plan amendment that would eliminate this policy. Alternatively, the inconsistency could be resolved by eliminating residential uses from the development plan.	Consistent. Neither the CPP nor the CPP-V proposes residential uses.
Policy 331: Maximize opportunities for open space and recreational uses in any land use planning for this subarea.	Consistent. The DSP and DSP-V would provide 169 acres of public use and open space in the form of urban linear parks and plazas in the northern portion and recreational areas in the southern portion of the Project Site. This constitutes 30.8 percent of the Baylands Subarea, which meets the General Plan requirement that 25 percent of this Subarea be preserved as open space/open area.	Consistent. The CPP and CPP-V include a total of 330 acres of open space, parks/plazas, wetland, and open space connections. Civic/Cultural and the Public Use Envelope designations would also encourage uses that promote public gathering. Additionally, the R&D areas south of Geneva Avenue would have a Public Space-Oriented Overlay that would require 50 percent of the site to be designated as public open space.
Policy 333: Establish a safety buffer around and provide for visual screening of the Tank Farm.	Consistent. Both the DSP and DSP-V scenarios would incorporate dense vegetation adjacent to the Tank Farm. Final landscape plans for the development adjacent to the Tank Farm would be reviewed to ensure appropriate visual screening of the Tank Farm consistent with this policy.	Not Applicable. This policy would be implemented as part of the required specific plan that would be prepared for the CPP or CPP-V scenario should either Concept Plan be selected.
Policy 334: Encourage an adaptive reuse of the Roundhouse and other structures identified as having historic, cultural and unique architectural value.	Consistent. The DSP and DSP-V scenarios propose restoration and reuse of the Roundhouse building and the Lazzari Fuel Company building, designating the area around the Roundhouse as an open space amenity.	Consistent. The CPP and CPP-V propose restoration and reuse of the Roundhouse building and the Lazzari Fuel Company building, designating the area around the Roundhouse as an open space amenity.
Policy 335: Give aesthetic consideration to views of San Bruno Mountain, the Bay and the Baylands development itself from Central Brisbane as well as views from the Baylands in the design of any development.	Consistent. While the DSP and DSP-V would result in result in changes in views from Central Brisbane to scenic resources including San Bruno Mountain and the Bay, views of these resources would maintained. Evaluation of the extent to which views would be affected by proposed development is set forth in *Section 4.A, Aesthetics and Visual Resources*, of this EIR.	Consistent. While the CPP and CPP-V would result in result in changes in views from Central Brisbane to scenic resources including San Bruno Mountain and the Bay, views of these resources would maintained. Evaluation of the extent to which views would be affected by proposed development is set forth in *Section 4.A, Aesthetics and Visual Resources*, of this EIR.
Policy 336: Consider methods for enhancing interaction between the residential community in Central Brisbane and uses on the Baylands. Methods may include pedestrian, bicycle and vehicular connections, recreational uses and educational facilities.	Consistent. New roadways, including the proposed Geneva Avenue extension, along with proposed bicycle and pedestrian trails, as well as the potential for a third roadway and pedestrian connection between the Baylands and Central Brisbane, would provide enhanced connections between the Project Site and Central Brisbane.	Consistent. New roadways, including the proposed Geneva Avenue extension, along with proposed bicycle and pedestrian trails, as well as the potential for a third roadway and pedestrian connection between the Baylands and Central Brisbane, would provide enhanced connections between the Project Site and Central Brisbane.

TABLE 4.I-1 (Continued)
CONSISTENCY OF PROJECT COMPONENTS[5] WITH APPLICABLE LOCAL AND REGIONAL LAND USE POLICIES

Existing Plan and Policies	Project Consistency with Existing Policy	
	DSP/DSP-V	**CPP/CPP-V**
City of Brisbane 1994 General Plan (cont.)		
Chapter XII, Policies and Programs by Subarea (Baylands Subarea Land Use) (cont.)		
Policy 337: Include a phasing schedule for development to limit the adverse impacts of too rapid growth.	Inconsistent. Project phasing is proposed to occur over approximately 20 years. While the Specific Plan provides basic information on the phasing of Infrastructure based on proximity to existing infrastructure, funding availability, planning process, and market timing, the Specific Plan does not tie the rate of land development to the availability of infrastructure, which could lead to the establishment of new uses outstripping the capacity of infrastructure during initial phases of development prior to project buildout. Resolving this inconsistency requires (1) establishing concurrency requirements; (2) establishing performance standards for public services, facilities, and infrastructure; and (3) tying the pace of land development to the availability of services, facilities, and infrastructure.	Not Applicable. This policy would be implemented as part of the required specific plan that would be prepared for the CPP or CPP-V scenario should either Concept Plan be selected.
Policy 338: Buffer development from the Heavy Commercial uses in the Beatty Subarea.	Consistent. The DSP and DSP-V scenarios propose less sensitive uses such as parking, service access, and storage of commercial uses north of Geneva Avenue to buffer office and residential uses to the south and west of the Beatty Subarea.	Consistent. The CPP scenario proposes a similar range of land uses north of Geneva Avenue as the DSP to buffer future proposed land uses to the west and south. The CPP-V expands the existing Recology facility onto the northerly edge of the Baylands. Under this scenario, buffering would be provided via Recology's site layout, which locates office uses at the southerly edge of the site, thereby screening the operational functions from the larger plan area to the south. The relocated Tunnel Avenue and the Caltrain corridor would provide a buffer to planned development to the west.
Policy 339: Develop design guidelines as a part of every Specific Plan for the subarea. In the design guidelines, incorporate standards for roofs, emphasizing color, materials and screening, so as to consider views from above.	Consistent. This policy applies to the preparation of specific plans within the Baylands Subarea. Design guidelines are included in the Brisbane Baylands Specific Plan, which was prepared for the DSP and DSP-V scenarios and addresses this area of concern.	Not Applicable. This policy applies to the preparation of specific plans within the Baylands Subarea. Design guidelines will be required to be provided as part of any specific plan prepared for the CPP or CPP-V scenario should either Concept Plan be selected.
Chapter XII, Policies and Programs by Subarea (Baylands Subarea Transportation)		
Policy 340: Include street standards in all Specific Plans for the subarea.	Consistent. Street standards for the DSP and DSP-V were developed based on City of Brisbane guidelines and are included in the Specific Plan.	Not Applicable. This policy applies to the preparation of specific plans within the Baylands Subarea. Street standards would be required to be provided as part of any specific plan prepared for the CPP or CPP-V scenario should either Concept Plan be selected.

TABLE 4.I-1 (Continued)
CONSISTENCY OF PROJECT COMPONENTS[5] WITH APPLICABLE LOCAL AND REGIONAL LAND USE POLICIES

Existing Plan and Policies	Project Consistency with Existing Policy	
	DSP/DSP-V	CPP/CPP-V
City of Brisbane 1994 General Plan (cont.)		
Chapter XII, Policies and Programs by Subarea (Baylands Subarea Transportation) (cont.)		
Policy 340.1: Require the property owner to demonstrate the feasibility of connecting Geneva Avenue to Highway 101 prior to or with the first Specific Plan. Include an estimate of costs.	Inconsistent. Conceptual designs for the Geneva Avenue extension have been developed for the Project Site development and are analyzed in Section 4.N, *Traffic and Circulation*, of this EIR. While these conceptual designs demonstrate the engineering design feasibility of the Geneva Avenue extension, cost estimates and a financial demonstration of the feasibility of the extension were not provided as part of the Specific Plan proposed for the DSP and DSP-V scenarios.	Not Applicable. Conceptual designs for the Geneva Avenue extension have been developed for the Project Site development and are analyzed in Section 4.N, *Traffic and Circulation*, of this EIR. The conceptual designs demonstrate the engineering design feasibility of the Geneva Avenue extension. As required by Policy 340.1, cost estimates and a financial demonstration of the feasibility of the extension will be developed prior to or concurrent with the first specific plan proposed for the Baylands should either the CPP or CPP-V scenario be selected.
Policy 342: Mitigate traffic impacts by improved access to public transportation, by construction of street and intersection improvements, and by implementing the measures adopted by the City in Transportation System Management, Transportation Demand Management and Congestion Management Plans.	Consistent. Because concept plans focus on land use and issues to be resolved, this policy would be applied to specific plans, rather than to concept plans. The Brisbane Baylands Specific Plan provides for connections to both existing and planned transit facilities, reserves a right-of-way to accommodate long-term planned Muni bus rapid transit (BRT) service, and includes extension of the Muni T-Third Street light rail line and a BRT line. The Specific Plan also includes a conceptual plan for providing access to a planned future intermodal station.	Not Applicable. Because concept plans focus on land use and issues to be resolved, this policy would be applied to specific plans, rather than to concept plans. Should the CPP or CPP-V Concept Plan scenario be selected, any specific plan prepared for the Baylands pursuant to the selected Concept Plan would be required to comply with this policy.
Policy 343: Develop a pedestrian and bicycle system to reach all areas of the City from the Baylands.	Consistent. Both the DSP and DSP-V include pedestrian and bicycle facilities connecting the Project Site internally and externally, through linkages with local and regional pedestrian and bicycle systems, including the Bay Trail that would run parallel to US Highway 101 on the site.	Consistent. Both the CPP and CPP-V include pedestrian and bicycle facilities connecting the Project Site internally and externally, through linkages with local and regional pedestrian and bicycle systems, including the Bay Trail that would run parallel to US Highway 101 on the site.
Policy 344: Connect all development within the Baylands with bicycle and pedestrian networks.	Consistent. Proposed pedestrian pathways and bikeways would connect buildings on the Project Site to existing and planned transit facilities to encourage commuting by transit and other non-vehicular modes.	Consistent. Proposed pedestrian pathways and bikeways would connect buildings on the Project Site to existing and planned transit facilities to encourage commuting by transit and other non-vehicular modes.
Policy 345: Work with other agencies to promote interconnection with regional bicycle systems.	Consistent. Proposed bicycle systems proposed in the DSP and DSP-V scenarios for the Project Site would be connected to regional bicycle systems.	Consistent. Proposed bicycle systems proposed in the CPP and CPP-V scenarios for the Project Site would be connected to regional bicycle systems.

TABLE 4.I-1 (Continued)
CONSISTENCY OF PROJECT COMPONENTS[5] WITH APPLICABLE LOCAL AND REGIONAL LAND USE POLICIES

Existing Plan and Policies	Project Consistency with Existing Policy	
	DSP/DSP-V	CPP/CPP-V
City of Brisbane 1994 General Plan (cont.)		
Chapter XII, Policies and Programs by Subarea (Baylands Subarea Transportation) (cont.)		
Policy 346: Include the upgrade or replacement of Tunnel Avenue and its overpass or alternative access in the circulation plan for the Baylands.	Consistent. Tunnel Avenue is proposed to be rebuilt using collector street standards within a realigned right-of-way that would terminate at a reconfigured Lagoon Way.	Consistent. The land use plan for the CPP and CPP-V scenarios proposes that Tunnel Avenue be rebuilt within a realigned right-of-way that would terminate at a reconfigured Lagoon Way.
Policy 347: Cooperate with other agencies to develop the Bay Trail between Sierra Point and the Candlestick Recreation Area.	Consistent. The DSP and DSP-V scenarios provide for a trail connection through the Baylands along the US Highway 101 frontage road that would accommodate a new section of the San Francisco Bay Trail.	Consistent. The CPP and CPP-V scenarios provide for a trail connection through the Baylands along the US Highway 101 frontage road that would accommodate a new section of the San Francisco Bay Trail.
Chapter XII, Policies and Programs by Subarea (Baylands Subarea Open Space and Conservation)		
Policy 348: Enhance the natural landform and biotic values of Icehouse Hill and preserve its ability to visually screen the Tank Farm.	Consistent. Under the DSP and DSP-V, Icehouse Hill would be preserved as open space. The topography, and therefore the ability to visually screen the Tank Farm, would also be preserved. In addition, the DSP and DSP-V scenarios incorporate dense vegetation adjacent to the Tank Farm.	Potentially Consistent. This policy would be implemented a part of the required specific plan that would be prepared for the CPP or CPP-V scenario should either Concept Plan be selected.
Policy 349: After the water environment is determined to be safe for public access, develop public water-related passive recreation at the Brisbane Lagoon, with due concern for the preservation and enhancement of the wetlands.	Consistent. As described in Section 4.H, *Hazards and Hazardous Materials*, of this EIR, leachate seeps into Brisbane Lagoon have been identified as a recurring condition and would be prevented by reconstructing and installing a barrier membrane to prevent landfill leachate from migrating into Visitacion Creek as part of the ongoing remedial activities at the landfill. Such remediation activities would be undertaken regardless of whether the DSP, DSP-V, or any other concept plan scenario is selected.	Consistent. As described in Section 4.H, *Hazards and Hazardous Materials*, of this EIR, leachate seeps into Brisbane Lagoon have been identified as a recurring condition and would be prevented by reconstructing and installing a barrier membrane to prevent landfill leachate from migrating into Visitacion Creek as part of the ongoing remedial activities at the landfill. Such remediation activities would be undertaken regardless of whether the CPP, CPP-V, or any other concept plan scenario is selected.
Policy 350: Develop a public pathway and access facilities immediately adjacent to the Lagoon.	Consistent. After remedial activities have been completed, the areas around Brisbane Lagoon would be improved to provide recreational opportunities and to connect Lagoon Park to the lagoon perimeter. Some wetland areas, such as freshwater seasonal wetlands in the western portion of the site, could be partially removed or degraded through erosion and sedimentation associated with residential development or construction of active open space (such as turf grass, playing fields, or landscaping). Such impacts would be minimized, however, with implementation of mitigation measures included in the Section 4.C, *Biological Resources*, of this EIR (Mitigation Measures 4.C-2a through 4.C-2c).	Consistent. After remedial activities have been completed, the areas around Brisbane Lagoon would be improved to provide recreational opportunities and to connect Lagoon Park to the lagoon perimeter. Construction of active open space (such as turf grass, playing fields, or landscaping) could result in removal or degradation of some wetland area. Such impacts would be minimized, however, with implementation of mitigation measures included in Section 4.C, *Biological Resources*, of this EIR (Mitigation Measures 4.C-2a through 4.C-2c).

TABLE 4.I-1 (Continued)
CONSISTENCY OF PROJECT COMPONENTS[5] WITH APPLICABLE LOCAL AND REGIONAL LAND USE POLICIES

Existing Plan and Policies	Project Consistency with Existing Policy	
	DSP/DSP-V	CPP/CPP-V
City of Brisbane 1994 General Plan (cont.)		
Chapter XII, Policies and Programs by Subarea (Baylands Subarea Open Space and Conservation) (cont.)		
Policy 351: Establish a buffer zone between the Lagoon and adjacent uses.	Consistent. Implementation of mitigation measures included in Section 4.C, *Biological Resources*, of this EIR (Mitigation Measures 4.C-2a through 4.C-2c) require a minimum 100-foot marsh buffer, along with additional buffer areas where required by federal permits or needed to protect nesting sites of sensitive avian species. Also see discussion above for Policy 350.	Consistent. Implementation of mitigation measures included in Section 4.C, *Biological Resources*, of this EIR (Mitigation Measures 4.C-2a through 4.C-2c) require a minimum 100-foot marsh buffer, along with additional buffer areas where required by federal permits or needed to protect nesting sites of sensitive avian species. Also see discussion above for Policy 350.
Policy 352: Plan for landscape improvements to the lands around the Lagoon, including screening of the industrial structures adjacent to Bayshore Boulevard from the Lagoon.	Consistent. The DSP and DSP-V designate open space areas (Lagoon Park and landscaped buffer area north of Lagoon Way) between the lagoon and adjacent retail and industrial uses to the north.	Consistent. The CPP and CPP-V provide open space and wetland designations as buffer zones between the lagoon and the cultural/entertainment district to the north.
Policy 353: Consider a possible golf course if compatible with environmental and conservation concerns.	Consistent. While the DSP and DSP-V do not designate land for a golf course, development of golf-related uses would not be prohibited on the land designated for open space and recreational use.	Consistent. The CPP and CPP-V specify land within the Public Use Envelope designation as Regional Use/Park/Concession Area. This sub-district could allow for revenue-generating regional facilities such as a golf training facility.
Policy 354: Dedicate land area for open space, recreational uses and wetlands restoration, especially around the Lagoon.	Consistent. The DSP and DSP-V reserve approximately 169 acres for open space and public use areas, including both passive and active areas. Passive recreational areas are located along the Visitacion Creek corridor, around Icehouse Hill, and along the edges of Brisbane Lagoon. The lagoon offers water-related recreational activities. The more active use areas would include parks and cultural features spread across the Project Site and the extension of the San Francisco Bay Trail along the US Highway 101 frontage road on the east side of the Project Site.	Consistent. The CPP and CPP-V reserve approximately 330 acres for open space and public use areas, including land reserved for wildlife habitat, public parks, landscaped areas, open areas within development sites, and other passive and active recreational uses. The extension of the San Francisco Bay Trail would bisect the east side of the Project Site, rather than align with the US Highway 101 frontage road as proposed in the DSP. The CPP and CPP-V also include commercial recreation opportunities, such as bicycle rentals near multiuse trails, kayak rentals near the lagoon area, and the group use area north of Icehouse Hill.
Policy 355: Provide in-lieu fees for the acquisition of open space or land dedication in conjunction with development.	Consistent. The DSP and DSP-V designate 169 acres of public use/open space, with the majority of this acreage in the southern half of the site including the area around the lagoon.	Consistent. The CPP and CPP-V designate 330 acres public use/open space, including the land around the lagoon.

TABLE 4.I-1 (Continued)
CONSISTENCY OF PROJECT COMPONENTS[5] WITH APPLICABLE LOCAL AND REGIONAL LAND USE POLICIES

Existing Plan and Policies	Project Consistency with Existing Policy	
	DSP/DSP-V	CPP/CPP-V
City of Brisbane 1994 General Plan (cont.)		
Chapter XII, Policies and Programs by Subarea (Baylands Subarea Open Space and Conservation) (cont.)		
Policy 356: Preserve open areas east of the Caltrans Highway 101 right-of-way as Bayfront.	Consistent. Land uses proposed east of US Highway 101 are consistent with the Bayfront designation.	Consistent. Land uses proposed east of US Highway 101 are consistent with the Bayfront designation.
Policy 357: Identify wildlife habitats and encourage programs to retain and/or enhance their natural features and habitat values in consultation with responsible agencies and independent professionals.	Consistent. The DSP and DSP-V scenarios propose retention and enhancement of onsite biological resource habitats. The City has retained independent professionals to prepare the evaluations and mitigation measures contained in this EIR (see Section 4.C, *Biological Resources*). The consultation called for in Policy 357 has occurred through requests for input on the content of this EIR, review of state and federal biological resources databases during EIR preparation, and soliciting input of the evaluations and conclusions set forth in this EIR.	Consistent. The CPP and CPP-V scenarios propose retention and enhancement of onsite biological resource habitats. The City has retained independent professionals to prepare the evaluations and mitigation measures contained in this EIR (see Section 4.C, *Biological Resources*). The consultation called for in Policy 357 has occurred through requests for input on the content of this EIR, review of state and federal biological resources databases during EIR preparation, and soliciting input of the evaluations and conclusions set forth in this EIR.
Policy 359: Seek opportunities to enhance and restore wetlands in consultation with responsible agencies.	Consistent. The DSP and DSP-V include a wetland mitigation plan (Specific Plan Appendix R) that includes mitigation measures to address impacts on existing jurisdictional wetlands. Proposed plans would be subject to United States Army Corps of Engineers (Corps), California Department of Fish and Wildlife (CDFW), and BCDC review. Additional analysis of wetland impacts is provided in Section 4.C, *Biological Resources*, and additional analysis of hydrology impacts is provided in Section 4.H, *Hydrology and Water Quality*, of this EIR.	Consistent. The CPP and CPP-V designate wetlands along Visitacion Creek and around Brisbane Lagoon, which would maintain the majority of existing wetlands within the Corps jurisdiction. Proposed plans would be subject to Corps, CDFW, and BCDC review. Additional analysis of wetland impacts is provided in Section 4.C, *Biological Resources*, and additional analysis of hydrology impacts is provided in Section 4.H, *Hydrology and Water Quality*, of this EIR.
Policy 360: Incorporate new construction standards for energy efficiency and water conservation.	Consistent. Several energy and water conservation measures are included as part of the Project Site development, including construction standards. Analysis of water conservation is provided in Section 4.O, *Utilities, Service Systems, and Water Supply*, and analysis of energy conservation measures is provided in Section 4.P, *Energy Resources*. In addition, sustainability measures incorporated in to the Project Site development, including energy and water conservation measures, are identified in Chapter 7, *Sustainability*, of this EIR.	Consistent. Several energy and water conservation measures are included as part of the Project Site development, including construction standards. Analysis of water conservation is provided in Section 4.O, *Utilities, Service Systems, and Water Supply*, and analysis of energy conservation measures is provided in Section 4.P, *Energy Resources*. In addition, sustainability measures incorporated in to the Project Site development, including energy and water conservation measures, are identified in Chapter 7, *Sustainability*, of this EIR.

TABLE 4.I-1 (Continued)
CONSISTENCY OF PROJECT COMPONENTS[5] WITH APPLICABLE LOCAL AND REGIONAL LAND USE POLICIES

Existing Plan and Policies	Project Consistency with Existing Policy	
	DSP/DSP-V	**CPP/CPP-V**
City of Brisbane 1994 General Plan (cont.)		
Chapter XII, Policies and Programs by Subarea (Baylands Subarea Open Space and Conservation) (cont.)		
Policy 361: Require water-conserving landscape plans, including suitable plant materials and irrigation systems, and explore the use of non-potable water.	Consistent. Several water savings measures are included in the Water Supply Assessment and applicable mitigation measures for the DSP and DSP-V scenarios, including dedicated landscape meters for outdoor irrigation use, native plant landscaping, subsurface irrigation for turf, and hardscape (e.g., track and exercise equipment instead of large lawns in parks). In addition, the Project Site development would include construction of an onsite recycled water plant that would supply recycled water for irrigation and non-potable plumbing on the Project Site. Analysis of water-conserving landscape plans is provided in Section 4.O, *Utilities, Service Systems, and Water Supply*. In addition, sustainability measures incorporated in to the Project Site development, including energy and water conservation measures, are identified in Chapter 7, *Sustainability*, of this EIR.	Consistent. Several water savings measures are included in the Water Supply Assessment and applicable mitigation measures for the CPP and CPP-V scenarios, including dedicated landscape meters for outdoor irrigation use, native plant landscaping, subsurface irrigation for turf, and hardscape (e.g. track and exercise equipment instead of large lawns in parks). In addition, the Project Site development would include construction of an onsite recycled water plant that would supply recycled water for irrigation and non-potable plumbing on the Project Site. Analysis of water-conserving landscape plans is provided in Section 4.O, *Utilities, Service Systems, and Water Supply*. In addition, sustainability measures incorporated in to the Project Site development, including energy and water conservation measures, are identified in Chapter 7, *Sustainability*, of this EIR.
Policy 362: Support County and regional efforts to maintain and improve water quality in San Francisco Bay. Work closely with responsible agencies to assure monitoring of the landfill so as to avoid toxic leaking into the Bay and to have property owners repair any leaks.	Consistent. As described in Section 4.H*, Hazards and Hazardous Materials*, of this EIR, leachate seeps into Brisbane Lagoon have been identified as a recurring condition and will be prevented by reconstructing and installing a barrier membrane to prevent landfill leachate from migrating into Visitacion Creek as part of the ongoing remedial activities at the landfill. Such remediation activities will be undertaken regardless of whether the DSP, DSP-V, or any other concept plan scenario is selected.	Consistent. As described in Section 4.H, *Hazards and Hazardous Materials*, of this EIR, leachate seeps into Brisbane Lagoon have been identified as a recurring condition and will be prevented by reconstructing and installing a barrier membrane to prevent landfill leachate from migrating into Visitacion Creek as part of the ongoing remedial activities at the landfill. Such remediation activities will be undertaken regardless of whether the CPP, CPP-V, or any other concept plan scenario is selected.
Policy 363: Improve water circulation and water quality in the Lagoon by control of sedimentation and by careful monitoring and maintenance of underground pipelines by responsible agencies.	Consistent. As discussed in Section 4.H, *Hydrology and Water Quality*, implementation of standard erosion control measures (Storm Water Pollution Prevention Plan) would be required to minimize the construction-related runoff and the potential impacts related to erosion, increased sedimentation, and pollutants in stormwater.	Consistent. As discussed in Section 4.H, *Hydrology and Water Quality*, implementation of standard erosion control measures (Storm Water Pollution Prevention Plan) would be required to minimize the construction-related runoff and the potential impacts related to erosion, increased sedimentation, and pollutants in stormwater.
Policy 364: Maximize energy conservation and encourage recycling through site planning and building design.	Consistent. The Specific Plan proposed for the DSP and DSP-V scenarios maximizes energy conservation by incorporating the following: • Leadership in Energy and Environmental Design (LEED) Silver proposed for all buildings;	Not Applicable. This policy would be implemented as part of the required specific plan that would be prepared for the CPP or CPP-V scenario should either Concept Plan be selected.

TABLE 4.I-1 (Continued)
CONSISTENCY OF PROJECT COMPONENTS[5] WITH APPLICABLE LOCAL AND REGIONAL LAND USE POLICIES

Existing Plan and Policies	Project Consistency with Existing Policy	
	DSP/DSP-V	**CPP/CPP-V**
City of Brisbane 1994 General Plan (cont.)		
Chapter XII, Policies and Programs by Subarea (Baylands Subarea Open Space and Conservation) (cont.)		
Policy 364 (cont.)	• Transportation energy savings through increasing access to transit facilities; • Higher densities near the core of development and near transit facilities, as well as by providing housing in close proximity to employment-generating uses; • Energy savings in building design; • Solar fields for renewable energy production; and • Water conservation (saves on energy for treatment and conveyance) which also reduces wastewater treatment energy use. Applicants for individual development projects within the Baylands will be required to develop and implement a Recycling and Waste Reduction Plan for construction in compliance with Chapter 15.75 of the Brisbane Municipal Code, which requires that 50 percent of construction and demolition debris be either recycled or reused. Any applicants for individual building permits would be required to implement an onsite recycling program to reduce solid waste diverted to landfills by at least 50 percent. This program would include measures addressing site planning and building design requirements that encourage recycling.	
Chapter XII, Policies and Programs by Subarea (Baylands Subarea Community Health and Safety)		
Policy 365: Comply with applicable Federal, State and regional standards for development on landfill.	Consistent. As described in Section 4.G, *Hazards and Hazardous Materials*, of this EIR, final landfill closure will be completed according to Title 27 of the California Code of Regulations. Due to its use as a landfill, the former Brisbane Landfill site is subject to oversight by the California Department of Resources Recycling and Recovery (CalRecycle), along with San Mateo County Health System Environmental Health Division, which enforce Title 27 regulations related to landfill closure, post-closure maintenance, and landfill gas monitoring and control. Site closure and subsequent site development also would be subject to varying degrees of oversight by these and other responsible agencies, including the BAAQMD (placement of gas monitoring wells), CDFW (biological resources impacts), RWQCB	Consistent. As described in Section 4.G, *Hazards and Hazardous Materials*, of this EIR, final landfill closure will be completed according to Title 27 of the California Code of Regulations. Due to its use as a landfill, the former Brisbane Landfill site is subject to oversight by the CalRecycle, along with San Mateo County Health System Environmental Health Division, which enforce Title 27 regulations related to landfill closure, post-closure maintenance, and landfill gas monitoring and control. Site closure and subsequent site development also would be subject to varying degrees of oversight by these and other responsible agencies, including the BAAQMD (placement of gas monitoring wells), the CDFW (biological resources

TABLE 4.I-1 (Continued)
CONSISTENCY OF PROJECT COMPONENTS[5] WITH APPLICABLE LOCAL AND REGIONAL LAND USE POLICIES

Existing Plan and Policies	Project Consistency with Existing Policy	
	DSP/DSP-V	CPP/CPP-V
City of Brisbane 1994 General Plan (cont.)		
Chapter XII, Policies and Programs by Subarea (Baylands Subarea Community Health and Safety) (cont.)		
Policy 365 (cont.)	(potential impacts on water resources), and the Corps (potential impacts on water of the U.S.).	impacts), RWQCB (potential impacts on water resources), and the Corps (potential impacts on water of the U.S.).
Policy 366: Meet applicable seismic requirements in all construction, with special attention to non-engineered fill.	Consistent. Adherence to building code requirements, landfill closure requirements, and implementation of established geotechnical stabilization measures will be required in the design of all projects within the Baylands. As such, all structures will be designed to safeguard against the potential risks associated with geotechnical hazards, such as liquefaction and other forms of soil instability, that are associated with seismic groundshaking. With the inclusion of Mitigation Measure 4.E-2a recommended in Section 4.E, *Geology, Soils, and Seismicity*, of this EIR, implementation of the Project Site development would not result in significant structural damage to proposed site improvements, because the mitigation measure combined with the building code requirements would reduce the risk from settlement and address settlement in the event it occurs.	Consistent. Adherence to building code requirements, landfill closure requirements, and implementation of established geotechnical stabilization measures will be required in the design of all projects within the Baylands. As such, all structures will be designed to safeguard against the potential risks associated with geotechnical hazards, such as liquefaction and other forms of soil instability, that are associated with seismic groundshaking. With the inclusion of Mitigation Measure 4.E-2a recommended in Section 4.E, *Geology, Soils, and Seismicity*, of this EIR, implementation of the Project Site development would not result in significant structural damage to proposed site improvements, because the mitigation measure combined with the building code requirements would reduce the risk from settlement and address settlement in the event it occurs.
Policy 367: Develop grading and drainage controls for landfill.	Consistent. The City Engineer and the California Building Code, which has been codified in the California Code of Regulations as Title 24, Part 2, require carrying out site-specific analyses. A geotechnical report is required to provide site-specific construction methods and recommendations regarding grading activities, fill placement, soil corrosivity/expansion/erosion potential, compaction, foundation construction, drainage control (both surface and subsurface), and avoidance of settlement, liquefaction, differential settlement, and seismic hazards. The report is also required to include stability analyses of final design cut and fill slopes, including recommendations for avoidance of slope failure(s). The final grading plan and associated development elements for development pursuant to the DSP or DSP-V scenario, if either is selected, would be designed and constructed in accordance with requirements of the final design-level geotechnical investigation, and this would be submitted to the City Engineer prior to the issuance of building permits.	Consistent. The City Engineer and the California Building Code, which has been codified in the California Code of Regulations as Title 24, Part 2, require carrying out site-specific analyses. A geotechnical report is required to provide site-specific construction methods and recommendations regarding grading activities, fill placement, soil corrosivity/expansion/erosion potential, compaction, foundation construction, drainage control (both surface and subsurface), and avoidance of settlement, liquefaction, differential settlement, and seismic hazards. The report is also required to include stability analyses of final design cut and fill slopes, including recommendations for avoidance of slope failure(s). The final grading plan and associated development elements for development pursuant to the CPP or CPP-V scenario, if either is selected, would be designed and constructed in accordance with requirements of the final design-level geotechnical investigation, and this would be submitted to the City Engineer prior to the issuance of building permits.

TABLE 4.I-1 (Continued)
CONSISTENCY OF PROJECT COMPONENTS[5] WITH APPLICABLE LOCAL AND REGIONAL LAND USE POLICIES

Existing Plan and Policies	Project Consistency with Existing Policy	
	DSP/DSP-V	CPP/CPP-V
City of Brisbane 1994 General Plan (cont.)		
Chapter XII, Policies and Programs by Subarea (Baylands Subarea Community Health and Safety) (cont.)		
Policy 368: Comply with the requirements of remediation plans approved by the Department of Toxic Substances Control, the Water Quality Control Board and other responsible agencies in conjunction with development on lands that have been contaminated by toxic substances.	Consistent. Project Site Remedial Action Plans and other remediation activities will be approved by DTSC and RWQCB prior to implementation and prior to any future ground-disturbing activities.	Consistent. Project Site Remedial Action Plans and other remediation activities will be approved by DTSC and RWQCB prior to implementation and prior to any future ground-disturbing activities.
Policy 370: Provide risk assessment analysis identifying toxic contamination, landfill limitations and other related factors and resultant environmental impacts in order to address, mitigate and disclose the characteristics of the land and its suitability for safe development.	Consistent. Risk assessments conducted for development of the Project Site are summarized in Section 4.G, *Hazards and Hazardous Materials*, of this EIR.	Consistent. Risk assessments conducted for development of the Project Site are summarized in Section 4.G, *Hazards and Hazardous Materials*, of this EIR.
Policy 371: Disclose the underlying assumptions of all risk analyses for toxic lands and lands that are considered at risk for liquefaction.	Consistent. A full disclosure of the underlying assumptions used in evaluating risks related to existing contamination within the Project Site, as well as risks associated with site remediation, is presented in **Appendix H**, Hazards, and summarized in Section 4.G, *Hazards and Hazardous Materials*, of this EIR. Disclosure regarding liquefaction is presented in Section 4.E, *Geology, Soils, and Seismicity*, of this EIR.	Consistent. A full disclosure of the underlying assumptions used in evaluating risks related to existing contamination within the Project Site, as well as risks associated with site remediation, is presented in Appendix H, Hazards, and summarized in Section 4.G, *Hazards and Hazardous Materials*, of this EIR. Disclosure regarding liquefaction is presented in Section 4.E, *Geology, Soils, and Seismicity*, of this EIR.
Policy 372: Development and/or redevelopment in this subarea shall include provisions for essential services and adequate public safety facilities.	Consistent. Provisions for essential services are set forth in the Specific Plan prepared for the DSP and DSP-V scenarios. Provision of essential services and public safety facilities to support development of the Project Site is evaluated in Section 4.L, *Public Services*, Section 4.M, *Recreational Resources*, Section 4.N, *Traffic and Circulation*, and Section 4.O, *Utilities, Service Systems, and Water Supply*, of this EIR. With implementation of the mitigation Measures contained in these sections, appropriate levels of service would be provided, as discussed in Sections 4.L through 4.O.	Consistent. Implementation of this policy would occur through a specific plan, which is not proposed at this time for the CPP and CPP-V scenarios. Provision of essential services and public safety facilities to support development of the Project Site is evaluated in Section 4.L, *Public Services*, Section 4.M, *Recreational Resources*, Section 4.N, *Traffic and Circulation*, and Section 4.O, *Utilities, Service Systems, and Water Supply*, of this EIR. With implementation of the mitigation measures contained in these sections, appropriate levels of service would be provided, as discussed in Sections 4.L through 4.O.
Policy 373: Utilize landscape and construction techniques to reduce noise impacts.	Consistent. The DSP and DSP-V would incorporate landscape and construction noise barriers and buffers where feasible, as confirmed in Section 4.J, *Noise and Vibration*, of this EIR.	Consistent**.** The CPP and CPP-V would incorporate landscape and construction noise barriers and buffers where feasible, as confirmed in Section 4.J, *Noise and Vibration*, of this EIR.

TABLE 4.I-1 (Continued)
CONSISTENCY OF PROJECT COMPONENTS[5] WITH APPLICABLE LOCAL AND REGIONAL LAND USE POLICIES

Existing Plan and Policies	Project Consistency with Existing Policy	
	DSP/DSP-V	CPP/CPP-V
City of Brisbane 1994 General Plan (cont.)		
Chapter XII, Policies and Programs by Subarea (Baylands Subarea Community Health and Safety) (cont.)		
Policy 373.1: Work closely with the Integrated Waste Management Board and the Bay Area Air Quality Management District to assure monitoring of regulatory air quality issues, especially those pertaining to grading, surcharging and methane emissions, by regulatory agencies.	Consistent. Ongoing air quality monitoring in the Bay Area and recent results are discussed in Section 4.B, *Air Quality*, of this EIR. Implementation of the DSP and DSP-V scenarios, should either be selected, would not alter the current air quality monitoring locations or techniques. As described in Section 4.B of this EIR, the BAAQMD-issued CEQA Air Quality Guidelines, including Air Quality CEQA Thresholds of Significance, are used in this EIR to evaluate the potential environmental effects of the DSP and DSP-V. CalRecycle receives odor complaints and the Brisbane landfill was not listed as having been a source of odor complaints within the last five years. BAAQMD has no record of complaints regarding odors from Recology for the past three years.	Consistent. Ongoing air quality monitoring in the Bay Area and recent results are discussed in Section 4.B, *Air Quality*, of this EIR. Implementation of the CPP and CPP-V scenarios, should either be selected, would not alter the current air quality monitoring locations or techniques. As described in Section 4.B of this EIR, the BAAQMD-issued CEQA Air Quality Guidelines, including Air Quality CEQA Thresholds of Significance, are used in this EIR to evaluate the potential environmental effects of the CPP and CPP-V. CalRecycle receives odor complaints and the Brisbane landfill was not listed as having been a source of odor complaints within the last five years. The BAAQMD has no record of complaints regarding odors from Recology for the past three years.
Chapter XII, Policies and Programs by Subarea (Beatty Subarea Land Use)		
Policy 374: Development in this subarea shall have as its primary purpose the accommodation of Heavy Commercial uses that need large areas of land to accommodate goods and equipment and may involve outdoor storage of goods and equipment.	Inconsistent. The land use description included in Policy 374 is oriented toward large-scale low intensity uses, such as lumber and home improvement stores, and business park uses to serve as a buffer to the Recology site, rather than the commercial retail and office uses proposed in the DSP and DSP-V scenarios.	Inconsistent. The land use description included in Policy 374 is oriented toward large-scale low intensity uses, such as lumber and home improvement stores, and business park uses to serve as a buffer to the Recology site rather than its expansion as proposed under the CPP-V.
Policy 376: A Specific Plan and accompanying environmental review shall be prepared and adopted prior to any significant development or redevelopment of the area.	Consistent. A Specific Plan is proposed for the DSP and DSP-V scenarios.	Potentially Consistent. Since the General Plan requires preparation of a specific plan prior to development within the Baylands, the CPP and CPP-V scenarios would require future preparation and environmental analysis of a specific plan.
Policy 379: There shall be no fabrication, manufacturing, processing or treatment of materials in this subarea other than that which is directly incidental to a permitted or conditional use. There shall be no processing of hazardous waste materials.	Consistent. None of the land uses proposed under the DSP and DSP-V scenarios would engage in the processing of hazardous waste materials. Fabrication manufacturing, processing, or treatment of materials would be permitted only where incidental to an otherwise permitted or conditionally permitted use.	Potentially Consistent. None of the land uses proposed under the CPP and CPP-V scenarios would engage in the processing of hazardous waste materials. Regulation of fabrication manufacturing, processing, or treatment of materials would be part of the required specific plan for the area.

TABLE 4.I-1 (Continued)
CONSISTENCY OF PROJECT COMPONENTS[5] WITH APPLICABLE LOCAL AND REGIONAL LAND USE POLICIES

Existing Plan and Policies	Project Consistency with Existing Policy	
	DSP/DSP-V	CPP/CPP-V
City of Brisbane 1994 General Plan (cont.)		
Chapter XII, Policies and Programs by Subarea (Beatty Subarea Transportation and Circulation)		
Policy 381: The Specific Plan for this area shall address the extension of Geneva Avenue to Highway 101.	Consistent. The Specific Plan prepared for the DSP and DSP-V scenarios makes provision for the extension of Geneva Avenue to US Highway 101.	Potentially Consistent. A specific plan for the CPP and CPP-V scenarios is not proposed at this time; however, extension of Geneva Avenue to Highway 101 is indicated in the CPP and CPP-V Concept Plan scenarios. Prior to any development pursuant to the CPP or CPP-V scenario, a specific plan will be prepared and approved consistent with General Plan policy.
Policy 382: Mitigate traffic impacts by implementing the measures adopted by the City in Transportation System Management, Transportation Demand Management and Congestion Management Plans.	Consistent. Because concept plans focus on land use and issues to be resolved, this policy would be applied to specific plans, rather than to concept plans. The Brisbane Baylands Specific Plan provides for connections to both existing and planned transit facilities, reserves a right-of-way to accommodate long-term planned Muni BRT service, and includes extension of the Muni T-Third Street light rail line and a BRT line. The Specific Plan also includes a conceptual plan for providing access to a planned future intermodal station.	Potentially Consistent. Because concept plans focus on land use and issues to be resolved, this policy would be applied to specific plans, rather than to concept plans. Should the CPP or CPP-V Concept Plan scenario be selected, any specific plan prepared for the Project Site pursuant to the selected Concept Plan will be required to comply with this policy.
Policy 383: The Specific Plan shall include street standards for the subarea.	Consistent. Street standards for the DSP and DSP-V were developed based on City of Brisbane guidelines and are included in the Brisbane Baylands Specific Plan.	Potentially Consistent. This policy applies to the preparation of specific plans within the Baylands Subarea. Street standards would be required to be provided as part of any specific plan prepared for the CPP or CPP-V scenario should either Concept Plan be selected.
Chapter XII, Policies and Programs by Subarea (Beatty Subarea Community Health and Safety)		
Policy 384: Development and/or redevelopment in this subarea shall include provisions for essential services and adequate public safety facilities.	Consistent. Provisions for essential services are set forth in the Specific Plan prepared for the DSP and DSP-V scenarios. Provision of essential services and public safety facilities to support development of the Project Site is evaluated in Section 4.L, *Public Services*, Section 4.M, *Recreational Resources*, Section 4.N, *Traffic and Circulation*, and Section 4.O, *Utilities, Service Systems, and Water Supply*, of this EIR. With implementation of the mitigation measures contained in these sections, appropriate levels of service would be provided, as discussed in Sections 4.L through 4.O.	Potentially Consistent. Implementation of this policy would occur through a specific plan, which is not proposed at this time for the CPP and CPP-V scenarios. Provision of essential services and public safety facilities to support development of the Project Site is evaluated in Section 4.L, *Public Services*, Section 4.M, *Recreational Resources*, Section 4.N, *Traffic and Circulation*, and Section 4.O, *Utilities, Service Systems, and Water Supply*, of this EIR. With implementation of the mitigation measures contained in these sections, appropriate levels of service would be provided, as discussed in Sections 4.L through 4.O.

TABLE 4.I-1 (Continued)
CONSISTENCY OF PROJECT COMPONENTS[5] WITH APPLICABLE LOCAL AND REGIONAL LAND USE POLICIES

Existing Plan and Policies	Project Consistency with Existing Policy	
	DSP/DSP-V	CPP/CPP-V
City of Brisbane 1994 General Plan (cont.)		
Chapter XII, Policies and Programs by Subarea (Beatty Subarea Community Health and Safety) (cont.)		
Policy 387: Development on landfill shall comply with applicable Federal, State and regional standards.	Consistent. Development on the Baylands Landfill would be required to comply with applicable federal, state, and regional standards.	Potentially Consistent. Development on the Baylands Landfill would be required to comply with applicable federal, state, and regional standards.
Policy 388: The Specific Plan shall include programs for odor and litter reduction.	Consistent. The Specific Plan for the DSP and DSP-V scenarios contains programs to minimize solid waste generation.	Potentially Consistent. Implementation of this policy would occur through a specific plan, which is not proposed at this time for the CPP and CPP-V scenarios.
Policy 389: Special attention should be paid to uses of the adjacent property that has potential for the storage and/or processing of hazardous materials.	Consistent. As previously noted, the Project Site surrounds the Kinder Morgan Energy Tank Farm (fuel storage facility), although the Beatty Subarea is not in close proximity, Based on the uses proposed in the Specific Plan for the DSP and DSP-V scenarios, it is not anticipated that uses with the potential for storage and/or processing of hazardous materials would occur in close proximity to the Beatty Subarea.	Potentially Consistent. As previously noted, the Project Site surrounds the Kinder Morgan Energy Tank Farm (fuel storage facility), although the Beatty Subarea is not in close proximity, Based on the uses proposed in the CPP and CPP-V Concept Plan scenarios, it is not anticipated that uses with the potential for storage and/or processing of hazardous materials would occur in close proximity to the Beatty Subarea.
Policy 390: Development shall utilize necessary means to reduce noise impacts.	Consistent. Section 4.J, *Noise and Vibration*, of this EIR identifies all feasible measures that would be undertaken to reduce noise impacts of the DSP and DSP scenarios. These measures, in addition to the provisions of the proposed Specific Plan, would implement Policy 390.	Potentially Consistent. Section 4.J, *Noise and Vibration*, of this EIR identifies all feasible measures that would be undertaken to reduce noise impacts of the CPP and CPP scenarios.
Policy 391: Work closely with regulatory agencies to encourage ongoing toxic remediation programs and monitoring by those agencies.	Consistent. Close coordination has been maintained with DTSC and RWQCB in the development of remediation studies and plans for that portion of the Project Site within the Beatty Subarea.	Consistent. Close coordination has been maintained with DTSC and RWQCB in the development of remediation studies and plans for that portion of the Project Site within the Beatty Subarea.

DSP = Developer-Sponsored Plan (DSP)
DSP-V = DSP–Entertainment Variant (DSP-V)
CPP = Community Proposed Plan
CPP-V = CPP–Recology Expansion Variant

SOURCE: ESA, 2013; UPC, 2011 (Brisbane Baylands Specific Plan); City of Brisbane, 1994 (General Plan).

As discussed in Table 4.I-1, the DSP and DSP-V scenarios are also inconsistent with the following General Plan policies:

> ***Policy 38.1***, which describes roadway level of service standards. Existing roadway level of service standards would be exceeded.
>
> ***Policy 81.1***, which calls for establishment of educational opportunities consistent with the sensitivity of onsite resources. This inconsistency could be resolved through clear commitments in the Brisbane Baylands Specific Plan to the programs the plan now states "may" occur.
>
> ***Policy 87 and Policy 95***, establishing standards for the provision of parks. The amount of actual park land proposed in the DSP and DSP-V scenarios is less than applicable standards (see Section 4.M, *Recreational Resources*).
>
> ***Policy 337***, which calls for a phasing schedule to be established for Baylands development to prevent "too rapid growth." While the Specific Plan includes general discussion of infrastructure phasing, the Specific Plan does not tie the rate of land development to the availability of needed public services and facilities.
>
> ***Policy 340.1***, which requires the Baylands property owner to demonstrate the feasibility of the Geneva Avenue extension and provide cost estimates with the first specific plan for the Baylands. While preliminary engineering designs demonstrate the engineering feasibility of the extension, cost estimates were not provided, and there is no demonstration of the extension's financial feasibility.
>
> ***Policy 374*** (Beatty Subarea Land Use), which describes land uses within the Beatty Subarea as primarily large-scale low intensity uses, such as lumber and home improvement stores and business park uses to serve as a buffer to the existing Recology facility, rather than the commercial/office uses proposed in the DSP and DSP-V scenarios.

To ensure consistency with the Brisbane General Plan, Table 4.I-1 identifies methods for resolving these inconsistencies with the General Plan.

Inconsistencies of the CPP and CPP-V Scenarios with the Brisbane General Plan

In addition to the portions of the Project Site that are designated *Planned Development-Trade Commercial* and *Lagoon/Bayfront* by the Brisbane General Plan, the CPP and CPP-V scenarios include the Recology site, which is designated as *Light Industry* in the San Francisco General Plan and *Heavy Commercial* in the Brisbane General Plan. Zoning for the existing and proposed expansion site is C-3, Heavy Commercial, in the Brisbane Zoning Ordinance, and M-1, Light Industrial, in the San Francisco Planning Code.

The CPP and CPP-V scenarios would conflict with the following Brisbane General Plan policies:

> ***Policy 38.1***, which describes roadway level of service standards. Existing roadway level of service standards would be exceeded.
>
> ***Policy 374*** (Beatty Subarea Land Use), which describes land uses within the Beatty Subarea as primarily large-scale low intensity uses, such as lumber and home improvement stores and business park uses to serve as a buffer to the existing Recology facility, rather than the resource recovery use proposed in the CPP-V.

In addition, the CPP and CPP-V scenarios are inconsistent with the allowable buildout of the General Plan, which was described above as the traffic-generating equivalent of 1.0 million square feet of commercial use or 4.2 million square feet of industrial use. In terms of a mix of commercial and industrial uses, this translates into a total of 2.02 million square feet of development, including 1.05 million square feet of commercial/office uses and 0.97 million square feet of industrial uses. The CPP and CPP-V scenarios propose 8,030,800 square feet of commercial development (8,100,800 square feet in the CPP-V scenario) and 142,500 square feet of industrial development.

Project Consistency with Plans of the City and County of San Francisco

Implementation of the CPP-V scenario would involve development within the portion of the Project Site under the jurisdiction of San Francisco. As noted in Chapter 3, *Project Description*, the proposed expansion of the existing Recology facility under the CPP-V would involve demolition of existing buildings and construction of new buildings within San Francisco. Because uses within the Recology site would not change, proposed uses would be consistent with those permitted by the San Francisco General Plan and zoning. Development within the San Francisco portion of the Recology site would be required to comply with all applicable San Francisco development regulations.

Project Consistency with Other Plans

BCDC San Francisco Bay Plan. A small portion of the Project Site is under the jurisdiction of the BCDC San Francisco Bay Plan, which includes the Brisbane Lagoon, Visitacion Creek, and a 100-foot shoreline band around these features. Brisbane Lagoon and Visitacion Creek would be retained in open space, as would the 14-acre land area (wetlands) around Brisbane Lagoon. Each of the Project scenarios (DSP, DSP-V, CPP, and CPP-V) would preserve this area, with land use designations such as Open Space (DSP and DSP-V) or Public/Open Space (CPP and CPP-V), and therefore would not conflict with the Bay Plan intention for conservation of these lands in open space (see Table 4.I-1).

Airport Land Use Compatibility Plan for San Francisco Airport. Additionally, the Project Site development would not conflict with any land use, noise, or airspace designations of the (ALUCP for the environs of SFO. The Project Site is located outside of SFO's Area B of the AIA, which is the area encompassing the outer boundaries of airport safety zones, the 65 dB CNEL noise contour forecast for 2020, Part 77 conical surfaces, and the outer boundaries approach and departure surfaces. Within Area B, the ALUCP states that the ALUC will "exercise its statutory duties to review proposed land use policy actions, including new general plans, specific plans, zoning ordinances, plan amendments and rezonings, and land development proposals." Noise compatibility and land use safety policies address only areas within Area B. The Project Site is located within SFO Area A. The ALUCP states that:

> Within Area A, the real estate disclosure requirements of state law apply. Section 11010 of the Business and Professions Code requires people offering subdivided property for sale or lease to disclose the presence of all existing and planned airports within two miles of the property. The law requires that, if the property is within an "airport influence area"

designated by the airport land use commission, the following statement must be included in the notice of intention to offer the property for sale:

> ***NOTICE OF AIRPORT IN VICINITY***
>
> *This property is presently located in the vicinity of an airport, within what is known as an airport influence area. For that reason, the property may be subject to some of the annoyances or inconveniences associated with proximity to airport operations (for example: noise, vibration, or odors). Individual sensitivities to those annoyances can vary from person to person. You may wish to consider what airport annoyances, if any, are associated with the property before you complete your purchase and determine whether they are acceptable to you.*

As noted in Table 4.I-1, Project Site development would be consistent with these requirements because property owners are required by law to provide real estate disclosure regarding airport impacts.

The only other ALUCP requirements affecting the Project Site are federal regulations requiring "any person proposing to build a new structure or alter an existing structure with a height that would exceed the elevations described in CFR Part 77, Subpart B, Section 77.9, to prepare an FAA Form 7460-1, *Notice of Proposed Construction or Alteration*, and submit the notice to the FAA. The regulations apply to buildings and other structures or portions of structures, such as mechanical equipment, flag poles, and other projections that may exceed the aforementioned elevations." Exhibit IV-10 of the ALUCP shows the FAA notification requirement area as extending into Brisbane Lagoon, but not into areas of the Project Site where development of structures is proposed. Within the FAA notification area, which encompasses the southern half of the lagoon, FAA notification would only be required if a building or structure were to exceed 200 feet above mean sea level.

Since none of the land use requirements of the ALUCP apply to lands outside of the southern half of Brisbane Lagoon, which would be retained in open space, development within the Project Site would not conflict with ALUCP land use, noise, or building height constraints.

Plan Bay Area (Including Sustainable Communities Strategy). The growth in employment resulting from all Project Site development scenarios would accommodate a substantial portion of the employment needs projected by ABAG for Brisbane and surrounding cities but would greatly exceed ABAG projections for the City of Brisbane. In addition, the growth in residential population resulting from the DSP and DSP-V scenarios would also accommodate a substantial portion of the employment needs projected by ABAG for Brisbane and surrounding cities but would greatly exceed ABAG projections for the City of Brisbane.

Because the amount of employment growth proposed in each Project Site development scenario is in excess of jobs growth projections for Brisbane and for the San Francisco/San Mateo Bi-County and Bayview/Hunters Point/Candlestick Point Priority Development Areas (PDAs), employment growth resulting from Project Site development under all scenarios would be consistent with ABAG forecasts of job growth only the development it would draw jobs now projected by ABAG to be created within San Francisco, Daly City, South San Francisco, or

elsewhere in the Bay Area to the Baylands. Otherwise, Project Site development would add new jobs to Brisbane and to the San Francisco/San Mateo Bi-County and Bayview/Hunters Point/Candlestick Point PDAs beyond that projected by ABAG in Plan Bay Area.

Similarly, the amount of residential population growth proposed in the DSP and DSP-V scenarios is in excess of population growth projections for Brisbane and for the San Francisco/San Mateo Bi-County and Bayview/Hunters Point/Candlestick Point PDAs. As a result, population growth resulting from Project Site development under the DSP and DSP-V scenarios would be consistent with ABAG forecasts of population growth only if the development would draw population growth now projected by ABAG to be created within San Francisco, Daly City, South San Francisco, or elsewhere in the Bay Area to the Baylands. Otherwise, Project Site development would add new population to Brisbane and the Bayview/Hunters Point/Candlestick Point PDA beyond that projected by ABAG in Plan Bay Area.

Impacts of Proposed Lumberyard Relocation

The proposed relocation of the lumberyards would have the same land use impacts as described above for each scenario. The area of the existing lumberyards and the proposed relocation site are currently designated *Trade Commercial*. Relocating the lumberyards would not require a change in the Brisbane General Plan or zoning.

Overall Conclusion

Project Site development would be inconsistent with certain policies of the Brisbane General Plan, as described above and identified in Table 4.I-1, representing a significant impact. **Mitigation Measure 4.I-1** would be required for all Project Site development.

Mitigation

Mitigation Measure 4.I-1: As noted in Chapter 3, *Project Description*, one of the components of the Project Site development is a General Plan amendment that would ensure consistency with the Brisbane General Plan. Each of the inconsistencies identified in Table 4.I-1 shall be resolved prior to selection of a Concept Plan or approval of a Specific Plan for development within the Baylands through either modification(s) to the Concept Plan or Specific Plan or amendments to the Brisbane General Plan, as follows:

Mitigation Measure Applicability by Scenario

DSP	DSP-V	CPP	CPP-V
✓	✓	✓	✓

✓ = measure applies
- = measure does not apply

- ***Policy 38.1* (*roadway level of service standards*)** – Recognizing that current roadway level of service standards (LOS D) will be exceeded due to future development in other cities even if no development within the Project Site occurs, modify General Plan roadway level of service standards to accommodate the level of Project Site development approved for development of the Brisbane Baylands Project Site. (DSP, DSP-V, CPP, and CPP-V scenarios)

- ***Overall Project Site Development Intensity*** – Either (1) reduce the proposed intensity of Project Site development to the level described in the 1994 General Plan EIR, or (2) provide clear development intensity standards for buildout of the

Baylands, Northeast Bayshore, and Beatty Subareas that would accommodate the development of a Concept Plan or Specific Plan (which could include reducing currently proposed development intensities), or (3) provide a combination of reducing proposed development intensity in certain subarea(s) while increasing the development intensity set forth in the General Plan for other subarea(s). (DSP, DSP-V, CPP, and CPP-V scenarios)

- ***Policy 81.1* (*establishment of educational opportunities consistent with the sensitivity of onsite resources*)** – Modify the Specific Plan for the DSP and DSP-V scenarios to clearly require future development within the Project Site to implement educational opportunities consistent with the sensitivity of onsite resources. (DSP and DSP-V scenarios only)

- ***Policy 87 and Policy 95* (*parks standards*)** – Should residential development be permitted within the Project Site, either (1) require such development to provide actual park land meeting General Plan standards for the provision of parks, or (2) modify the park standards set forth in the General Plan to reflect the park land ratios required in the Brisbane Municipal Code pursuant to the provisions of the Quimby Act (see Section 4.M, *Recreational Resources*). (DSP and DSP-V scenarios only)

- ***Policy 330.1* (*prohibition of housing within the Baylands*)** – Delete the policy or modify the Concept Plan and Specific Plan to comply with the prohibition. (DSP and DSP-V scenarios only)

- ***Policy 337* (*phasing schedule for Baylands development*)** – Either (1) amend the General Plan to include public services and facilities performance standards and concurrency requirements (DSP, DSP-V, CPP, and CPP-V scenarios); or (2) modify the proposed Specific Plan to include an infrastructure phasing program that ties the rate of land development within the Project Site to the availability of needed public services and facilities. (DSP and DSP-V scenarios only)

- ***Policy 340.1* (*demonstration of feasibility of the Geneva Avenue extension and provision of cost estimates with the first specific plan for the Baylands*)** – Either (1) require preparation of preliminary cost estimates for the Geneva Avenue extension to be completed along with a demonstration of the engineering and financial feasibility of the extension as part of the required Specific Plan (DSP and DSP-V scenarios only), or (2) modify the policy to call for demonstration of the engineering feasibility of the extension along with establishment of the infrastructure phasing program required by General Plan Policy 337 (DSP, DSP-V, CPP, and CPP-V scenarios).

- **Policy 374 (Beatty Subarea Land Use)** – Modify the policy to accommodate the land uses proposed in the Concept Plan (CPP and CPP-V scenarios only).

Conclusion with Mitigation: With resolution of the General Plan inconsistencies resolved prior to selection of a Concept Plan or approval of a Specific Plan as described above, impacts related to consistency with the Brisbane General Plan would be eliminated.

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4.J Noise and Vibration

4.J.1 Introduction

This section evaluates the noise impacts that would result from Project Site development. It discusses the existing noise environment at and around the Project Site, as well as the regulatory framework for regulation of noise. It also analyzes Project Site development's effect on the existing ambient noise environment during construction, demolition, and operational activities, and evaluates Project development's noise effects for consistency with relevant local agency noise policies and regulations. The analysis in this section is based on a comprehensive review of existing documentation for the Project Site, a noise monitoring survey conducted by ESA, and applicable City policies, standards, and regulations. This section addresses noise and vibration impacts on humans, as well as vibration impacts on structures. Noise effects on marine and terrestrial wildlife are addressed in Section 4.C, *Biological Resources*.

Techniques for Measuring Noise

Sound is defined as mechanical energy transmitted by pressure waves through a medium such as air. Noise is defined as unwanted sound. Sound is characterized by various parameters, including the rate of oscillation of sound waves (frequency), the speed of propagation, and the pressure level or energy content (amplitude).

Sound always has a source. Sound sources within the Project Site could be construction activities, automobile and rail traffic, jets flying overhead, people talking, onsite commercial and industrial operations, or wind turbines. How loud the sound source actually is depends on how rapidly the object converts energy into sound energy. In contrast, an individual's perception of the loudness of a sound depends on its distance from the sound's source.

Based on these concepts - actual sound energy (loudness) at the source and loudness of a sound at the receiver's distance from the source - there are two measures of sound magnitude. The first is *sound power level*, which measures the sound energy created at the source. The second is *sound pressure level*, which is the common measurement of the loudness of sound at a given observer location. "Sound power" belongs strictly to the sound source, while "sound pressure" is a measurement at a receiver's distance from the source. Unless otherwise specified, all discussion of sound levels in this EIR refers to sound pressure levels.

Sound power levels and sound pressure levels are often confused, since they are both often referred to as "sound levels" and both are measure on a decibel (dB) scale, which is the most common term used to characterize the loudness of noise. A decibel is a unit of measurement that indicates the relative amplitude and pressure level of a sound. A 0 dB corresponds roughly to the lowest sound level detectable by the human ear, while 120 to 140 dB corresponds to the threshold of pain. Because sound pressure can vary by over one trillion times within the range of human hearing, a logarithmic loudness scale is used to keep sound intensity numbers at a convenient and manageable level.

Sound pressure fluctuations can be measured in units of hertz (Hz), which correspond to the frequency of a particular sound. Typically, sound does not consist of a single frequency, but rather a broad band of frequencies varying in levels of magnitude (sound power). When all the audible frequencies of a sound are measured, a sound spectrum is plotted consisting of a range of frequency spanning 20 to 20,000 Hz. The sound pressure level, therefore, constitutes the additive force exerted by a sound corresponding to the sound frequency/sound power level spectrum.

The human ear is not equally sensitive to all frequencies, but rather has a decreased sensitivity to frequencies below 1,000 Hz and above 5,000 Hz. Therefore, when assessing potential noise impacts on the surrounding community, sound is measured using an electronic filter that de-emphasizes the frequencies below 1,000 Hz and above 5,000 Hz, as those frequencies that are largely undetectable by the human ear. This method of frequency weighting is referred to as "A-weighting." It is expressed in units of A-weighted decibels (dBA)[1] and follows an international standard methodology of frequency de-emphasis and is typically applied to community noise measurements.

Noise Exposure and Community Noise

An individual's noise exposure is a measure of the noise experienced by the individual over a period of time. A noise level is a measure of noise at a given instant in time. However, noise levels rarely persist consistently over a long period of time. Rather, community noise varies continuously with time with respect to the contributing sound sources. Community noise is primarily the product of many distant noise sources, which constitute a relatively stable background noise exposure, with the individual contributors unidentifiable. The level of background noise typically changes throughout the day, but does so gradually, corresponding with the addition and subtraction of distant noise sources such as traffic and atmospheric conditions. Additionally, short-duration single-event noise sources (e.g., aircraft flyovers, motor vehicles, sirens), many of which are readily identifiable to the individual also contribute to the variability of community noise, beyond the fluctuations attributable to varying background noise levels.

These successive additions of sound to the community noise environment vary the community noise level from instant to instant, requiring that noise exposure be measured over a period of time to characterize a community noise environment and evaluate noise impacts. This time-varying characteristic of environmental noise is described using statistical noise descriptors. The most frequently used noise descriptors are summarized as follows:

L_{eq}: The equivalent sound level, which is used to describe noise over a specified period of time, typically 1 hour, in terms of a single numerical value. The L_{eq} is the constant sound level that would contain the same acoustic energy as the varying sound level, during the same time period (i.e., the average noise exposure level for the given time period).

L_{max}: The instantaneous maximum noise level measured during the measurement period of interest.

[1] All noise levels reported herein reflect A-weighted decibels unless otherwise stated.

L_{min}: The instantaneous minimum noise level measured during the measurement period of interest.

L_x: The sound level that is equaled or exceeded x percent of a specified time period. The L_{50} represents the median sound level (i.e., the noise level exceeded 50 percent of the time).

DNL: The day-night noise level, or the energy average of the A-weighted sound levels occurring during a 24-hour period, accounting for the greater sensitivity of most people to nighttime noise by weighting noise levels at night (penalizing" nighttime noises). Noise between 10:00 p.m. and 7:00 a.m. is weighted by adding 10 dBA to take into account the greater annoyance of nighttime noises.

CNEL: The Community Noise Equivalent Level, which, similar to the DNL, adds a 5-dBA "penalty" for the evening hours between 7:00 p.m. and 10:00 p.m. in addition to a 10-dBA penalty between the hours of 10:00 p.m. and 7:00 a.m.

Effects of Noise on People

The effects of noise on people can be placed into three categories: (1) subjective effects of annoyance, nuisance, and dissatisfaction; (2) interference with activities such as speech, sleep, and learning; and (3) physiological effects such as hearing loss or sudden startling.

Environmental noise typically produces effects in the first two categories. Workers in industrial plants generally experience noise in the third category. There is no completely satisfactory way to measure the subjective effects of noise or the corresponding reactions of annoyance and dissatisfaction. A wide variation exists in the individual thresholds of annoyance, and different tolerances to noise tend to develop based on an individual's past experiences with noise.

Because there is such wide variation in individual noise thresholds, an important way of predicting human reaction to a new or changed noise environment is the way the noise levels compare to the existing environment to which one has adapted, or the "ambient noise" level. In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will be to the individual. With regard to increases in A-weighted noise level, the following relationships occur:

- Except in carefully controlled laboratory experiments, a change of 1 dBA cannot be perceived;
- Outside of the laboratory, a 3-dBA change is considered a just-perceivable difference;
- A change in level of at least 5 dBA is required before any noticeable change in human response would be expected; and
- A 10-dBA change is subjectively heard as approximately a doubling in loudness, and can cause adverse response.

These relationships occur in part because of the logarithmic nature of sound and the decibel system. The human ear perceives sound in a non-linear fashion; hence, the decibel scale was developed. Because the decibel scale is based on logarithms, two noise sources do not combine in

a simple additive fashion, but rather logarithmically. For example, if two identical noise sources produce noise levels of 50 dBA, the combined sound level would be 53 dBA, not 100 dBA.

Noise Attenuation

Stationary point sources of noise, including mobile sources such as idling vehicles, attenuate (lessens) at a rate of 6 to 7.5 dBA per doubling of distance from the source, depending on the topography of the area and environmental conditions (e.g., atmospheric conditions, noise barriers [either vegetative or manufactured]). Thus, a noise measured at 90 dBA 50 feet from the source would attenuate to about 84 dBA at 100 feet, 78 dBA at 200 feet, 72 dBA at 400 feet, and so forth. Widely distributed noise, such as a large industrial facility spread over many acres or a street with moving vehicles, would typically attenuate at a lower rate, approximately 4 to 6 dBA per doubling of distance from the source.

Fundamentals of Vibration

As described in the Federal Transit Administration (FTA) *Transit Noise and Vibration Impact Assessment* (FTA, 2006), groundborne vibration can be a serious concern for nearby neighbors of a transit system route or maintenance facility causing buildings to shake and generating audible rumbling sounds. In contrast to airborne noise, groundborne vibration is not a common environmental problem. It is unusual for vibrations from sources such as buses and trucks on a normal roadway to be perceptible by individuals, even in locations close to major roads. However, there are some common sources of groundborne vibration, including trains, buses on rough roads, and construction activities such as blasting, pile driving, and operating heavy earth-moving equipment.

There are several different methods used to quantify vibration. The peak particle velocity (PPV) is defined as the maximum instantaneous peak of the vibration signal. The PPV is most frequently used to describe vibration impacts on buildings. Although peak particle velocity is appropriate for evaluating the potential of building damage, it is not suitable for evaluating human response since it takes time for humans to perceive and react to vibration. Alternatively, the root mean square (RMS) amplitude, which is defined as the average of the squared amplitude of the signal, is most frequently used to describe the effect of vibration on the human body. RMS is commonly measured with the Decibel notation (Vdb). Vdb acts to compress the range of numbers required to describe vibration. Typically, groundborne vibration generated by man-made activities attenuates rapidly with distance from the source of the vibration. Sensitive receptors for vibration include structures (especially older masonry structures), people (especially residents, the elderly and sick), and vibration-sensitive equipment.

The effects of groundborne vibration include movement of the building floors, rattling of windows, shaking of items on shelves or hanging on walls, and rumbling sounds. In extreme cases, the vibration can cause damage to buildings. Building damage is not a factor for most projects, with the occasional exception of blasting and pile driving during construction. Annoyance from vibration often occurs when the vibration exceeds the threshold of perception by

only a small margin. A vibration level that causes annoyance will be well below the damage threshold for normal buildings.

The California Department of Transportation (Caltrans) measure of the threshold of architectural damage for conventional sensitive structures is 0.5 inch per second (in/sec) PPV for new residential structures and modern commercial buildings and 0.25 in/sec PPV for historic and older buildings. Caltrans vibration annoyance potential criteria characterize 0.1 in/sec PPV as "strongly perceptible" and 0.4 in/sec PPV as "severe" (Caltrans, 2004).

4.J.2 Environmental Setting

Existing Noise Environment in Project Site Vicinity

Within the boundaries of the Project Site, the ambient noise environment is dominated by vehicular traffic on US Highway 101 and Tunnel Road, and the intermittent rail activity of the Caltrain commuter train. Aircraft flights from San Francisco International Airport (SFO) also contribute to the ambient noise environment. A 1992 survey conducted by the City for its General Plan Noise Element revealed that citizens consider Brisbane to be impacted by flyover activity from SFO, especially in the early morning and evening hours (City of Brisbane, 1994). The City participates in the SFO Community Roundtable, which provides a forum for the public to address local elected officials, Airport management, FAA staff, and airline representatives, regarding aircraft noise issues. The committee monitors a performance-based aircraft noise mitigation program, as implemented by airport staff, interprets community concerns, and attempts to achieve additional noise mitigation through a cooperative sharing of authority brought forth by the airline industry, the FAA, airport management, and local government officials. A review of the most recent complaint summary in the Directors Report for SFO indicates that more than half of the 1,331 complaints received in September and October 2012 were from residents in the City of Brisbane.

As evidenced by the high proportion of noise complaints received by SFO from Brisbane residents, single event noise levels from aircraft are a community concern. However, the Noise Exposure Map for SFO (SFO, 2012) indicates that all portions of the City of Brisbane are outside the 65-DNL noise contour relative to aircraft noise from the airport (i.e., aircraft operations from the airport contribute less than 65 dBA to ambient noise levels within Brisbane).

A noise monitoring survey was conducted to document existing noise levels at various locations in and around the Project Site. Long-term (48-hour) measurements were taken using a Metrosonics dB-308 noise meter. Measurements were taken in 2007 and, based on a review of changes in area traffic volumes, remain representative of conditions for the project site and its vicinity at the time of the Notice of Preparation in 2010. A review of traffic volumes for the section of US Highway 101 adjacent to the project site indicates that a 0.7 percent increase in peak hour traffic has occurred between 2007 and 2010. Noise models indicate that such a modest increase in traffic volumes would not have an appreciable effect on roadside noise levels (less than 0.1 dBA). The results of the long-term measurements are presented in **Table 4.J-1**. The noise monitoring locations are shown in **Figure 4.J-1**.

TABLE 4.J-1
MEASURED LONG-TERM NOISE LEVELS ON OR WITHIN THE VICINITY OF THE PROJECT SITE

Site No.[b]	Measurement Location	Noise Level in dBA[a]			
		DNL/CNEL	L_{max}	Daytime L_{eq}	L_{90}
Based on 48-Hour Noise Measurement Data					
1	Northeastern Portion of Project Site	75/75	85	69	66
2	Southeastern Portion of Project Site	69/70	84	60	58
3	South-Central Portion of Project Site	62/63	86	58	51
4	North-Central Portion of Project Site	60/60	81	57	48
5	Northwestern Portion of Project Site	65/65	86	61	52
6	Southwestern Portion of Project Site	66/67	90	65	50
7	Residence at Terminus of San Francisco Street, Brisbane	70/70	97	67	60
8	Residential Area at Mission Blue Drive	64/65	82	61	54

NOTES:

[a] dBA = A-weighted decibels. DNL = day-night noise level. L_{eq} = equivalent steady-state noise level over a 1-hour period produced by the same noise energy as the variable noise levels during that period; L_{max} = instantaneous maximum noise level;; L_{90} = noise level exceeded 90 percent of the time.

[b] Measurement locations correspond to those shown in Figure 4.J-1.

SOURCE:ESA, 2007.

Sensitive Receptors

Some land uses are considered more sensitive to ambient noise levels than others due to the amount of noise exposure (in terms of both exposure duration and insulation from noise) and the types of activities typically involved. Residences, motels and hotels, schools, libraries, churches, hospitals, nursing homes, auditoriums, and parks and other outdoor recreation areas generally are more sensitive to noise than are commercial and industrial land uses. Existing and proposed sensitive receptor locations are shown in **Figure 4.J-2**.

Sensitive land uses (or sensitive receptors) in the vicinity of the Project Site include residences, a day care center and open space areas. The Project Site does not immediately border residential areas. Single-family houses of the Northeast Ridge development (Monitoring Location 8 on Figure 4.J-1) are located 0.5 mile west of the former railyard area on the Project Site and 0.25 mile west of the western Project Site boundary. Noise levels in this area are dominated by vehicle traffic on Bayshore Boulevard and Guadalupe Canyon Parkway. Secondary noise sources include aircraft and rail activity and distant crushing and earthmoving operations on the eastern side of the Project Site.

Single-family residences on San Francisco Street and Santa Clara Street (Monitoring Location 7 on Figure 4.J-1) are located 2,000 feet southwest of the southern Project Site boundary and less than 0.25 mile from the western edge of Brisbane Lagoon. Noise levels in this area are dominated by vehicle traffic on Bayshore Boulevard and Old County Road. Single-family houses on Linda Vista Drive and Bayshore Child Care Service in the City of Daly City are located approximately 1,500 feet west of the northwestern Project Site boundary. Single-family houses

Figure 4.J-1
Noise Monitoring Locations

Insert Figure 4.J-2
Sensitive Receptor Locations

on Tocoloma Avenue in San Francisco's Little Hollywood neighborhood are located approximately 1,300 feet north of the northern Project Site boundary. Single-family houses on MacDonald Avenue in Daly City and Desmond Street and in San Francisco would be located approximately 350 feet from the western Project Site boundary.

Recreational areas, Brisbane Lagoon and the Bay Trail within the Project Site would be considered sensitive receptors, as would future parks and trails that would be developed within the Project Site. Noise impacts in these areas would be shorter in duration for visitors than for residents. Because water access is not currently permitted at the lagoon, visitors are restricted to the perimeter of the lagoon. The Bay Trail in the southern portion of the site is the shoulder of Sierra Point Parkway with direct line-of-sight with US Highway 101, 30 feet to the east. Consequently visitors to these recreational receptor areas experience substantial vehicle traffic noise from Sierra Point Parkway and US Highway 101. Both the lagoon and the Bay Trail are considered recreational sensitive receptors to be considered with an emphasis on daytime noise.[2]

4.J.3 Regulatory Setting

Development within the Project Site must comply with federal, state, and local regulations. The requirements listed below will affect the way Project development occurs.

Noise is addressed by the Federal Aviation Administration (FAA), in Title 24 of the California Code of Regulations (for new multi-family residential developments), local general plan policies, and local noise ordinance standards and municipal codes related to noise. Federal, state, and local agencies regulate different aspects of environmental noise.

Federal Regulations

FAA Order 1050.1E, FAA Order 5050.4B and Title 14 - Aeronautics and Space Chapter I - Federal Aviation Administration, Department Of Transportation Subchapter I - Airports Part 150 - Airport Noise Compatibility Planning (FAR Part 150) provide the regulatory framework for noise related to aircraft operation. Appendix A of FAR Part 150 states "for the purpose of compliance with this part, all land uses are considered to be compatible with noise levels less than DNL (or CNEL in California) 65 dB. Local needs or values may dictate further delineation based on local requirements or determinations."

State Regulations

State regulations related to noise include requirements for the construction of new hotels, motels, apartment houses, and dwellings other than detached single-family dwellings that are intended to limit the extent of noise transmitted into habitable spaces. These requirements are collectively known as the California Noise Insulation Standards and are found in California Code of Regulations, Title 24 (known as the Building Standards Administrative Code), Part 2 (known as

[2] This section addresses noise and vibration impacts on humans. Noise effects on wildlife as a sensitive receptor are dependent on species and a number of biological factors, and those effects are addressed in Section 4.C, *Biological Resources*.

the California Building Code), Appendix Chapters 12 and 12A. For limiting noise transmitted between adjacent dwelling units, the noise insulation standards specify the extent to which walls, doors, and floor ceiling assemblies must block or absorb sound. For limiting noise from exterior sources, the noise insulation standards set forth an interior standard of DNL 45 dBA in any habitable room and, where such units are proposed in areas subject to noise levels greater than DNL 60 dBA require an acoustical analysis demonstrating how dwelling units have been designed to meet this interior standard. If the interior noise level depends upon windows being closed, the design for the structure must also specify a ventilation or air conditioning system to provide a habitable interior environment. Title 24 standards are enforced through the building permit application process in the City of Brisbane.

Local Regulations

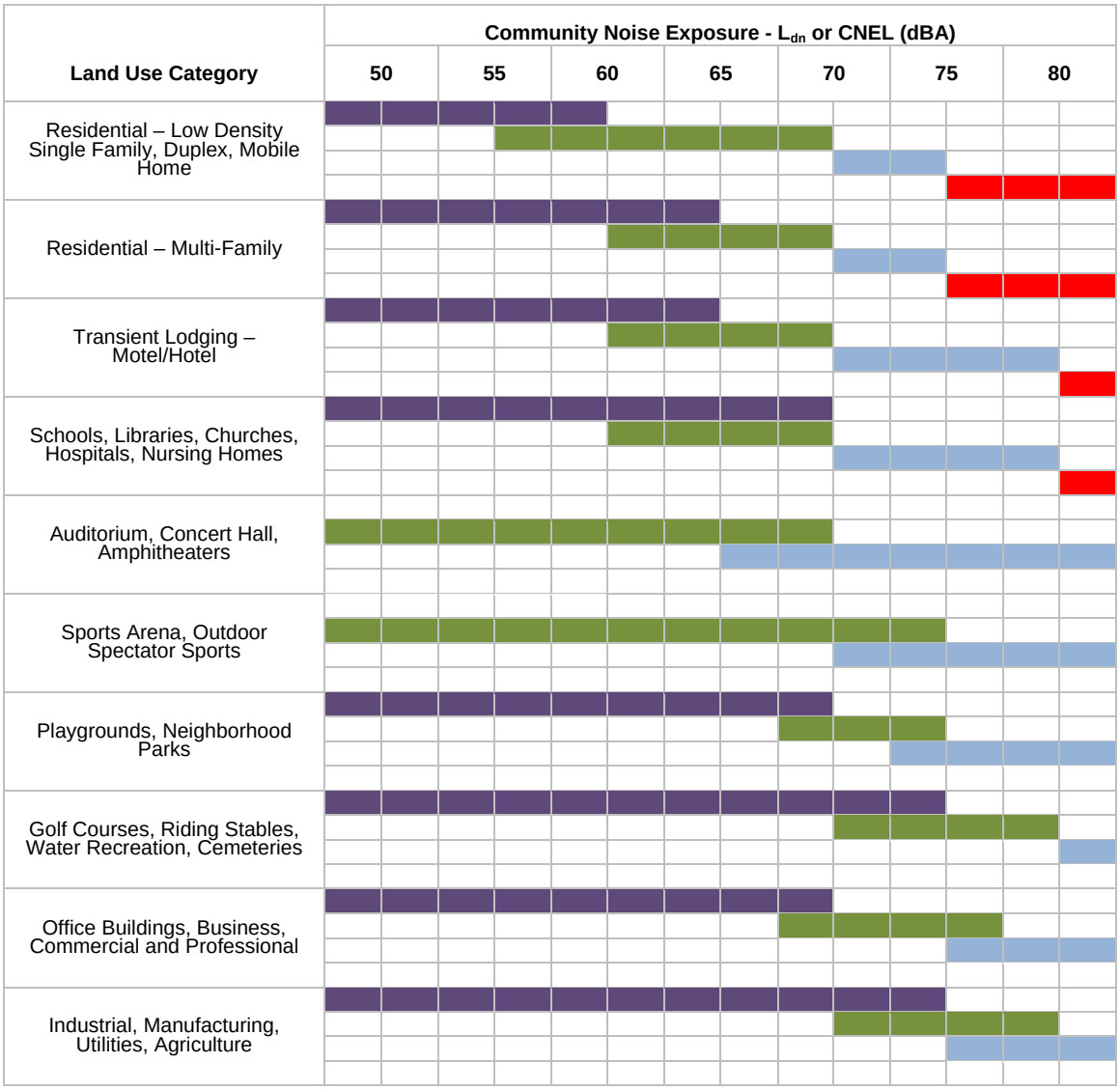
City of Brisbane General Plan

The Community Health and Safety Element of the City of Brisbane General Plan (City of Brisbane, 1994) contains 10 policies regarding noise within the city. The following Community Health and Safety Element policies and programs regarding noise are relevant to the Project Site and Project Site development:

> ***Policy 176:*** Minimize the intrusion of unwarranted and intrusive noise on community life.
>
> > *Program 176a:* Discourage new sources that generate excessive noise.
>
> ***Policy 179:*** Require the incorporation, when feasible, of new road or landscaping features that buffer noise impacts on adjacent areas.
>
> ***Policy 180:*** Establish and enforce truck routes and times of operation for haul routes to minimize impacts on residential areas.
>
> ***Policy 182:*** Support efforts to reduce vehicle trips and keep smooth traffic flow to the extent that the number of trips and stop-and-start traffic contribute to traffic noise.
>
> ***Policy 183:*** Coordinate land uses and construction conditions to minimize noise impacts of the Caltrain corridor and major highway arterials on adjacent land uses.
>
> ***Policy 184:*** In conjunction with development applications and other land use decisions, consider the potential for noise generation from, as well as noise impacts on, the project or area.
>
> > *Program 184a:* Use the State Guidelines for land use compatibility to determine noise impacted uses.
> >
> > *Program 184b:* Require acoustical studies for development applications in areas identified as noise impacted and potential noise generators.
> >
> > *Program 184c:* For such projects, require noise attenuation or a mitigation program to be submitted as part of the project design.

Program 184a requires the use of the State's Land Use Compatibility Guidelines to determine noise-affected uses. The acceptable noise exposures for land use compatibility published by the State of California are presented in **Figure 4.J-3**.

Figure 4.J-3
Land Use Compatibility for Community Noise Environment



	Normally Acceptable	Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements
	Conditionally Acceptable	New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features are included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.
	Normally Unacceptable	New construction or development should be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirement must be made and needed noise insulation features included in the design.
	Clearly Unacceptable	New construction or development generally should not be undertaken.

SOURCE: State of California, Governor's Office of Planning and Research, 2003. *General Plan Guidelines*.

The State Guidelines are used for determining the compatibility of various land uses with different noise environments. Noise levels in Figure 4.J-3 are expressed in terms of DNL, which applies a correction or "penalty" to noise generated during the more sensitive nighttime hours. CNEL measurements are a weighted average of sound levels gathered throughout a 24-hour period, providing a measure of ambient noise. Different weighting factors apply to day, evening, and nighttime periods. This recognizes that community members are most sensitive to noise in late night hours and are more sensitive during evening hours than in daytime hours.

Under State General Plan Guidelines, the acceptable noise level for residential, hotel and motel uses is generally 60 to 65 dBA or less, while conditionally acceptable noise levels range from 60 dBA to 70 dBA (may require insulation, etc.). Noise levels over 70 dBA are, in general, unacceptable for these sensitive land uses.

Noise environments of up to 70 dBA are generally considered acceptable for office, professional and business commercial land uses, while conditionally acceptable noise levels range from 67.5 dBA to 77.5 dBA (may require insulation, etc.). Noise levels over 75 dBA are, in general, normally unacceptable for these land uses.

City of Brisbane Noise Ordinance

The City of Brisbane also regulates community noise levels through enforcement of Chapter 8.28 of the Brisbane Municipal Code. Noise standards are established by land use and are presented in **Table 4.J-2**.

TABLE 4.J-2
NOISE STANDARDS OF THE BRISBANE MUNICIPAL CODE

Land Use Type	Duration of Noise in Minutes within an Hour	Noise Standard as dBA increase Above Ambient
Single Family Residential	3 minutes	20
	15 minutes	10
Multi Family Residential	3 minutes	20
	15 minutes	10
Commercial / Industrial	3 minutes	20
	15 minutes	10

SOURCE: City of Brisbane, 2012.

For single-family residential zoning districts, Section 8.28.030 establishes that noise levels may not be more than 10 dBA above the existing ambient noise level for a cumulative period of more than 15 minutes in a given hour, or a noise level of more than 20 dBA above the ambient level for more than three minutes per hour. For multi-family residential zoning districts, Section 8.28.030 prohibits noise increases of more than of 10 dBA above local ambient noise levels three feet from any wall, floor, or ceiling in any dwelling unit on the same property, for a cumulative period of more than 15 minutes in a given hour, or a noise level of more than 20 dBA above the ambient level for more than three minutes per hour.

For commercial and industrial zoning districts, Section 8.28.040 establishes that noise levels may not be more than 10 dBA above the existing ambient level for a cumulative period of more than 15 minutes in a given hour, and may not be more than 20 dBA above the ambient level for more than three minutes per hour.

Noise from construction activities is restricted by Section 8.28.060 of the Brisbane Municipal Code. This section limits construction hours to between 7:00 a.m. and 7:00 p.m. on weekdays and 9:00 a.m. and 7:00 p.m. on weekends and holidays. Further, this section prohibits individual pieces of construction equipment from operating at a noise level in excess of 83 dBA at a distance of 25 feet from the equipment or operating such that the noise level at any point beyond the property line of the Project Site exceeds 86 dBA.

4.J.4 Impacts and Mitigation Measures

Significance Criteria

Appendix G of the CEQA Guidelines indicates that a project would have a significant effect on the environment if it were to:

- Expose persons to or generate noise levels in excess of standards established in the local (City of Brisbane) general plan or noise ordinance, or applicable standards of other affected agencies;
- Expose persons to or generate excessive groundborne vibration or groundborne noise levels;
- Result in a substantial permanent increase in ambient noise levels in the project vicinity or above levels existing without the project;
- Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project;
- For a project located within an airport land use plan, or where such a plan has not been adopted, within two miles of a public airport or public use airport, expose people residing or working in the project area to excessive noise levels; or
- For a project located within the vicinity of a private airstrip, expose people residing or working in the project area to excessive noise levels.

Impact Assessment Methodology

Following is a description of the methodology used to evaluate the impacts of Project Site development in relation to each of the significance thresholds cited above.

Exposure of Persons to or Generation of Noise in Excess of Established Standards

The first threshold of significance examines (1) the extent to Project Site development would place people within locations that exceed established noise standards or (2) whether Project Site development would generate noise in excess of established noise standards. Because later thresholds related to permanent and temporary increases in permanent increases in ambient noise

levels and temporary or periodic increases in noise levels in the vicinity of the project site, the evaluation of this threshold under Impact 4.J-1 focuses on exposure of people within the Project Site to noise in excess of established standards.

Impact 4.J-3 addresses the contribution of noise related to Project Site development creating or contributing to permanent increases in ambient noise levels in excess of established standards, while Impact 4.J-4 addresses the contribution of noise related to Project Site development creating or contributing to temporary or periodic increases in ambient noise levels in excess of established standards.

To assess the extent to which Project Site development would expose receptors to noise in excess of established standards, future, with-Project Site development noise conditions were evaluated against the policies and programs of the Brisbane General Plan Noise Element. Program 184a requires the use of the State's Land Use Compatibility Guidelines to determine noise-affected uses. The acceptable noise exposures for land use compatibility published by the State of California are presented in Figure 4.J-3.

To determine whether Project Site development would expose people to noise in excess of established standards, under Impact 4.J-1, future "with Project Site development" noise conditions were modeled based on future cumulative "with Project Site development" traffic conditions along roadways and rail lines. If development would expose people within the Project Site to noise levels in excess of those presented in Figure 4.J-3, a significant impact was determined to exist. In addition, if Project Site development would cause offsite noise levels to exceed the standards presented in Figure 4.J-3, a significant impact was determined to exist. Finally, within offsite areas where the standards presented in Figure 4.J-3 would be exceeded without any development of the Project Site, a significant impact was determined to exist if Project Site development would cause an increase of 1.5 dBA or more in ambient conditions[3].An assessment of whether Project Site development would expose people residing or working within the Project Site area to excessive noise levels related to airport operations was accomplished using the Noise Exposure Map for San Francisco International Airport (SFO, 2012). The map contains noise contour relative to aircraft noise from the airport (i.e., aircraft operations from the airport contribute less than 65 dBA to ambient noise levels within Brisbane). The contours were used to determine whether the area in the vicinity of the project site would be below the federal noise abatement criterion of 65 DNL, the level above which the FAA requires that noise abatement measures be implemented for residences.

Exposure of Persons to or Generation of Groundborne Vibration

Impacts from groundborne vibration during Project Site construction are assessed in Impact 4.J-2 using vibration damage threshold criteria expressed in PPV for architectural damage. The Caltrans measure of the threshold of architectural damage for conventional sensitive structures is

[3] See discussion of permanent increases in noise levels and Table 4.J-3 for the rationale of the 1.5 dBA increase in relation to impact significance.

0.5 in/sec PPV for new residential structures and modern commercial buildings and 0.25 in/sec PPV for historic and older buildings.

Impacts from groundborne vibration during Project construction are also assessed for their potential to cause annoyance to residents and other Project Site occupants. Caltrans vibration annoyance potential criteria characterize vibrations of 0.01 in/sec PPV as "barely perceptible," 0.04 in/sec PPV as "distinctly perceptible," 0.1 in/sec PPV as "strongly perceptible," and 0.4 in/sec PPV as "severe" (Caltrans, 2004).

Operational vibration levels can result in interference or annoyance impacts to residences or other land uses where people sleep, such as hotels and hospitals. Impacts of groundborne vibration from existing sources (Caltrain) on proposed receptors were assessed using the federal standards established by the U.S. Department of Transportation, Federal Transit Administration (FTA, 2006). For frequent events, a criterion of 72 VdB (vibration decibels) has been established, while for infrequent events, a criterion of 80 VdB has been established. As frequent events are defined as more than 70 vibration events per day and recent Caltrain schedules indicate a maximum daily train activity of 86 trains per day, Caltrain pass-by events driving would be considered as a frequent event and, therefore, the 72 Vdb criterion would apply.

Substantial Permanent Increases in Ambient Noise Levels in the Vicinity of the Project Site or Above Levels Existing without Project Site Development

The assessment of substantial permanent increases in noise levels resulting from Project Site development is addressed in Impact 4.J-3 based on a combination of existing ambient noise conditions at a given receptor and the incremental increase in noise. Project Site development-related noise generally would be associated with Project Site development-generated traffic, given the types of uses proposed and the fact that the Brisbane General Plan Noise Element acknowledges that the noisiest areas of the City are immediately adjacent to traffic corridors, including the US Highway 101 and Bayshore Boulevard. Guidance on the significance of changes in ambient noise levels is provided by the 1992 findings of the Federal Interagency Committee on Noise (FICON), which assessed the annoyance effects of changes in ambient noise levels resulting from aircraft operations (FICON, 1992). The recommendations are based upon studies that relate aircraft noise levels to the percentage of persons highly annoyed by the noise. The term "annoyance" is a summary measure of the general adverse reaction of people to noise that generates speech interference, sleep disturbance, or interference with the desire for a tranquil environment. Although the FICON recommendations were specifically developed to assess aircraft noise impacts, it has been asserted that they are applicable to all sources of transportation noise described in terms of cumulative noise exposure metrics such as the DNL, as shown in **Table 4.J-3**. The rationale for the Table 4.J-3 criteria is that, as ambient noise levels increase, a small increase in decibel levels is sufficient to cause significant annoyance. The quieter the ambient noise level is, the more the noise can increase (in decibels) before it causes significant annoyance. Thus, the significance of permanent increases in noise levels is evaluated in Impact 4.J-3 based on the information provided in Table 4.J-3.

TABLE 4.J-3
MEASURES OF SUBSTANTIAL INCREASE IN TRANSPORTATION NOISE EXPOSURE

Ambient Noise Level Without Project (DNL)	Significant Impact Assumed to Occur if Project Site Development Increases Ambient Noise Levels By:
<60 dB	+ 5.0 dB or more
60-65 dB	+ 3.0 dB or more
>65 dB	+ 1.5 dB or more

NOTES:
DNL = day-night noise level. dB = decibels.

SOURCE: FICON, 1992.

Substantial Temporary or Periodic Increases in Noise Levels in the Vicinity of the Project Site above Levels Existing without Project Site Development

Temporary increases in noise levels in the vicinity of the Project Site are typically the result of site development and construction activities. Assessment of noise from construction activities resulting from Project Site development in Impact 4.J-4 employs the restrictions established by Section 8.26.060 of the Brisbane Municipal Code (consequently, it also indirectly applies to exposure of people or generation of noise in excess of established standards). This section of the Municipal Code limits construction hours to between 7:00 a.m. and 7:00 p.m. on weekdays and 9:00 a.m. and 7:00 p.m. on weekends and holidays. Further, the Municipal Code prohibits individual pieces of construction equipment from operating at a noise level in excess of 83 dBA at a distance of 25 feet from the equipment or operating such that the noise level at any point beyond the property line of the Project Site exceeds 86 dBA. These requirements were used as the basis of analyzing temporary or periodic noise impacts of the proposed Project Site development. Construction related impacts associated with implementation of the proposed Project infrastructure improvements described in Chapter 3, *Project Description*, are included in the analysis below. In addition, the potential for proposed uses within the Project Site to generate periodic noise levels exceeding Municipal code standards following completion of construction was evaluated.

Exposure of People to Excessive Airport Noise

Both the State of California and the FAA define the CNEL 65 dB contour as the threshold of noise compatibility with noise sensitive uses (e.g., residences, schools, and churches) in relation to exposure of people to airport-generated noise. Both have established a noise abatement criterion of 65 DNL that is used to identify potentially significant contributions from aircraft operations based on noise exposure maps typically contained in an airport land use compatibility plan. To determine whether Project Site development would expose people living or working within the Project Site to excessive noise levels, Impact 4.J-5 involved reviewing the Noise Exposure Map for SFO to determine whether any portion of the Project Site would be within the airport's 65 CNEL noise contour.

Exposure of People to Excessive Noise from Private Airstrip Operations

Based on a review of aerial photography, it was determined that there are no private air strips within a 10-mile radius of the Project Site. Thus, development of the Project Site would have no impacts related to operations of a private airstrip. No further evaluation related to this significance threshold was therefore undertaken.

Project Impacts and Mitigation Measures

Impact 4.J-1: Would the Project result in exposure of persons to, or generation of, noise levels in excess of standards established in the local general plan, specific plan, or other land use plan?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
SM	SM	SM	SM

SU = Significant Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = no impact

The policies and standards of the Brisbane General Plan are intended to guide future development within the City. As such, the following is an assessment of noise impacts on the noise sensitive land uses proposed by Project Site development. Noise impacts to receptors outside of the Project Site are addressed in Impacts 4.J-3 and 4.J-4 for permanent noise increases, and Impact 4.J-5 for temporary (construction-related) noise increases.

DSP and DSP-V

The DSP and DSP-V scenarios propose development of multi-family residential units, which are considered noise-sensitive. Preliminary development plans indicate that these residential units would be as close as 50 feet from the Caltrain tracks. The DSP and DSP-V scenarios also both propose hotels and schools, which are considered sensitive to noise. The proposed hotels would be located just west of US Highway 101 in the DSP and DSP-V scenarios. A school is proposed southwestern portion of the Project Site south of Icehouse Hill.

Exposure of Multi-Family Housing to Noise

Program 184a of the Brisbane General Plan requires the use of the State's Land Use Compatibility Guidelines to determine noise-affected uses (see Table 4.J-2). For multi-family residential uses, noise environments of 65 DNL or less represent the normally acceptable noise exposure by the Governor's Office of Planning and Research. Long-term noise monitoring conducted in the northwestern part of the Project Site where residences would be located documented a DNL of 65 dBA at a distance of approximately 150 feet from the tracks. Noise monitoring conducted as part of the EIR for the Visitation Valley Redevelopment Program north of the Project Site indicated a long-term noise level DNL of 72 dBA at a distance of approximately 50 feet from the tracks (City of San Francisco Planning Department, 2008). Therefore, multi-family residential land uses closer than 150 feet to the Caltrain tracks would be exposed to noise levels considered conditionally acceptable, while residences located within approximately 75 feet of the Caltrain tracks would be exposed to noise levels considered normally unacceptable for such uses. "Conditionally acceptable" means that new construction or development should be undertaken only after a detailed analysis of the noise reduction

requirements is made and needed noise insulation features are included in the design. Therefore, a significant noise exposure impact would occur if residential uses receptors would occur within 150 feet of the Caltrain tracks as the result of exposing persons to noise levels in excess of those established in the City of Brisbane General Plan. Mitigation measures would therefore be required for any multi-family residential units located closer than 150 feet to the Caltrain tracks.

Development of multi-family residential uses would be subject to the standards of Title 24 of the California Code of Regulations, which provides an interior noise standard of DNL 45 dBA in any habitable room and requires an acoustical analysis demonstrating how dwelling units have been designed to meet this interior standard. Notwithstanding the requirements of Title 24, existing noise levels close to the Caltrain tracks would also affect exterior common areas, such as patios and balconies, and mitigation for exterior noise levels would be necessary (**Mitigation Measure 4.J-1a**).

Exposure of Hotels to Noise

Under the DSP and DSP-V scenarios, land uses proposed for the eastern portion of the Project Site would include hotels, which, while not as noise-sensitive as residential uses, represent a noise exposure category (transient lodging) within the California Land Use Compatibility Guidelines for Community Noise Environments, as shown in Table 4.J-2 and are considered to be noise sensitive. Noise monitoring conducted in the northeastern area of the Project Site indicates that the DNL of 75 dBA noise contour in this area is located approximately 100 feet from US Highway 101. These noise levels would be considered normally unacceptable for such uses. “Normally unacceptable” means that new construction or development should generally be discouraged and that, if new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

Similar to multi-family housing, hotels would also be subject to the standards of Title 24 of the California Code of Regulations, which provides an interior standard of DNL 45 dBA in any habitable room and requires an acoustical analysis demonstrating how dwelling units have been designed to meet this interior standard.

Implementation of Title 24 standards would minimize the impact of noise from Caltrain operations and vehicle traffic on US Highway 101 in relation to interior spaces to a less-than-significant level, but would have no effect on exterior noise levels.

However, General Plan Policy 179 requires the incorporation, when feasible, of new road or landscaping features that buffer noise impacts on adjacent areas while Policy 183 encourages coordination of land uses and construction conditions to minimize noise impacts of the Caltrain corridor and major highway arterials on adjacent land uses. Implementation of these policies would serve to reduce exterior noise impacts to some extent, but without an established design guideline or performance standard (as set forth in **Mitigation Measure 4.J-1b**), the degree of reduction cannot be quantified therefore simply being consistent with the policy would not necessarily reduce exterior noise impacts to a less than significant level. Therefore, this impact would be significant.

Exposure of Schools to Noise

As noted above, under the DSP and DSP-V scenarios, land uses proposed for the southwestern portion of the Project Site south of Icehouse Hill would include school facilities, which are considered to be noise sensitive within the California Land Use Compatibility Guidelines for Community Noise Environments, as shown in Table 4.J-2. Noise monitoring conducted in the northeastern area of the Project Site indicates a DNL of 66 dBA in this area, located approximately 250 feet from Caltrain tracks. These noise levels would be considered to be normally to conditionally acceptable for school uses.

Exposure of Users of Trails and Parks to Noise

The DSP and DSP-V development scenarios reserve approximately 170 acres for open space and public use areas. Open space areas are proposed to include both passive and active areas. Passive recreational areas are proposed along the Visitacion Creek corridor, around Icehouse Hill, and along the edges of Brisbane Lagoon. The primary open space element proposed in the DSP and DSP-V scenarios is the Visitacion Creek Park.

The Specific Plan for the DSP and DSP-V scenarios states that the lagoon may offer water-related recreational activities such canoeing and kayaking. The more active proposed use areas include parks and cultural features spread across the Project Site, as well as extension of the San Francisco Bay Trail along the US Highway 101 frontage road. In the eastern portion of the Project Site, the north-south spine of the trail network is proposed to accommodate a new section of the San Francisco Bay Trail. In the western portion of the Project Site, a new north-south greenway is proposed to connect the northern boundary of the area to the Roundhouse building.

Noise monitoring conducted at the southeastern and northeastern portions of the Project Site, near the alignment of the proposed Bay Trail extension and the eastern portion of the lagoon, indicate noise levels ranging from 70 to 75 CNEL. This noise environment is within the upper end of the normally acceptable noise exposure category for active recreational uses (i.e., golf course, riding stables, water recreation), overlapping into the lower end of noise considered to be conditionally acceptable for active recreational use.

Noise monitoring conducted at the south-central, north-central and northwestern portions of the Project Site represent the existing noise environment for passive recreation areas at the Visitacion Creek corridor, Icehouse Hill, and Roundhouse areas, respectively. Noise levels at these locations were monitored to be 63, 67 and 65 CNEL, respectively. These noise environments are within the upper end of the normally acceptable noise exposure category for passive recreational uses (e.g. playgrounds neighborhood parks). Noise exposures at locations proposed for both passive and active recreational uses would be within noise exposure limits identified by the state as normally acceptable for these uses and noise exposure for recreational uses would be a less than significant impact.

Conclusion: Residents of multi-family housing proposed by the DSP and DSP-V would be exposed to noise levels that exceed the standards established by the Brisbane General Plan, resulting in a significant impact that requires mitigation. Exterior noise exposure at hotel uses

would also be considered significant and require mitigation. **Mitigation Measures 4.J-1a** and **4.J-1b** below are therefore proposed. Impacts related to schools and recreational areas would be less than significant under these scenarios.

CPP, and CPP-V

The CPP and CPP-V scenarios do not propose housing, and therefore would not expose residents to this noise source.

Exposure of Hotels to Noise

The proposed hotels in the CPP and CPP-V scenarios would be farther away (approximately 1,200 feet as indicated in Figures 3-14 and 3-15) from US Highway 101 than proposed in the DSP and DSP-V scenarios, and would be separated from the Caltrain tracks by approximately 200 feet of open space and Tunnel Road. At this distance, noise from Caltrain would be reduced to below 65 dBA, DNL and would fall within the normally acceptable category for transient lodging land uses.

As noted above, hotels would also be subject to the standards of Title 24 of the California Code of Regulations, which provides an interior standard of DNL 45 dBA in any habitable room and requires an acoustical analysis demonstrating how dwelling units have been designed to meet this interior standard. Implementation of Title 24 standards would minimize the impact of noise from Caltrain operations and vehicle traffic on US Highway 101 on interior spaces to a less-than-significant level, but would have no effect on exterior noise levels. However, General Plan Policy 179 requires the incorporation, when feasible, of new road or landscaping features that buffer noise impacts on adjacent areas while Policy 183 encourages Coordination of land uses and construction conditions to minimize noise impacts of the Caltrain corridor and major highway arterials on adjacent land uses. Implementation of these policies could serve to reduce exterior noise impacts but without an established design guideline or performance standard (as set forth in **Mitigation Measure 4.J-1b**), the degree of reduction cannot be quantified. Therefore, this would be a significant impact.

Exposure of Schools to Noise

Under the CPP and CPP-V scenarios, land uses proposed for the southwestern portion of the Project Site south of Icehouse Hill would include a charter high school, which is within a noise exposure category in the California Land Use Compatibility Guidelines for Community Noise Environments, as shown in Table 4.J-2. Noise monitoring conducted in the northeastern area of the Project Site indicates a DNL of 66 dBA in this area, approximately 250 feet from Caltrain tracks. These noise levels would be considered normally acceptable for such uses as shown in Figure 4.J-3.

Conclusion: Noise impacts to schools under the CPP and CPP-V scenarios would be less-than-significant and no mitigation is required. Impacts associated with hotel exposure to noise would be significant. **Mitigation Measure 4.J-1b** is recommended.

Mitigation

Mitigation Measure 4.J-1a: All residential development within the Project Site shall minimize the exposure of people within the Project Site to noise from Caltrain operations through construction of noise barriers or maintenance of buffer distances, and shall adhere to the following noise performance standards:

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	-	-
✓ = measure applies - = measure does not apply			

- Exterior noise level of below 65 dBA, DNL for outdoor common areas within any approved residential use; and
- Interior noise standard of 45 dBA, DNL.

These noise levels shall be attained through use of appropriate building materials as required by state of California Title 24 standards. Compliance with these performance standards shall be verified by an acoustical professional prior to issuance of a building permit. Specific measures to achieve these performance standards shall include all or any combination of the following options:

- Site design measures, including use of building orientation to minimize window exposure toward noise sources, avoid placing balcony areas in high noise areas, and use of buildings as noise barriers;
- Use of acoustically rated building materials (insulation and windows);
- Construction of architectural noise barriers between sources and receptors; and
- Provision of landscaping or other non-noise-sensitive buffer zones between sources and receptors.

Mitigation Measure 4.J-1b: All hotel projects within the Project Site shall minimize the exposure of people within the Project Site to noise from Caltrain operations through construction of noise barriers or maintenance of buffer distances, and shall adhere to the following noise performance standards:

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	✓	✓
✓ = measure applies - = measure does not apply			

- Exterior noise level of below 65 dBA, DNL for outdoor common areas within any approved residential use or hotel; and
- Interior noise standard of 45 dBA, DNL.

These noise levels shall be attained through use of appropriate building materials as required by state of California Title 24 standards. Compliance with these performance standards shall be verified by an acoustical professional prior to issuance of a building permit. Specific measures to achieve these performance standards shall include all or any combination of the following options:

- Site design measures, including use of building orientation to minimize window exposure toward noise sources, avoid placing balcony areas in high noise areas, and use of buildings as noise barriers.

- Use of acoustically rated building materials (insulation and windows);
- Construction of architectural noise barriers between sources and receptors; and
- Provision of landscaping or other non-noise-sensitive buffer zones between sources and receptors.

Conclusion with Mitigation: With implementation of **Mitigation Measures 4.J-1** and **4.J-1b**, noise impacts on multi-family housing residents under the DSP and DSP-V and on hotel occupants under Project Site development would be less than significant.

Overall Conclusion

With the inclusion of **Mitigation Measures 4.J-1a** and **4.J-1b**, implementation of Project Site development would not result in a significant noise impact related to exposure of residents (DSP and DSP-V scenarios), hotel occupants (DSP, DSP-V, CPP and CPP-V), or recreational users (DSP, DSP-V, CPP and CPP-V) to noise levels in excess of standards of the General Plan. Exposure of schools within the Project Site to noise would be less than significant under Project Site development.

Impact 4.J-2: Would the Project expose people to or generate excessive groundborne vibration or groundborne noise levels during construction or operation?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
SM	SM	LTS	LTS

SU = Significant Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = no impact

This analysis addresses vibration impacts from construction activities as well as from Caltrain operations through the project site. Vibration impacts from project construction activities are addressed herein for both existing off-site receptors and future sensitive receptors of the proposed project that would be exposed to ongoing construction activities after initial construction activities. Exposure of people to vibration impacts from Caltrain operations are addressed only for buildings and receptors within the Project Site since exposure of persons outside of the Project Site to Caltrain operations-related vibrations would not be an impact resulting from Project Site development.

DSP, DSP-V, CPP, and CPP-V

Vibration Effects on Buildings

Groundborne vibration from construction activities that involve "impact tools," especially pile driving, can produce significant vibration. Pile driving may be necessary for the construction of high-rise office or hotel structures. Pile driving can result in peak particle velocity (PPV) of up to 1.5 in/sec at a distance of 25 feet (FTA, 2006), but typically average about 0.644 PPV at that distance. The Caltrans measure of the threshold of architectural damage for conventional sensitive structures is 0.5 in/sec PPV for new residential structures and modern commercial buildings and 0.25 in/sec PPV for historic and older buildings. Therefore, the potential exists that

Project Site development would exceed the criteria published by Caltrans of 0.25 in/sec for the protection of fragile older buildings, as well as the 5 in/sec PPV criterion for newer buildings.

Under Project Site development, the nearest existing (off-site) structures to proposed high-rise office and hotel land uses would be an industrial building approximately 360 feet northwest of the high-rise office area. At this distance, pile-driving vibration would be reduced to 0.0123 in/sec, and therefore the vibration would have a less-than-significant impact with regard to building damage.

Extremely fragile structures within the Project Site would consist of the Roundhouse, which is listed on the National Register of Historic Places. This unreinforced masonry structure has suffered fire damage which occurred primarily in the western half of the Roundhouse, with portions of its roof now missing, charred timbers, and missing or broken window frames and is therefore in a fragile condition. Development in the vicinity of the Roundhouse would consist of construction of the circular roadway around the building, with open space to the south, institutional buildings to the west, and residences to the east in the DSP and DSP-V scenarios. In the CPP and CPP-V scenarios, development in the vicinity of the Roundhouse would consist of construction of the circular roadway around the building, with open space to the south, civic buildings to the east and west and entertainment buildings to the north. Development of these surrounding uses would involve standard construction equipment and would be unlikely to require high-impact equipment such as pile driving. However, if pile driving were necessary for proposed buildings near the Roundhouse, construction-related vibration would be significant if it were to occur within 85 feet of the structure. Consequently, a mitigation measure is identified to address this potential impact.

The upper end of vibration levels generated by standard construction equipment would be 0.089 in/sec which would be generated by large bulldozers, hoe rams or caisson drilling at a distance of 25 feet and would be below the criterion published by Caltrans of 0.25 in/sec for the protection of fragile buildings.

Vibration Effects on People

Vibration levels can also result in interference or annoyance impacts for residences or other land uses where people sleep, such as hotels and hospitals. Caltrans vibration annoyance potential criteria characterize vibrations of 0.01 in/sec PPV as “barely perceptible,” 0.04 in/sec PPV as “distinctly perceptible,” 0.1 in/sec PPV as “strongly perceptible,” and 0.4 in/sec PPV as “severe” (Caltrans, 2004).

On-site Proposed Receptors

The nearest sensitive land uses to the proposed high-rise office and hotels within the Project Site would be residences (under the DSP and DSP-V scenarios) that would be approximately 400 feet away. At this distance, pile-driving vibration would be reduced to 0.01 in/sec (barely perceptible), and therefore the vibration would have a less-than-significant impact with regard to human annoyance.

Off-site Existing Receptors

The closest existing (offsite) sensitive land uses would be over 1,000 feet north of the proposed hotel and high-rise office land uses, and would exposed to substantially lower vibration levels than that predicted for residences under the DSP and DSP-V scenarios.

Conclusion: Vibration during construction would represent a less-than-significant impact under Project Site development.

Exposure of People to Vibration from Rail Operations

Because the Project Site is bisected by the Caltrain commuter rail tracks, Project Site development would result in the exposure of people to vibrations from Caltrain rail operations. Approximately 86 Caltrain pass-by events currently occur on a daily basis. Nighttime freight train activity also occasionally occurs on these tracks. The FTA acknowledges that steel wheeled/steel rail vehicles can generate vibration impacts. The FTA identifies screening buffer distances in its document, *Transit Noise and Vibration Impact Assessment*. Specifically, for commuter rail lines, buffer distances of 200 feet from the right-of-way are recommended for residences or any land uses where people sleep, such as hotels and hospitals to avoid vibration impacts. For institutional land uses, such as schools and churches, the recommended buffer distance to avoid vibration impacts is 120 feet from the right-of-way.

Therefore, given that the DSP and DSP-V scenarios propose to develop residences within 200 feet of the Caltrain station and mainline track, impacts would be significant. Previous studies conducted adjacent to Caltrain tracks in San Carlos measured varied levels from 68 to 89 VdB, with the setback of the 72 VdB vibration contour located approximately 100 feet from the center of the near track (Illingworth and Rodkin, 2006). Proposed hotel land uses of the DSP and CPP scenarios would be located approximately 1,500 and 250 feet from the rail tracks, respectively, and hence not be subject to a significant vibration impact. Proposed school uses would be located more than 300 feet from the rail tracks under Project Site development.

In the event that Caltrain upgrades to electric powered trains, vibration impacts to nearby residences constructed within the Project Site would likely be reduced, as vibration curves published by the FTA indicate that vibration levels from locomotive powered passenger trains are at least 10 Vdb greater than light-rail vehicles. However, as electric power trains are not currently in use and their future use is uncertain, this impact would be significant.

Conclusion: Under the DSP and DSP-V scenarios, Project Site development would expose onsite residents to vibration from rail operations, representing a significant impact. **Mitigation Measure 4.J-2a**, which establishes a vibration performance standard for residential developments within 200 feet of the Caltrain Station and mainline track, and requires that detailed project-level vibration analyses be prepared to ensure that the that standard will be met, is recommended. In addition, **Mitigation Measure 4.J-2b** is recommended to ensure that pile driving vibrations impacts to any historic structures (Roundhouse) would be reduced.

Mitigation

Mitigation Measure 4.J-2a: All development in the Baylands shall be designed to avoid vibration from Caltrain operations in excess of 72 VdB for residences. Prior to issuance of any building permit for structures intended for human occupancy within 200 feet of the mainline track, a detailed vibration design study shall be completed by a qualified acoustical engineer to confirm the ground vibration levels and frequency content along the Caltrain tracks and to determine appropriate design to limit interior vibration levels to 72 VdB for residences. Implementation of the recommended measures of the acoustical study into project design elements shall be verified by the Brisbane Building Department as part of the plan-check process.

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	-	-
✓ = measure applies - = measure does not apply			

Specific measures to achieve the performance standards set forth above shall include all or any combination of the following methods:

- Use of vibration isolation techniques such as supporting the new building foundations on elastomer pads similar to bridge bearing pads;
- Installation of vibration wave barriers. Wave barriers would consist of control trenches or sheet piles, which are analogous to controlling noise with sound barrier. The applicability of this technique depends on the characteristics of the vibration waves.

Mitigation Measure 4.J-2b: Pre-Construction Assessment to Minimize Structural Pile-Driving Vibration Impacts on Adjacent Historic Buildings and Structures and Vibration Monitoring. Any development within 85 feet of the Roundhouse that would require pile driving or other construction techniques that could result in vibrations of 0.25 in/sec shall engage a qualified geotechnical engineer subject to City approval to conduct a pre-construction assessment of existing subsurface conditions and the structural integrity of the nearby historic structures subject to pile-driving or other vibration-inducing activity before a building permit is issued to demonstrate that the proposed construction activities would not result in vibration-induced damage to the Roundhouse building.

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	✓	✓
✓ = measure applies - = measure does not apply			

If recommended by the pre-construction assessment, groundborne vibration monitoring of nearby historic structures shall be required. Such methods and technologies shall be based on the specific conditions at the construction site such as, but not limited to, the pre-construction surveying of potentially affected historic structures and underpinning of foundations of potentially affected structures, as necessary. The pre-construction assessment shall include a monitoring program to detect ground settlement or lateral movement of structures in the vicinity of pile-driving activities. Monitoring shall be maintained while construction occurs within 85 feet of historic structures, and results shall be submitted to the City Engineer. In the event of unacceptable ground with the potential to cause structural damage movement (in excess of 0.25 in/sec PPV at historic structures), as determined by the City Engineer, all impact work shall cease until corrective measures

(e.g., installation of vibration wave barriers) are implemented to reduce ground movement to below 0.25 inches PPV.

Conclusion with Mitigation: With implementation of **Mitigation Measures 4.J-2a** and **4.J-2b,** groundborne vibration impacts on multi-family housing under the DSP and DSP-V scenarios and on the Roundhouse for Project Site development would be less than significant.

Overall Conclusion

Implementation of **Mitigation Measure 4.J-2a** would ensure that impacts resulting from the DSP and DSP-V scenarios related to groundborne vibration from rail operations would be less than significant. Implementation of **Mitigation Measure 4.J-2b** would ensure that impacts to historic structures resulting from pile driving vibrations would be less than significant. Vibration during construction would represent a less-than-significant impact under Project Site development.

Impact 4.J-3: Would the Project result in a substantial permanent increase in ambient noise levels in the vicinity or above levels existing without the Project?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
LTS	SM	LTS	LTS

SU = Significant Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = no impact

DSP, DSP-V, CPP, and CPP-V

Traffic-Generated Noise

Noise projections were made using traffic data from Fehr & Peers, included in **Appendix K** and the Federal Highway Administration Noise Prediction Model for those road segments that would experience the greatest increase in traffic volume and/or that would pass through residential or other noise-sensitive areas. The model applies reference noise factors for automobiles, medium trucks, and heavy trucks, with consideration given to vehicle volume, speed, roadway configuration, distance to the receiver, and the acoustical characteristics of the site.

The results of the modeling effort (in Appendix K) are shown in **Table 4.J-4** for existing conditions and existing plus Project Site development conditions. The transportation analysis estimates that Project site development would result in approximately 44,985 net new vehicle trips per day under the DSP scenario, approximately 42,446 net new vehicle trips per day under the DSP-V scenario, approximately 82,176 net new vehicle trips per day under the CPP scenario, and approximately 79,196 net new vehicle trips per day under the CPP-V scenario. This traffic would be distributed over the local street network and would affect roadside noise levels. Traffic noise dissipates with increasing distance from the source. Consequently, modeled existing noise levels shown in Table 4.J-4 correspond to a distance of 75 feet from the centerline of applicable roadway segments to account for the presence of multiple lanes, roadway shoulder, sidewalk and building setback, all of which contribute to the realized attenuated sound level at residences or other receptors. Noise levels predicted for the DSP-V scenario use traffic volumes assumed for an event as predicted in the Transportation analysis.

TABLE 4.J-4
TRAFFIC NOISE INCREASES ALONG ROADS IN THE PROJECT SITE VICINITY

Road Segment	Modeled Noise Levels, dBA, DNL								
	Existing Traffic Noise	Existing Plus DSP	Change with DSP	Existing Plus DSP-V (with Event)	Change with DSP-V (with Event)	Existing Plus CPP	Change with CPP	Existing Plus CPP-V	Change with CPP-V
1. Geneva Avenue (between Bayshore Boulevard and Schwerin Street)	67.1	68.5	+1.4	68.7	**+1.6**	68.5	+1.4	68.4	+1.3
2. Guadalupe Canyon (between Bayshore Boulevard and Carter Street)	62.5	63.9	+1.4	64.0	+1.5	64.0	+1.5	63.9	+1.4
3 Old County Road (between Bayshore Boulevard and San Bruno Avenue)	61.2	63.4	+2.2	63.6	+2.4	63.4	+2.2	63.4	+2.2
4. Bayshore Boulevard (between Old County Road and San Bruno Avenue)	67.2	68.0	+0.8	68.0	+0.8	67.7	+0.5	67.7	+0.5
5. San Bruno Avenue (between Old County Road and Bayshore Boulevard)	51.9	51.9	0.0	51.9	0.0	51.9	0.0	51.9	0.0
6. Harney Way (East of Thomas Mellon Circle)	55.7	56.2	+0.5	56.4	+0.7	56.4	+0.7	56.3	+0.6
7. Tunnel Avenue (between Beatty Road and Blanken Road)	59.1	61.6	-+2.5	62.1	+3.0	62.3	+3.2	62.1	+3.0
8. Blanken Avenue (between Bayshore Boulevard and Tunnel Avenue)	56.7	57.2	+0.5	57.5	+0.8	57.6	+0.9	57.5	+0.8
9. Sunnydale Avenue (between Desmond Street and Bayshore Boulevard)	56.9	58.0	+1.1	58.2	+1.3	58.1	+1.2	58.0	+1.1
10. Geneva Avenue (between Carter Street and Mission Street)	67.6	68.8	+1.2	68.9	+1.3	68.8	+1.2	68.8	+1.2

NOTES:
Bold indicates values that represent a significant impact, based on measures listed in Table 4.J-5.
dBA = A-weighted decibels. DNL = day-night noise level.

SOURCE: ESA, 2012.

The significance thresholds used were those identified by FICON, as set forth in **Table 4.J-5**. The results of the traffic noise study, as indicated in Table 4.J-4, demonstrate that noise increases along Geneva Avenue would be the only roadway segment where such increases would exceed the significance criteria (in this case, an increase of 1.5 or greater in an area in excess of 65 DNL, as shown in Table 4.J-5) which would only occur under the DSP-V scenario with an event. The impact at all other roadways would be less than significant, based on the measures shown in Table 4.J-5.

TABLE 4.J-5
MEASURES OF SUBSTANTIAL INCREASE IN TRANSPORTATION NOISE EXPOSURE

Ambient Noise Level Without Project (DNL)	Significant Impact Assumed to Occur if Project Site Development Increases Ambient Noise Levels By:
<60 dB	+ 5.0 dB or more
60-65 dB	+ 3.0 dB or more
>65 dB	+ 1.5 dB or more

NOTES:
DNL = day-night noise level. dB = decibels.

SOURCE: Federal Interagency Committee on Noise (FICON), 1992

Feasible mitigation that could be implemented to reduce this impact would be for DSP-V scenario to adopt additional transportation demand management (TDM) measures to reduce Project site development-generated traffic, as required by the County Congestion Management Program (refer to Impact 4.N-13 of Section 4.N, *Traffic and Circulation*). TDM measures would reduce vehicle trips generated by project site development and the associated increases in roadway noise on Geneva Avenue. The efficacy of TDM programs is estimated to range from at best 5 to 15 percent of overall vehicle miles travelled (CAPCOA, 2010). Therefore the needed 2.3 percent volume reduction to reduce the impact would be reasonably attainable and the impact would be less than significant with implementation of **Mitigation Measure 4.N-13**, see Section 4.N.4, *Impacts and Mitigation Measures*, of this EIR.

Conclusion: Mitigation Measure 4.N-13 would reduce peak hour traffic and its associated noise impact on Geneva Avenue to a less-than-significant level. The impact of increased traffic noise on other roadways would be less than significant.

Project Site Generated Noise (e.g., mechanical equipment, truck loading/unloading)

Once new development within the Project Site is in operation, noise would be generated by truck loading and unloading activities as well as heating, ventilation, and air conditioning systems on Project buildings. These noise sources are considered separately from traffic noise because they would be located on rooftops and in loading docks, away from streets where traffic would generate noise.

Operation of heating, ventilation, and air conditioning equipment would be subject to City Noise Ordinance standards. Provided that the equipment would be designed and used in a manner that

complies with those standards (see **Mitigation Measure 4.J-3a** below), the noise impact on Project residences (under the DSP and DSP-V) and adjacent land uses would be less than significant.

Operational noise related to the arrival, departure, and loading/unloading of goods from delivery trucks associated with Project site development's proposed warehouse and commercial land uses would generate noise. Retail land uses in all scenarios would be located as close as 350 feet from the nearest existing sensitive receptor (residences) on MacDonald Avenue.

Typical 18-wheeled semi-trailer truck delivery operations result in a maximum sound level of 71.5 dBA Leq when measured at a distance of 25 feet from the loading area (see **Appendix I**). At this distance, delivery operations would be reduced to 49 dBA, which would be below the monitored daytime noise levels on and around the Project Site (57 to 69 dBA).

Proposed residences under the DSP scenarios would be located adjacent to commercial uses. Assuming a distance of 25 feet, noise levels of 72 dBA would be generated at proposed residences. The Brisbane noise ordinance establishes an exterior noise limit of 10 dBA over existing conditions for events exceeding 15 minutes in duration. Given that existing daytime hourly noise levels as low as 57 dBA have been monitored on the Project Site, these activities would exceed noise ordinance standards. Consequently, **Mitigation Measure 4.J-3a** is identified to address this impact.

The arena proposed under the DSP-V scenario would result in noise from crowds gathering outside the area before and after events. Increased traffic volumes associated with events were assumed in the predicted traffic noise levels impacts for the DSP-V scenario are addressed above.

The CPP-V scenario includes proposed expansion of the existing Recology facility. This expansion would involve an increase in recyclable materials handled within the facility. Loading and unloading of recyclables would occur within an enclosed building under the CPP-V scenario whereas it occurs both indoors and outdoors under existing conditions. Consequently, while this variant would result in more frequent noise from loading and unloading of recyclables, it is anticipated that moving all loading and unloading operations into an enclosed structure would offset any noise increases.

Wind Energy Generated Noise

As discussed in Chapter 3, *Project Description*, wind energy production is proposed as part of Project Site development. The CPP and CPP-V scenarios are intended to generate renewable energy through a combination of solar and small-scale wind facilities installed on rooftops and within spaces dedicated to other uses. Figure 4.10.5 of the Brisbane Baylands Specific Plan, which details proposed development of the DSP and DSP-V scenarios, identifies an "iconic sustainability structure with PV panels and/or wind turbines" being constructed as part of the proposed onsite recycled water plant, while Section 3.3 of that specific plan notes that individual buildings within the Project Site may include renewable energy strategies such as solar or wind power, and energy production, including wind energy, is included as a permitted use within the Brisbane Baylands Specific Plan. Because Project Site development may include wind turbines for renewable energy generation, the noise impact of wind energy generation is evaluated below. While wind energy production under

Project Site development would involve small wind turbines, the noise characteristics of utility-grade wind turbines is provided for comparison purposes.

Wind turbines generate two types of noise: mechanical sounds from the interaction of turbine components, and aerodynamic sounds generated by the blades passing through the air. The power of aerodynamic noise is related to the ratio of the blade tip speed to wind speed. Depending on the turbine model and the wind speed, the aerodynamic noise may seem like buzzing, whooshing, pulsing, or sizzling. Turbines with their blades downwind of the tower can cause a thumping sound as each blade passes the tower. Most noise radiates perpendicular to the blades' rotation. Since turbines rotate to face the wind, they may radiate noise in different directions each day. The noise from two or more turbines may combine to create an oscillating or thumping effect.

Noise generated by small scale wind turbines varies with wind speed and the model of turbine. Because utility scale turbines must generate electricity that is compatible with grid transmission, they are typically programmed to keep the blades rotating at as constant a speed as possible. **Table 4.J-6** shows how the sound power of wind turbines varies by model and wind speed.

TABLE 4.J-6
WIND TURBINE NOISE LEVELS

Make and Model	Turbine Size	Wind Speed (meters/second)	Estimated Sound Power	Noise Level at 50 feet
Small Wind Turbines				
Southwest Windpower Whisper H400	900 W	5 m/s 10 m/s	83.8 dB(A) 91.0 dB(A)	49.1 dB(A) 56.3 dB(A)
Bergey Excel BW03	10 kW	5 m/s 10 m/s	87.2 dB(A) 105.4 dB(A)	52.5 dB(A) 70.7 dB(A)
Utility Scale Wind Turbines				
Vesta V80	1.8 MW	5 m/s	98-109 dB(A)	63.3-74.3 dB(A)
Enercon E70	2.0 MW	5 m/s	102 dB(A)	67.3 dB(A)
Enercon E112	4.5 MW	5 m/s	107 dB(A)	70.7 dB(A)

SOURCE: Alberts, 2006.

At 50 feet from sensitive noise receptors, both small wind turbines would not create significant noise levels, except under high wind conditions, where noise generated by the wind itself would mask the loudness of noise generated by the wind turbine. The noise levels that would result from onsite wind turbines are below noise levels that would occur at comparable locations from US Highway 101 and the Caltrain tracks within the Project Site. As noted in Table 4.J-1, existing ambient CNEL noise levels in the northeastern portion of the Project Site are 75 dB(A), while existing ambient CNEL noise levels in the northwestern portion of the Project Site are 70 dB(A). Significant impacts resulting from small wind turbines onsite are not, therefore, expected as long as a 50-foot separation is maintained. As shown in Table 4.J-6, larger utility scale wind turbines have the ability to create significant noise impacts on noise sensitive uses. Mitigation is therefore required.

Conclusion: Under Project Site development, Project-generated operational noise would result in substantial permanent increases in ambient noise levels, representing a significant impact. **Mitigation Measure 4.J-3a** is recommended. In addition, appropriate setbacks are needed to ensure that onsite wind turbines avoid significant noise impacts (**Mitigation Measure 4.J-3b**).

Mitigation

Mitigation Measure 4.J-3a: All development within the Project Site shall incorporate the following design features into the final site plans prior to issuance of a building permit:

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	✓	✓
✓ = measure applies - = measure does not apply			

- Building equipment (e.g., heating, ventilation, and air conditioning units) shall be located away from nearby residences, on building rooftops, or adequately shielded within an enclosure that effectively blocks the line of sight of the source from receivers in order to meet a performance standard of 5 dBA over existing ambient noise levels (generally perceptible increase to most persons) for this source which would potentially operate more than 20 minutes in a given hour.
- Formal truck delivery areas (e.g. loading bays) shall be located at least 100 feet from residences to maintain noise levels of less than 5 dBA over existing monitored levels. Truck delivery bays and waste collection areas shall be located so that they are blocked by Project buildings or designed with noise reduction barriers to reduce noise impacts on residences or other sensitive receptors.

Mitigation Measure 4.J-3b: Small wind turbines shall be sited a minimum of 50 feet from the property line of noise sensitive land uses (e.g., residential, schools, religious institutions), and utility scale wind turbines shall be cited a minimum of 100 feet from the property line of noise sensitive land uses.

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	✓	✓
✓ = measure applies - = measure does not apply			

Conclusion with Mitigation: With implementation of the **Mitigation Measures 4.J-3a** and **4.J-3b**, the noise impact from stationary operations would be reduced to a less-than-significant level under Project Site development.

Impact 4.J-4: Would the Project result in a substantial temporary or periodic increase in ambient noise levels in the vicinity of the project above levels existing without the Project?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
SU	SU	SM	SM
SU = Significant Unavoidable SM = Significant but Mitigable LTS = Less than Significant - = no impact			

DSP, DSP-V, CPP, and CPP-V

Project construction would occur in multiple phases and would involve demolition, transport of soils, excavation, grading,

trenching, paving, concrete work for foundations, and building erection. Noise from these activities could impact nearby existing (offsite) receptors as well as future (onsite) receptors developed in earlier increments of construction.

Construction-related activities would temporarily increase ambient noise levels in the Project Site vicinity over the duration of construction. Construction-related noise levels at and near locations on the Project Site would fluctuate depending on the particular type, number, and duration of use of various pieces of construction equipment. The effect of construction noise would depend upon the level of construction activity on a given day and the related noise generated by that activity, the distance between construction activities and the nearest noise-sensitive uses, and the existing noise levels at those uses.

Construction Noise Impacts to Off-site Receptors

Noise from demolition and construction activities within the Project Site would affect adjacent and nearby existing commercial and residential uses. Existing offsite noise-sensitive uses nearest the proposed demolition and construction activity are the residents of the Mission Blue Drive development, residents on San Francisco and Santa Clara Streets in Brisbane and residents on Linda Vista Drive and MacDonald Street in Daly City, and residents on Desmond Street and in the Little Hollywood neighborhood in San Francisco. These uses could occasionally experience the noise levels indicated in **Table 4.J-7**, depending on the proximity of equipment at a given time.

TABLE 4.J-7
TYPICAL CONSTRUCTION ACTIVITY NOISE LEVELS

Phase	Noise Level at 50 Feet (L_{eq})[a]	Noise Level (L_{eq}) at 200 Feet	Noise Level (L_{eq}) at 400 Feet	Noise Level (L_{eq}) at 1,600 Feet
Ground Clearing	84	75	66	54
Excavation	89	80	71	59
Foundations	78	69	60	48
Erection	85	76	67	56
Exterior Finishing	89	80	71	59
Pile Driving	90-105	81-96	72-87	60-75

NOTES:

[a] 50 foot estimates correspond to a distance of 50 feet from the noisiest piece of equipment associated with a given phase and 200 feet from the other equipment associated with that phase.

L_{eq} = equivalent sound level.

SOURCE: Bolt, Baranek, and Newman, 1971.

Table 4.J-7 shows typical noise levels generated by building construction. As shown in the table, the noisiest phase of construction would be during pile driving, which would generate noise levels of approximately 90 to 105 L_{eq} at 50 feet. Excavation and exterior finishing would also generate a substantial amount of noise. To further define the level of pile-driving noise, monitoring was conducted during pile-driving activities at Sierra Point in Brisbane, approximately one mile southeast of the Project Site where soil conditions could be similar to conditions at the Project Site. Maximum noise levels monitored were 91 dBA at a distance of 200 feet.

Construction Noise Impacts to On-site Receptors

Pile driving may be necessary for mid- and high-rise office or hotel structures in later phases of site development. Under the CPP and CPP-V scenarios, the closest sensitive land use to pile driving would be offsite receptors approximately 1,600 feet away. At this distance, pile-driving noise would be attenuated to 73 dBA which, while noticeable, would be of similar intensity as high-volume roadway traffic and would not be considered significant in an urban environment, as it would be below the 86-dBA construction noise standard of the City of Brisbane Noise Ordinance. Pile-driving noise from construction of the CPP or CPCP-V scenario would therefore be considered a less-than-significant impact.

Receptors constructed in early increments of site development of the DSP and DSP-V Scenarios would likely be occupied and exposed to construction noise during Phase 2 development. These receptors would be as close as 200 feet from Phase 2 construction areas. At this distance, typical construction noise levels would range from 69 to 80 dBA.

Pile driving may be necessary for mid- and high-rise office, entertainment uses or hotel structures in Phase 2. Under the DSP and DSP-V scenarios, the nearest sensitive land uses to proposed mid- and high-rise office and hotel land uses would be residences that could be developed prior to mid- and high-rise offices, approximately 200 feet to the west, where intermittent pile-driving noise of up to 91 dBA would be expected to occur for several weeks, depending on the size of the buildings constructed. This noise increase would be more than 10 dBA in excess of existing ambient levels and would exceed the 86-dBA construction noise standard of the City of Brisbane Noise Ordinance. Pile-driving noise from construction of the DSP or DSP-V scenario would therefore be considered a significant impact. Offsite receptors located nearest construction areas requiring pile-driving under the DSP scenarios would be 1,500 feet to the north and exposed to lesser resultant noise levels of 74 dBA.

Standard construction equipment (i.e., equipment other than pile drivers) would generate the noise levels shown in **Table 4.J-8**. Based on the analysis below, several types of the construction equipment specified would exceed the 83 dBA at 25 feet standard of Section 8.28.060. Therefore, the second criterion, which restricts construction noise at the property line from exceeding 86 dBA, would represent the applicable significance criterion and could be exceeded when construction is within 75 feet of a sensitive receptor. Also, during nighttime, temporary construction-related noise could be more disturbing given the more sensitive nature of the nighttime period.

To reduce construction noise impacts to levels required by Section 8.28.060 of the Brisbane Municipal Code, an available menu of mitigation options to achieve the 84 dBA performance standard is included in **Mitigation Measure 4.J-4a**.

Additionally, the Municipal Code requires construction contractors to limit standard construction activities to between 7:00 a.m. and 7:00 p.m. Monday through Friday and between 9:00 a.m. and 7:00 p.m. on weekends and holidays. Pile driving and/or other extreme noise-generating activities (greater than 90 dBA) would be limited to between 8:00 a.m. and 4:00 p.m. Monday through Friday, with no extreme noise-generating activity permitted between 12:30 p.m. and 1:30 p.m. No extreme noise-generating activities would be allowed on weekends and holidays.

TABLE 4.J-8
TYPICAL NOISE LEVELS FROM CONSTRUCTION EQUIPMENT

Construction Equipment	Noise Level (dBA, Leq at 50 Feet)
Dump truck	88
Portable air compressor	81
Concrete mixer (truck)	85
Scraper	88
Jackhammer	88
Dozer	87
Paver	89
Generator	76
Backhoe	85

NOTES:
dBA = A-weighted decibels. L_{eq} = equivalent sound level.

SOURCE: FTA, 2006.

To ensure that construction noise is minimized under construction of Project Site development, **Mitigation Measure 4.J-5b** below is recommended.

Conclusion: Under Project Site development, construction would create substantial temporary or intermittent noise. Under the DSP and DSP-V, pile-driving activities would result in a significant impact, and **Mitigation Measure 4.J-4a** is recommended. **Mitigation Measure 4J-4b** is recommended to reduce significant impacts related to other construction activities to a less-than-significant level under Project Site development.

Mitigation

Mitigation Measure 4.J-4a: All applicants for site-specific development within the Project Site shall implement site-specific noise attenuation measures during all construction-related activities under the supervision of a qualified acoustical consultant as a pre-requisite to issuance of site grading(s). These measures shall be included in a Noise Control Plan that shall be submitted for review and approval by the City of Brisbane Building Department to ensure that construction noise does not exceed the standards set forth in the City's Noise Ordinance. These attenuation measures shall include all or any combination of the following control strategies:

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	-	-
✓ = measure applies - = measure does not apply			

- Limit standard construction activities to between 7:00 a.m. and 7:00 p.m. Monday through Friday and between 9:00 a.m. and 7:00 p.m. on weekends and holidays. Pile driving and/or other extreme noise-generating activities (greater than 90 dBA) would be limited to between 8:00 a.m. and 4:00 p.m. Monday through Friday, with no extreme noise-generating activity permitted between 12:30 p.m. and 1:30 p.m. No extreme noise-generating activities would be allowed on weekends and holidays;

- Equipment and trucks used for construction shall use the best available noise control techniques (e.g., improved mufflers, equipment redesign, use of intake silencers, ducts, engine enclosures, and acoustically attenuating shields or shrouds;
- Impact tools (e.g., jack hammers, pavement breakers, and rock drills) used for construction shall be hydraulically or electrically powered wherever possible to avoid noise associated with compressed air exhaust from pneumatically powered tools. Where use of pneumatic tools is unavoidable, an exhaust muffler on the compressed air exhaust shall be used; this muffler can lower noise levels from the exhaust by up to about 10 dBA. External jackets on the tools themselves shall be used where feasible; this could achieve a reduction of 5 dBA. Quieter procedures, such as use of drills rather than impact tools, shall be used;
- Stationary noise sources shall be located as far as possible from adjacent receptors, and they shall be muffled and enclosed within temporary sheds, incorporate insulation barriers, or include other measures;
- Erect temporary plywood noise barriers around the construction site when adjacent occupied sensitive land uses are present within 75 feet;
- Implement "quiet" pile-driving technology (such as pre-drilling of piles and the use of more than one pile driver to shorten the total pile driving duration), where feasible, in consideration of geotechnical and structural requirements and conditions;
- Use noise control blankets on building structures as buildings are erected to reduce noise emission from the site; and
- Use cushion blocks to dampen impact noise.

Mitigation Measure 4.J-4b: Prior to City issuance of grading permits, applicants for site-specific development projects within the Project Site shall submit to the Brisbane Building Department, a list of measures that will be undertaken to respond to and track complaints pertaining to construction noise, including:

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	✓	✓
✓ = measure applies - = measure does not apply			

- A procedure for notifying the Building Department staff of complaints;
- A plan for posting onsite signs pertaining to permitted construction days and hours, complaint procedures, and the contact person who should be notified in the event of a problem;
- A listing of telephone numbers (during regular construction hours and off-hours);
- Designation of an onsite construction complaint manager for Project site development;
- Notification of neighbors within 300 feet of the Project site development construction area about the estimated duration of the pile-driving activity at least 30 days in advance of the activity; and
- A preconstruction meeting with the job inspectors and the general contractor/onsite project manager to confirm that noise mitigation and practices (including construction hours, neighborhood notification, posted signs, etc.) are completed.

Conclusion with Mitigation: Inclusion of **Mitigation Measures 4.J-4a** and **4.J-4b** would result in a reduction of Project construction noise. However, due to the substantial noise levels associated with potential pile driving and the proximity to residential receptors developed under the DSP and DSP-V scenarios, temporary construction-related noise is identified as a significant unavoidable impact for these scenarios. Under the CPP and CPP-V scenarios, temporary construction-related noise would represent a less-than-significant impact with implementation of **Mitigation Measure 4.J-4b**.

Impact 4.J-5: Would the Project expose people residing or working in the area to excessive noise levels related to operations of a public airport?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
LTS	LTS	LTS	LTS

SU = Significant Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = no impact

DSP, DSP-V, CPP, and CPP-V

The Noise Exposure Map for SFO indicates that all portions of the City of Brisbane are outside the 65-CNEL noise contour relative to aircraft noise from the airport (i.e., aircraft operations from the airport contribute less than 65 dBA to ambient noise levels within Brisbane) (SFO, 2012) which is the state and federal threshold for noise abatement pursuant to Caltrans and FAA guidelines. As noted in Section 4.I, *Land Use and Planning*, the Project Site is, however, within Airport Influence Area A, which is defined as an area that is flown by an aircraft at an altitude of 10,000 feet or less above mean sea level a minimum of once weekly.

While aircraft noise contributions on the Project Site would be below the federal noise abatement criterion of 65 CNEL, data from the December 2012 Directors Report for SFO indicates that Brisbane residents are impacted by single event aircraft noise that may not be reflected in the 24-hour based CNEL noise descriptor used by Caltrans and FAA. More than half of the 1,331 noise complaints of SFO operations received in September and October 2012 were from residents in the City of Brisbane (SFO, 2012). Therefore, while Project site development would have a less-than-significant impact with regard to exposing people to long-term excessive noise levels related to operations of the nearest airport, data exist to indicate that nuisance noise impacts from airport operations regularly occur within the City and may be experienced by future receptors of the project site. While there is a potential for aircraft noise to be a nuisance to future Project Site residents in the DSP and DSP-V scenarios, impacts would not be significant noise since the Project Site is located outside of the airport's 65 CNEL noise contour, which is the significance threshold for airport-related noise impacts.

Conclusion: The impact would be less than significant under Project Site development, and no mitigation is required.

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4.K Population and Housing

4.K.1 Introduction

This section describes population, housing, and employment conditions and trends in Brisbane and the surrounding region and evaluates the population and housing-related impacts of development of the Project Site. Feasible mitigation measures are identified to reduce significant impacts.

Population and housing conditions frequently involve economic and social issues, which under CEQA are not considered to be significant effects on the environment. Consistent with CEQA, the analysis of population and housing impacts in this EIR addresses the precursors of physical changes that would result from Project implementation. The increases in population and employment that would result from development of the Project Site would be physically manifested in the form of residential dwelling units (under the DSP and DSP-V scenarios) and commercial, office, and other types of development (under all scenarios), resulting in the construction and operational impacts addressed throughout this EIR. In fact, all of the impacts addressed in the EIR would result from the construction of buildings and operation of uses associated with planned increases in population and employment within the Project Site.

In addition, the relative balance between the number of jobs and amount of housing in a given area affects vehicle miles traveled and associated emissions of air pollutants and greenhouse gases (GHGs), as well as energy consumption related to vehicular travel. In general, improving the proximity between jobs and housing (also described as jobs/housing balance) decreases the number of vehicle miles traveled between home and work, resulting in decreased air and greenhouse emissions and decreased vehicular energy consumption. In areas where a jobs/housing balance is accompanied by higher development intensities, the ability to travel by transit, bicycle, and pedestrian modes is increased, resulting in decreased traffic congestion, along with future reductions in air pollutant and GHG emission and energy consumption. Thus, many of the regional planning efforts within the San Francisco Bay Area aimed at reducing traffic congestion, energy consumption, and emissions of air pollutants and GHGs revolve around improving jobs/housing balance within the Bay Area's subregions.

The analysis in this section relies primarily on information from the United States Census Bureau, the California Department of Finance, the Association of Bay Area Governments (ABAG), and the Brisbane General Plan Housing Element.

4.K.2 Environmental Setting

This subsection provides an overview of regional and local population, housing, and employment conditions.

Population and Housing Conditions

Regional Population

According to the 2010 Census, there were 7.15 million people living in the nine-county Bay Area region.[1] The region's population grew by 13 percent between 1990 and 2000 and by 5.4 percent between 2000 and 2010. The population of San Mateo County (within which Brisbane is located) grew by nine percent between 1990 and 2000 and the population of the City and County of San Francisco[2] (adjacent to Brisbane) grew by about seven percent, somewhat lower rates of growth than the region as a whole experienced. Between 2000 and 2010, San Mateo County's population grew by about 1.6 percent, less than a third the rate of growth for the Bay Area during this period, and neighboring San Francisco grew by about 3.7 percent, also slower than the region as a whole.

Regional Housing Conditions

Housing production did not keep pace with population growth and household formation during the 1990s, exacerbating an imbalance between population growth and housing availability from previous decades.[3] This imbalance between local housing and local employment opportunities is a major contributor to long commute distances, resulting in increased traffic congestion, air pollutant and GHG emissions, and non-renewable energy consumption (ABAG, 2011). Between 1990 and 2000, when population in the region increased by 13 percent, the number of housing units increased by eight percent and the number of households[4] increased by 10 percent. Between 2000 and 2010, the relative increases in population and housing production in the nine-county region shifted; population grew by 5.4 percent over the decade and the number of housing units increased by nine percent. During this period the number of households in the Bay Area increased by 5.8 percent. Overall, 421,000 housing units were added in the Bay Area between 1990 and 2010, an increase of about 18 percent. Housing vacancy rates for the region overall declined between 1990 and 2000 and increased between 2000 and 2010, demonstrating the different rates of population growth, household formation, and housing production over this 20-year period.

According to ABAG, a five-percent vacancy rate is considered necessary to permit ordinary mobility in rental housing, and a two-percent vacancy rate is considered necessary to permit ordinary mobility in for-sale housing. Vacancy rates below these levels indicate a constrained housing market in which residents will have difficulty finding appropriate units and competition for units will drive up housing prices, indicating a need for new housing to accommodate the

1 The nine-county Bay Area region consists of the counties of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma.

2 The City and County of San Francisco share the same jurisdictional boundaries.

3 According to ABAG, household growth between 1960 and 1970 was about a third of population growth; although the number of new households almost matched population growth in the 1970s, in the 1980s the ratio of new households to population returned to that of the 1960s, with one new household forming for every three new residents. Housing affordability affects the rate of household formation and therefore household size. The higher costs of housing resulting from increased demand contributed to an increase in the size of households, from 2.57 persons per household in 1980 to 2.61 persons per household in 1990 and 2.68 persons per household in 1995 (ABAG, 1999).

4 The number of households is equivalent to the number of occupied housing units; a household includes all persons living in the same housing unit.

existing population (ABAG, ND). Units that are temporarily occupied entirely by persons with primary residences elsewhere are included in the category of "vacant housing units" by the United States Census Bureau (United States Census Bureau, 2011a). Such units, which include, for example, second homes and timeshares, are therefore included in total vacancy rates but are not included in for-sale or rental vacancy rates since they are not available on the for-sale or rental markets.

Table 4.K-1 shows the number of housing units, total vacancy rate, and homeowner and rental vacancy rates for the nine Bay Area counties in 2010.

TABLE 4.K-1
BAY AREA HOUSING VACANCY RATES BY COUNTY, 2010

County	Total Housing Units	Total Vacancy Rate	Vacancy Rates for Housing Units Available for Sale or Rent	
			For-Sale Vacancy Rate	Rental Vacancy Rate
Alameda	582,549	6.4	1.8	6.4
Contra Costa	400,263	6.2	2.1	6.8
Marin	111,214	7.2	1.8	5.2
Napa	54,759	10.7	2.4	7.1
San Francisco	376,942	8.3	2.3	5.4
San Mateo	271,031	4.9	1.3	4.6
Santa Clara	631,920	4.4	1.4	4.3
Solano	152,698	4.2	2.5	7.7
Sonoma	204,572	9.2	1.9	5.1

SOURCE: United States Census Bureau, 2011b.

Table 4.K-2 shows the number of housing units, total vacancy rate, and homeowner and rental vacancy rates for Brisbane, adjacent cities in San Mateo County, and San Francisco in 2010. As shown, for-sale vacancy rates in Brisbane and South San Francisco are below the minimum rate (two percent) to allow for normal turnover and adequate housing choice, while rental vacancy rates are below optimal (five percent) in Daly City and South San Francisco. Rental vacancy rates are above the acceptable minimum in Brisbane and San Francisco.

TABLE 4.K-2
HOUSING VACANCY RATES IN BRISBANE AND ADJACENT CITIES, 2010

City	Total Housing Units	Total Vacancy Rate	For Sale Vacancy Rate	Rental Vacancy Rate
Brisbane	1,934	5.8%	1.3%	5.5%
Daly City	32,588	4.6%	1.9%	4.2%
South San Francisco	21,814	4.0%	1.3%	4.0%
San Francisco	376,942	8.3%	2.3%	5.4%

SOURCE: United States Census Bureau, 2011b.

Project Site Housing and Population Conditions

The Project Site currently contains no housing and no resident population.

Area Population and Housing Growth Rates

Since 1990, approximately 19,000 housing units were added in San Mateo County, with about 40 percent of the new units added in cities in the northern part of the county.[5] Housing stock in the county increased by 8,800 housing units, or about 3.5 percent, between 1990 and 2000, as compared to the county's 8.9-percent population growth during that period. Between 2000 and 2010, housing stock increased by 10,500 housing units (about four percent), compared to the county's population growth of 1.6 percent during this period. Overall, housing in San Mateo County increased by 7.6 percent between 1990 and 2010 compared to a 10.6-percent increase in population during this period. As of 2010, the vacancy rates indicate that housing in the county continues to be constrained, with for-sale and rental vacancy rates below those considered optimal to allow normal turnover and adequate housing choice. As shown in Table 4.K-1, above, the for-sale vacancy rate in the county in 2010 was 1.3 percent and the rental vacancy rate was 4.6 percent.

Brisbane's population in 2010 was 4,282 persons, according to the 2010 Census. The city's population grew substantially over the last two decades, increasing by 22 percent between 1990 and 2000 and by 19 percent between 2000 and 2010. The city added 1,330 residents over this 20-year period, a 45-percent increase. This recent growth reversed a trend of slightly declining population between 1970 and 1990. **Table 4.K-3** summarizes the city's recent population and housing trends. Brisbane's strong growth between 2000 and 2010 contrasts with the experience of substantially slower growth rates in much of the rest of the Bay Area described above. For comparison, **Table 4.K-4** shows population data from the last three decennial censuses for Brisbane and nearby cities in northern San Mateo County, San Francisco (which abuts Brisbane on the north), and the nine-county Bay Area.

TABLE 4.K-3
BRISBANE POPULATION AND HOUSING TRENDS, 1970-2010

	1970	1980	1990	2000	2010	Change 1970-1980	Change 1980-1990	Change 1990-2000	Change 2000-2010
Population	3,003	2,969	2,952	3,597	4,282	-1.1%	-0.6%	+21.8%	+19.0%
Households[a]	1,133	1,362	1,300	1,620	1,821	+20.2%	-4.6%	+24.6%	+12.4%
Housing Units	1,172	1,405	1,382	1,831	1,934	+19.9%	-1.6%	+32.5%	+5.6%
Vacant Units	39	43	82	211	113	+4	+39	+129	-98
Total Vacancy Rate	3.3%	3.1%	5.9%	11.5%	5.8%	-6.1%	+90.3%	+94.9%	-49.6%

[a] The number of households is equivalent to the number of occupied housing units.

SOURCE: City of Brisbane, 2011; United States Census Bureau, 2011b.

[5] This percentage includes the cities of Brisbane, Colma, Daly City, Millbrae, Pacifica, San Bruno, and South San Francisco; it does not include housing added in unincorporated San Mateo County, for which geographic distribution information is not available.

TABLE 4.K-4
POPULATION TRENDS FOR BRISBANE, ADJACENT CITIES, AND BAY AREA, 1990-2010

Jurisdiction	Population			% Change 1990-2000	% Change 2000-2010
	1990	2000	2010		
Brisbane	2,952	3,597	4,282	+21.8%	+19.0%
Daly City	92,088	103,625	101,123	+12.5%	-2.4%
South San Francisco	54,312	60,552	63,632	+11.5%	+5.1%
San Francisco	723,959	776,733	805,235	+7.3%	+3.7%
Nine-County Bay Area	6,020,147	6,783,762	7,150,739	+12.7%	+5.4%

SOURCE: State of California Department of Finance, 2011; State of California Department of Finance, 2007.

About 550 housing units were added to Brisbane's housing stock between 1990 and 2010, a 40-percent increase. Of these 550 new units, 103 were added between 2000 and 2010, representing a 6-percent increase. Table 4.K-3 above shows the changes in the number of housing units and households in Brisbane over the past several decades. Housing production between 1990 and 2010 did not keep pace with the city's 45-percent increase in population over this period, which could be the result of such factors as the availability of existing housing units or an increase in the number of families and/or family and household sizes. In 2010, 1,821 of a total of 1,934 housing units were occupied, indicating a total vacancy rate of approximately 5.8 percent. Brisbane's 2010 vacancy rate is substantially lower than its 2000 rate (11.5 percent) and about the same as its 1990 rate (5.9 percent).

Employment

Regional Employment Conditions

The Bay Area experienced substantial job growth during the 1990s fueled by the technology (i.e., dot com) boom, and subsequently suffered substantial job losses between 2000 and 2010 due to the "dot com" bust, the national recession, and the slow recovery. Between 1990 and 2000, the region gained nearly 550,000 jobs, a 17-percent increase. Between 2000 and 2005, the Bay Area region lost more than 300,000 jobs, an eight-percent decrease from 2000. ABAG estimates that the number of jobs in the Bay Area increased slightly (by less than one percent) between 2005 and 2010, resulting in a 7.4-percent net decrease in jobs between 2000 and 2010 (ABAG, 2009).

In San Mateo County, nearly 60,000 jobs were added between 1990 and 2000, an 18-percent increase, and more than 40,000 jobs were lost between 2000 and 2010, a 10-percent decrease from 2000. The county had a total of about 346,320 jobs in 2010 (ABAG, 2009).

Employment in neighboring San Francisco was also volatile during this 20-year period. Between 1990 and 2000, San Francisco added 63,000 jobs, an 11-percent increase from 1990 employment levels, but lost nearly 74,000 jobs in the next decade, an 11.5-percent decrease from 2000 (ABAG, 2009).

There are many more jobs in Brisbane than residents, making the city a "jobs rich" importer of labor. ABAG estimates that there were a total of 7,220 jobs in the Brisbane city limits in 2010 and an additional 1,470 jobs in Brisbane's sphere of influence (SOI)[6] (ABAG, 2009, 2012), representing about 2.5 percent of all jobs in San Mateo County in 2010. Brisbane's job growth experience contrasted with the regional trend of the past 10 years. Approximately 780 jobs were added between 1990 and 2000, a 12-percent increase that was consistent with regional job growth. In contrast to regional trends, however, 1,210 jobs also were added between 2000 and 2010, a 16-percent increase over 2000 employment levels. This increase is likely due to the fact that the employment sectors located in Brisbane (including warehousing, distribution, and transportation businesses at Crocker Park and professional services at Sierra Point) were not as affected by the "dot com" bust as were technology-oriented industries and sectors more closely linked to them. Between 1990 and 2010, the number of jobs in Brisbane increased by 30 percent (ABAG, 2009). These recent trends are shown in **Table 4.K-5**.

TABLE 4.K-5
JOB TRENDS FOR BRISBANE AND ADJACENT CITIES, 1990 – 2010

Geographic Area[a]	Number of Jobs			Change 1990 – 2000	% Change 1990 – 2000	Change 2000 – 2010	% Change 2000 – 2010
	1990	2000	2010				
Brisbane	6,700	7,480	8,690	+780	+11.6%	+1,210	+16.2%
Daly City	20,530	17,270	18,800	-3,260	-15.9%	+1,530	+8.9%
South San Francisco	44,140	45,190	43,120	+1,050	+2.4%	-2,070	-4.6%
San Francisco	579,180	642,500	568,730	+63,320	+10.9%	-73,770	-11.5%

[a] Estimates for cities include their respective spheres of influence.

SOURCE: ABAG, 1999; ABAG, 2009.

Project Site Employment Conditions

As described in Chapter 3, *Project Description*, the Project Site is largely undeveloped. The two lumberyards located at the site have a combined total of about 35 employees. The other existing businesses, consisting of a cooking fuels and equipment manufacturing/distribution company, a small industrial park, a rock and concrete crushing operation, and a soils processing operation, together employ about 60 individuals.

The CPP and CPP-V scenarios include the existing Recology resource recovery company, as described in Chapter 3, *Project Description*, and shown in Figures 3-13 and 3-14. Recology currently has 1,102 employees at its existing site.

[6] The SOI of each incorporated city within a county is determined by the county's Local Agency Formation Commission. The SOI may include unincorporated county areas or coincide with the city's existing jurisdictional boundaries. The city is responsible for planning within the SOI, which is assumed to define the city's probable future jurisdictional boundary. Brisbane's SOI includes the Quarry area, and Owl and Buckeye Canyons.

Employed Residents and Jobs/Housing Relationship

Employed Residents and Places of Work[7]

This subsection presents information on places of work of local residents and the residences of Brisbane workers prepared by the Metropolitan Transportation Commission (MTC) and ABAG based on 2000 Census data. Comparable data are not yet available from the 2010 Census or the American Community Survey.[8] As the most current information of its kind currently available, it is presented here to provide an overview of the general distribution of jobs and housing for Brisbane residents and workers.

According to the 2000 Census, there were 2,097 employed residents living in Brisbane (MTC and ABAG, ND). About 15 percent of these employed residents held jobs in Brisbane. Another 38 percent worked in other cities in San Mateo County and 36 percent worked in San Francisco. About 9 percent worked in Santa Clara and Alameda Counties, and the remaining 2 percent worked in other locations, primarily in other Bay Area counties (MTC, 2004).

Brisbane residents working in Brisbane in 2000 held about five percent of the jobs in Brisbane. Residents of other San Mateo County cities and San Francisco held most of Brisbane's jobs. In particular, San Francisco residents held about 29 percent of the jobs in Brisbane, Daly City residents about 8 percent, South San Francisco and city of San Mateo residents about six percent each, and San Bruno and Pacifica residents about four percent each. Residents of other parts of San Mateo County held another 14 percent of Brisbane's jobs, while residents of Santa Clara, Alameda, and Contra Costa Counties held a total of about 18 percent of the city's jobs. Residents of other parts of the Bay Area held another four percent of the city's jobs, and residents outside the Bay Area held the remaining two percent of the city's jobs (MTC, 2004).

At the Recology site, which is included in the CPP and CPP-V scenarios, San Mateo County and San Francisco residents make up about 52 percent of the 1,100-employee work force (26 percent of site employees from each county); Contra Costa County residents account for about 20 percent of the work force, and Solano County and Alameda County residents make up 11 and 9 percent of the work force, respectively. Residents of other the Bay Area counties (Santa Clara, Marin, Napa, and Sonoma) make up about five percent of the work force, and residents of other counties make up about two percent.

Relationship of Jobs and Housing

The overall relationship between jobs and housing in an area identifies the extent to which a community enjoys a balanced mix of land uses, thereby offering job opportunities to local residents and housing opportunities for workers employed in local jobs. The jobs/housing balance is frequently indicated by comparing the number of jobs in the community or area to the number of employed residents. A region with too many jobs relative to employed residents is likely to experience escalation in housing prices (with a concurrent decline in affordability for the lower-

7 Census estimates on place of work and place of residence presented in this section are based on sampling data.
8 The United States Census Bureau's American Community Survey now collects some of the information previously collected in decennial census sampling (long-form) data.

income segments of the community) due to the effects of supply (limited available housing) and demand (by workers residing outside the area), and intensified pressure for additional residential development. Such an imbalance can result in a large amount of "in-commuting" for employees, increasing traffic congestion, air pollutant and GHG emissions, and use of non-renewable fossil fuels for vehicular travel. Conversely, a region that has relatively few jobs in comparison to employed residents is likely to have many residents commuting to jobs elsewhere, also increasing traffic congestion, air pollutant and GHG emissions, and use of non-renewable fossil fuels for vehicular travel. The mix of who lives in the community and who works in the community and the extent to which these are the same individuals results from a complex set of interactions, decision factors, opportunities, and constraints that determine where people choose to live and work, how much they spend for housing, and their travel patterns. Jobs/housing ratios evolve over time and reflect the role and location of particular areas within the larger regional context. Regional planning efforts in the Bay Area seek to balance the number of jobs and the number of employed residents, or to improve existing imbalances, for purposes of achieving goals related to improved housing availability and affordability, and to reduce commute distances, congestion, improve air quality, and reduce GHG emissions. While a balance of jobs and housing does not guarantee that local residents will be employed in local jobs, achieving such a balance offers the opportunity to reduce commuting requirements and achieve the resulting environmental and social benefits.

As noted above, Brisbane currently is a "jobs rich" city. ABAG estimates that in 2010 there were approximately 2,060 employed residents and 8,690 jobs in the city and its SOI (more than four times as many jobs as employed residents), as shown in **Table 4.K-6**. Thus, the ratio between jobs and employed residents in Brisbane is not balanced, and projections indicate that there will continue to be substantially more jobs than employed residents in the future. As discussed above, such an imbalance between jobs and housing typically contributes to higher home prices due to demand outstripping supply, increased traffic congestion in the area, increased air and noise pollution, and longer commute times for workers residing in other cities and counties. That Brisbane currently has a higher rental housing vacancy rate than neighboring cities, despite the relatively large number of jobs in the city, underscores the complexity of factors that influence choices of where people live and work.

TABLE 4.K-6
RATIO OF JOBS TO EMPLOYED RESIDENTS FOR BRISBANE, ADJACENT CITIES, AND BAY AREA, 2010 AND 2020

	Jobs		Employed Residents		Jobs/Employed Residents Ratio	
Geographic Area[a]	**2010**	**2020**	**2010**	**2020**	**2010**	**2020**
Brisbane	*8,690*	*12,240*	*2,060*	*3,310*	*4.22*	*3.70*
Daly City	18,800	25,410	47,780	55,340	0.39	0.46
South San Francisco	43,120	48,340	27,670	32,280	1.56	1.50
San Francisco	568,730	647,190	411,900	458,300	1.38	1.41
Total Bay Area[b]	**3,475,840**	**4,040,690**	**3,410,300**	**3,963,800**	**1.02**	**1.02**

[a] Estimates for cities include their respective spheres of influence.
[b] The Bay Area region consists of the counties of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma.

SOURCE: ABAG, 2009.

ABAG projections indicate that the ratio of jobs to employed residents will decrease somewhat by 2020, to 3.70, although this continuing high ratio of jobs to employed residents indicates that the trend of residents in other areas commuting to Brisbane for work will continue. As also shown in the table, the ratio tips in the opposite direction for some cities in northern San Mateo County (e.g., Daly City and San Bruno); these cities have more employed residents than jobs, suggesting greater overall balance between jobs and employed residents in the general area than is indicated by looking at Brisbane alone.

The ratios of jobs to employed residents in San Mateo County and the nine-county Bay Area indicate a general balance between jobs and employed residents in the county and region, as shown in Table 4.K-6. ABAG estimates for 2010 indicate that the ratio of jobs to employed residents in San Mateo County was about 1.05 and that the ratio for the Bay Area overall was 1.02. That the ratios are greater than one indicates a slight edge of more jobs than employed residents for San Mateo County and the region. The ratio of jobs to employed residents within the county is expected to increase slightly by 2020 and remain about the same for the Bay Area region.[9]

Projected Population, Housing, and Employment Growth

This subsection provides a brief overview of ABAG projections, which are used in this analysis as a long-range forecast of regional and local population, housing, and employment trends.

ABAG Projections 2009

ABAG is the regional planning agency of the San Francisco Bay Area. Its members include the nine Bay Area counties and the 101 cities and towns within the Bay Area. Its mission is to strengthen cooperation and coordination among local governments. Since its inception in 1961, ABAG has examined regional issues such as housing, transportation, economic development, and the environment. ABAG's *Projections* series has provided long-term population, housing, and economic forecasts through a series of computer models. ABAG's model results are relied on by transportation and air quality agencies, water agencies, local governments, and others.

The most recent approved projections developed by ABAG are Projections 2009. **Table 4.K-7** shows ABAG's Projections 2009 population and housing projections for Brisbane and other cities in the vicinity and the Bay Area as a whole, along with 2010 Census information.

Based on ABAG projections for 2035 (the horizon year for ABAG's current projections series), the population of the Bay Area is expected to grow by approximately 27 percent relative to the region's population according to the 2010 Census (ABAG, 2009; United States Census Bureau,

[9] It is noted that a balance in the numbers of jobs and employed residents indicates an increased opportunity for shorter commute distances, and does not necessarily indicate actual commute distances are shorter than in areas with a greater imbalance between jobs and housing. Even with a good statistical balance of jobs and housing, substantial commuting may occur into and out of an area. County-to-county commute data for San Mateo County in 2000, for example, indicate roughly equal numbers of workers commuting into the county from other areas (147,283 workers) and out of the county for work in other counties (148,003 workers) (California Economic Development Department, 2008).

TABLE 4.K-7
POPULATION AND HOUSEHOLD GROWTH INDICATED BY PROJECTIONS 2009 FOR BRISBANE, SURROUNDING CITIES, AND THE BAY AREA, 2020 AND 2035

Geographic Area [a]	2010 Census[b]	2020[c]	2035[c]	Change 2010 – 2020[d]	% Change 2010 – 2020[d]	Change 2010 – 2035[d]	% Change 2010 – 2035[d]
Total Population							
Brisbane	*4,282*	*5,300*	*7,700*	*+1,018*	*+23.8%*	*+3,418*	*+79.8%*
Daly City	101,123	118,000	136,900	+16,877	+16.7%	+35,777	+35.4%
South San Francisco	63,632	69,700	77,700	+6,068	+9.5%	+14,068	+22.1%
San Francisco	805,235	867,100	969,000	+61,865	+7.7%	+163,765	+20.3%
Total Bay Area[e]	**7,150,739**	**8,018,000**	**9,073,700**	**+867,261**	**+12.1%**	**+1,922,961**	**+26.9%**
Households[f]							
Brisbane	*1,821*	*2,330*	*3,410*	*+509*	*+28.0%*	*+1,589*	*+87.3%*
Daly City	31,090	34,950	40,520	+3,860	+12.4%	+9,430	+30.3%
South San Francisco	20,938	22,840	26,090	+1,902	+9.1%	+5,152	+24.6%
San Francisco	345,811	372,750	415,000	+26,939	+7.8%	+69,189	+20.0%
Total Bay Area[e]	**2,608,023**	**2,911,000**	**3,302,780**	**+302,977**	**+11.6%**	**+694,757**	**+26.6%**

[a] Estimates for cities within their jurisdictional boundaries.
[b] Population is based on the 2010 Census.
[c] Population for 2020 and 2035 is based on ABAG's current projections series, which was published before the 2010 Census was conducted.
[d] Because this column compares ABAG projections with actual 2010 Census data, the change indicated may be more pronounced than was expected when the projections were prepared. In most cases the Census data showed lower population and fewer households in 2010 than ABAG had estimated for that year.
[e] The Bay Area region consists of the counties of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma.
[f] The number of households is equivalent to the number of occupied housing units.

SOURCE: ABAG, 2009; United States Census Bureau, 2011b.

2011b).[10] By 2035, the number of households in the Bay Area is also projected to increase by 27 percent compared to the number identified in the 2010 Census.

Compared to 2010 Census figures for San Mateo County, the county's population is projected to grow by about 24 percent by 2035 and the number of households is projected to increase by about 25 percent during this period. The population of the northern part of the county is projected to grow slightly faster, by about 28 percent by 2035 compared to the 2010 Census, and the number of households is projected to grow by about 26 percent. ABAG projects that the county's average household size will be about 2.73 persons in 2035 (ABAG, 2009).

The population and number of households in San Francisco are expected to increase by about 20 percent compared to 2010 Census levels.

[10] It should be noted that 2010 Census data were not available when ABAG prepared its most recent projections, which were published in 2009. Because the 2010 Census found that the Bay Area's population (as well as the number of households and housing units) in 2010 was lower than ABAG had estimated for 2010, this percentage increase is somewhat higher than when comparing ABAG's estimate for 2010 with its 2035 projections.

Based on ABAG Projections 2009, by 2035 Brisbane's population is expected to increase by about 80 percent relative to its population in the 2010 Census[11] (ABAG, 2009; United States Census Bureau, 2011b). In addition, between 2010 and 2035, Projections 2009 anticipates an increase in the number of households in Brisbane of about 87 percent (1,589 households). By 2035, Brisbane is projected to have more than 3,400 households. ABAG Projections 2009 also indicates that Brisbane's average household size will be about 2.23 persons in 2035. Accommodating this increase in household population, assuming a five-percent overall vacancy rate, would require development of approximately 1,673 new dwelling units in the city.

ABAG projects that the number of jobs in San Mateo County will increase by 17 percent by 2020 (from an estimated 346,320 jobs in 2010 to 404,400 in 2020), and by 46 percent between 2010 and 2035 (ABAG, 2009). ABAG projects that the number of jobs in Brisbane will increase by 41 percent by 2020 (from approximately 8,700 jobs to 12,200) and will more than double (a 114-percent increase) between 2010 and 2035 (to 18,570 jobs in 2035). As these estimates indicate, jobs in Brisbane are projected to grow at a faster rate than population over this 25-year period. **Table 4.K-8** shows ABAG's job projections for Brisbane and other cities in the vicinity and their respective SOIs as well forecasts for the Bay Area region overall.

TABLE 4.K-8
PROJECTIONS 2009 EMPLOYMENT PROJECTIONS FOR BRISBANE, NEARBY CITIES, AND BAY AREA, 2010 - 2035

Geographic Area[a]	Number of Jobs			Change 2010 – 2020	% Change 2010 – 2020	Change C2010 – 2035	% Change 2010 – 2035
	2010	2020	2035				
Brisbane	*8,690*	*12,240*	*18,570*	*+3,550*	*+40.9%*	*+9,880*	*+113.7%*
Daly City	18,800	25,410	32,910	+6,610	+35.2%	+14,110	+75.1%
South San Francisco	43,120	48,340	59,520	+5,220	+12.1%	+16,400	+38.0%
San Francisco	568,730	647,190	806,830	+78,460	+13.8%	+238,100	+41.9%
Total Bay Area[b]	**3,475,840**	**4,040,690**	**5,107,390**	**+564,850**	**+16.3%**	**+1,631,550**	**+46.9%**

Numbers may not add to totals due to rounding.

[a] Estimates for cities include their respective spheres of influence.
[b] The Bay Area region consists of the counties of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma.

SOURCE: ABAG, 2009.

[11] As noted previously, ABAG's most recent projections series (ABAG, 2009) was prepared before the 2010 Census had been conducted. Because the Census indicated that Brisbane's 2010 population was higher than ABAG had estimated for that year, the 2010-2035 growth rate based on the 2010 Census population and ABAG's 2035 forecast (80 percent) is somewhat slower than the growth rate based on ABAG's original population estimate for 2010 (3,900) compared to its 2035 forecast (97 percent).

Plan Bay Area

Since the publication of its most recent *Projections* series in 2009, ABAG's forecasts have changed from a two-year cycle to a four-year cycle that is coordinated with the regional Sustainable Communities Strategy (discussed in Subsection 4.K.3 below). On May 16, 2012, *Projections 2009* was supplanted by the draft *Plan Bay Area*,[12] which sets forth the region's proposed Sustainable Communities Strategy. The region's Sustainable Communities Strategy have not been formally adopted by ABAG or the MTC and are currently undergoing environmental review. The EIR for Plan Bay Area analyzes the proposed land use scenario.

The methodology used for housing and employment projections contained in the draft Plan Bay Area is set forth in detail in Appendix B of the *Plan Bay Area Jobs-Housing Connection Strategy*, which states that the projected distribution of housing "takes into account local input and key sustainability, equity, and economic factors. These factors utilize new data sources that better identify sustainable locations for growth and planned levels of development. The housing distribution is linked to existing and future transit service and expected level of GHG emissions from each area of the region, with the goal of utilizing the existing transit infrastructure efficiently and directing growth to places that can provide the best opportunity for emissions reductions. However, growth in each place is tied directly to housing potential that has been defined by local jurisdictions."

Appendix B of the *Plan Bay Area Jobs-Housing Connection Strategy* further states that projected distribution of future employment "takes into account employment growth by sector and is linked to transit infrastructure and local input. Employment growth is organized under three major groups: knowledge-sector jobs, population-serving jobs, and all other jobs. The knowledge-sector jobs are expected to grow based on current concentration, specialization, and past growth as well as transit service and access. Population-serving jobs, such as retail stores are expected to grow based on residential growth. All other jobs are expected to grow according to the existing distribution of jobs in each of these sectors."

The draft *Plan Bay Area* provides housing and employment projections for the San Francisco Bay Area, as well as counties, cities, and priority development areas (PDAs).[13] In contrast to previous trends where new development primarily occurred on raw rural lands, the draft *Plan Bay Area* directs development to PDAs. According to ABAG, "this allows the region to reduce the emission of GHGs, house our population in a wide range of neighborhoods, preserve our natural resources, and support the creation of and greater access to new employment opportunities" (ABAG and MTC, 2012).

The Project Site is located within the San Francisco/San Mateo Bi-County PDA, which includes the San Francisco neighborhoods of Visitacion Valley, Little Hollywood, Executive Park,

[12] The projections contained in the *Plan Bay Area* were published in April 2013 but have not been adopted by ABAG. They are currently undergoing environmental review.

[13] PDAs are areas where future growth within the Bay Area is intended to be concentrated. Within PDAs, "new development will support the day-to-day needs of residents and workers in a pedestrian-friendly environment served by transit" (ABAG and MTC, 2012).

Sunnydale, the former industrial Schlage Lock site, and the Brisbane Baylands. The draft Plan Bay Area describes its vision for this PDA as follows:

> This plan calls for the development of a mixed-use, transit-oriented development with residential and neighborhood-serving commercial uses, accompanied by open space and pedestrian-oriented street designs. The concept plan also calls for the revitalization of Leland Avenue, which has historically served as the neighborhood commercial street for Visitacion Valley, and the west side of Bayshore Boulevard. Development on currently vacant lands will reinvigorate the neighborhood with over a thousand new housing units, new open spaces and a street network integrated into the fabric of the neighborhood. Nearby, Executive Park will transform into San Francisco's newest residential neighborhood. The plan envisions a mixed-use residential neighborhood with a street and open space system that knits all the various neighborhood components together. Little Hollywood is not expected to undergo significant growth, but its addition makes the PDA a contiguous land area and a coherent set of neighborhoods.

Figure 4.K-1 shows the land use plan for the San Francisco/San Mateo Bi-County PDA.

According to the draft *Plan Bay Area*, the Bay Area is expected to "experience more modest growth than in past decades." Even so, ABAG still projects "healthy economic growth of 1.1 million jobs and 2 million people by 2040 as the Bay Area continues to attract cutting-edge, high technology companies, talent, and investment from around the world." This regional projection "assumes a full-employment economy with unemployment rates returning to normal levels within a successful national economy. The forecast also recognizes the challenges with building new housing in the region that is largely multi-family and in infill locations, and the impact that has on our ability to capture potential job growth. Achieving this growth will require that the region respond to an aging and diversifying population, polarizing wages, high housing and transportation costs, and other issues affecting our quality of life" (ABAG and MTC, 2012).

Table 4.K-9 shows employment and household projections for Brisbane and surrounding communities, including PDAs in the vicinity of the Project Site, from the draft *Plan Bay Area* currently being evaluated. As shown, the draft *Plan Bay Area Jobs* projects household growth in Brisbane (266 households), with no housing within the Baylands. Substantial housing growth is projected to occur to the north in San Francisco within the Bayview/Hunters Point/Candlestick Point PDA and San Francisco/San Mateo Bi-County PDA, as well as to the northwest in Daly City and to the south in South San Francisco. Substantial employment growth is also projected to occur under the draft Plan Bay Area in surrounding communities.

4.K.3 Regulatory Setting

Development within the Project Site must comply with federal, state, regional, and local regulations. This section discusses these requirements to the extent that they affect the way Project development would occur.

Population and housing at the Project Site are subject to a variety of state and local regulations as well as regional planning initiatives, as discussed below.

Figure 4.K-1
San Francisco/San Mateo Bi-County PDA

TABLE 4.K-9
DRAFT PLAN BAY AREA EMPLOYMENT AND HOUSEHOLD PROJECTIONS

City				Priority Development Area[a]			
Existing (2010) Number of Jobs	Projected Increase in Jobs, 2010-2040	Existing (2010) Number of Households	Projected Increase in Households, 2010-2040	Existing (2010) Number of Jobs	Projected Increase in Jobs, 2010-2040	Existing (2010) Number of Households	Projected Increase in Households, 2010-2040
Brisbane				San Francisco/San Mateo Bi-County PDA (San Mateo County portion)			
7,222	1,055	1,821	266	550	550	0	0
San Francisco				Bayview/Hunters Point/Candlestick Point PDA Bi-County PDA			
568,728	191,509	345,813	101,435	19,590	9,670	10,472	11,293
Daly City				San Francisco/San Mateo Bi-County PDA (San Francisco portion)			
21,003	5,903	31,090	5,518	1,720	860	113	6,605
South San Francisco							
46,170	11,230	20,938	6,960				
Area Total				Area PDA Total			
643,123	209,697	399,662	114,179	21,860	11,080	10,585	17,898

[a] The San Francisco/San Mateo Bi-County Area Priority Development Area (PDA) consists of adjacent neighborhoods in San Francisco and Brisbane. Projections have been separated to show the San Francisco County and San Mateo County portions of the PDA. The San Mateo County portion of the PDA consists primarily of the Brisbane Baylands.

SOURCES: ABAG and MTC, 2011; ABAG, BAAQMD, BCDC, and MTC, 2011.

State Regulations

Senate Bill 375

Adopted into law in 2008, Senate Bill (SB) 375[14] links regional transportation and housing planning with state GHG reduction goals. The law requires the California Air Resources Board to establish, for each region of the state, GHG reduction targets for the automobile and light truck sector, and requires the regional transportation plan for each region to include a Sustainable Communities Strategy (SCS) to achieve its GHG reduction target.

The law assigns responsibility for developing the SCS for the Bay Area to the MTC and ABAG. The SCS must identify the general location of uses, residential densities, and building intensities in the region and identify areas within the region that will house all of the region's population,

[14] SB 375 amended California Government Code Sections 65080, 654000, 65583, 65584.01, 65584.02, 65584.04, 65587, and 65588; added Government Code Sections 14522.1, 14522.2, and 65080.01; amended Public Resources Code (PRC) Section 21063; and added PRC Section 21159.28 and Chapter 4.2 (commencing with Section 21155) to Division 13 of the PRC relating to environmental quality.

including all economic segments of the population, taking into account migration into the region and population growth, over the next eight and 25 years. The SCS must forecast a development pattern for the region that, when integrated with the transportation system, achieves the GHG reduction target. The preliminary draft of the SCS for the Bay Area, *Plan Bay Area: Building on a Legacy of Leadership*, is described under *Plan Bay Area* in Subsection 4.K.2 above.

State of California Housing Element Requirements

California Housing Element Law (Government Code Section 65580, et seq.) requires cities and counties to include, as part of their general plans, a housing element to address housing conditions and needs in the community. The housing element law requires the California Department of Housing and Community Development, in consultation with each regional council of governments,[15] to determine each region's existing and projected housing need. The regional council of governments in turn develops a regional housing allocation plan that includes the actual allocation of housing need to the cities and counties within the region. Allocations are based on factors that consider existing employment, employment growth, household growth, and the availability of transit; need is determined for households in all income categories from very-low to above-moderate (ABAG, 2008). The jurisdictions are required to plan for their allocated number of housing units within the housing elements of their general plans. Housing elements are required to be updated every seven to eight years, following timetables adopted by the state. The housing element must identify and analyze existing and projected housing needs and "make adequate provision for the existing and projected needs of all economic segments of the community," among other requirements.

The housing element law also allows for the establishment of a subregion, consisting of at least two cities and a county, for the purpose of allocating the subregion's existing and projected need for housing among its members. The purpose of establishing a subregion is to recognize the community of interest and mutual challenges and opportunities for providing housing within a subregion. For the current (2007-2014) allocation period, San Mateo County, in partnership with all its cities, formed such a subregion for the purpose of allocating the projected housing need in the county, and has formed a subregion for the 2014-2022 allocation process that is currently in progress (ABAG, 2012, p.5). This is discussed in conjunction with Brisbane's regional housing need allocation below.

Local Regulations

City of Brisbane General Plan

In June 1994, the Brisbane City Council adopted the City of Brisbane 1994 General Plan. In January 2011, the City Council adopted the current 2007-2014 Housing Element of the General Plan. A comprehensive General Plan update process, which the City of Brisbane began in 2005, is ongoing. As such, the Brisbane 1994 General Plan continues to represent the City's planning policies, goals, and programs guiding its future land use and development.

[15] ABAG is the council of governments for the Bay Area.

Development standards contained in the General Plan's land use chapter include density and intensity standards for planning subareas within the city, including the Baylands subarea. Density/intensity standards for non-residential development are presented in terms of employees per 1,000 square feet of land.[16] The density/intensity standard for the Baylands subarea is a range of 1.23 to 3.22 employees per 1,000 square feet (City of Brisbane, 1994).

The following discussion reviews General Plan goals, policies, and other provisions that are relevant to population, employment, and housing issues raised by the Project Site development.

Chapter IV: Local Economic Development

The local economic development chapter of the General Plan contains the following relevant policies:

> ***Policy 9:*** Seek fuller employment of Brisbane residents.

Chapter V: Land Use

The land use chapter of the General Plan contains the following relevant policies:

> ***Policy 12:*** Establish a mix of land uses that best serves the needs of the community.
>
> ***Policy 13:*** Integrate physical, social, environmental and financial elements of the community for the benefit of current and future residents.
>
> ***Policy 14:*** Establish a mix of uses with a diversified economic base to maintain and increase tax revenues and contribute to the City's ability to provide services.
>
> ***Policy 20:*** Retain diversity of development and individual expression in residential and commercial development, especially in Central Brisbane.

Chapter XII: Policies and Programs by Subarea

This chapter of the General Plan identifies the Baylands as a subarea and contains the following policies:

> ***Policy 328.2:*** Require a program by the developer encouraging employment of Brisbane residents in the construction phase and in the operation of future businesses.
>
> ***Policy 330.1:*** Prohibit housing on the Baylands.
>
> ***Policy 337:*** Include a phasing schedule for development to limit the adverse impacts of too rapid growth.

2007–2014 Housing Element

The Housing Element of the General Plan (City of Brisbane, 2011) describes the city's existing housing stock and future housing needs, identifies the city's capacity for new housing, and

[16] The General Plan also establishes density standards in terms of floor area ratio, as discussed in Section 4.I, *Land Use and Planning Policy*. The provisions in terms of employee density are more relevant to the analysis in this section.

indicates how the city will meet its regional housing need allocation (RHNA) for the period, based on its land supply and development capacity.

Relevant Goals and Policies. The Housing Element establishes goals for housing production pursuant to state law and includes the following goals and policies relevant to the Project Site development:

> **Goal H.B:** Maintain a diverse population by responding to the housing needs of all individuals and households, especially seniors and those with income constraints or special needs.
>
> > ***Policy H.B.1:*** Require a balance of housing types, sizes (bedrooms), tenure and the inclusion of affordable, senior and special needs dwelling units in multi-family developments.
> >
> > ***Policy H.B.3:*** Encourage development of affordable housing specifically designed for seniors and persons with disabilities or other special needs.
>
> **Goal H.E:** Encourage compact, in-fill, mixed use and transit oriented development to reduce vehicle miles traveled and greenhouse gas emissions.
>
> > ***Policy H.E.1:*** Encourage housing that supports transit oriented development (TOD) and smart growth to minimize automobile trips, and reduce greenhouse gases.
>
> **Goal H.F:** Encourage sustainable residential development to conserve resources and improve energy efficiency to reduce housing costs and reduce greenhouse gas emissions.[17]
>
> **Goal H.G:** Provide housing opportunities for people who work in Brisbane to reduce vehicle miles traveled and green house gas emissions.
>
> > ***Policy H.G.1:*** Require new employers generating 100 or more daily commute trips to offer relocation assistance to employees who agree to relocate to Brisbane.
>
> **Goal H.H:** Ensure that housing development that is not in urbanized areas mitigates the infrastructure cost and impacts of development.
>
> > ***Policy H.H.1:*** Assure that new development absorbs the cost of mitigating the environmental, social and service impacts it brings to the community.
>
> **Goal H.I:** Avoid unreasonable government constraints to the provision of housing.
>
> > ***Policy H.I.1:*** Seek to reduce regulatory constraints on the development of new housing, especially infill housing and housing that adds to the mix of types, size, tenure and affordability.

Brisbane's Regional Housing Need Allocation. The RHNA is a state-mandated process for determining how many housing units, including affordable units, each community must plan to accommodate to provide housing for all economic segments of the community. ABAG is responsible for working with the State of California Department of Housing and Community Development to determine the amount of housing needed within the region. ABAG allocates regional total housing needs among jurisdictions. Allocations are based on factors that consider

[17] The Housing Element's discussion of sustainable development recognizes the importance of locating new development to reduce vehicle miles traveled and the emission of greenhouse gases (City of Brisbane, 2011, p. I-1), which is more explicitly addressed in the next goal.

existing employment, employment growth, household growth, and the availability of transit; need is determined for households in all income categories from very-low to above-moderate (ABAG, 2008).

For the current allocation period (2007-2014), San Mateo County, in partnership with all 20 cities in the county, formed a subregion for the purpose of conducting its own RHNA, as allowed by state law (ABAG, 2008). The San Mateo Subregion completed its RHNA process parallel to, but separate from, the Bay Area's RHNA process and issued the allocations to members of the subregion (ABAG, 2008). San Mateo County and all its cities have also formed a subregion for the 2014-2022 RHNA cycle that is currently in progress. ABAG expects allocations for the 2014-2022 Housing Element (fifth cycle) to be finalized and adopted by June or July 2013. Because state Housing Element requirements have be modified to provide for coordination of regional housing needs determinations with applicable sustainable communities strategies, RHNA objectives for the fifth cycle should be consistent with the projections contained in the draft *Plan Bay Area*, which projects only modest population growth in Brisbane (266 households), with no housing occurring within the Baylands.

In the previous RHNA allocation cycle (for the years 1999 to 2006), although Brisbane's 1999–2006 Housing Element identified capacity to accommodate its share of the regional housing allocation for that period (a mix of 406 units), actual construction that occurred during this period fell well short of the goals; a total of only 104 new units were constructed, half of which were market-rate units, according to the review of the 1999-2006 period presented in Brisbane's current (2007–2014) Housing Element.

Table 4.K-10 shows 2007-2014 RHNA allocations for Brisbane and the San Mateo Subregion and ABAG's preliminary allocations for the 2014-2022 RHNA. The City's 2007-2014 Housing Element provides an inventory of potential housing sites and identifies a number of amendments to the City's Zoning Ordinance needed to accommodate the RHNA share of very low- and low-income households. Proposed changes include:

- Rezoning of the southern portion of the SCRO-1 Southwest Bayshore Commercial District to R-SWB Southwest Bayshore Residential District
- Rezoning of the central portion of the SCRO-1 Southwest Bayshore Commercial District to R-MHP Residential-Mobilehome Park District
- Rezoning of the eastern portion of the TC-1 Crocker Park Trade Commercial District (125 Valley Drive, 25 Park Place and 41-43 Park Place) to NCRO-3 District

Assuming the zoning changes set forth in the programs of the City's adopted Housing Element are implemented, the City determined that it had capacity for 449 new housing units to meet its identified allocation of 401 new units through 2014. As noted in the discussion of housing element requirements above, jurisdictions update their housing elements periodically to plan for their allocated number of housing units. Brisbane will be required to update its housing element for the 2014-2022 period (fifth cycle) by October 2014 to address the new regional housing need allocation.

TABLE 4.K-10
REGIONAL HOUSING NEED ALLOCATION FOR BRISBANE AND SAN MATEO COUNTY, 2007-2014 AND 2014-2022[a]

Jurisdiction	Income Category				
	Very Low	Low	Moderate	Above Moderate	Total
Regional Housing Need Allocation (2007-2014) (number of housing units)					
San Mateo Subregion[a]	3,588	2,581	3,038	6,531	15,738
Brisbane	91	66	77	167	401
Draft Regional Housing Need Allocation (2014-2022)[b] (number of housing units)					
San Mateo Subregion[a]	4,595	2,507	2,830	6,486	16,418
Brisbane	25	13	15	30	83

[a] For purposes of the RHNA cycle, San Mateo County is the San Mateo Subregion of the nine-county region for which ABAG is the council of governments. The county and its cities formed the subregion for the purpose of preparing the RHNA within the county.

[b] The allocations shown for the 2014-2022 are ABAG's draft allocations that have been provided to planning managers of Bay Area cities and counties. ABAG expects any revisions to the draft allocations to be minor. San Mateo County and its cities, as the San Mateo Subregion for the RHNA process, will determine the ultimate allocations within the county.

SOURCE: ABAG, 2008; ABAG, 2012.

Brisbane Municipal Code Title 17, Chapter 17.31: Inclusionary Housing and Density Bonuses

Chapter 17.31 of Brisbane's Zoning Ordinance (Municipal Code Title 17) requires residential development projects with six or more units to include units that are affordable to lower-income households. The ordinance applies to ownership and rental units and provides a table showing the number of required for-sale units affordable to moderate- and low-income households and the number of required rental units affordable to low- and very-low-income households, based on the total number of units of the Project Site development. The ordinance provides for density bonuses for residential development projects that set aside specified percentages of affordable housing units.

Table 4.K-11 shows the inclusionary housing requirements for residential development projects of up to 200 units. For projects with 200 or more units, the pattern set in the table for smaller projects is continued. The table pattern indicates that, for example, a for-sale project with 200 units would need to provide 10 units affordable to low-income households and 20 units affordable to moderate-income households. For for-sale projects with more than 200 units, the required number of units affordable to low-income households is increased by one for each additional 20 units and the required number of units affordable to moderate-income households is increased by one for each additional 10 units. A rental project with 200 units would need to provide 10 units affordable to very-low-income households and 20 units affordable to low-income households. For rental projects with more than 200 units, the required number of units affordable to very-low income households is increased by one for each additional 20 units and the required number of units affordable to low-income households is increased by one for each additional 10 units.

TABLE 4.K-11
BRISBANE MUNICIPAL CODE INCLUSIONARY HOUSING REQUIREMENTS FOR RESIDENTIAL PROJECTS

Total Number of Units in Project	For-Sale Project		Rental Project	
	Number of Units Required to be Affordable to Low-Income Households	Number of Units Required to be Affordable to Moderate-Income Households	Number of Units Required to be Affordable to Very-Low-Income Households	Number of Units Required to be Affordable to Low-Income Households
0-5	0	0	0	0
6-10	0	1	0	1
11-15	1	1	1	1
16-20	1	2	1	2
21-25	1	3	1	3
26-30	2	3	2	3
31-40	2	4	2	4
41-50	2	5	2	5
51-60	3	6	3	6
61-70	3	7	3	7
71-80	4	8	4	8
81-90	4	9	4	9
91-100	5	10	5	10
101-110	5	11	5	11
111-120	6	12	6	12
121-130	6	13	6	13
131-140	7	14	7	14
141-150	7	15	7	15
151-160	8	16	8	16
161-170	8	17	8	17
171-180	9	18	9	18
181-190	9	19	9	19
191-200	10	20	10	20

NOTE: The inclusionary housing requirements specify that for projects of more than 200 units, the pattern set in the above table are continued, with the numbers in the second and fourth columns being increased by one for each 20 additional units, and the numbers in the third and fifth columns being increased by one for each 10 additional units.

SOURCE: City of Brisbane Municipal Code.

4.K.4 Impacts and Mitigation Measures

Significance Criteria

Appendix G of the CEQA Guidelines indicates that a project would have a significant environmental effect related to population and housing if it were to:

- Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure);
- Displace substantial numbers of existing housing units or people, necessitating the construction of replacement housing elsewhere; or
- Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere.

Currently, there is no housing within the Project Site, and existing industrial development is minimal; therefore, development of the Project Site would not displace housing units or people resulting in a need for the construction of replacement housing elsewhere. Therefore, no impacts would result in relation to the last two thresholds, and only the first threshold will be evaluated further.

Impact Assessment Methodology

Analysis of the extent to which development of the Project Site might induce substantial population growth in the area is based first on an evaluation of the number of new households and employment that would result from proposed development, along with a comparison of that growth with area household and employment projections. For the purposes of this assessment, the projections of population, housing, and employment contained in ABAG Projections 2009, as well as projections prepared as part of the draft Plan Bay Area, were used to assess the significance of population and housing impacts. The population and housing impact analysis assesses the impact of employee and residential population associated with the four proposed development scenarios in the context of expected population, household, and employment growth within Brisbane and surrounding communities (Daly City, San Francisco, and South San Francisco), as well as draft Plan Bay Area projections for the San Francisco/San Mateo Bi-County and Bayview/Hunters Point/Candlestick Point Priority Development Areas. This regional approach recognizes the fundamental role of inter-city commuting in the Bay Area and acknowledges that Brisbane and its neighboring cities have differing jobs/housing balances, with workers in more residential (bedroom) communities typically commuting to jobs-rich communities such as Brisbane for work. At the same time, in selecting the area for analysis of household and employment impacts, it is recognized that long commutes exist within the Bay Area today and that long commutes will not be eliminated, despite the goal of regional planning agencies and many Bay Area communities to achieve as localized a balanced mix of jobs and housing as possible to maximize employment and housing opportunities in close proximity and avoid to the extent feasible the necessity of long commutes between home and work. The impacts of the proposed Project in relation to household and employment growth are manifested in the vehicle miles traveled that would result from development of the Project Site, and are thus analyzed in this EIR as part of evaluations of air quality (Section 4.B), GHG emissions (Section 4.F), and traffic (Section 4.N) in this EIR.

As described in Chapter 3, *Project Description*, full buildout of the Project Site is expected to occur over approximately 20 years. Therefore, the assessment of Project Site development's growth inducement compares the growth that would occur under the Project Site development with ABAG's projections for Brisbane and surrounding communities in 2035, the farthest future year for which ABAG's current *Projections* series (ABAG, 2009) provides forecasts, and in 2040, the horizon year for draft Plan Bay Area forecasts.

The analysis assumes that the new employees at businesses locating within the Project Site do not already live in the Project Site vicinity. Although some employees may be drawn from the local labor force, for the purpose of this analysis it would be speculative to estimate the degree to which there may be a match between jobs within the Project Site and available (e.g., unemployed or

underemployed) local workers with compatible skills.[18] It is reasonable to expect, however, that for the DSP and DSP-V scenarios, some workers within the Project Site would also live within the Project Site. This overlap between Project Site workers and residents is reflected in the traffic analysis prepared for this EIR (Section 4.N) as part of internal capture, including home to work trips that are wholly contained within the Project Site, and is also reflected in the average commute length used for air quality (Section 4.B) and GHG emissions (Section 4.F) analysis.

The number of households associated with the new employees was estimated based on the fact that, on average, there is more than one worker (employed resident) per household. MTC data indicate that there are about 1.85 workers per working household[19] in San Mateo County in 2010 (MTC, 1998). This factor was used to calculate the number of households associated with the new employees under each development scenario.

Project Impacts and Mitigation Measures

Impact 4.K-1: Would the Project induce substantial population growth in the area either directly or indirectly?

Impact Significance by Scenario (Before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
SU	SU	SU	SU

SU = Significant Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = no impact

Project Site development would create 15,500 to 17,500 new jobs, as shown in **Table 4.K-12,** and roughly 8,400 to 9,500 households would be associated with the new employees at the Project Site, as shown in **Table 4.K-13**, based on the average number of workers per working household (1.85) in San Mateo County (MTC, 1998). The DSP and DSP-V scenarios would add 4,434 new housing units. The extent to which the housing and employment-generating uses proposed for development within the Project Site under each scenario would create induce substantial population growth is discussed below.

DSP Scenario

Jobs

The DSP scenario would generate about 17,540 new jobs (see **Table 4.K-14**). This number of new jobs is nearly double that projected by ABAG to be created within Brisbane (9,880) through 2035 as indicated in ABAG's Projections 2009 (shown in Table 4.K-8 above). In addition, the DSP scenario would generate more new jobs than projected for Brisbane through 2040 than the draft Plan Bay Area projects (1,055 new jobs), and more new jobs than projected for the San Francisco/San Mateo Bi-County and Bayview/Hunters Point/Candlestick Point PDAs combined (10,220 new jobs). Overall, the 17,540 new jobs that would result from the DSP scenario represent 8.4 percent of the total new employment projected through 2040 in the draft Plan Bay Area for the area comprising the cities of San Francisco, Daly City, Brisbane, and South San Francisco.

[18] Despite the substantial number of jobs located in Brisbane, for example, the city currently has a relatively high rate of unemployment, indicating a mismatch between available jobs and available workers. It would be speculative to assume that there would be a better match between future jobs generated by the Project Site development and workers living nearby.

[19] A working household has at least one household member in the work force; this excludes non-working households (i.e., those in which household members are retired or otherwise not working) from the calculation of the number of employees per household.

TABLE 4.K-12
ESTIMATED PROJECT POPULATION AND NUMBER OF JOBS: DSP, DSP-V, CPP, AND CPP-V SCENARIOS

Proposed Use	Density Factor	DSP		DSP-V		CPP		CPP-V	
Residential	***Residents/ Unit***[a]	***Units***	***Estimated Population***	***Units***	***Estimated Population***	***Units***	***Estimated Population***	***Units***	***Estimated Population***
Residential Flats	2.23	3,950	8,809	3,950	8,809	NA	NA	NA	NA
Residential Townhomes	2.23	484	1,079	484	1,079	NA	NA	NA	NA
Total Residential		**4,434**	**9,888**	**4,434**	**9,888**	NA	NA	NA	NA
Non-Residential	***Square Feet/Job***	***Area***[b]	***Estimated Jobs***	***Area***[b]	***Estimated Jobs***	***Area***[b]	***Estimated Jobs***	***Area***[b]	***Estimated Jobs***
Hotels and Conference									
Hotels and Conference	1,152	261,100	227	586,800	509	1,392,300	1,209	1,046,100	908
Retail and Mixed Use									
Retail	580[c]	566,300	976	283,400	489				
Commercial/Office/R&D	447					2,209,500	4,943	2,209,500	4,943
Research & Development Single Use									
Research & Development	450	3,328,300	7,396	2,599,200	5,776	2,007,000	4,460	1,672,200	3,716
Office and Institutional									
Office	310	2,651,200	8,552	2,252,300	7,265	-		-	
Institutional	357	110,800	310	110,800	310	-		-	
Office/Institutional Mixed	333.5	-		-		992,700	2,977	992,700	2,977
Entertainment/Civic/Cultural									
Arena	1,000	-	-	630,100	630				
Theater/ Exhibition/ Performance Venue	1,000	-	-	337,200	337	274,500	275	274,500	275

TABLE 4.K-12 (Continued)
ESTIMATED PROJECT POPULATION AND NUMBER OF JOBS: DSP, DSP-V, CPP, AND CPP-V SCENARIOS

Proposed Use	Density Factor	DSP		DSP-V		CPP		CPP-V	
Non-Residential	***Square Feet/Job***	***Area***[b]	***Estimated Jobs***	***Area***[b]	***Estimated Jobs***	***Area***[b]	***Estimated Jobs***	***Area***[b]	***Estimated Jobs***
Multiplex	1,000	-	-	71,000	71	-	-	-	-
Cultural/Entertainment	357					611,300	1,712	611,300	1,712
Civic/Cultural	357	28,200	79	28,200	79	188,700	529	188,700	529
Industrial									
Existing Relocated Industrial[d]	-	142,500[d]	-	142,500[d]	-	142,500[d]	-	142,500[d]	-
New Industrial	810					66,600	82	66,600	82
Existing Resource Recovery[e]	-					260,000[d]	-	260,000[e]	-
Expanded/Rebuilt Resource Recovery	810							751,000[f]	927[f]
Total Non-Residential (New)	-	6,945,900	17,540	6,899,000	15,466	7,742,600	16,187	7,812,600	16,069

NA = not applicable.

[a] Household size is based on ABAG projections that Brisbane's average household size will be about 2.23 persons in 2035 (ABAG, 2009).
[b] Areas shown in gross square feet.
[c] Retail density factor assumes an even split between regional retail (big box) development (with a density factor of 810 square feet per employee) and neighborhood retail development (with a density factor of 350 square feet per employee).
[d] Because this area (142,500 square feet) represents existing relocated lumberyards it would not generate new jobs.
[e] Because this area (260,000 square feet) represents existing Recology use it would not generate new jobs.
[f] Job estimate is for the net new square footage of 751,000 (i.e., 1,011,000 square feet minus the 260,000 square feet of existing Recology use).

SOURCES: The Natelson Company, Inc., 2002; ESA, 2012

TABLE 4.K-13
HOUSEHOLDS ASSOCIATED WITH PROJECT EMPLOYMENT

	Project Scenario			
	DSP	**DSP-V**	**CPP**	**CPP-V**
Developed Non-Residential Area (not including open space or existing developed area) (square feet)	6,945,900[a]	6,899,000[a]	7,742,600[b]	7,812,600[b]
Estimated Number of Project Employees (employees)	17,540	15,466	16,187	16,069
Households Associated with Project Employment[c] (households)	9,486	8,365	8,755	8,691
Housing Units Provided by Project	4,434	4,434	0	0

[a] Excludes area for relocation of existing lumberyard site (refer to Table 4.K-12).
[b] Excludes area for relocation of existing lumberyard site and area of existing Recology site (refer to Table 4.K-12).
[c] Number of households (housing need) associated with new Project Site employees reflects the fact that on average there is more than one employed resident per household; calculated based on the MTC projection of workers per working household in San Mateo County in 2010 (1.849 workers per working household) (MTC, 1998).

SOURCE: City of Brisbane, 1994; MTC, 1998; ESA, 2012.

TABLE 4.K-14
DSP POPULATION, HOUSING, AND JOBS

	Population Increase	**Housing Unit/ Household Increase**	**Job Increase**
DSP - Proposed Housing Units		4,434	
DSP – Households[b]		4,217	
DSP – New Residents at Proposed Housing Units	9,888		
DSP - Estimated Number of Project Employees			17,540
DSP - Housing Demand Associated with Project Employment		9,486	

[a] Based on information presented in Tables 4.K-12 and 4.K-13.
[b] Assumes the current county vacancy rate of 4.9 percent (State of California Department of Finance, 2011).

Because the 17,540 new jobs within the Baylands would exceed job growth projections for Brisbane and the San Francisco/San Mateo Bi-County and Bayview/Hunters Point/Candlestick Point PDAs, employment growth resulting from the DSP scenario would be consistent with ABAG forecasts of job growth only if it would draw jobs now projected by ABAG to be created within San Francisco, Daly City, South San Francisco, or elsewhere in the Bay Area to the Project Site. Otherwise, development of the DSP scenario would add new jobs to Brisbane and the San Francisco/San Mateo Bi-County PDA beyond that projected by ABAG in Projections 2009 and the draft Plan Bay Area.

Residential Households

The DSP scenario proposes construction of 4,434 housing units. ABAG does not provide forecasts of new housing units but does provide forecasts of households (occupied housing units). Assuming the current total vacancy rate in San Mateo County (4.9 percent), the DSP scenario would result in 4,217 households residing within the Project Site. This is substantially more than the household increase described in ABAG's Projections 2009 for Brisbane between 2010 and 2035. It is also more than projected for the City of Brisbane between 2010 and 2040 in the draft Plan Bay Area (266 households). The number of households that would result from the DSP scenario represents 23.6 percent of the total household growth projected in the draft Plan Bay Area through 2040 for the area encompassing both the San Francisco/San Mateo Bi-County and Bayview/Hunters Point/Candlestick Point PDAs. It also represents 3.7 percent of the total household growth projected in the draft Plan Bay Area scenarios through 2040 for the area comprising the cities of San Francisco, Daly City, Brisbane, and South San Francisco.

Because the household growth that would result from development of the DSP scenario exceeds projections for Brisbane as a whole, the new housing proposed as part of the DSP scenario would be consistent with the forecasted increase in households only if household growth now projected for the Bayview/Hunters Point/Candlestick Point PDA was spread over both that PDA and the PDA encompassing the Baylands or residential development was drawn from housing now projected to be constructed in other portions of San Francisco, or in Daly City, South San Francisco, or elsewhere in the Bay Area, to the Baylands. Otherwise, development of the DSP scenario would add new households to Brisbane and the San Francisco/San Mateo Bi-County PDA beyond that projected by ABAG in Projections 2009 and the draft Plan Bay Area.

Employee Housing Demand

Based on the estimated 17,540 new employees and an average of 1.85 workers per working household in San Mateo County (MTC, 1998), there would be about 9,486 households associated with the new employment under the DSP scenario (see Table 4.K-13). Assuming the employees are from other areas, this represents new housing demand as a result of Project Site development of employment-generating uses. While this represents a substantial portion of the household growth projected for Brisbane and adjacent communities, housing demand related to employment growth resulting from the DSP scenario would be partially offset by housing proposed within the Baylands. Overall, the number of new households associated with Project employment under the DSP scenario represents about 8.4 to 10.6 percent of the new households that ABAG projects in the draft Plan Bay Area will be added in the cities of San Francisco, Daly City, Brisbane, and South San Francisco between 2010 and 2040. As noted above, employment that would be generated by the DSP scenario would exceed ABAG projections contained in Projections 2009 and the draft Plan Bay Area. As a result, the housing demand generated by new jobs under the DSP would also exceed those projections. This housing demand would be partially offset by housing proposed under the DSP scenario in excess of area household projections, although the extent of such an offset is speculative. The degree to which the proposed residential units would meet the housing needs of Baylands employees depends on a variety of factors including types of employment and price of housing, for which little information can be available at this point in the planning process. However, the City's inclusionary housing ordinance would ensure that dwelling

units developed pursuant to the DSP scenario would be affordable to residents at different income levels, thereby increasing the opportunity for onsite workers to also live onsite.

Indirect Impacts

Water, sewer, and drainage infrastructure proposed for the DSP scenario would be sized to serve only Project Site development. In addition, major transportation improvements that are part of bi-county transportation planning efforts, such as the Geneva Avenue extension and freeway interchange improvements, are being sized in accordance with regional growth projections. Thus, development of the DSP scenario would not indirectly induce substantial population increases.

Conclusion: The growth in employment and households resulting from the DSP scenario would accommodate a substantial portion of the housing and employment needs projected by ABAG for Brisbane and surrounding cities but would greatly exceed ABAG projections for Brisbane. The impact of exceeding housing and employment projections is manifested in the DSP's significant unavoidable traffic and air quality impacts. Because the DSP scenario proposes a mix of housing and employment-generating uses within the Project Site, per capita vehicle miles traveled resulting from the mix of onsite housing and employment would be less than for the CPP and CPP-V scenarios, leading to significant but mitigable GHG impacts for the DSP scenario (compared to significant unavoidable GHG impacts for the CPP and CPP-V scenarios). Because no feasible mitigation measures to bring project buildout into line with ABAG projections for Brisbane are available other than increasing ABAG projections for the San Francisco/San Mateo Bi-County PDA within Brisbane[20] or substantially reducing the buildout represented in project alternatives,[21] the DSP scenario would induce substantial population growth in the area, which is considered to be significant unavoidable.

DSP-V Scenario

Jobs

The DSP-V would generate about 15,466 new jobs (see **Table 4.K-15**). This number of new jobs is substantially more than the number of jobs projected by ABAG to be created within Brisbane (9,880) through 2035 as indicated in ABAG's Projections 2009 (shown in Table 4.K-8 above). In addition, the DSP-V scenario would generate more new jobs than projected for Brisbane through 2040 than would draft Plan Bay Area projections (1,05 new jobs), and more new jobs than projected for the San Francisco/San Mateo Bi-County and Bayview/Hunters Point/Candlestick Point PDAs combined (10,220 new jobs). Overall, the 15,466 new jobs that would result from the DSP-V scenario represent 7.4 percent of the total new employment projected through 2040 in the draft Plan Bay Area for the area comprising the cities of San Francisco, Daly City, Brisbane, and South San Francisco.

[20] Because the Plan Bay Area projections have not yet been formally adopted and the preferred SCS scenario avoided committing to a specific level of development for the Project Site, it is understood that there is a degree of fluidity to the projections.

[21] See Chapter 5, *Alternatives*; see also Sections 4.N, *Traffic and Circulation*, and 4.B, *Air Quality*, for discussion of feasible mitigation measures to reduce traffic and air quality impacts.

TABLE 4.K-15
DSP-V POPULATION, HOUSING, AND JOBS

	Population Increase	Housing Unit/ Household Increase	Job Increase
DSP-V - Proposed Housing Units		4,434	
DSP-V – Households[b]		4,217	
DSP-V – New Residents at Proposed Housing Units	9,888		
DSP-V - Estimated Number of Project Employees			15,466
DSP-V- Households Associated with Project Employment		8,365	

[a] Based on information presented in Tables 4.K-12 and 4.K-13.
[b] Assumes the current county vacancy rate of 4.9 percent (State of California Department of Finance, 2011).

Because the 15,466 new jobs within the Baylands would exceed job growth projections for Brisbane and the San Francisco/San Mateo Bi-County and Bayview/Hunters Point/Candlestick Point PDAs, employment growth resulting from the DSP-V scenario would be consistent with ABAG forecasts of job growth only if it would draw jobs now projected by ABAG to be created within San Francisco, Daly City, South San Francisco, or elsewhere in the Bay Area to the Project Site. Otherwise, development of the DSP-V scenario would add new jobs to Brisbane and the San Francisco/San Mateo Bi-County PDA beyond that projected by ABAG in Projections 2009 or the draft Plan Bay Area.

Residential Households

Like the DSP, the DSP-V scenario proposes construction of 4,434 housing units. ABAG does not provide forecasts of new housing units but does provide forecasts of households (occupied housing units). Assuming the current total vacancy rate in San Mateo County (4.9 percent), the DSP-V scenario would result in 4,217 households residing within the Project Site. This is substantially more than the household increase described in ABAG's Projections 2009 for Brisbane between 2010 and 2035. It is also more than projected for Brisbane between 2010 and 2040 in the draft Plan Bay Area (266 households). The number of households that would result from the DSP-V scenario represents 23.6 percent of the total household growth protected in the draft Plan Bay Area scenarios through 2040 for the area encompassing both the San Francisco/San Mateo Bi-County and Bayview/Hunters Point/Candlestick Point PDAs. It also represents two percent of the total household growth projected in the draft Plan Bay Area through 2040 for the area comprising the cities of San Francisco, Daly City, Brisbane, and South San Francisco.

Because the household growth that would result from development of the DSP-V scenario exceeds projections for Brisbane as a whole, the new housing proposed as part of the DSP-V scenario would be consistent with the forecasted increase in households only if household growth now projected for the Hunters Point/Candlestick Point PDA was spread over both that PDA and

the PDA encompassing the Project Site or residential development was drawn from housing now projected to be constructed in other portions of San Francisco, or in Daly City, South San Francisco, or elsewhere in the Bay Area, to the Project Site. Otherwise, development of the DSP-V scenario would add new households to Brisbane and the San Francisco/San Mateo Bi-County PDA beyond that projected by ABAG in Projections 2009 and the draft Plan Bay Area.

Employee Housing Demand

Based on the estimated 15,466 new employees and an average of 1.85 workers per working household in San Mateo County (MTC, 1998), there would be about 8,365 households associated with the new employment under the DSP-V scenario (see Table 4.K-13). Assuming the employees are from other areas, this represents new housing demand as a result of the Project Site development of employment-generating uses. While this represents a substantial portion of the household growth projected for Brisbane and adjacent communities, housing demand related to employment growth resulting from the DSP-V scenario would be partially offset by housing proposed within the Project Site. Overall, the number of new households associated with Project employment under the DSP-V scenario represents about 7.4 percent of the new households that ABAG projects in the draft Plan Bay Area will be added in the cities of San Francisco, Daly City, Brisbane, and South San Francisco between 2010 and 2040. As noted above, employment that would be generated by the DSP-V scenario would exceed ABAG projections contained in Projections 2009 and the draft Plan Bay Area. As a result, the housing demand generated by new jobs under the DSP-V scenario would also exceed those projections. This housing demand would be partially offset by housing proposed under the DSP-V scenario in excess of area household projections, although the extent of such an offset is speculative. The degree to which the proposed residential units would meet the housing needs of Baylands employees depends on a variety of factors including types of employment and price of housing, for which little information can be available at this point in the planning process. However, the City's inclusionary housing ordinance would ensure that dwelling units developed pursuant to the DSP-V scenario would be affordable to residents at different income levels, thereby increasing the opportunity for onsite workers to also live onsite.

Indirect Impacts

Water, sewer, and drainage infrastructure proposed for the DSP-V scenario would be sized to serve only Project Site development. In addition, major transportation improvements that are part of bi-county transportation planning efforts, such as the Geneva Avenue extension and freeway interchange improvements, are being sized in accordance with regional growth projections. Thus, development of the DSP-V scenario would not indirectly induce substantial population increases.

Conclusion: The growth in employment and households resulting from the DSP-V scenario would accommodate a substantial portion of the housing and employment needs projected by ABAG for Brisbane and surrounding cities but would exceed ABAG projections for Brisbane. The impact of exceeding housing and employment projections is manifested in the DSP-V's significant unavoidable traffic and air quality impacts. Because the DSP-V scenario proposes a mix of housing and employment-generating uses within the Project Site, per capita vehicle miles traveled resulting from the mix of onsite housing and employment would be less than for the CPP and CPP-V scenarios, leading to significant but mitigable GHG impacts for the DSP-V scenario

(compared to significant unavoidable GHG impacts for the CPP and CPP-V scenarios). Because no feasible mitigation measures to bring project buildout into line with ABAG projections for Brisbane are available other than increasing ABAG projections for the San Francisco/San Mateo Bi-County PDA within Brisbane[22] or substantially reducing the buildout represented in project alternatives,[23] the DSP-V scenario would induce substantial population growth in the area, which is considered to be significant unavoidable.

CPP Scenario

Jobs

The CPP would generate about 16,187 new jobs (see **Table 4.K-16**). This number of new jobs is substantially more than the number of jobs projected by ABAG to be created within Brisbane (9,880) through 2035 as indicated in ABAG's Projections 2009 (shown in Table 4.K-8 above). In addition, the CPP scenario would generate more new jobs than projected for Brisbane through 2040 than would draft Plan Bay Area projections (1,055 new jobs), and more new jobs than projected for the San Francisco/San Mateo Bi-County and Bayview/Hunters Point/Candlestick Point PDAs combined (10,220 new jobs). Overall, the 16,187 new jobs that would result from the CPP scenario represent 7.7 percent of the total new employment projected through 2040 in the draft Plan Bay Area for the area comprising the cities of San Francisco, Daly City, Brisbane, and South San Francisco.

TABLE 4.K-16
CPP POPULATION, HOUSING, AND JOBS

	Population Increase	Housing Unit/ Household Increase	Job Increase
CPP - Estimated Number of Project Employees			16,187
CPP - Housing Demand Associated with Project Employment		8,755	

Based on information presented in Tables 4.K-12 and 4.K-13.

Because the 16,187 new jobs within the Baylands would exceed job growth projections for Brisbane and the San Francisco/San Mateo Bi-County and Bayview/Hunters Point/Candlestick Point PDAs, employment growth resulting from the CPP scenario would be consistent with ABAG forecasts of job growth only if it would draw jobs now projected by ABAG to be created within San Francisco, Daly City, South San Francisco, or elsewhere in the Bay Area to the Project Site. Otherwise, development of the CPP scenario would add new jobs to Brisbane and

22 Because the Plan Bay Area projections have not yet been formally adopted and the preferred SCS scenario avoided committing to a specific level of development for the Project Site, it is understood that there is a degree of fluidity to the projections.

23 See Chapter 5, *Alternatives*; see also Sections 4.N, *Traffic and Circulation*, and 4.B, *Air Quality*, for discussion of feasible mitigation measures to reduce traffic and air quality impacts.

the San Francisco/San Mateo Bi-County PDA beyond that projected by ABAG in Projections 2009 or the draft Plan Bay Area.

Housing and Resident Population

The CPP does not propose any housing and would not generate a resident population. Therefore, no impact related to the generation of a resident population would occur.

Employee Housing Demand

Based on an average of 1.85 workers per working household in San Mateo County (MTC, 1998), the approximately 16,187 new employees under the CPP would generate demand for about 8,755 households (see Table 4.K-13). Assuming the employees are from other areas, this represents new housing demand as a result of the Project Site development of employment-generating uses. Overall, the number of new households associated with Project employment under the CPP scenario represents about 7.7 percent of new households that ABAG projects will be added in the cities of San Francisco, Daly City, Brisbane, and South San Francisco between 2010 and 2040. As noted above, employment that would be generated by the CPP scenario would exceed ABAG projections contained in Projections 2009 and the draft Plan Bay Area. As a result, the housing demand generated by new jobs under the CPP scenario would also exceed those projections.

Indirect Impacts

Water, sewer, and drainage infrastructure proposed for the CPP scenario would be sized to serve only Project Site development. In addition, major transportation improvements that are part of bi-county transportation planning efforts, such as the Geneva Avenue extension and freeway interchange improvements, are being sized in accordance with regional growth projections. Thus, development of the CPP scenario would not indirectly induce substantial population increases.

Conclusion: The growth in employment resulting from the CPP scenario would accommodate a substantial portion of the employment needs projected by ABAG for Brisbane and surrounding cities but would greatly exceed ABAG projections for Brisbane. The impact of exceeding employment projections is manifested in the CPP's significant unavoidable traffic and air quality impacts. Because the CPP scenario proposes only employment-generating uses within the Project Site, resulting per capita vehicle miles traveled would be greater than for the DSP and DSP-V scenarios, leading to significant unavoidable GHG impacts under both the CPP and CPP-V scenarios. Because no feasible mitigation measures to bring project buildout into line with ABAG projections for Brisbane are available other than increasing ABAG projections for the San Francisco/San Mateo Bi-County PDA within Brisbane[24] or substantially reducing the buildout represented in project alternatives,[25] employment generation under the CPP scenario would induce substantial population growth in the area, which is considered to be significant unavoidable.

[24] Because the Plan Bay Area projections have not yet been formally adopted and the preferred SCS scenario avoided committing to a specific level of development for the Project Site, it is understood that there is a degree of fluidity to the projections.

[25] See Chapter 5, *Alternatives*; see also Sections 4.N, *Traffic and Circulation*, and 4.B, *Air Quality*, for discussion of feasible mitigation measures to reduce traffic and air quality impacts.

CPP-V Scenario

Jobs

As shown on **Table 4.K-17**, the CPP-V scenario would generate about 16,069 new jobs, a number similar to (though slightly less than) the CPP, substantially more than the number of jobs projected by ABAG to be created within Brisbane (9,880) through 2035 as indicated in ABAG's Projections 2009 (shown in Table 4.K-8 above). In addition, the CPP-V scenario would generate more new jobs than projected for Brisbane through 2040 than projected in the draft Plan Bay Area (1,055 new jobs), and more new jobs than projected for the San Francisco/San Mateo Bi-County and Bayview/Hunters Point/Candlestick Point PDAs combined (10,220 new jobs). Overall, the 16,069 new jobs that would result from the CPP-V scenario represent 7.7 percent of the total new employment projected through 2040 in the draft Plan Bay Area for the area comprising the cities of San Francisco, Daly City, Brisbane, and South San Francisco.

TABLE 4.K-17
CPP-V POPULATION, HOUSING, AND JOBS

	Population Increase	Housing Unit/ Household Increase	Job Increase
CPP-V - Estimated Number of Project Employees			16,069
CPP-V - Households Associated with Project Employment		8,691	

Based on information presented in Tables 4.K-12 and 4.K-13.

Housing and Resident Population

The CPP-V does not propose any housing and would not generate a resident population. Therefore, no impact related to the generation of a resident population would occur.

Employee Housing Demand

Based on an average of 1.85 workers per working household in San Mateo County (MTC, 1998), the approximately 16,069 new employees under the CPP-V scenario would generate demand for about 8,691 households (see Table 4.K-13). Assuming the employees are moving from other areas, this represents new housing demand as a result of the Project Site development of employment-generating uses. As under the CPP scenario, the number of new households represents about 7.6 percent of new households that ABAG projects will be added in the cities of San Francisco, Daly City, Brisbane, and South San Francisco between 2010 and 2040. As noted above, employment that would be generated by the CPP-V scenario would exceed ABAG projections contained in Projections 2009 and the draft Plan Bay Area. As a result, the housing demand generated by new jobs under the CPP-V scenario would also exceed those projections.

Indirect Impacts

Water, sewer, and drainage infrastructure proposed for the CPP-V scenario would be sized to serve only Project Site development. In addition, major transportation improvements that are part of bi-county transportation planning efforts, such as the Geneva Avenue extension and freeway interchange improvements, are being sized in accordance with regional growth projections. Thus, development of the CPP scenario would not indirectly induce substantial population increases.

Conclusion: The growth in employment resulting from the CPP-V scenario would accommodate a substantial portion of the employment needs projected by ABAG for Brisbane and surrounding cities but would greatly exceed ABAG projections for Brisbane. The impact of exceeding employment projections is manifested in the CPP-V's significant unavoidable traffic and air quality impacts. Because the CPP-V scenario proposes only employment-generating uses within the Project Site, resulting per capita vehicle miles traveled would be greater than for the DSP and DSP-V scenarios, leading to significant unavoidable GHG impacts under both the CPP and CPP-V scenarios. Because no feasible mitigation measures are available to bring project buildout into line with ABAG projections for Brisbane other than increasing ABAG projections for the San Francisco/San Mateo Bi-County PDA within Brisbane[26] or substantially reducing the buildout represented in project alternatives,[27] the employment generation of the CPP-V scenario would induce substantial population growth in the area, which is considered to be significant unavoidable.

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[26] Because the Plan Bay Area projections have not yet been formally adopted and the preferred SCS scenario avoided committing to a specific level of development for the Project Site, it is understood that there is a degree of fluidity to the projections.

[27] See Chapter 5, *Alternatives*; see also Sections 4.N, *Traffic and Circulation*, and 4.B, *Air Quality*, for discussion of feasible mitigation measures to reduce traffic and air quality impacts.

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4.L Public Services

4.L.1 Introduction

This section describes existing public services provided to the Project Site and vicinity. It evaluates the impacts of the proposed development scenarios on the provision of public services and the physical impacts on the environment that would result from a need to construct new or physically altered facilities. Feasible mitigation measures are identified to reduce significant impacts. The analysis reviews police services, fire protection and emergency medical services, public schools, and libraries.

4.L.2 Police Services

Environmental Setting

Facilities and Services

The Brisbane Police Department (BPD) provides security and police services to the residents and businesses of Brisbane. The BPD has one location, its headquarters, located in City Hall at 50 Park Place less than 0.5 mile from the Project Site.

Staff and Resources

The BPD is staffed with 11 sworn officers and 2 civilian personnel. The staff is comprised of one chief, one commander, two sergeants, seven patrol officers, one community service officer, and one records clerk. Officers are assigned specialty positions; for example, there are two K9 Officers, two traffic officers, and one North County SWAT officer (BPD, 2011; Meisner, 2011). Current patrol staffing consists of a single beat with a minimum of one sergeant or shift supervisor and at least one other officer per shift (Meisner, 2011). Due to staffing cutbacks, the BPD has suspended its detective division and returned the employee to the patrol staff to ensure the Department's minimum patrol staffing standard is met.

The BPD maintains 13 vehicles: six patrol cars, two motorcycles, one pick-up truck, two unmarked detective vehicles, one unmarked administration vehicle, and one full-size special unit vehicle (Meisner, 2011).

Staff Standards

The current ratio of police officers per 1,000 residents is approximately 2.6, based on the city's 2010 population of 4,282 (see Section 4.K, *Population and Housing*, of this EIR). Based on a total resident and worker population of almost 13,000 in 2010, a citywide ratio of one officer per 1,000 residents and workers is currently provided.

Per BPD practice, a total of five sworn officers are required to staff a patrol beat with a single officer 24 hours per day, seven days per week. Currently, BPD officers work four 12-hour shifts

with four days off. This results in two shifts (dayshift and nightshift) and two teams, one of which is working the four days the other team is off. Considering there may be one officer on vacation, sick, or away at training at any given time, the result is that a minimum of five officers is required to cover each 24/7 shift. Exceptions include staffing for daytime positions such as Community Service Officers, Detectives, and School Resource Officers (Meisner, 2012).

Service Demand

Approximately 3,116 service calls were handled by the BPD in 2010. This equates to a ratio of about 240 calls per 1,000 residents and employees, based on the city's 2010 resident and employee population of 12,972. In 2010, there were 372 reported crimes in Brisbane, including 111 felonies and 261 misdemeanors. In addition, there were 50 accident reports taken and 1,249 traffic citations written by the BPD in 2010 (Meisner, 2011).

Brisbane has a very low crime rate compared to the national average. Brisbane's crime rate is also lower than the averages of both nearby Daly City and San Francisco, (Meisner, 2012). The average crime index[1] (in 2010, the latest year that data is currently available) in the United States is 319.1. Brisbane's crime index in 2010 was 99.1, which is significantly lower than any year since 2001. Likewise, Brisbane's crime rate is much lower than the areas adjacent to the Project Site: Daly City, with a crime index of 168.5; and San Francisco, with a crime index of 365.8 (CityData.com, 2012).

The Project Site currently has a low incidence of crime relative to Brisbane as a whole. Because the Project Site is primarily undeveloped, statistical data regarding total police services for the area are difficult to extrapolate. In 2010, 10 reports were taken from the established businesses and along roadways within the Project Site boundaries. The reports identified three burglaries, one act of vandalism, one driving under the influence, one act of public intoxication, one vehicle theft, one drug-related offense, one injury accident, and one theft. Officer-initiated activity or other calls for service not resulting in a police report are not reflected in these statistics. Other types of activity officers are likely to be engaged in or to be called for are suspicious subjects or activity, transient encampments, minor traffic accidents, and illegal dumping complaints (Meisner, 2011).

Service Standards

As noted below under "Regulatory Setting," Brisbane General Plan Policy 163 calls for a three-minute emergency response average and a 10-minute non-emergency response average for police services. The BPD responds within the three-minute emergency response average more than 95 percent of the time, and responds to non-emergency calls within five minutes 80 percent of the time (Meisner, 2011).

[1] Index crimes are the eight crimes the Federal Bureau of Investigation combines to produce its annual crime index. The Federal Bureau of Investigation created a common definition for crime comparison to compare statistical information on a national basis. The index seeks to overcome differences in individual state statutes and create a standardized definition of crime classification.

Regulatory Setting

The Brisbane City Council adopted the current General Plan in June 1994. The 2007-2014 Housing Element of the General Plan was adopted in 2011. Policies contained in the Land Use, Transportation and Circulation, and Community Health and Safety Elements of the City of Brisbane General Plan pertain to the provision of public services in general and police services more specifically and are listed below. Discussion of the Project's overall consistency with the City of Brisbane General Plan is provided in Section 4.I, *Land Use and Planning Policy*, of this EIR.

City of Brisbane General Plan policies generally relevant to public services provision for the proposed Project include the following:

> ***Policy 27:*** Provide centrally located public facilities for public services and community events so as to maximize use by Brisbane residents and businesses.

City of Brisbane General Plan policies and programs pertaining to police services include:

> ***Policy 160:*** Provide a level of police protection of persons and property proportional to the size and law enforcement needs of the community within budgetary constraints.
>
> > *Program 160a:* In conjunction with land use development applications, evaluate police service requirements and response times. Require impact fees and exactions to maintain the level of service.
>
> ***Policy 163:*** Continue to ensure a three minute emergency response average and a ten minute average response to other calls for service.

Significance Criteria

Per Appendix G of the CEQA Guidelines, the Project would have a significant effect on the environment if it were to:

- Result in substantial adverse physical impacts associated with the provision of new or physically altered police facilities, need for new or physically altered police facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives.

Impact Assessment Methodology

The environmental impact analysis for public services in this EIR involves an assessment of existing police services currently provided to the existing Brisbane community as well as existing standards and capacity. Current information about service capabilities, service ratios, response times, performance objectives, number of apparatus devoted to the Project Site vicinity, were obtained through correspondence with BPD and through the review of relevant web-based information. This information was used in conjunction with Association of Bay Area Governments (ABAG) projections for Brisbane and the Bay Area region in 2035 (see Section 4.K, *Population and Housing*, of this EIR) to calculate Project-related growth and anticipated demand for police services. Additionally, the Project was evaluated for conformity

with the goals, objectives, and policies of the City of Brisbane General Plan related to the provision of public services.

This analysis focuses on how projected growth resulting from Project Site development could affect the demand for police services at the Project Site and elsewhere in Brisbane such that the construction of new or altered facilities would be required. The analysis of public services and impacts related to the need for new and/or expanded police facilities are based on the housing and population projections described in Section 4.K, *Population and Housing*, of this EIR.

Project Impacts and Mitigation Measures

Impact 4.L-1: Would the Project result in substantial adverse physical impacts associated with the provision of new or physically altered police facilities, need for new or physically altered police facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
SM	SM	SM	SM

SU = Significant Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = no impact

Development of the Project Site would substantially increase the daytime worker population on the Project Site. **Table 4.L-1** shows the projected increase in calls for police service per 1,000 persons.

TABLE 4.L-1
PROJECTED CALLS FOR POLICE SERVICE BY SCENARIO

	Resident and Employee Population	New Projected Calls for Service per 1,000 population[a]	Total Calls for Service
2010 City of Brisbane	12,972	N/A	3,116
DSP	27,428	6,583	9,699
DSP-V	25,354	6,085	9,201
CPP	16,191	3,886	7,002
CPP-V	16,073	3,858	6,974

[a] Projected calls for service are based on the 2010 ratio of 240 calls per 1,000 residents and employees.

N/A = not applicable

SOURCE: Meisner, 2011; ESA, 2011.

Given the anticipated increase in the demand for police services under Project Site development, and the fact that the Project Site is relatively isolated from the rest of the city, new development within the Project Site other than relocation or expansion of existing uses would stretch the capabilities of the Brisbane Police Department to the point that its current one-beat system could not maintain desired response times (Macias, 2011).

By substantially increasing worker population (and resident population in the DSP and DSP-V scenarios), Project Site development would require additional 24/7 shifts. Each additional shift would require expanding the BPD by five sworn officers as described above under "Facilities and Services." An additional civilian employee, such as a community service officer, would also be required to handle non-emergency police duties such as parking enforcement, abandoned vehicle enforcement, and evidence management. Along with establishment of a second patrol beat to serve the Project Site, the City would need to purchase patrol vehicles and other equipment.

New and expanded facilities needed to accommodate these increases in staffing requirements are analyzed below for each of the four proposed development scenarios.

DSP and DSP-V

Increased Demand for Services

The DSP and DSP-V scenarios would introduce a substantial resident population, as well as substantial non-residential development, to the Baylands. This increase in resident and worker population can be expected to result in increased demand for service from the BPD.

In total, the DSP or DSP-V would include construction of approximately 12 million square feet of new floor space in buildings ranging up to 160 feet in height, resulting in more dense development than other parts of Brisbane. The majority of development would be residential, commercial, office, civic, and retail uses typically found in dense urban settings. Research and development, entertainment, institutional, industrial, and service industry land uses, such as a hotel and conference center, are also proposed.

As shown in Table 4.K-12, projected buildout of the Project Site under the DSP or DSP-V scenario would result in development of 4,434 residential units with 9,888 residents. Non-residential development in these scenarios would result in approximately 15,466 (DSP-V) to 17,540 (DSP) workers employed within the Project Site at buildout. Retail, office, hotel, entertainment, and other commercial uses, as well as planned open space and recreation uses, would also bring visitors to the Project Site, increasing the overall daytime and evening population.

The DSP and DSP-V scenarios also reserve two specific sites within the Icehouse District for the development of institutional uses, including a charter high school (see Figures 3-11 and 3-13 in Chapter 3, *Project Description*, of this EIR) (UPC, 2011). The BPD does not currently employ a dedicated school resources officer, since the BPD has only elementary and middle schools within its service area. High schools bring unique law enforcement challenges requiring a dedicated school resources officer/juvenile officer. Therefore, development of a high school within the Project Site would create a need for one additional BPD officer to serve as a school resources officer/juvenile officer.

Given the size of the proposed development, in terms of both its geographic area and its estimated resident and employee population, development of the Project Site would require expanded police services. The need for increased police services under the DSP or DSP-V scenario is related to increases in traffic congestion, vehicle accidents, auto burglaries, robberies, commercial and

financial crimes,[2] crimes against persons, residential burglaries, and domestic-related incidents (Meisner, 2011). Specifically, the new residential population is anticipated to generate an increase in crimes against persons and domestic-related calls for nighttime service.

To accommodate this needed increase, meet the current BPD standard of staffing requirement of one officer per 1,000 residents and workers, and maintain acceptable response times, the BPD determined that it would need two additional 24/7 shifts added to its patrol staffing, thus requiring an additional 10 officers plus the additional civilian employee described above. This would ensure a minimum of four BPD officers on duty in the city at all times and provide equivalent coverage and response times to development within the Project Site as it currently provides. The DSP or DSP-V scenario would also require the addition of at least one patrol vehicle to the fleet, including radio, light bar, and other associated emergency equipment (Meisner, 2012). As described below, additional officers would be needed during special events under the DSP-V.

In total, up to 12 additional personnel and one patrol car (Meisner, 2012) would be required to accommodate proposed development under the DSP and DSP-V scenarios. The increase in staffing would be expected to take place over time throughout Project Site development. The greatest staffing need, i.e., worst-case scenario, would be created through development of the DSP or DSP-V scenario with an approved high school. In this scenario, the BPD would require a maximum of 13 BPD employees working out of the existing station during any one time.

As described in Chapter 3, *Project Description*, of this EIR, the DSP-V includes a 17,000- to 20,000-seat sports arena and a 5,500-seat concert theater. Such venues would not create an increased need for ongoing and regular patrol time, beyond what is anticipated for development under the DSP. However, additional police service would be required during large-scale events for security and traffic control purposes. Following the model used by the Daly City Police Department for events at the Cow Palace, during such events at the Project Site, the BPD would provide officers for duty at the venue on overtime, as paid by the venue or event organizer. Staffing needs for such events would be determined on the basis of event type and size, and on the requirements of the event sponsor.

To ensure (per City of General Plan Policy 27) that centrally located police facilities are provided to serve the Project Site and that adequate response times can be maintained throughout the City, required specific plan(s) for development within the Project Site would be required as part of the planning review process to prepare and implement a Police Services and Facilities Plan, subject to City approval, to define specific timing requirements for establishment of additional police shifts based on the progression of development within the Project Site. The plan will, at a minimum, provide for:

- Establishment of a new 24/7 officer shift and one civilian daytime shift within the Brisbane Police Department along with the equipment needed to support the additional shift prior to issuance of the first Certificate of Occupancy for any new development within the Project

[2] Financial crimes include but are not limited to fraud, theft, scams, tax evasion, bribery, identity theft, forgery, and counterfeiting. Financial crimes may be carried out by individuals, corporations, or groups and victims may be individuals, corporations, or groups.

Site, other than relocation or expansion of an existing use, with provision for establishment of additional 24/7 officer shift(s) as determined necessary by the Brisbane Police Department.

- Construction and initiation of operation of storefront police substation(s) within the Project Site to accommodate additional required staff to be completed prior to issuance of the first Certificate of Occupancy for any new development within the Project Site, other than relocation or expansion of an existing use. The facility would be sized to accommodate a waiting area, interview room, rest room, and storage area, and to allow officers assigned to the designated patrol beat for the Project Site to take reports while remaining within the beat area. The retail substation would be located within a commercial ground floor storefront such that it is easily visible and accessible to the general public.

- Should the DSP-V scenario be selected, construction of a dedicated space within the proposed arena for police use would be provided for use in planning, briefing, deploying, and general management of law enforcement personnel during an event. This event facility space shall be large enough to handle officers, support staff, and storage.

New Facilities Construction

Although the BPD would require increased staffing levels, the existing police station is currently under capacity and has adequate space to hold all of the new officers that would be needed to adequately serve the project under both the DSP and DSP-V scenarios. The design and space allocations of the existing station can accommodate this number of employees comfortably, and therefore no new or physically expanded facility would be required to maintain acceptable staffing ratios at project buildout and to serve the Project (Meisner, 2012). However, given the location of the proposed development in relation to downtown Brisbane and the existing police station, the BPD has determined that a desired response times could not be maintained without a storefront community police facility (retail substation) within the Project Site (Macias, 2011). Although the DSP and DSP-V scenarios designate a specific site within the Icehouse District for the development of institutional uses, including a combined police/fire facility, a combined facility would not be considered by the BPD, as its functionality would be limited (Macias, 2011).

Conclusion: Because desired response times could not be maintained under the DSP and DSP-V scenarios, given the location of the Project Site in relation to existing police facilities, and the construction of new facilities would be required.

CPP and CPP-V

Increased Demand for Services

Under the CPP or CPP-V scenario, no residential units would be constructed, and there would therefore be no resident population within the Project Site. However, development under the CPP or CPP-V scenario would result in approximately 15,862 to 16,191 employees working within the Project Site. Retail, office, hotel, conference facilities, and other commercial components, as well as planned open space and recreation uses, would also bring visitors to the Project Site, increasing the overall daytime and evening population.

The CPP and CPP-V scenarios propose approximately eight million new square feet of development, primarily in the northwestern portion of the Project Site. Building heights would range up to a maximum of 160 feet. Land uses proposed by the CPP and CPP-V scenarios include mixed-use retail, commercial, office, research and development, hotel/conference center, entertainment/cultural, civic use, industrial, institutional, and public open space.

The BPD concerns for development under the CPP and CPP-V scenarios are related to increases in traffic congestion, vehicle accidents, auto burglaries, robberies, and commercial and financial crimes (Meisner, 2011). To handle this demand, the BPD anticipates a need to add one 24/7 shift and one day shift to its patrol staffing, thus requiring eight additional officer employees (five to cover the 24/7 shift and three to cover the day shift) plus the additional civilian employee described above. This would ensure a minimum of three BPD officers on duty at night and four BPD officers during the day. The CPP or CPP-V scenario would not, however, require the addition of a patrol car or equipment (Meisner, 2012).

The CPP and CPP-V scenarios designate a specific site at the base of Icehouse Hill for the development of a charter high school. Development of a high school within the Project Site also would create a need for one additional BPD officer to serve as a school resources officer/juvenile officer.

To ensure (per City of General Plan Policy 27) that centrally located police facilities are provided to serve the Project Site and that adequate response times can be maintained throughout the City, the Police Services and Facilities Plan, discussed above, will also be implemented in the CPP and CPP-V scenarios.

New Facilities Construction

Although the BPD would require increased staffing levels to serve development under the CPP and CPP-V scenarios, the existing police station is currently under capacity and has adequate space to hold the new officers that would be needed to adequately serve the project under all four scenarios. The design and space allocations of the existing station can accommodate this number of employees comfortably, and therefore no new or physically expanded facility would be required to maintain acceptable staffing ratios at Project Site buildout and to serve the Project (Meisner, 2012). However, given the location of the proposed development within the Project Site in relation to downtown Brisbane and the existing police station, the BPD has determined that desired response times could not be maintained without a storefront community police facility within the Project Site (Macias, 2011).

Conclusion: Because desired response times cannot be maintained under the CPP and CPP-V scenarios, given the location of the Project Site in relation to existing police facilities, addition of new police beat(s) would be required as part of implementation of the previously discussed Police Services and Facilities Plan.

Mitigation

Mitigation Measure 4.L-1: A site for a storefront substation that is easily visible and accessible to the general public and sized large enough to accommodate operations described in the Police Services and Facilities Plan shall be provided as required by the Brisbane Police Department.

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	✓	✓
✓ = measure applies - = measure does not apply			

Conclusion with Mitigation: Implementation of **Mitigation Measure 4.L-1** along with preparation and implementation of the Police Services and Facilities Plan would ensure that Project Site development-related increases in the demand for police services are met and overburdening of the Police Department is avoided. The physical impacts associated with the construction and operation of new substation(s) within the Project Site have been considered along with the construction-related impacts analyzed and discussed in other sections of this EIR, and the following measures have been proposed to minimize construction-related impacts: **Mitigation Measures 4.B-2a, 4.B-2b** and **4.B-3** (construction air emissions); **Mitigation Measures 4.C-1a** through **4.C-1c**, **Mitigation Measures 4.C-2a** through **4.C-2c**, and **Mitigation Measures 4.C-4d** and **4.C-4e** (biological resources); **Mitigation Measures 4.D-2** and **4.D-4** (archaeological resources and human remains); **Mitigation Measure 4.E-2a** (ground settlement); **Mitigation Measures 4.G-2a, 4.G-2b, 4.G-2d** and **4.G-2f** through **4.G-2h** (hazardous materials); **Mitigation Measures 4.J-4a** and **4.J-4b** (construction period noise); and **Mitigation Measure 4.N-12** (construction circulation patterns). Therefore, operational impacts associated with new police facilities are assumed as part of the overall analysis of land uses associated with the proposed development scenarios.

With implementation of the construction and operational measures proposed in other sections of this EIR, along with preparation and implementation of the Police Services and Facilities Plan described above, impacts on police services would be reduced to a less-than-significant level.

4.L.3 Fire Protection

Environmental Setting

Facilities and Staffing

Formed in 2003, the North County Fire Authority (NCFA) is a Joint Powers Authority that provides fire protection, emergency medical, and other hazardous assistance services to the communities of Brisbane, Daly City, and Pacifica. The NCFA operates nine fire companies in eight fire stations throughout its 60-square-mile service area. There are eight engines, and one aerial ladder. There are at least three firefighters, including at least one paramedic, assigned to each engine and the aerial ladder truck. In addition, two battalion chiefs and one deputy fire chief are on duty at all times. Overall, the NCFA maintains 30 personnel on duty daily (NCFA, 2011).

The Project Site is served by NCFA Fire Stations No. 81 and No. 93. The closest fire station to the Project Site is NCFA Fire Station No. 81, located at 3445 Bayshore Boulevard in Brisbane, outside of, but immediately adjacent to the southwestern edge of the Project Site. In 2010, severe mold was detected in this station building, and Fire Station No. 81 firefighters are currently being housed in adjacent semi-permanent trailers. The primary response area for this station is the area within the Brisbane city limits. The station is staffed by one three-person engine company (NCFA, 2011). NCFA Fire Station No. 93, located at 464 Marin Street in Daly City, is approximately one mile from the Project Site. This station is also staffed by a three-person engine company (NCFA, 2011). NCFA Fire Station No. 92 is located on the west side of San Bruno Mountain, approximately 2.5 miles from the Project Site.

The NCFA's Fire Prevention Services Bureau seeks to ensure that all new buildings comply with state and local building and fire code requirements. To enforce standards for features such as sprinkler and fire alarm systems and emergency vehicle access, the Services Bureau conducts over 1,500 plan reviews and construction inspections annually.

In addition to its firefighting and emergency medical response capabilities, the NCFA, through its Training and Special Operations Divisions, train for and respond to emergencies involving hazardous materials, as well as incidents involving cliff/high angle, water or trench rescue, urban search and rescue, confined space and structural collapse (NCFA, 2011). The City, through its Office of Emergency Services, has developed an Emergency Operations Plan that provides procedures and establishes responsibilities for providing emergency support during a disaster. This plan works in concert with a number of multi-agency mutual aid plans and with local volunteer efforts. The designated Primary Emergency Operations Center is at 50 Park Place (City Hall) in the BPD Training room. Regular training sessions and drills are conducted at the center using the plan (City of Brisbane, 2013).

As noted above, NCFA, as a first responder, is responsible for providing both fire protection and emergency medical services. Therefore, the service demands and standards set forth below are assumed to apply both to the fire protection and emergency medical services provided by NCFA.

Service Demand

The NCFA responded to approximately 9,774 calls within its service area in 2010. The majority (61 percent) of these calls were for medical emergencies. Four percent of the calls were regarding structural fires and the remaining 35 percent were categorized as "other."

NCFA Fire Station No. 81 responded to approximately 644 calls for service in 2010. The majority of these calls (57 percent) were categorized as "other," while 35 percent pertained to medical emergencies and 8 percent were regarding structural fires (Panacci, 2011)

Service Standards

The NCFA maintains the following performance standards and established goals (Myers, 2011):

- Seven-minute Total Reflex Time[3] for a single fire company (first responder) for 90 percent of incidents;
- Eleven-minute Total Reflex Time for multiple fire companies for 90 percent of all structure fires;
- Fire Confinement Success Rate – holding structure fires to floor or origin (i.e., preventing the fire from spreading to additional floors after first arrival on the scene) for 90 percent of structure fires; and
- Fire Company Reliability –whereby 90 percent of all incidents are handled by the district fire company in 2010, the NCFA achieved an emergency, single fire company total reflex time of less than 7 minutes 92 percent of the time, thus exceeding the NCFA's established goal. The NCFA does not set response time goals for non-emergency calls (Panacci, 2011).

In addition to internal performance standards, the Insurance Services Office, Inc. and the National Fire Protection Association set forth recommendations for performance standards. Together, these include the following (Myers, 2011):

- All development within 1.5 miles of a fire station;
- All development within 2.0 miles of a ladder truck;
- Four-minute Travel Time of a first due fire company for 90 percent of incidents;
- Eight-minute Travel Time of multiple fire companies for 90 percent of incidents; and
- Four-person minimum staffing on all fire companies.

While the NCFA maintains a goal of meeting Insurance Services Office, and National Fire Protection Association recommended standards, the only standard being met at this time is that of the fire station proximity to development within the service area.

Regulatory Setting

State Regulations

The California Health and Safety Code, Section 13000, et seq., includes regulations concerning building standards (as also set forth in the California Building Code), fire protection systems, fire protection devices (such as extinguishers and smoke alarms, and high-rise building standards), and standards for building inspection and certification.

Local Regulations

The City, through the Buildings and Construction Code of the Municipal Code, adopted by reference the 2010 edition of the California Fire Code. Chapter 15.44 of the Building and Construction Code contains the Fire Prevention Code. The Fire Prevention Code mandates certain

[3] "Total Reflex Time" is measured from the time a call is received at the county communications center to the arrival of the first apparatus at the scene. Typically, for the public, the response time clock begins when an individual becomes aware there is an emergency incident occurring. While the difference between the two may vary by only a minute or two, the distinction is significant in that fire service response time goals are set to measure fire service performance from the moment the emergency enters the system.

requirements, including, among other things, that plans submitted in support of an application for a building permit must first be reviewed by the fire department.

The Brisbane City Council adopted the current General Plan in June 1994. The 2007-2014 Housing Element of the General Plan was adopted in 2011. Policies contained in the Land Use, Transportation and Circulation, and Community Health and Safety Elements of the City of Brisbane General Plan pertain to public services in general and fire services in particular and are listed below. Discussion of the Project's overall consistency with the City of Brisbane General Plan is provided in Section 4.I, *Land Use and Planning Policy*, of this EIR.

The Land Use Element of the City of Brisbane General Plan provides:

> ***Policy 27:*** Provide centrally located public facilities for public services and community events so as to maximize use by Brisbane residents and businesses.

The Transportation and Circulation Element of the City of Brisbane General Plan provides:

> ***Policy 39.2:*** Establish an alternative access route to the Tunnel Avenue overcrossing for emergency vehicles.
>
> ***Policy 44:*** Maintain and improve local residential streets to accommodate safe access for emergency vehicles and evacuation routes for residents.
>
> ***Policy 50:*** In the design of internal circulation systems for new development or expansions of existing uses, provide for adequate emergency access around all buildings.

The Community Health and Safety Element of the City of Brisbane General Plan provides:

> ***Policy 156:*** Take advantage of technology to require built-in fire safety systems using appropriate materials and technology.
>
> ***Policy 157:*** Administer and enforce health and safety codes related to fire safety on an on-going basis.
>
> > *Program 157b:* Enforce the provisions of the California Building Code and the California Fire Code and the Zoning Ordinance to address access, exiting, setbacks, materials and other design factors that contribute to fire safety.
>
> ***Policy 158*****:** Provide a level of fire protection proportional to the size, risks and service demands of the community within budgetary constraints.
>
> > *Program 158a:* In conjunction with development applications, evaluate fire service requirements, response times and levels of risk. Require impact fees and exactions to maintain the level of service and to provide for any special equipment needs.
>
> ***Policy 208:*** If new development occurs, require infrastructure to be installed to City standards.
>
> > *Program 208x:* In conjunction with land use development applications for vacant lands, require studies to estimate the needs for domestic water and fire protection and require infrastructure to be designed and installed, at the developer's expense, to the satisfaction of the City.

Significance Criteria

Appendix G of the CEQA Guidelines indicates that a project would have a significant effect on the environment if it were to:

- Result in substantial adverse physical impacts associated with the provision of new or physically altered fire protection facilities, need for new or physically altered fire protection facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable staffing ratios, response times, or other performance objectives.

Impact Assessment Methodology

The environmental impact analysis for fire services in this EIR involves an assessment of existing services currently provided to the existing Brisbane community, as well as existing standards and capacity. The methodology included corresponding with the NCFA to request current information about service capabilities, service ratios, response times, performance objectives, number of apparatus devoted to the Project Site vicinity and other factors and reviewing web-based information. The methodology used to calculate the Project Site development's anticipated resident and employee population growth and associated demand for fire protection services is based on the ABAG projections for Brisbane and proposed Project Site development (see Section 4.K, *Population and Housing*, of this EIR). Additionally, the Project was evaluated for conformity with the goals, objectives, and policies of the City of Brisbane General Plan related to the provision of fire services.

This analysis focuses on how projected growth resulting from development of the Project Site, for each proposed development scenario, could affect the demand for fire protection services at the Project Site and in the vicinity such that the construction of new or altered facilities would be required. The analysis of public services and impacts related to the need for new and/or expanded fire protection facilities is based on the housing and population projections described in Section 4.K, *Population and Housing*, of this EIR. Water supply and flow for fire suppression purposes are discussed in Section 4.O, *Utilities, Service Systems, and Water Supply* of this EIR.

Project Impacts and Mitigation Measures

Impact 4.L-2: Would the Project result in substantial adverse physical impacts associated with the provision of new or physically altered fire protection facilities, need for new or physically altered fire protection facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable staffing ratios, response times or other performance objectives?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
SM	SM	SM	SM

SU= Significant Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = no impact

DSP and DSP-V

As shown in Table 4.K-12, projected buildout under the DSP or DSP-V scenario would result in development of 4,434 residential units with 9,888 new residents. Non-residential development in

these scenarios would result in approximately 7,088,800 (DSP) to 7,135,300 (DSP-V) square feet of non-residential development with an estimated 15,466 (DSP-V) to 17,540 (DSP) workers employed within the Project Site at buildout. The increased development and population would generate additional calls for service to the NCFA.

The DSP and DSP-V scenarios would also result in a more intense level of development than is found in other parts of Brisbane. The DSP and DSP-V scenarios would allow approximately 12 million square feet of new development, the majority of which would be devoted to residential, commercial, office, civic, and retail uses typically found in dense urban settings, including mid-rise buildings for which a ladder truck is required to provide adequate response during a fire. Research and development, entertainment, institutional, industrial, and service industry land uses, such as a hotel and conference center, are also proposed.

New development under the DSP and DSP-V scenarios would be required to meet the NCFA standards related to fire hydrant placement, fire flow requirements, installation of fire protection devices, and other fire code requirements. All new structures built within the Project Site, including residential, commercial, and other non-residential uses would be required to comply with applicable building and fire code requirements, which include, for example, the installation of fire protection devices (such as extinguishers, fire alarms, and automatic sprinkler systems).

A number of policies and programs of the Health and Safety Element of the Brisbane General Plan – including, but not limited to, Policy 158, Program 158a, Policy 208, and Program 208x – would further define construction and development.

Both the DSP and DSP-V scenarios include a circulation plan designed to ensure appropriate emergency access to and from the Project Site and to provide access to all development areas through the above-cited new roadways (specifically to facilitate NCFA's emergency response within the Project Site). Further, all development within the Project Site would be designed in accordance with City and NCFA standards, which include provisions that address emergency access (e.g., minimum street widths, minimum turning radii). In addition, emergency vehicles would be able to utilize transit lanes when streets are congested. As discussed in Section 4.N, *Traffic and Circulation* (see Impact 4.N-16), adequate emergency access would be ensured through the requirement that any specific plan adopted for the Project Site shall include measures to ensure that physical or traffic congestion impediments that would prevent emergency vehicles from traveling to and from an emergency situation are avoided.

The DSP and DSP-V scenarios would be supported by new Project Site development that would include roadway and infrastructure systems improvements within the Project Site (see Section 4.N, *Traffic and Circulation*, and Section 4.O, *Utilities, Service Systems, and Water Supply* of this EIR). These improvements, which would include more efficient roadways providing access to the interior of the site, as well as upgraded and extended water, wastewater, and telecommunications systems, would enable emergency vehicles to reach development on the Project Site.

All individual applications for development plans, including new local streets, private internal circulation, and specific building site plans, would be subject to review and approval by the City, including emergency service providers, per the City's plan approval process set forth in Brisbane Municipal Code Section 15.44.030. Individual development applications for large-scale entertainment venues, industrial development, renewable energy generation facilities, waste management land uses, and water recycling facilities within the Project Site, would require additional review by the NCFA for special fire hazards, which is also a part of the City's plan approval process. Fire hazards and hazardous material use on the Project Site are described and evaluated in Section 4.G, *Hazards and Hazardous Materials*, of this EIR.

Proposed new development under the DSP and DSP-V scenarios would generate additional demand for fire and/or emergency services. Because Project Site development under the DSP and DSP-V scenarios would more than double the 2010 resident and employment population of Brisbane, it can be anticipated that that Project Site development would result in a more than doubling of the annual 644 service calls Station No. 81 has received for its Brisbane service area.

As noted above, while the NCFA maintains a goal of meeting Insurance Services Office, Inc. and National Fire Protection Association recommended standards, the only standard currently being met is that of the fire station proximity to development within the service area (Myers, 2011; Panacci, 2011). Thus, Project Site development would require additional fire protection personnel and/or equipment in order to meet NCFA's emergency service response time goals within the Project Site without impacting existing services currently provided to the Brisbane community.

Because existing NCFA facilities and staffing are not meeting current response goals, Project Site development-related impacts on existing fire protection services would begin occurring when combustible materials are first brought onsite. As a result, new and/or expanded fire facilities would be required to accommodate the additional companies needed to meet the NCFA response standards cited above within the Project Site. In particular, construction of relocated and/or combined station would be necessary for emergency response or access purposes, should a third Project Site access point be required near the intersection of Guadalupe Canyon Parkway and Bayshore Boulevard.

To ensure adequate fire protections services and facilities to support Project Site development and to maintain adequate response times throughout the City, required specific plan(s) for development within the Project Site would be required as part of the planning review process to prepare and implement a Fire Protection Services Plan that provides for the timely provision of fire protection facilities, equipment, and staffing. The Fire Protection Services Plan shall specify the means and methods that would be employed, over time, to ensure that the following performance standards are met:

- All Project Site development located within 1.5 miles of a fully staffed (four-person minimum staffing for all fire companies) and equipped NCFA fire station.
- All buildings greater than three stories in height located within two miles of a fully staffed (four-person minimum) and equipped ladder truck company.

- Adequate fire flow and service pressure available per NCFA standards.
- Expansion of existing fire stations or construction of new stations as needed to meet the following response time standards of the NCFA within the Project Site:
  - Seven-minute Total Reflex Time[4] for a single fire company (first responder) for 90 percent of incidents;
  - Eleven-minute Total Reflex Time for multiple fire companies for 90 percent of all structure fires;
  - Fire Confinement Success Rate – ability to hold structure fires to floor or origin (i.e., preventing the fire from spreading to additional floors after first arrival on the scene) for 90 percent of structure fires; and
  - Fire Company Reliability –ability to handle 90 percent of all incidents within the Project Site from the station within whose primary service area the Project Site is located.

CPP and CPP-V

Under the CPP or CPP-V scenario, no residential units would be constructed; therefore, there would be no resident population at the Project Site. However, development under the CPP or CPP-V scenario would result in over 7.0 million square feet of non-residential building area with approximately 15,862 to 16,191 employees working at the Project Site. Because this would more than double employment within the City, Project Site development under the CPP and CP-V scenarios would result in a substantial increase in calls to the NCFA for service. As with the DSP, land uses proposed by the CPP or CPP-V include mixed-use retail, commercial, office, research and development, hotel/conference center, entertainment/cultural, civic use, industrial, institutional, and public open space.

As described above for the DSP and DSP-V scenarios, development under the CPP and CPP-V scenarios would require the construction of a new roadway network and new infrastructure systems similar in scale to those proposed under the DSP and DSP-V scenarios (see Section 4.N, *Traffic and Circulation*, and Section 4.O, *Utilities, Service Systems, and Water Supply* of this EIR). As noted above, these improvements would enable emergency vehicles to reach development on the Project Site.

The CPP-V scenario would also include an expansion of the Recology facility. Because all infrastructure and utilities systems are currently in place on the existing Recology site, development under the CPP-V scenario would not result in impacts different from the CPP with respect to the provision of fire protection, since the facility would include onsite fire protection (e.g., sprinkler systems) and the building area and number of employees would not increase substantially beyond that of the CPP scenario.

[4] "Total Reflex Time" is measured from the time a call is received at the county communications center to the arrival of the first apparatus at the scene. Typically, for the public, the response time clock begins when an individual becomes aware there is an emergency incident occurring. While the difference between the two may vary by only a minute or two, the distinction is significant in that fire service response time goals are set to measure fire service performance from the moment the emergency enters the system.

As described above for the DSP and DSP-V, proposed new development under the CPP and CPP-V scenarios would generate additional demand for fire and/or emergency services, requiring additional fire protection personnel and/or equipment in order to meet NCFA's emergency service response time goals without impacting existing services currently provided to the Brisbane community. Because existing NCFA facilities and staffing are not meeting current response goals, Project Site development-related impacts on existing fire protection services would begin occurring when combustible materials are first brought onsite for construction. As a result, new and/or expanded facilities would be required to accommodate the added personnel and equipment needed to achieve and maintain NCFA response time goals. In addition, construction of a relocated and/or combined first station would be necessary for emergency response or access purposes, should a third Project Site access point be required near the intersection of Guadalupe Canyon and Bayshore Boulevard.

Conclusion: Development of the Project Site under the DSP or DSP-V scenario is expected to more than double current fire service demands within the City, while development of the CPP or CPP-V scenario would nearly double fire service demands within the City. Increased demand of such a magnitude would require a new fire station or expansion of the existing Station No. 81 to provide adequate fire protection service to the Project Site. As discussed previously, institutional uses, including fire and emergency facilities, have been anticipated as a part of Project Site development and the impacts of their construction and, as needed, mitigation measures and other regulatory requirements, are discussed in other sections of this EIR. As such, following measures are proposed to minimize construction-related impacts: **Mitigation Measures 4.B-2a, 4.B-2b,** and **4.B-3** (construction air emissions); **Mitigation Measures 4.C-1a** through **4.C-1c**, **Mitigation Measures 4.C-2a** through **4.C-2c**, and **Mitigation Measures 4.C-4d** and **4.C-4e** (biological resources); **Mitigation Measures 4.D-2** and **4.D-4** (archaeological resources and human remains); **Mitigation Measure 4.E-2a** (ground settlement); **Mitigation Measures 4.G-2a, 4.G-2b, 4.G-2d** and **4.G-2f** through **4.G-2h** (hazardous materials); **Mitigation Measures 4.J-4a** and **4.J-4b** (construction period noise); and **Mitigation Measure 4.N-12** (construction circulation patterns). With implementation of the construction and operational measures proposed in other sections of this EIR, along with preparation and implementation of the Fire Protection Services Plan described above, impacts on fire protection services would be reduced to a less-than-significant level.

4.L.4 Public Schools

Environmental Setting

School Facilities and Enrollment

The Brisbane Elementary School District (Brisbane ESD), the Bayshore Elementary School District (Bayshore ESD), and the Jefferson Union High School District (JUHSD) provide grades K-12 public education to Brisbane residents. The Project Site is currently within the Bayshore ESD and JUHSD. As in many Bay Area school districts, enrollment in the school districts serving Brisbane has been in decline over the past two decades (see **Table 4.L-2**).

TABLE 4.L-2
SCHOOL DISTRICT ENROLLMENT TRENDS, 1996–2011

School	15-Year Peak Enrollment[a]	2010-2011 Enrollment	15-Year Average Enrollment
Brisbane Elementary School District			
Brisbane Elementary School	229	224	213
Panorama Elementary School	280	130	202
Lipman Middle School	250	189	206
Districtwide Totals	**673**	**543**	**621**
Bayshore Elementary School District[b]			
Bayshore Elementary School	258	214	227
Garnet J. Robertson Intermediate School	223	184	207
Districtwide Totals	**462**	**398**	**434**
Jefferson Union High School District[c]			
Terra Nova High School (2,208 student capacity)	1,509	1,249	1,393
Oceana High School (1,472 student capacity)	802	552	675
Westmoor High School (1,600 student capacity)	1,850	1,725	1,790
Jefferson High School (2,240 student capacity)	1,562	1,196	1,316
Districtwide Totals	**5,566**	**4,722**	**5,174**

[a] The numbers shown in this column identify the highest enrollment in a certain year for each school and the districts during the 15-year period of 1996-2011. The numbers are not meant to be added together.
[b] Enrollment excludes students participating in the Kaplan Academy of California, an online high school affiliated with the Bayshore Elementary School District.
[c] School facility capacity information is available for the Jefferson Union High School District only. Capacity estimates are based on established limit of 32 students per classroom and a 960-square-foot-per-room minimum (Cook, 2012a).

SOURCE: CDE, 2011.

Brisbane Elementary School District

The Brisbane ESD is a kindergarten through eighth grade (K-8) school district comprised of two elementary schools and one middle school with a combined enrollment of 543 students in the 2010-2011 school year (CDE, 2011).

The Brisbane ESD receives funding based on average daily attendance, called "Revenue Limit District Funding," and generally approves inter-district transfer permits. Further, it is Brisbane ESD board policy to allow Brisbane ESD employees' dependents to attend schools (Presta, 2012).

Facilities. The elementary school closest to the Project Site is Brisbane Elementary School located at 500 San Bruno Avenue, less than one mile from the Project Site. Panorama Elementary School, located at 25 Bellevue Avenue in Daly City, is less than two miles west of the Project Site. Lipman Middle School, located at 1 Solano Street, is also less than one mile from the Project Site. As of the publication of this EIR, the Brisbane ESD had no plans for facilities expansion.

Enrollment. Overall, Brisbane ESD enrollment has been in decline over the last several years. Since the peak enrollment of 673 students in the 2002-2003 school year, the combined enrollment for the elementary schools has declined by approximately 16 percent and the Lipman Middle School enrollment has declined by approximately 25 percent. Overall, the 15-year average enrollment for the Brisbane ESD is 621 students (CDE, 2011).

Bayshore Elementary School District

The Bayshore ESD is a K-8 school district comprised of two elementary schools serving residents in parts of Daly City and Brisbane. The Project Site lies within the boundaries of Bayshore ESD.

The Bayshore ESD receives funding solely from property taxes within its district, a funding method called "Basic Aid District Funding." For this reason, the Bayshore ESD often limits its inter-district transfers.

Facilities. Bayshore Elementary School, a K-4 elementary school, is located at 155 Oriente Street in Daly City. It is one-half mile west of the Project Site and has a 2010-2011 student enrollment of 214 students (Bayshore ESD, 2011; CDE, 2011). Garnet J. Robertson Intermediate School, also less than one-half mile west of the Project Site at 1 Martin Street in Daly City, serves grades 5 through 8 and had a 2010-2011 school year enrollment of 184 students. As of the publication of this EIR, the Bayshore ESD had no plans for facilities expansion.

Enrollment. The combined enrollment of Bayshore Elementary School and Garnet J. Robertson Intermediate School is 398 students. Overall, the combined enrollment of the Bayshore ESD's two school facilities has been relatively stable. [5] However, the 2010-2011 school year enrollment was the lowest in 15 years and showed a 14-percent decline from its peak in the 1997-1998 school year. The 15-year average enrollment for the Bayshore ESD is 434 students, while, as mentioned above, the 2010-2011 school year enrollment was 398 students (CDE, 2011).

Brisbane ESD and Bayshore ESD Reorganization Study

At this time, neither the Brisbane ESD nor the Bayshore ESD is considering plans for facility expansion. However, in 2011, the Brisbane ESD and Bayshore ESD initiated a review of the potential closure of one of the Brisbane school sites along with an array of possibilities for reorganization, including unionization into a single district K-8 elementary district and unification into a single K-12 district. The study, conducted by School Services of California, Inc., was presented in March 2012 was presented to the district boards. School Services of California, Inc. concluded that, because future property taxes associated with development on the Baylands would be distributed to school agencies as required based on existing allocations, and given the long and uncertain timeline for development, the current proposals for development of the Project Site would not affect the outcome of school district reorganization. Both district boards ultimately declined to pursue consolidation.

[5] Since the 2009-2010 school year, students enrolled in the online school, Kaplan Academy of California-San Francisco Bay, have been included in the California Department of Education's enrollment count for the Bayshore ESD (CDE, 2011).

Jefferson Union High School District Facilities and Enrollment

Residents of the Brisbane ESD and the Bayshore ESD also are residents of the JUHSD. The JUHSD serves approximately 4,722 students in grades 9 through 12 in the cities of Daly City, Colma, Brisbane, and Pacifica.

Facilities. The JUHSD includes four high schools—Jefferson (Daly City), Westmoor (Daly City), Terra Nova (Pacifica), and Oceana (Pacifica)—in addition to the Thornton continuation high school (Daly City).

The two JUHSD schools closest to the Project Site are Jefferson High School, approximately three miles west of the Project Site at 6996 Mission Street in Daly City; and Westmoor High School, approximately four miles west of the Project Site at 131 Westmoor Avenue in Daly City.

Enrollment. Enrollment in the JUHSD has shown a relatively steady decline over the last several years. The 2010-2011 school year enrollment of 4,722 students was approximately 10 percent lower than the JUHSD's peak enrollment of 5,566 students in the 1999-2000 school year. The 15-year average enrollment for the JUHSD is 5,174 students (CDE, 2011).

Although the 2010-2011 school year enrollment in Westmoor High School showed a decline from the previous nine school years, overall enrollment numbers have varied less than eight percent over the past 15 years. The average enrollment during this time frame is approximately 1,790 students. Student enrollment currently exceeds capacity (1,600) at Westmoor High School. In contrast, Jefferson High School has shown a fairly steady trend of decline over the past 15 years, with the 2010-2011 school year enrollment representing a 23-percent drop from its peak in the 1996-1997 school year. The average enrollment in Jefferson High School over the past 15 years is approximately 1,316 students (CDE, 2011); enrollment capacity for Jefferson High School is 2,240 students (Cook, 2012).

The two JUHSD high schools that are located in Pacifica account for most of the declining enrollment in the JUHSD. Terra Nova High School, located at 1450 Terra Nova Boulevard, approximately 17 miles (road distance) from the Project Site, has experienced a nearly 17-percent enrollment decline since its peak in 2001-2002. Oceana High School, located at 401 Paloma Avenue, approximately 13 miles (road distance) from the Project Site, has experienced a nearly 31-percent enrollment decline since its peak in 1998-1999. The 15-year average enrollment for Terra Nova and Oceana High Schools is 1,393 and 675 students, respectively (CDE, 2011); enrollment capacity is 2,208 and 1,472 students, respectively.

Open Enrollment Policy. The JUHSD has a policy of open enrollment, which allows families the opportunity to choose their school of attendance, regardless of where they reside within the JUHSD's boundaries. Most Brisbane residents, upon graduation from Lipman Middle School, choose to attend Terra Nova High School or Oceana High School in Pacifica, even though the schools in Daly City are closer to Brisbane. The City of Brisbane currently provides busing service from Brisbane to these high schools (Minshew, 2012).

The JUHSD's open enrollment intra-district policy allows capacity issues to be reviewed on a district level. In addition, the JUHSD's inter-district policy is broad, and students from other districts are rarely denied JUHSD attendance permits (Minshew, 2012; Cook, 2012a).

Planned Facilities Expansions. Despite the declining enrollment trend, the JUHSD has a number of expansion projects in various stages of implementation. These include a new two-story science classroom facility at Jefferson High School, two new two-story academic buildings at Terra Nova High School, a planned science classroom and library building at Westmoor High School, and upgraded sports resources and utilities on each of the high school campuses (Cook, 2012a).

Student Generation Estimates

The California State Allocation Board (SAB) Office of Public School Construction regulates enrollment projections for the state's public school districts. The SAB defines a number of options for generating student enrollment projections and provides an approved methodology for determining the number of elementary, middle, and high school students that could be expected to live in new residential units. This methodology is based on historical student generation rates for new residential units constructed within the school district during the previous five years. Only new residential units of a type similar to those anticipated may be used as a basis for defining the student yield factor (SAB, 2009).

Neither the Brisbane ESD nor the Bayshore ESD has district-specific student generation factors. In the absence of a district-specific student generation factor, generation factors used for the San Francisco Unified School District in the Candlestick Hunters Point EIR (City and County of San Francisco, 2009), which is located adjacent to the Project Site, were applied to estimate the number of elementary and middle school students that would be generated by residential development proposed as part of the DSP and DSP-V scenarios. The generation factors employed in the Candlestick Hunters Point EIR (0.203 elementary or middle school students per dwelling unit) are appropriate for this analysis given the proximity of that project to the Project Site and the similarity between the two projects in the mix of land uses being proposed.

Student yield factors specific to new residential development within the JUHSD boundary were calculated as a part of a School Fee Facilities Plan prepared for the JUHSD in 2002 (Shilts Consultants, 2002). New single-family homes were projected to yield 0.21 high school student per dwelling unit, condominiums were projected to yield 0.08 high school student per dwelling unit, and multi-family housing units were projected to yield 0.04 high school student per dwelling unit. Because the Project (DSP and DSP-V) proposes only medium- and high-density residential units, the 0.21 student yield factor is not appropriate for this analysis. Therefore, for the purposes of this analysis, this EIR assumes a 0.08 student yield rate per dwelling unit for high school students. In this case, the 0.08 student yield factor is more appropriate as it presents a conservative approach to estimating the number of high school students generated by the Project.

As noted above, neither the Brisbane ESD nor the Bayshore ESD has district-specific student generation factors, and, while the JUHSD School Fee Facilities Plan did describe school facility costs relating to new commercial development, it did not explicitly detail student generation rates

for non-residential development. In addition, there is no statewide average student yield factor for non-residential development. Therefore, to determine a reasonable method for estimating student generation rates for non-residential land uses, research was conducted into how other California school districts have approached analysis of student generation from non-residential development. This research yielded numerous examples of fee studies that estimated student generation for non-residential development. A comparison of these studies found that the most common approach is to assume that each 1,000 square feet of new commercial or industrial development could yield up to 0.04 new students in both elementary/middle school and in high school. In the absence of existing criteria applicable to the JUHSD, this method was used in this analysis.

Regulatory Setting

State Regulations

Senate Bill 50 (School Impacts)

The Leroy F. Greene School Facilities Act of 1998, or Senate Bill 50 (SB 50), restricts the ability of local agencies, such as the City of Brisbane, to deny land use approvals on the basis that public school facilities are inadequate, and precludes local agencies from requiring more than a standard developer fee. SB 50 authorizes school districts to levy developer fees to finance the construction or reconstruction of school facilities to address local school facility needs resulting from new development. SB 50 establishes the base amount of allowable developer fees for school impacts.

In January 2012, SAB approved maximum Level 1 developer fees at $0.51 per square foot of enclosed and covered space in any commercial or industrial development, and $3.20 per square foot for residential development (SAB, 2012). Public school districts must submit justification to levy Level 1 developer fees and can impose higher fees than those established by the SAB, provided they meet the conditions outlined in the Leroy F. Greene School Facilities Act. Private schools are not eligible for fees collected pursuant to SB 50.

The JUHSD serves as the collection agency for its partner elementary school districts. In 2012, both the JUHSD and the Brisbane ESD had approved Level 1 fees of $0.47 and $2.97 per square foot of commercial/industrial and residential development, respectively. The Bayshore ESD's approved Level 1 fees are $0.42 and $2.63 per square foot of commercial/industrial and residential development, respectively (Fuentes, 2012; Cook, 2012b). Therefore, the JUHSD collects, from the developer, $0.47 and $2.97 per square foot of commercial/industrial and residential development, respectively. Of these Level 1 fees collected, the partnered elementary school district in which the development occurs would collect, from the JUHSD, 60 percent of its approved Level 1 fee. The remaining fee is retained by the JUHSD.[6]

Section 65995(h) of the Government Code, which sets forth the provisions of SB 50, states that the payment of statutory fees is "deemed to be full and complete mitigation of the impacts of any legislative or adjudicated act, or both, involving but not limited to, the planning, use, or

[6] For example, the JUHSD would collect $2.97 for each square foot of residential development within the Bayshore ESD. The JUHSD would then distribute $1.58 to the Bayshore ESD (60 percent of its approved $2.63) and keep the remaining $1.39.

development of real property, or any change in governmental organization or reorganization…on the provision of adequate school facilities." Although SB 50 fully mitigates direct impacts on school facilities, under CEQA, the indirect impacts related to school attendance or construction of school facilities must also be considered and mitigated in the EIR. These include indirect impacts on traffic, air quality and noise levels.

Allen Bill (Inter-District Transfer Because of Parent Employment)

California Education Code Section 48204(b) permits a school district to deem a student to have complied with the residency requirements for school attendance in the district if at least one parent or guardian of the student is physically employed within the boundaries of that district. Once admitted to residency, the student's transfer may be revoked only if the parent ceases to be employed within the boundaries of the district.

Local Regulations

The Recreation and Community Services Element of the City of Brisbane General Plan contains the following relevant policy and programs:

> ***Policy 103:*** Work collaboratively with the Brisbane School District to provide neighborhood schooling and comprehensive services for children and their families and the general public.
>
> > *Program103a:* Establish a City Council subcommittee to work jointly with the Brisbane Elementary School District and the Jefferson High School District and other entities to determine the feasibility of and make recommendations regarding a high school in Brisbane.
> >
> > *Program 103b:* Establish a City Council subcommittee to promote and encourage educational facilities to locate in Brisbane.
> >
> > *Program103c:* Develop a program to require impact and mitigation fees from developers, as appropriate, for constructing and/or operating a local high school.

Significance Criteria

Appendix G of CEQA Guidelines indicates that a project would have a significant effect on the environment if it were to:

- Result in substantial adverse physical impacts associated with the provision of new or physically altered school facilities, need for new or physically altered school facilities, the construction of which could cause significant environmental impacts, in order to provide adequate classroom space.

Impact Assessment Methodology

The environmental impact analysis for public services in this EIR involves an assessment of existing public school resources and enrollment data. The methodology included a review of data acquired from the California Department of Education and evaluation of trends over the past 15 years for which enrollment data are available. Student generation rates used to calculate the Project's anticipated demand for public schools were acquired from the JUHSD, SAB Office of

Public School Construction, and generation factors used for the San Francisco Unified School District in the Candlestick Hunters Point EIR (City and County of San Francisco, 2009).

This analysis focuses on how new development resulting from Project Site development, could affect the demand for public schools in Brisbane and vicinity. The analysis of public services and impacts related to the need for new and/or expanded school facilities is based on the housing and non-residential development building area described in Chapter 3, *Project Description*, of this EIR.

Project Impacts and Mitigation Measures

Impact 4.L-3: Would the Project result in substantial adverse physical impacts associated with the provision of new or physically altered school facilities, need for new or physically altered school facilities, the construction of which could cause significant environmental impacts, in order to provide adequate classroom space?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
SM	SM	SM	SM

SU= Significant Unavoidable SM = Significant but Mitigable
LTS = Less than Significant
- = no impact

DSP and DSP-V

At projected buildout under the DSP or DSP-V scenario, approximately 4,434 multi-family residential units would be constructed. Using a combination of the applied student generation factor of 0.203 for elementary and middle school students and the JUHSD specific student yield factors (consisting of 0.08 high school student per new condominium/multi-family dwelling unit), residential development under the DSP and DSP-V scenarios would result in approximately 1,255 new students (900 elementary or middle school students and 355 high school students). In addition, at buildout under the DSP or DSP-V scenario, approximately seven million square feet of new non-residential development would be constructed. Based on the average student generation rates per 1,000 square feet of non-residential development, new non-residential development under the DSP and DSP-V scenarios could result in as many as 356 new students (178 additional JUHSD students and 178 additional elementary and middle school students in the Brisbane ESD and Bayshore ESD).[7]

The total 1,078 elementary or middle school students that would be generated by proposed development under the DSP and DSP-V scenarios would result in an increase of more than 125-percent beyond the combined current enrollment of both the Brisbane ESD and the Bayshore ESD (total 941). Total project-related generation of high school students (533) would represent an 11-percent increase in the enrollment of the JUHSD.

[7] The calculation of the number of Project Site workers registering their children for school based on their place of employment is based on the premise that these workers do not also live within the Project Site. While it is reasonable to conclude that some Project Site workers are also residents of the Project Site, those workers would be registering their children based on their place of residence. The provisions of state law providing parents the ability to register their children for school based on their place of employment rather than residence is intended to provide an accommodation for parents who live and work in different school attendance boundaries, and to thereby justify school mitigation fees for non-residential development.

Considering the declining enrollment and the excess capacity currently available in JUHSD schools,8 the number of students generated by the DSP or DSP-V would not result in the need for new or expanded high school facilities beyond what is already underway and planned within the JUHSD (see Table 4.L-2). Although the maximum capacity of the schools within the elementary school districts is not available, based on comparison of Project Site development-related grade K-8 student generation (900 students from residential development and 178 students from commercial development) to the combined enrollment of both the Brisbane ESD and the Bayshore ESD, both current (941 students) and 15-year peak (1,135 students), it is evident that development under the DSP or DSP-V scenario would create a need for new grade K-8 school facilities.

Pursuant to SB 50 (see "Regulatory Setting" above), applicants for individual development projects under the DSP and DSP-V scenarios would be required to pay school facilities impact fees established to offset the impacts of new development on school facilities. Therefore, although proposed development under the DSP and DSP-V scenarios would more than double the combined current enrollment of the Brisbane ESD and the Bayshore ESD along with an 11-percent increase in the enrollment of the JUHSD, payment of fees mandated under SB 50 is the mitigation measure prescribed by the statute, and payment of such fees is the exclusive method available to the City to mitigate the direct impacts on school facilities. Further, payment of such fees is presumed under the law to be mitigation in full for direct impacts to school facilities caused by increasing student enrollment. However, CEQA requires analysis of the indirect impacts associated with construction or expansion of schools, such as an increase in student traffic, in the appropriate resource area.

The DSP and DSP-V scenarios designate two specific sites within the Icehouse District for the development of institutional uses, including an elementary school and a charter high school (see Figures 3-11 and 3-12 in Chapter 3, *Project Description*, of this EIR) (UPC, 2011). The elementary school site would be located in the northern portion of the district just south of the Roundhouse Green at the southern terminus of the proposed Promenade. The charter high school site would be located at the base of Icehouse Hill on a 5.3-acre site to be used as a shared-use recreational facility.

These facilities, which are included within the proposed institutional uses under the DSP and DSP-V, are intended to meet the increased demand for schools generated by development of the Project Site. Therefore, indirect operational impacts associated with proposed new school facilities, including increases in traffic, air quality and GHG emissions, noise, and disturbance of biological, hydrologic, and cultural resources, and increases in the demand for public services and utilities, are included in the overall analysis of Project Site development set forth in relevant sections of this EIR, for proposed development scenarios, and these impacts are mitigated as necessary.

Construction of the proposed onsite school facilities also has been anticipated as a part of the DSP and DSP-V scenarios, and the indirect impacts of their construction and, as needed, mitigation measures and other regulatory requirements, are discussed and analyzed in Section 4.B, *Air Quality*;

8 Three of the four high schools in the district are well below student enrollment capacities. Westmoor High School is over capacity by about 100 students, but the 2010-2011 enrollment of 1,725 is below the school's past peak enrollment of 1,850, suggesting a decline in enrollment as well.

Section 4.C, *Biological Resources*; Section 4.E, *Geology, Soils, and Seismicity*; Section 4.F, *Greenhouse Gas Emission*; Section 4.G, *Hazards and Hazardous Materials*; Section 4.H, *Hydrology and Water Quality*; Section 4.J, *Noise and Vibration*; Section 4.N, *Traffic and Circulation*; and 4.P, *Energy*. Impacts related to school construction are similar to those associated with construction of any new structure(s), and include air quality, GHG and traffic impacts associated with the use of construction vehicles and with project operation; impacts to water quality during construction and as a result of new impermeable surfaces; noise impacts associated with construction vehicles and school operation; and impacts during construction to biological resources. Analysis of construction impacts also includes a discussion of impacts related to the appropriateness of the siting of schools as part of the Project with respect to the presence and potential for disturbance of hazards and hazardous materials (see Impact 4.G-3 in Section 4.G, *Hazards and Hazardous Materials)*.

As discussed in Section 4.G, *Hazards and Hazardous Materials*, remedial actions and cleanup levels for parcels within the former landfill and railyard portions of the Project Site will be finalized with preparation of Remedial Action Plans. The Remedial Action Plans may require deed restrictions on certain uses, including schools, to limit human exposures to contaminants above levels considered protective of unrestricted use. Therefore, the results of the remediation process may also preclude construction of schools within certain areas of the Project Site.

As noted above, buildout of the DSP or DSP-V scenario could generate as many as 1,078 elementary and middle school students. Therefore, because a single K-8 school can accommodate this number, Project Site students could be accommodated within the Project Site.

Conclusion: Impacts associated with the provision of new school facilities resulting from the DSP and DSP-V scenarios would be significant. The legally required payment of school fees would mitigate direct impacts on school facilities. In terms of indirect impacts, as noted above, the construction and operation of institutional uses has been anticipated as a part of Project Site development, and the impacts of their construction and operation are discussed in other sections of this EIR. As such, the following measures are proposed to minimize indirect impacts from schools: **Mitigation Measures 4.B-2a, 4.B-2b,** and **4.B-3** (construction air emissions); **Mitigation Measures 4.C-1a** through **4.C-1c**, **Mitigation Measures 4.C-2a** through **4.C-2c**, and **Mitigation Measures 4.C-4d** and **4.C-4e** (biological resources); **Mitigation Measures 4.D-2** and **4.D-4** (archaeological resources and human remains); **Mitigation Measure 4.E-2a** (ground settlement); **Mitigation Measures 4.G-2a, 4.G-2b, 4.G-2d,** and **4.G-2f** through **4.G-2h** (hazardous materials); **Mitigation Measures 4.J-4a** and **4.J-4b** (construction period noise); and **Mitigation Measure 4.N-12** (construction circulation patterns).

Conclusion with Mitigation: Direct impacts would be mitigated by payment of school fees and indirect on-site construction and operation-related impacts would be minimized with implementation of mitigation measures listed above. Therefore, impacts associated with new on-site school facilities under the DSP and DSP-V would be less than significant.

CPP and CPP-V

At projected buildout of the CPP or CPP-V scenario, over eight million square feet of new non-residential development would be constructed. Based on the methodology presented above (that each 1,000 square feet of new commercial or industrial development could yield up to 0.04 new student in both elementary/middle school and in high school), this development would result in as many as 658 students (329 additional JUHSD students and 329 additional elementary and middle school students in the Brisbane ESD and Bayshore ESD).

Project-development related generation of 329 high school students would represent a seven-percent increase in the enrollment of the JUHSD. Considering the declining enrollment and the excess capacity currently available in JUHSD schools, it is likely that students generated by the CPP or CPP-V would not result in the need for new or expanded high school facilities beyond what is already underway and planned within the JUHSD (see Table 4.L-2).

The 329 additional elementary or middle school students that would be generated by proposed development under the CPP and CPP-V scenarios would represent a 35-percent increase in the combined current enrollment of both the Brisbane ESD and the Bayshore ESD. Based on comparison of Project Site development-related grade K-8 student generation (329 students) to the combined enrollment of both the Brisbane ESD and the Bayshore ESD, both current enrollment (941 students) and 15-year peak enrollment (1,135 students), it is evident that development under the CPP and CPP-V would create a need for new elementary and/or middle school facilities.

As noted above, SB 50 would require that applicants for individual development projects under the CPP or CPP-V scenarios pay school facilities impact fees established to offset the direct impacts of new development on school facilities. Indirect impacts associated with the construction and operation of such facilities, such as an increase in student traffic, must be analyzed in the appropriate resource area.

The CPP and CPP-V scenarios designate an area within the Project Site for the development of institutional uses, including a charter high school site located at the base of Icehouse Hill. This proposed new charter high school is assumed to be included within the proposed institutional uses under the CPP and CPP-V scenarios. Therefore, operational impacts associated with new high school facilities, including increases in traffic, air quality and GHG emissions, noise, and disturbance of biological, hydrologic, and cultural resources, and increases in the demand for public services and utilities, are assumed as part of the overall analysis of Project Site development set forth in this EIR for proposed development scenarios.

The construction of proposed onsite school facilities also has been anticipated as a part of the CPP and CPP-V scenarios, and the impacts of their construction and, as needed, mitigation measures and other regulatory requirements, are discussed and analyzed in Section 4.B, *Air Quality*; Section 4.C, *Biological Resources*; Section 4.E, *Geology, Soils, and Seismicity*; Section 4.F, *Greenhouse Gas Emission*; Section 4.G, *Hazards and Hazardous Materials*; Section 4.H, *Hydrology and Water Quality*; Section 4.J, *Noise and Vibration*; Section 4.N, *Traffic and Circulation*; and 4.P, *Energy*. Impacts related to school construction are similar to those associated with construction of any new structure(s), and include air quality, GHG and traffic

impacts associated with the use of construction vehicles and with project operation; impacts to water quality during construction and as a result of new impermeable surfaces; noise impacts associated with construction vehicles and school operation; and impacts during construction to biological resources. Analysis of construction impacts also includes a discussion of impacts related to the appropriateness of the siting of schools as part of development of the Project Site with respect to the presence and potential for disturbance of hazards and hazardous materials (see Impact 4.G-3 in Section 4.G, *Hazards and Hazardous Materials,* of this EIR*).*

As discussed in Section 4.G and noted above, remedial actions and cleanup levels for parcels within the former landfill and railyard portions of the Project Site will be finalized with preparation of Remedial Action Plans. The Remedial Action Plans may require deed restrictions on certain uses, including schools, to limit human exposures to contaminants above levels considered protective of unrestricted use.

The CPP and CPP-V scenarios do not designate an area for development of an elementary or middle school. Because the CPP and CPP-V scenarios do not designate an area for development of an elementary or middle school, and because the addition of 329 elementary and middle school students under these scenarios would necessitate the addition of a school, impacts associated with new school facilities would be significant.

Conclusion: While impacts associated with new school facilities under the CPP and CPP-V would be significant. Should the CPP or CPP-V scenario be selected, reserving an elementary/middle school site to accommodate students that may be generated as the result of onsite employment and reflecting this reservation in the specific plan that would be required prior to Project Site development would avoid this impact.

Mitigation

Mitigation Measure 4.L-3: A site for an elementary/ middle school of sufficient size to accommodate development-related enrollment under the CPP and CPP-V scenarios shall be reserved as part of the specific plan required by the Brisbane General Plan for development within the Project Site.

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
-	-	✓	✓
✓ = measure applies - = measure does not apply			

Conclusion with Mitigation: Impacts associated with the provision of new school facilities resulting from the CPP and CPP-V would be significant. The legally required payment of school fees would mitigate direct impacts on school facilities. Construction and operational related impacts would be minimized with implementation of mitigation measures proposed throughout the EIR. See **Mitigation Measures 4.B-2a, 4.B-2b,** and **4.B-3** (construction air emissions); **Mitigation Measures 4.C-1a** through **4.C-1c**, **Mitigation Measures 4.C-2a** through **4.C-2c**, and **Mitigation Measures 4.C-4d** and **4.C-4e** (biological resources); **Mitigation Measures 4.D-2** and **4.D-4** (archaeological resources and human remains); **Mitigation Measure 4.E-2a** (ground settlement); **Mitigation Measures 4.G-1a, 4.G-1b, 4.G-2a,** and **4.G-2f** through **4.G-2h** (hazardous materials); **Mitigation Measures 4.J-4a** and **4.J-4b** (construction period noise); and **Mitigation Measure 4.N-12** (construction circulation patterns).

4.L.5 Public Libraries

Environmental Setting

There are 14 branch libraries within a 3.5-mile radius of the Project Site (see **Table 4.L-3**). These branches are affiliated with the public library systems of San Mateo County, Daly City, San Francisco, and South San Francisco. San Mateo County operates 12 community libraries in 11 cities and towns in the incorporated and unincorporated areas of San Mateo County (San Mateo County Library, 2007). The Daly City Public Library operates four branch libraries and provides services to the residents of the City of Daly City as well as the residents of Colma and unincorporated Broadmoor (Daly City Library, 2011). The City and County of San Francisco operates an extensive network of over 20 neighborhood libraries, 9 of which are in proximity to the Project Site (San Francisco Public Library, 2011). Many of the branch libraries in the San Francisco Public Library system have opened or been renovated within the last five years. The City of South San Francisco maintains one main and one branch library, each of which is in proximity to the Project Site.

Together, these libraries provide a wide range of services. Collections of fiction, nonfiction, and reference materials are geared toward children, teens, and adults and are available in English, Cantonese, Mandarin, and Spanish, among other languages. Collections include periodicals, audio books, CDs, and DVDs. Materials available to library patrons are not limited to those housed in the neighborhood branch library. Libraries may provide access to broader collections through inter-library loan, whereby patrons may request and borrow items from participating libraries, universities, and other institutions throughout North America.

In addition to their combined lending collections, these libraries offer important community services such as computer and Internet access. Community rooms and spaces within these libraries provide for a variety of services including adult lecture series, programs for children and teens, early and adult literacy programs, and teacher services.

Regulatory Setting

There are no state library service regulations applicable to the Project. The City of Brisbane General Plan does not contain policies regarding libraries that pertain to the Project.

Significance Criteria

Criteria outlined in the CEQA Guidelines were used to determine the level of significance of identified impacts on public services. Appendix G of the CEQA Guidelines indicates that a project would have a significant effect on the environment if it were to:

- Result in substantial adverse physical impacts associated with the provision of new or physically altered library facilities, need for new or physically altered library facilities, the construction of which could cause significant environmental impacts, in order to provide adequate library services.

TABLE 4.L-3
LIBRARY BRANCHES WITHIN 3.5 MILES OF THE PROJECT SITE

Branch	Location	Distance from Project Site (miles)
Brisbane Branch San Mateo County Public Library	250 Visitacion Avenue Brisbane	0.5
Bayshore Branch Daly City Public Library	460 Martin Street Daly City	0.5
Visitacion Valley Branch San Francisco Public Library	201 Leland Avenue San Francisco	0.5
Portola Branch San Francisco Public Library	380 Bacon Street San Francisco	1
Bayview Branch San Francisco Public Library	2057 3rd Street San Francisco	2
Grand Avenue Branch South San Francisco Public Library	306 Walnut Avenue South San Francisco	2
Bernal Heights Branch San Francisco Public Library	500 Cortland Avenue San Francisco	2.5
Excelsior Branch San Francisco Public Library	4400 Mission Street San Francisco	2.5
Glen Park Branch San Francisco Public Library	2825 Diamond Street San Francisco	2.5
Main Library South San Francisco Public Library	840 West Orange Avenue South San Francisco	3
Ingleside Branch San Francisco Public Library	1298 Ocean Avenue San Francisco	3.5
Mission Branch San Francisco Public Library	300 Bartlett Street San Francisco	3.5
Ocean View Branch San Francisco Public Library	345 Randolph Street San Francisco	3.5
John Daly Branch Daly City Public Library	134 Hillside Boulevard Daly City	3.5

SOURCE: ESA, 2011.

Impact Assessment Methodology

The environmental impact analysis for public services in this EIR involves an assessment of available public libraries in proximity to the Project Site. The methodology included a review of the types of services provided by these libraries and the methods used to deliver services to the public.

Project Impacts and Mitigation Measures

Impact 4.L-4: Would the Project result in substantial adverse physical impacts associated with the provision of new or physically altered library facilities, need for new or physically altered facilities, the construction of which could cause significant environmental impacts, in order to provide adequate library services?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
SM	SM	LTS	LTS

SU = Significant Unavoidable SM = Significant but Mitigable
LTS = Less than Significant
- = no impact

DSP, DSP-V, CPP, and CPP-V

Project Site development would increase population on the Project Site and increase the use of library space in the surrounding area.

At buildout under the DSP or DSP-V scenario, approximately 9,888 residents would be introduced to the Project Site (see Table 4.K-12 in Section 4.K, *Population and Housing*, of this EIR), along with the students discussed in Section 4.L.4, *Public Schools*. The permanent resident and student population would result in an increased demand for library services. Project Site development-related demand would increase over time throughout the buildout of the Project Site, as specific development projects are constructed and occupied.

Under the CPP or CPP-V scenario, no residential units would be constructed; therefore, the resident population at the Project Site would not increase and the Project Site development-related demand for library services would be substantially lower than that of the DSP or DSP-V scenario, resulting from Project Site students registered for school based on their parents' place of employment, which would generate some increased demand for library services.

Although demand for library resources would increase under all four development scenarios, the development of inter-library loan programs increasingly allows libraries to distribute resources to their constituents with reduced reliance on the physical library facility to store a large collection. As such, adequate provision of library services cannot be evaluated by measuring the collection size within a specific branch against the number of registered borrowers or per capita. The Project Site development-related population increase would also result in an increased demand on the community rooms, study areas, and designated community spaces that existing libraries provide. The increase in demand for library services would be expected to take place over time throughout the Project Site development period with the incremental addition and occupancy of new building space (residential and non-residential).

Given the 14 existing branch libraries within 3.5 miles of the Project Site, including three libraries within one-half mile of the Project Site, and given the increased availability of electronic materials and materials through inter-library loans, it is reasonable to anticipate that, in the absence of a library facility within the Project Site, area residents, students, and employees would tend to use other nearby library facilities, impacting the capacity of those facilities. Thus, development of the Project Site under the DSP and DSP-V development scenarios would result in a need for library space beyond what already exists to maintain existing services to the Brisbane community and not impact libraries in surrounding communities.

Conclusion: Implementation of Project Site development would require expansion of library space in all four scenarios so as to avoid impacting the capacity of existing facilities. Because the increase in use of libraries would primarily result from proposed residential development in the DSP and DSP-V scenarios, significant environmental effects related to the provision of library services would occur in the DSP and DSP-V scenarios and require mitigation. This impact would be less than significant for the CPP and CPP-V scenarios which do not propose residential development, and no mitigation would be required for those scenarios.

Mitigation

Mitigation Measure 4.L-4: To avoid existing and proposed library facilities in surrounding communities, a library facility shall be developed within the Project Site that is of sufficient size to serve Project Site population. The onsite library shall be constructed and operational prior to issuance of the occupancy permits for more than 50 percent of the residential dwelling units permitted under the DSP and DSP-V scenarios, thereby ensuring an onsite resident population to use onsite library facilities at the time of its opening. This requirement shall be reflected in the specific plan(s) required to be prepared and approved prior to Project Site development.

Mitigation Measure Applicability by Scenario

DSP	DSP-V	CPP	CPP-V
✓	✓	-	-

✓ = measure applies
- = measure does not apply

Conclusion with Mitigation: Provision of an adequately sized library facility within the Project Site would mitigate direct impacts of the DSP and DSP-V, and the CPP and CPP-V are not expected to impact library facilities. Therefore, impacts associated with library facilities would be less than significant.

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4.M Recreational Resources

4.M.1 Introduction

This section describes existing recreational resources within the vicinity of the Project Site and elsewhere in Brisbane. It evaluates the impacts of the Project Site development on existing recreational resources, including impacts on windsurfing in San Francisco Bay. Feasible mitigation measures are identified to reduce significant impacts.

4.M.2 Environmental Setting

Numerous open space and recreational opportunities exist within the Project Site vicinity. Recreational facilities within, adjacent to, and in the vicinity of the Project Site are described below.

City of Brisbane Recreational Resources

The Brisbane Parks and Recreation Department manages the City's system of parks, trails, and recreational facilities within the city limits. The Brisbane Public Works Department helps to maintain the parks.

Parks and Open Spaces

The City owns a number of parks and open space areas, which, along with privately owned open space areas, are identified in **Table 4.M-1** and **Figure 4.M-1**. There are currently 27.9 acres of public parks (including linear parks) and recreational lands within the City exclusive of the school portions of joint school/park sites.

The Open Space Element of the Brisbane General Plan classifies parks available to its residents by size and intended use (City of Brisbane, 1994):

i. Mini Parks – a small-scale outdoor area for limited public or private uses.

ii. Neighborhood Parks – a public area of at least 0.5 acre for a range of recreational activities, such as field sports, court and playground games, crafts and picnicking, including school/park facilities.

iii. Linear Parks – a long, narrow area used for one or more varying modes of recreational travel, such as hiking, biking, and horseback riding, including built or natural corridors, such as utility right of way, fire roads and canyons.

iv. Community Parks – a public area of at least 2 acres in size serving the residential and business communities, such as outdoor community gathering places or multi-use recreational complexes.

v. Special Recreational Use – a structure for specialized or single purpose recreational activities.

vi. Conservancy – an area of protected and managed natural/cultural resources.

The inventory listed in **Table 4.M-1** includes City-owned parks, trails, and other facilities as well as publicly accessible private parks and other nearby recreational resources.

TABLE 4.M-1
PARKS SERVING BRISBANE

Park Classification	Park/Resource Name	Approximate Acreage	Park/Resource Number in Figure 4.M-1
Mini Parks			
Public	Sierra Point Par Course/Picnic Area	0.25	1
	Community Center/Library Park	0.11	2
	Plug Reserve	0.01	3
	Silver Spot Nursery Center Tot Lot (formerly Kids and Things Playground)	0.25	4
	Skateboard Park and Basketball Courts	0.25	5
Private	Joy Condominium Yard Area	0.60	6
	Northeast Ridge Altamar Tot Lot	0.25	7
	Northeast Ridge Altamar Rec. Bldg. Site	0.23	8
	Northeast Ridge Viewpoint Tot Lot/Park and Rec. Bldg.	0.67	9
	Total	**2.62**	
Neighborhood Parks			
Public	Lipman School Fields and Playground	12.30	10
	Brisbane Elementary School Fields	4.89	11
	Firth Park	0.50	12
	Total	**17.69**	
Linear Parks			
Public	Sierra Point Public Access Trails	7.00	13
	Brisbane Bicentennial Walkways	0.37	14
	Crocker Park Recreational Trail	10.00	15
Outside City Limits	Old Quarry Road	9.80	16
	Total	**27.17**	
Community Parks			
Public	The Community Park	2.00	17
	Mission Blue Park	6.50	18
	Community Swimming Pool	0.66	19
	Total	**9.16**	

SOURCE: City of Brisbane, 2001; Carpenter, 2013.

Figure 4.M-1
Parks Serving Brisbane

Recreational Facilities

The Brisbane Parks and Recreation Department coordinates the use of recreational facilities for Brisbane residents including a teen center, senior center, gymnasium, ball field, community pool, and several activity/community rooms. Brisbane residents are allowed use of Brisbane Elementary School District (Brisbane ESD) baseball and multi-purpose playing fields, the junior high gymnasium, and other properties owned by the Brisbane ESD through a joint use agreement with the City (City of Brisbane, 1994). The Parks and Recreation Department also provides an extensive collection of classes and workshops geared toward all ages in the community. **Table 4.M-2** lists the recreational facilities available for use by the community.

TABLE 4.M-2
RECREATIONAL FACILITIES IN BRISBANE

Name	Location	Operator
Brisbane Elementary School Activity Room and Fields	500 San Bruno Avenue	Brisbane ESD
Community Center	250 Visitacion Avenue	City of Brisbane
Mission Blue Center	475 Mission Blue Drive	City of Brisbane
Brisbane Community Pool	2 Solano Street	City of Brisbane
Lipman Middle School Gym/Field	1 Solano Street	Brisbane ESD
Recreation Activity Room	500 San Bruno Avenue	City of Brisbane
Brisbane Marina/fitness course	400 Sierra Point Parkway	City of Brisbane
Brisbane Senior Center Sunrise Room	2 Visitacion Avenue	City of Brisbane
Brisbane City Teen Center	22 San Bruno Avenue	City of Brisbane

SOURCE: City of Brisbane, 2011.

Other Recreational Resources in the Vicinity

The majority of other recreational resources serving Brisbane are parks functioning as ecological reserves and areas conserved for endangered species.

San Francisco Bay Trail

Portions of the San Francisco Bay Trail serve Brisbane residents. The San Francisco Bay Trail is a planned recreational corridor that, when complete, will encircle San Francisco and San Pablo Bays with a continuous 500-mile network of bicycling and hiking trails. Currently, a paved portion of the trail almost encircles Sierra Point south of the Project Site. The trail extends farther north along the bay side of Brisbane Lagoon, providing pedestrian and bicycle access. To the north of the Project Site, a paved portion of the trail runs along the southern edge of Candlestick Point State Recreation Area. A portion of the trail is planned to extend along the eastern boundary of the Project Site. This portion of the trail, which is currently unimproved, would connect Sierra Point with the trail segment at Candlestick Point State Recreation Area (San Francisco Bay Trail Project, 2011).

San Bruno Mountain State and County Park

San Bruno Mountain State and County Park lies roughly three miles west of the Project Site. The rugged 2,326-acre San Bruno Mountain State and County Park was jointly purchased by San Mateo County and the State of California and is managed by the San Mateo County Department of Parks. Additionally, two areas on the north side of the park, Owl and Buckeye Canyons, are owned by the California Department of Fish and Wildlife. These canyons are approximately 81 acres in combined size and comprise the San Bruno Mountain Ecological Reserve. Both areas are within the San Bruno Mountain Habitat Conservation Plan boundary and consist of permanently protected habitat (City of Brisbane, 2001).

Candlestick Point State Recreation Area

Less than one mile northeast of the Project Site is Candlestick Point State Recreation Area (CPSRA), a 252-acre regional open space. Recreational opportunities include gardening, hiking, jogging, bicycling, bird watching, fishing, and picnicking (California State Parks, 2011). The area also includes a bike path and a fitness course.

CPSRA is also a popular entry point for windsurfing on the Bay and is considered one of the premier windsurfing sites in the San Francisco Bay Area (Thorner, 2008). The windsurfing launch site is located on the shoreline of Candlestick Cove near the southern end of the CPSRA parking lot, a turnaround known as "Windsurf Circle." According to the San Francisco Boardsailing Association (SFBA), CPSRA is an ideal location for beginning- and intermediate-level windsurfers, because there is very little swell (wave action). These flat-water conditions allow windsurfers to develop skills that are more difficult to master in choppy water. The SFBA provided accumulated GPS tracks that it considers to be representative of the primary sailing area in this area of the Bay (Thorner, 2008). The SFBA considers westerly wind conditions to be generally good for windsurfing at CPSRA, with the best conditions during west-northwest winds (Thorner, 2008). Alternate windsurfing sites such as Crissy Field (San Francisco), Ocean Beach (San Francisco), and Oyster Point (South San Francisco) feature heavy surf, offshore winds, or strong currents – wind and water conditions that are not appropriate for beginners and intermediates.

Both the speed and turbulence of the winds that reach the CPSRA windsurfing area are affected by the topography and features of the lands that lie upwind. Winds that move over Brisbane and San Francisco encounter differing levels of surface roughness and take on different wind speed profiles due to different topography, vegetation, and structures that all act to slow the wind near the ground and create turbulence. However, when those winds reach large areas of smooth, flat surfaces, such as open land or the Bay, wind speeds near the surface of the ground or water will increase and the level of turbulence will decrease. Of particular importance to the CPSRA wind conditions is the topography of the vicinity, which includes the 525-foot-high Visitacion Knob in McLaren Park to the northwest and the ridge that extends from McLaren Park eastward to the 250-foot-high Bayview Hill. In addition to the topography, the extensive low-rise development and US Highway 101 that lie to the west and northwest also affect the prevailing winds that reach the CPSRA windsurfing area, while the minor changes in topography across the Project Site have essentially no effect.

Wind conditions at the CPSRA windsurfing area and vicinity are discussed in more detail under Impact 4.M-3 in Subsection 4.M.4, Impacts and Mitigation Measures. Subsection 4.M.4 discusses the methodologies employed to evaluate impacts on windsurfing areas. See also **Appendix J** of this EIR, which presents modeling results for post-Project wind conditions.

4.M.3 Regulatory Setting

Development within the Project Site boundaries must comply with federal, state, regional, and local regulations. This section of this EIR discusses requirements related to recreational resources to the extent that they will shape the way Project Site development occurs.

Regional Regulations

The San Francisco Bay Trail Plan proposes the development of a regional hiking and bicycling trail around the perimeter of San Francisco and San Pablo Bays. Senate Bill 100, authored by former Senator Bill Lockyer and passed into law in 1987, states that "The Association of Bay Area Governments (ABAG) shall develop and adopt a plan and implementation program, including a financing plan, for a continuous recreational corridor which will extend around the perimeter of San Francisco and San Pablo Bays. The plan shall include a specific route of a bicycling and hiking trail, the relationship of the route to existing park and recreational facilities, and links to existing and proposed public transportation facilities."

The San Francisco Bay Trail Plan was adopted by ABAG in 1989 and provides for approximately 500 miles of trails to form a "ring around the Bay." Implementation of roughly half of the total planned length of the Bay Trail has been coordinated by the Bay Trail Project, a nonprofit organization. Currently, the Bay Trail does not extend through the Project Site; it stops at the City of Brisbane/City and County of San Francisco line on the north and starts again at Sierra Point Parkway and Brisbane Lagoon on the south. Bay Trail Project plans show a future extension on the east side of the Project Site between the current north and south termini of the trail.

Local Regulations

City of Brisbane General Plan

Policies and Programs

Policies and programs contained in the Conservation, Recreation and Community Services, Open Space, and Land Use Elements of the Brisbane General Plan pertaining to parks and recreational resources include the following:

> ***Policy 81:*** The City shall conduct an on-going effort to identify sites or portions of sites having particular value as open space, wildlife habitat, wetlands, or other environmental qualities that should be preserved and protected. In such cases, the City shall explore the feasibility of acquisition of these areas by the City or by other public or private agencies that are engaged in the ownership and preservation of open space, and, when legally possible, imposing a requirement that such areas be dedicated by the owner to the public for open space purposes.

Policy 81.1: Work to preserve open space lands to protect the natural environment and to provide outdoor educational and recreational opportunities consistent with the sensitivity of the resource.

Policy 82: Encourage the preservation, conservation and restoration of open space to retain existing biotic communities, including rare and endangered species habitat, wetlands, watercourses and woodlands.

Policy 85: Encourage the preservation and conservation of aquatic resources in Brisbane: the Lagoon, the Bayfront and the Marsh.

> *Program 85a:* Seek opportunities to utilize aquatic areas for recreational and educational activities consistent with the sensitivity of the resource.

Policy 86: Provide access to natural areas consistent with the nature of the resource.

> *Program 86a:* Develop and maintain a network of trails and pathways throughout the City to provide appropriate access to open space and to link City trails with County and regional trail systems.
>
> *Program 86b:* Extend the trail system to include aquatic areas and provide access to public transportation systems.
>
> *Program 86c:* Examine the potential to extend a pedestrian and bicycle trail between Sierra Point and the Candlestick Recreation Area along the Bay to the east of U.S. 101 in cooperation with regional efforts to obtain the same objective.

Policy 87: Maintain parks and open space to serve the community equivalent to or greater than the acreage/population standards set by the National Recreation and Parks Association.

> *Program 87a:* Use the standards in Table 6 as guidelines for the provision of parks and open space for the community.

Policy 88: Develop parks to maximize passive recreational opportunities.

Policy 89: Work with local employers to preserve open space and to develop outdoor open areas that would benefit employees as well as residents during and after the work day.

Policy 91: Explore the widest range of options for preserving open space lands, including acquisition, dedication, and exactions on development projects.

Policy 96: Condition, as appropriate, new developments to construct, maintain or provide for new recreational facilities, amenities and opportunities.

Policy 132: Recognize the importance of the Brisbane Lagoon and the Levison Marsh as wildlife habitats, valuable community resources and drainage basins, and cooperate with responsible agencies in their conservation.

Policy 331: Maximize opportunities for open space and recreational uses in any land use planning for this subarea [Brisbane Baylands].

Policy 347: Cooperate with other agencies to develop the Bay Trail between Sierra Point and the Candlestick Recreation Area.

Policy 348: Enhance the natural landform and biotic values of Icehouse Hill and preserve its ability to visually screen the Tank Farm.

Policy 349: After the water environment is determined to be safe for public access, develop public water-related passive recreation at the Brisbane Lagoon, with due concern for the preservation and enhancement of the wetlands.

Policy 350: Develop a public pathway and access facilities immediately adjacent to the Lagoon.

Policy 354: Dedicate land area for open space, recreational uses and wetlands restoration, especially around the Lagoon.

Policy 355: Provide in-lieu fees for the acquisition of open space or land dedication in conjunction with development.

Land Use Designations and Open Space Requirements

The Brisbane General Plan designates most of the Project Site as *Planned Development-Trade Commercial*, with the Brisbane Lagoon designated *Marsh/Lagoon/Bayfront*. The Land Use Element of the General Plan requires that *Planned Development-Trade Commercial* areas maintain a minimum of 25 percent of the surface area in open space and/or open area. The Open Space Element defines "open space" as "lands that are essentially unimproved and dedicated or proposed to be dedicated to the public for outdoor recreation and for the preservation of biotic communities." Aquatic areas that are in whole or part in private ownership, such as Brisbane Lagoon, are not considered Open Space, but are given an aquatic designation denoting the unique nature of each resource. Areas of land that are essentially unimproved and that are in private ownership are called "open areas."

City of Brisbane Open Space Plan

The *Brisbane Open Space Plan* offers a vision for a comprehensive and integrated open space system for the City and its residents (City of Brisbane, 2001). The Open Space Plan is intended to function as a working tool to guide implementation of the policies and programs of the City of Brisbane General Plan. One of the purposes of the Open Space Plan is to provide (and update annually) a comprehensive map of vacant lands and identify open space potential through the possibility of land acquisition by evaluating natural resources, amenities, and the open space value of parcels. The Open Space Plan presents an analysis of open space resources in six subareas of the city, including the Baylands and Beatty Subareas that encompass the majority of the Project Site.

The Open Space Plan recommends that areas south of the drainage channel and north of Lagoon Way "be maintained in a way that maximizes open area." It also recommends that Icehouse Hill be kept largely as open area or dedicated open space. The Beatty Subarea is completely developed with the exception of one triangular, 0.51-acre parcel near US Highway 101. The Open Space Plan recommends that this parcel remain an open space/open area.

Recreational Resources Service Standards

A joint committee of the Brisbane Planning Commission and Parks, Beaches, and Recreation Commission conducted a survey of existing and planned parks and open spaces to inform the Open Space Element of the General Plan in 1994. The committee determined that National

Recreation and Parks Association service standards did not adequately account for conditions within Brisbane. Therefore, the Open Space Element, based on the survey findings, adjusted service standards of the National Recreation and Parks Association, and existing conditions at the time the Open Space Element was prepared in 1994, established the following park service standards:

- Combined Mini, Neighborhood, and Linear Parks: 10.5 acres per 1,000 residents
- Community Park: 8.0 acres per 1,000 residents (*1994 General Plan includes Brisbane Community Park (Old County Road) and Northeast Ridge School/Park site.*)
- Conservancy: 66 acres per 1,000 residents (*1994 General Plan includes Owl and Buckeye Canyons, Sierra Point Canyon, Costanos Canyon, Firth Canyon and Northeast Ridge habitat area.*)

These standards are applied only to resident population, and not to local employment population. According to the *Brisbane Open Space Plan* (2001), parkland in the city exceeded the standards for conservancies and mini, neighborhood, and linear parks but did not meet the standard for community parks.

4.M.4 Impacts and Mitigation Measures

Significance Criteria

The CEQA Guidelines indicate that a project would have a significant effect on the environment if it would:

- Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated; or
- Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

In addition, comments were received during the Notice of Preparation/scoping period stating concerns about Project impacts on the windsurfing activities that occur in San Francisco Bay between the Project Site and Candlestick Point. The Project would be considered to have a significant effect if it would:

- Substantially degrade the existing windsurfing recreational resource at CPSRA.

Impact Assessment Methodology

Assessment of Increased Use of Existing Parks and Recreational Facilities

The analysis focuses on how projected growth resulting from the Project Site development could affect the demand for existing parks and recreational facilities. The analysis is based on the housing and resident population projections described in Section 4.K, *Population and Housing*, of this EIR. The analysis considers whether the proposed recreational facilities at the Project Site (see "Assessment of Impacts of Proposed Recreational Facilities" below) would offset the

demand for existing parks and recreational facilities in the vicinity created by development of the Project Site.

Assessment of Impacts of Proposed Recreational Facilities

The analysis considers the environmental impacts of construction of the recreational facilities proposed by the DSP, DSP-V, CPP, and CPP-V scenarios, as described below. Impacts of constructing these facilities and, as needed, mitigation measures and other regulatory requirements, are discussed in Section 4.B, *Air Quality*; Section 4.C, *Biological Resources*; Section 4.E, *Geology, Soils, and Seismicity*; Section 4.G, *Hazards and Hazardous Materials*; Section 4.H, *Hydrology and Water Quality*; Section 4.J, *Noise and Vibration*; and Section 4.N, *Traffic and Circulation*, of this EIR.

Under the DSP, DSP-V, CPP, or CPP-V scenario, some of the recreational facilities, parks, and open space uses developed within the Project Site would be dedicated in fee title to the City of Brisbane or a public open space agency designated by the City, or would have permanent open space easements placed upon them. Other areas would be developed by the primary developer and would remain under private ownership. The DSP and DSP-V scenarios are analyzed together in this section because they include the same amount of residential development and similar levels of non-residential development; additionally, the same recreational amenities are proposed under each scenario. Similarly, impacts related to the CPP and CPP-V scenarios are analyzed together, as neither of them proposes residential development and each proposes the same recreational amenities.

Assessment of Impact on Windsurfing Conditions

Effect of Wind Speed on Water-Related Recreation

Wind speed effects on water-related recreational uses of CPSRA shoreline and Bay vary with the specific use. While there appear to be no specific criteria for minimum wind speeds to support "good" sailing, windsurfing, and the like, wind speeds of 13 miles per hour or more are usually considered desirable for wind-powered activities, such as paragliding and hang-gliding, and apply to windsurfing as well; for highly skilled windsurfers, the more wind in the sailing area, the better. Wind is necessary to launch and land, but if winds at the launch site are too strong, beginning- and intermediate-level windsurfers could find it difficult to do either. Wind direction[1] is also important to windsurfing, in that an adverse wind direction can make it more difficult to launch the board, to reach a desirable sailing area, or to return safely to the launch site.

From the perspective of windsurfers, the presence of existing landforms, vegetation, and buildings that already lie upwind of the windsurfing area represent "surface roughness" that reduces the speed and increases the turbulence of the winds that reach the CPSRA launch site and windsurfing area.

[1] Wind directions used here are identified only by the 16 points of a compass –four cardinal directions (N, E, S, and W), four ordinal directions (NE, SE, SW, and NW), and eight more equal-angle subdivisions (i.e., NNE, ENE, etc.),

Wind Speed

Wind speeds in the windsurfing area are lowest near the shore and highest over open water, farther from shore. Winds in the windsurfing area typically blow from the northwest (NW) and west-northwest (WNW). In this analysis, the wind tunnel measurements of wind speed are reported as wind speed ratios (R-values), each a fraction formed when the slower wind speed near the ground is divided by the speed of the faster, unimpeded winds high overhead. The existing relative wind speed ratios, or R-values, measured near the surface of the Bay within the windsurfing area range from 0.39 to 0.67.

Wind Turbulence

Wind turbulence is a measure of the short-term variability of the wind speed. In this analysis, it is represented by turbulence intensity (TI), which is expressed as a percentage of wind speed. Typically, winds are more turbulent closer to major obstructions and the shore, and winds are less turbulent farther from the shore over open water. The existing TI values near the surface of the Bay within the windsurfing area range from 10 to 31 percent, as measured in the wind tunnel.

Criteria Used

The CEQA Guidelines provide no specific criteria to assess necessary or optimal wind conditions to support windsurfing, and preferences for wind conditions may vary according to the skill level and objectives of the individual windsurfer. However, for the purposes of this analysis, the third criterion listed under "Significance Criteria" above is applied to the CPSRA windsurfing recreational resource as follows: The Project Site development would "substantially degrade" the windsurfing recreational resource if it were to reduce wind speeds to the point where the reductions would adversely affect windsurfing in prime windsurfing areas or substantially impair access to prime windsurfing areas from existing launch sites.

This criterion is appropriately evaluated qualitatively due to the variable nature of wind, the wide range of wind conditions that are suitable for windsurfing, and the relative importance of specific parts of the very large, local windsurfing area. In other words, no one quantitative measure likely would capture a level of overall resource degradation that would apply to the entire shoreline area. Further, this criterion was added to address concerns expressed by the SFBA in response to the Notice of Preparation and, while the response stated a specific concern for increased variability or gustiness in the wind, the SFBA did not specify a critical threshold wind speed or a wind speed reduction that it would consider to cause a significant adverse impact on windsurfing in the CPSRA windsurfing area. Other expressed concerns regarding the possible wind effects of the Project related to the launch site, the sailing area, and general wind conditions, including the requirement for "a strong and steady wind"; none of these factors were associated with quantitative measures.

Wind Tunnel Tests

To determine the effects of Project Site development on windsurfing, wind tunnel tests were conducted to study the changes in wind conditions at the CPSRA windsurfing launch site and in the windsurfing sailing area in San Francisco Bay. This analysis also considers data and analysis from a 2009 wind tunnel test to measure changes in wind conditions in the northern portion of the

windsurfing area due to nearby development at Executive Park. Those wind test results and impact conclusions are reported in the Executive Park Amended Subarea Plan and the Yerby Company and Universal Paragon Corporation Development Projects EIR (City and County of San Francisco, 2010).

The Project test area included a portion of San Francisco Bay, extending south-southwest from the CPSRA launch site. The identified windsurfing sailing area was enclosed within two model test grids comprised of 250-foot squares that extended approximately 7,000 feet from the launch site and covered approximately 280 acres of water surface that included the area identified by the SFBA as the primary sailing area in this part of the Bay (see **Figure 4.M-2**). The study considered five test scenarios: (1) winds under existing development conditions, (2) winds that would occur under the DSP scenario, (3) winds that would occur under the CPP scenario, (4) winds that would occur with cumulative development under the DSP scenario, and (5) winds that would occur with cumulative development under the CPP scenario.[2]

The wind tunnel testing measured wind speed and wind turbulence conditions for each scenario and therefore was able to determine the changes in wind speed and turbulence that would result if the Project Site development were constructed. The wind speed at surface level for each grid location was measured in the wind tunnel, as was the wind speed at a point high above the surface, in undisturbed air. The two speed measurements were formed into a fraction by dividing the speed at surface level by the speed of undisturbed (free-stream) air high above; this fraction expresses the relative speed of the wind, which varies according to the amount of wind resistance caused by each scenario. This fraction is referred to here as an "R-value" or a "wind speed ratio." The R-value or wind speed ratio is the fraction of wind speed that remains after it is slowed by the roughness of the surface over which the wind passes[3]; in general, the rougher the surface, the slower the surface wind.

Wind turbulence was also measured at each test point. Considering the geographical relationship of the proposed development to the windsurfing launch and sailing areas, the wind tests focused on the effects of winds from the west (W), west-northwest (WNW), northwest (NW), and west-

[2] The only other projects whose effects could possibly combine with the wind effects of the DSP or CPP are limited to (1) large developments with multi-acre areas of buildings more than several stories in height, (2) projects located upwind or cross-wind of the Baylands site, and (3) projects located close enough to the Bay to have a measureable wind effect on the windsurfing area. Therefore, the only projects that meet these criteria are Candlestick Point/Hunters Point, Executive Park, and the Visitacion Valley Mixed Use Project (Schlage Lock site).

[3] Due to the methodology of wind tunnel testing and the basic nature of air, the R-values or the calculated percentage changes in wind speed apply uniformly to any wind speed of concern at the site, from the lower speeds to the highest. For example, an R-value of 0.63 indicates a speed that is 63 percent of the "free-stream" speed overhead, regardless of the specific "free-stream" speed – 30 miles per hour (mph), 20 mph, or 10 mph. If the speed of the free-stream wind were to vary, the wind speed at the test measurement point would vary in direct proportion. Also, because the measurements for all scenarios and wind directions are normalized as R-values, they may be directly compared one-to-another to obtain valid measures of the relative effects of one scenario vs. another. This is true among the current wind tunnel test scenarios and also true among the previous wind tunnel test scenarios.

As a result, the plots of R-values in Appendix J also may be converted back to wind speeds over the test grid by assuming a free-stream wind speed and multiplying that speed by the individual grid R-values to obtain surface-level wind speeds. For example, with a free-stream wind speed of 20 mph, the surface-level wind speed at a point with an R-value of 0.60 would be 12 mph. Similarly, if the wind speed is 15 mph at a surface point with an R-value of 0.60, the free-stream wind speed would be 25 mph.

Figure 4.M-2
Wind Tunnel Test Measurements

southwest (WSW), the directions for which the Project Site development could affect wind in the windsurfing launch and sailing areas. The analysis presents the conditions that would occur when the wind blows from each of these four directions, informing windsurfers of the relative conditions (wind speed and wind turbulence) they would experience while sailing under each wind.

Resulting changes in wind conditions were then assessed to determine whether these changes could reduce wind speeds to the point where the reductions would substantially impair windsurfing in prime windsurfing areas or substantially impair access to or from those areas from the existing CSPRA launch site.

Plots of the wind test results, including the R-values, percentage change in R-values, and wind turbulence intensity (TI) for existing and Project conditions, are included in Appendix J of this EIR.

Open Space and Recreational Facilities Proposed by DSP and DSP-V Scenarios

As shown in **Table 4.M-3**, both the DSP and DSP-V scenarios would reserve almost 170 acres (roughly 30 percent of the developable land area of the Project Site) for open space and public use areas. These areas would include parks, plazas, linear parks, shared use areas, and preservation of natural features. A variety of parks would provide both passive and active recreational uses.[4] In addition, approximately 16 acres would consist of planted and paved outdoor spaces such as plazas, courtyards, and gardens. Another 10 acres would be densely planted areas adjacent to Sierra Point Parkway and the Kinder Morgan Energy Tank Farm. Figures 3-11 and 3-12 (in Chapter 3, *Project Description*, of this EIR) show the locations of the major parks and other open spaces proposed by the DSP and DSP-V scenarios, respectively. Parks and open space improvements proposed for the upland area include a linear park known as the Promenade; preservation of the historic roundhouse on the Roundhouse Green; the Central Plaza within the commercial/office district; a campus-style quad plaza; enhancement of wetlands and riparian habitat in Visitacion Creek Park (East and West); the 47-acre South Visitacion Park; preservation of Icehouse Hill; and a new Lagoon Park. The proposed Charter High School would also be used as a shared-use recreational facility.

The DSP and DSP-V scenarios also include 11 acres of perimeter open space referred to as the Lagoon Perimeter. The Lagoon Perimeter is a narrow, undeveloped strip of land that surrounds the lagoon. It extends southward from the northern boundary of the lagoon and directly abuts the railroad right-of-way on the west. The eastern portion of the perimeter is located outside the Project Site. UPC owns four of these 11 acres, while the City of Brisbane owns the remaining seven acres (see Figure 3-8 in Chapter 3, *Project Description*, of this EIR). Descriptions of these proposed parks and open space areas are provided below.

[4] Active recreation refers to structured individual or team activity that requires the use of special facilities, courses, fields, or equipment, whereas passive recreation refers to activities such as hiking, bird watching, and picnicking that do not require prepared facilities like sports fields or pavilions.

TABLE 4.M-3
PARKS AND OPEN SPACE AREAS PROPOSED BY DSP AND DSP-V SCENARIOS

Park/Open Space	Acres	Type/Key Attributes
The Promenade	4.1	Linear park
Roundhouse Green	3.4	Preservation of historic roundhouse
Central Plaza	2.7	Venue for outdoor events
Triangle Parks	0.3	Gateway to hotel and conference area
The Quad	4.7	Campus-style quad with pathways
Visitacion Creek Park (East)	26.0	Wetlands and riparian habitat
Visitacion Creek Park (West)	21.2	Wetlands and riparian habitat
South Visitacion Park	47.2	Broad open space
Icehouse Hill	31.7	Recreational trails and habitat
Lagoon Park	13.3	Improved public access
Landscape Areas	9.7	Densely planted areas adjacent to Sierra Point Parkway and Tank Farm
Charter High School	5.3	Shared-use facility
Total	**169.6**	

SOURCE: UPC, 2011.

The Promenade

The Promenade would be the central green space around which the residential neighborhoods of the Roundhouse District would be oriented. The approximately four-acre park would be a linear green adjoining medium- and high-density residential uses. This open space would provide an area for passive and active recreation, with space for smaller recreation facilities such as tennis and basketball courts.

Roundhouse Green

This approximately three-acre site would be located at the southern terminus of the Promenade at the westernmost point of the Baylands adjacent to Bayshore Boulevard. The renovated Roundhouse, which would provide the central focus for the Roundhouse Green, would be a potential location for renewable energy research in addition to exhibit space and cafes. The green would be surrounded by the Roundhouse Circle, with open space to the south and campus research and development (R&D) and residential townhome development to the north. The proposed enhanced Visitacion Creek drainage corridor would pass through the center of the green with passive recreation fields and multifunction space making up the remainder of the open space. The Roundhouse Green would serve as a connection between the northern and southern areas on the western portion of the site.

Central Plaza and Triangle Parks

The Central Plaza (approximately 2.7 acres) and the Triangle Parks (0.3 acre) would be located at the entrance to the hotel and convention center area adjacent to Sierra Point Parkway. The Central

Plaza, which is likely to be privately owned, would serve as the main open space for the office uses along the eastern portion of Geneva Avenue. This space would be more urban in character and would be designed for more intensive use and a variety of functions. The Central Plaza would include seating and landscaped areas for community gatherings, public art installations, and other events such as concerts and festivals.

The Quad

Another linear green space, the approximately five-acre Quad would be located in the central-eastern area of the Project Site. The Quad would be formally landscaped with multiuse zones in the center and landscaped areas along the perimeter. Paved pathways would facilitate convenient pedestrian crossing and would align with the adjacent circulation network and/or the entries to surrounding buildings. The Quad would allow for public and semi-public activities, such as food cart vending, special public and private events, and areas for public gathering. It may also accommodate small recreation facilities such as basketball and volleyball courts and multipurpose recreation fields.

Visitacion Creek Park (East)

The eastern portion of Visitacion Creek Park (approximately 26 acres) would extend from the railroad right-of-way in the western portion of the Project Site to the eastern boundary along Sierra Point Parkway. The park would feature a restored tidal channel and wetland area, native scrub and grasslands, and sites for community gardens and groves. This open space area may also include picnic facilities, multiuse paths, trails, overlooks, and interpretive elements. Located at the center of the proposed Project's open space network, this park would be accessible to bicyclists and pedestrians from all directions.

Visitacion Creek Park (West)

Visitacion Creek Park (West) would feature passive wetlands, native plantings, picnic facilities, multiuse paths, trails, overlooks, a small amphitheater, and interpretive features. The park would offer open vistas of San Francisco Bay, Icehouse Hill, and San Bruno Mountain. The western portion of the park would provide sites for community gardens in raised beds, recreational open space, woodlands and meadows featuring native coastal scrub and grassland, and wetlands adjacent to the creek channel.

South Visitacion Park

South Visitacion Park would be an approximately 700-foot-wide open space area located between Visitacion Creek Park (East) on the north and Lagoon Park on the south. This 47-acre park would feature significant vegetative habitat areas and open space connected by a network of trails. The park would also provide seasonal wetlands and bio-detention zones that augment the natural drainage system. Privately owned, publicly accessible baseball fields or golf facilities are potential uses for the southernmost portion of South Visitacion Park.

Icehouse Hill

Icehouse Hill would include more rustic recreational trails that supplement the lower-lying trails that circulate through the tidal and wetland areas. This approximately 30-acre park would include woodlands habitat, as well as native grasslands and chaparral. This area would remain undeveloped in order to serve as a prime location for wildlife habitat and passive observation of the Baylands ecology.

Lagoon Park

This proposed 13.3-acre park would be located along the northern edge of Brisbane Lagoon. A variety of open space uses are proposed to meet the recreational needs of the community and to ensure the protection of habitat resources. Multipurpose recreation fields and meadows would constitute the majority of the park, augmented with trails, picnic tables, boardwalks, viewing platforms, interpretive elements, and native gardens. Parking and restrooms facilities may be included as needed. A key element of this park is the proposed Lagoon Nature/Community Center. This facility would provide community space and programs related to the history and ecology of the Baylands. In addition, a non-motorized craft storage and launching facility may be provided for canoes and kayaks.

Lagoon Perimeter

Although no specific proposals have been made for this area, future recreational facilities could include potential trail enhancements within the City of Brisbane and a contiguous recreational trail loop around the lagoon edge. UPC owns four of the 11 total acres surrounding the lagoon.

Charter High School

The Charter High School Community Use Area is proposed as an open area associated with the charter high school to be located at the base of Icehouse Hill. This approximately 5.3-acre site may offer opportunities for shared-use recreational fields, such as tennis and basketball courts.

San Francisco Bay Trail

An extension of the San Francisco Bay Trail is planned from the northern edge of Brisbane Lagoon to Beatty Road and Alana Way. This segment would tie into the southern end of the "Blue Greenway" portion of the Bay Trail. This segment of the Bay Trail is envisioned as a paved, off-street Class I bicycle path and pedestrian trail developed within a linear greenway along the extension of Sierra Point Parkway that transitions to sidewalks and a combination of Class I and II bicycle facilities on the northern end as Sierra Point Parkway curves away from US Highway 101.

Recreational Facilities Proposed by CPP and CPP-V

Parks and open space areas proposed under the CPP and CPP-V scenarios are described in the *Baylands Public Space Master Plan* (Dangermond, 2009) prepared for the City in conjunction with formulation of the CPP.[5] This plan would include land reserved for wildlife habitat, public parks, landscaped areas, open areas within development sites, and other passive and active

[5] The *Baylands Public Space Master Plan* has not been adopted by the City.

recreational uses. Proposed features include a habitat enhancement/open space network that would include marshes, wetlands, Icehouse Hill, and connections to adjacent natural areas, and recreational/public use areas with a community park, group areas, and interpretive center. Additional public/private space use areas would be created to serve as a transition between public space and developed areas. The CPP and CPP-V scenarios also propose commercial recreation opportunities within the open space network, such as bicycle rentals, kayak rentals, and group use areas. Figures 3-13 and 3-14 (in Chapter 3, *Project Description*, of this EIR) show locations of the major parks and other open spaces proposed by the CPP and CPP-V scenarios, respectively. Specific features of the CPP and CPP-V scenarios are described below.

Visitation Creek/Wetlands

Visitacion Creek would be maintained and freshwater wetlands and ponds would be created. The creek is planned to border the Project Site for its entire length and would link to all of the major public use features. The creek zone would include water elements throughout its length, beginning with freshwater features and wetlands and descending to brackish and salt water marsh before extending out to San Francisco Bay. A trail element through the length of Visitacion Creek is proposed to receive special treatment with trail stops, interpretive features, environmental art, and a connecting bridge over the railroad tracks.

Lagoon and Shoreline

Brisbane Lagoon would provide protected habitat for waterbirds as well as enhanced wetlands along the southerly and northeastern corner of the shore. Due to the presence of contaminated soils, however, modification of the shoreline or human body contact uses are not proposed. An area of enhanced upland habitat north of the lagoon is proposed to buffer the lagoon from active recreational areas. This upland habitat would be designed to maintain views of the lagoon from the roadway.

Icehouse Hill

Icehouse Hill would remain as a natural open space. Non-native invasive plants would be removed and the habitat enhanced for diverse butterfly populations through the planting of different species of host plants. In addition, a pedestrian/equestrian trail would be maintained up to the top of Icehouse Hill. The remainder of the open space/habitat areas would be natural upland habitats. Trails would be extended through these areas.

Charter High School/Community Use Area

The Charter High School/Community Use Area is proposed to include recreation associated with the high school, such as a gymnasium and full-size soccer field.

Group Use Area

The Group Use Area would be located immediately north of Icehouse Hill. The recreational component of this area would be primarily oriented toward organized groups. A concessionaire agreement would be established with the City in order to provide a source of revenue generation that would help support the public space. Picnic and recreational activity services would be

oriented to accommodate corporate picnics and business retreats, as well as large family celebrations and events. This type of operation would provide food services and recreational opportunities such as softball, volleyball, horseshoes, tetherball, croquet, and other group and family-oriented outdoor activities.

Within the Group Use Area, an interpretive center is proposed that would feature topics such as the history of the Baylands. A farm area would include horses and farm animals, a demonstration kitchen, and a fruit and vegetable garden. The center would also be the primary trailhead for access to Icehouse Hill. Management could be provided through either a nonprofit entity or a joint powers agreement with San Mateo County.

Commercial Land Use Area

A commercial development area is proposed to be sited immediately north of the Regional Use Area (see below) with businesses and other services that would complement the group recreation and interpretive center. This commercial development area would also serve the Civic/Cultural Envelope that would be located near the Roundhouse. One possible linkage would be a small children's train connecting the interpretive center, Roundhouse, and picnic areas, which could provide self-supporting revenue generation.

Regional Use Area

The Regional Use Area would be located on the far eastern side of the Project Site and just south of the point where the Visitacion Creek channel connects to the Bay. At approximately 27 acres, this would be the largest of the planned recreational areas and would provide opportunities for activities requiring significant space.

Civic/Cultural Envelope

The Civic/Cultural Envelope would be located near the historic Roundhouse, which is proposed for restoration and reuse as part of the Project Site development. Potential uses include a railroad history exhibit, an outdoor performing art stage or center, indoor meeting spaces or artist studios, a farmers' market, and other retail/commercial uses.

San Francisco Bay Trail

Under the CPP and CPP-V scenarios, the extension of the San Francisco Bay Trail would bisect the east side of the Project Site rather than align with the US Highway 101 frontage road as proposed under the DSP scenario.

Application of City Park Standards

Policy 87 and Program 87a of the Brisbane General Plan Open Space Element set a goal for the amount of parks and open space to be provided to serve city residents. The General Plan standard calls for the development of 10.5 acres of mini, neighborhood, and linear parks per 1,000 residents, along with the development of eight acres of community parks per 1,000 residents. Combined, this results in a standard of 18.5 acres of park per 1,000 residents. However, while a

failure to achieve a desired General Plan goal represents an inconsistency with the General Plan, it does not necessarily result in an adverse physical impact as defined under CEQA.

The Quimby Act (California Government Code Section 66477) authorizes cities to require the dedication of land or payment of fees for park or recreational purposes by ordinance and establishes a standard of 3 to 5 acres of parkland dedication per 1,000 residents, depending on the amount of existing parkland within a jurisdiction. Pursuant to the Quimby Act, the City adopted an implementing ordinance in 1982 (Ordinance 282, contained in Sections 16.24.010-16.24.070 of the Municipal Code) that authorized the City to require Quimby Act dedications to "provide for adequate and appropriate recreational facilities," defining the amount of land needed by setting a standard of 4.50 acres per 1,000 residents. The dedication requirements of Chapter 16.24 thus reflect the threshold at which new development could cause physical impacts on existing recreational facilities and is therefore used as the significance criterion for impacts on recreational resources. Thus, a standard of 4.50 acres per 1,000 residents was used to determine whether a significant impact would result.

Project Impacts and Mitigation Measures

Impact 4.M-1: Would the Project result in an increase in the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
LTS	LTS	LTS	LTS

SU = Significant Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = no impact

DSP and DSP-V

The DSP and DSP-V each propose residential, commercial, and R&D development, all of which are likely to increase use of existing parks and recreational facilities. Such demand for recreational facilities would occur over time as specific development projects are constructed and occupied.

At buildout, both the DSP and DSP-V would result in approximately 4,434 new residential units. Using the density assumptions described in Section 4.K, *Population and Housing*, of this EIR, these scenarios would result in approximately 9,888 new residents living within the Project Site.

Moreover, in addition to new residents, the DSP/DSP-V would result in an increase in non-residential employees. Approximately 17,259 non-residential employees under the DSP or 15,256 non-residential employees under the DSP-V would be expected to work at the Project Site at buildout.

Pursuant to the Quimby Act, Section 16.24.030 of the Brisbane Municipal Code established a standard of 4.5 acres of parkland per 1,000 residents. Application of this standard to the DSP or DSP-V scenario would require approximately 44.5 acres of parkland to serve the needs of the 9,888 residents that would be living at the Project Site at buildout. While it is recognized that park needs per 1,000 population refer only to resident populations, it is also recognized that

employees within the Project Site would use area parks and recreational facilities. Applying the Quimby Act standard to both Project Site resident and employment population would result in a need for up to 122 acres of parkland under the DSP and DSP-V scenarios.

By comparison, the DSP and DSP-V scenarios provide a total of 133.6 acres of park and recreational land, exclusive of habitat preservation and enhancement areas that would not qualify as park or recreational land. The 133.6 acres of park and recreational land under the DSP and DSP-V scenarios consists of:

- The Promenade: 4.1 acres
- Roundhouse Green: 3.4 acres
- Central Plaza: 2.7 acres
- The Quad: 4.7 acres
- Visitacion Creek Park (West): 21.2 acres
- Visitacion Creek Park (East): 26.0 acres
- South Visitacion Park: 47.2 acres
- Lagoon Park: 13.3 acres
- Lagoon Edge (linear park): 11.0 acres

Although new residents would not be restricted in their use of parkland to new parks and facilities created at the Project Site, these areas would likely be used more frequently than other parks in Brisbane based on proximity and corresponding ease of access. Thus the use of existing parks and recreational facilities by new residents would not result in substantial degradation of such facilities under the DSP or DSP-V scenario.

Conclusion: Development under the DSP and DSP-V scenarios would provide for park and recreational land in excess of that required by the Brisbane Municipal Code, and would therefore not increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated. Therefore, this impact would be less than significant under the DSP or DSP-V scenario.[6] No mitigation is required.

CPP and CPP-V

Under the CPP or CPP-V scenario, no residential units would be constructed; therefore, there would be no resident population within the Project Site, although the employee population would increase. Development under the CPP or CPP-V scenario would result in approximately 14,707 employees or 14,590 employees working at the Project Site, respectively. The CPP or CPP-V scenario would provide more than 300 acres of parks and open space at buildout, with no residential uses on the Project Site. As noted above, standards addressing the amount of parks needed to serve new development refer only to new resident populations. The park standards in the Brisbane General Plan and the Quimby Act are not intended for application to the employment population of a proposed development.

6 The issue of consistency with the existing park provision standards of the General Plan is addressed in Section 4.I, *Land Use and Planning Policy*.

While there would be no residents living within the Project Site under the CPP and CPP-V scenarios, it is nevertheless recognized that employees working at the Project Site could use recreation and open spaces in Brisbane during certain times of the day (e.g., lunch breaks) and immediately after work. However, because employees at the Project Site would have limited opportunities to use recreation and open spaces during working hours, they would typically use parks and recreational facilities for informal activities during lunch break and immediately after work, and therefore would tend to use only parks and recreational areas that are in close proximity to their place of work, with the exception of ball fields used for organized team sports (i.e., softball and other athletic leagues). In cases where parks are not in close proximity (walking distance), increases in employment do not affect park use. As a result, increased employment within the Project Site would not be expected to result in the use of existing parks and recreational facilities to a degree that degradation of such facilities would occur. Further, proposed recreational amenities would be available for use by Project Site employees. Therefore, no substantial degradation of recreational facilities would occur under the CPP or CPP-V scenario.

Conclusion: This impact would be less than significant under the CPP or CPP-V scenario. No mitigation is required.

Overall Conclusion

Implementation of Project Site development would result in less-than-significant impacts on parks and recreational facilities under the DSP/DSP-V and CPP/CPP-V scenarios.

Impact 4.M-2: Would the Project include new recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
SM	SM	SM	SM

SU = Significant Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = no impact

DSP, DSP-V, CPP, and CPP-V

Each of the four development scenarios provides for the construction of new parks and recreational facilities. The construction associated with each scenario would vary depending upon the location, type, and size of the park, open space, or recreation facility proposed. For example, some existing structures on proposed park sites may require demolition or removal. Park sites would generally require clearing of existing vegetation and grading; installation of utilities, including stormwater drainage and water/wastewater lines; installation of hardscape areas for play surfaces, pathways, and parking; and installation of site furnishings and other equipment (e.g., benches, play facilities, fencing, lighting). New structures such as restrooms and picnic shelters would also be constructed. Vegetated areas would also require installation of irrigation systems in some areas.

Construction activities of the proposed parks and recreational facilities have been evaluated as part of the overall Project. The construction of the proposed parks and recreational facilities

would be phased over time as specific development projects are implemented under the Specific Plan. Due to the time-limited nature of construction, construction-related impacts in any single location would be temporary. The construction impacts of the Project Site development as a whole, including the impacts of new park and recreational facility construction, and, as needed, mitigation measures and other construction-related regulatory requirements, are discussed in Section 4.B, *Air Quality*; Section 4.C, *Biological Resources*; Section 4.E, *Geology, Soils, and Seismicity*; Section 4.G, *Hazards and Hazardous Materials*; Section 4.H, *Hydrology and Water Quality*; Section 4.J, *Noise and Vibration*; and Section 4.N, *Traffic and Circulation*. Construction impacts related to specific projects proposed under the adopted development scenario would be addressed in detail during subsequent project-specific environmental review.

Recreational uses proposed within areas of the Project Site that are contaminated by former land uses (landfill and railyard), and that would require remediation prior to future development activities, would be addressed in Remedial Action Plans. As described in Chapter 3, *Project Description*, of this EIR, the portion of the Project Site west of the Caltrain line is mostly dominated by the former Southern Pacific railyards and the portion of the Project Site east of the Caltrain line is the former Brisbane Landfill site. Remedial Action Plans would prescribe specific remedial actions and risk levels appropriate for areas of the site wherein particular land uses, including parks and open space areas, are proposed. As described in Chapter 3, *Project Description*, of this EIR, implementation of future development projects on the Brisbane Baylands is dependent on cleanup of these properties, and land use decisions resulting from Project development approvals will heavily influence the specific remedial actions required by the appropriate regulatory agencies (San Mateo County Health System Environmental Health Division, Regional Water Quality Control Board, and California Department of Toxic Substances Control). See Section 4.G, *Hazards and Hazardous Materials*, of this EIR, for a detailed discussion of proposed site cleanup actions.

Conclusion: Construction of new recreational facilities on the Project Site, would result in significant environmental impacts. However, the impacts of such facilities proposed as part of Project Site development have been considered throughout this EIR in the analysis of Project-related construction impacts. Mitigation measures proposed in other sections to minimize construction-related impacts are recommended under all proposed development scenarios to reduce the impacts associated with the construction of recreational facilities (see **Mitigation Measures 4.B-2a**, **4.B-2b**, and **4.B-3** [construction air emissions]; **Mitigation Measures 4.C-1a** through **4.C-1c**, **Mitigation Measures 4.C-2a** through **4.C-2c**, and **Mitigation Measures 4.C-4d** and **4.C-4e** [biological resources]; **Mitigation Measures 4.D-2** and **4.D-4** [archaeological resources and human remains]; **Mitigation Measure 4.E-2a** [ground settlement]; **Mitigation Measures 4.G-2a** through **4.G-2c** and **4.G-2f** through **4.G-2h** [hazardous materials]; **Mitigation Measures 4.J-4a** and **4.J-4b** [construction period noise]; and **Mitigation Measure 4.N-12** [construction circulation patterns]). Parks and recreational facilities are also included as part of Project Site development. Therefore, operational impacts associated with these facilities – including increases in traffic, air pollutants, and greenhouse gas emissions, noise, and disturbance of biological, hydrologic, and cultural resources – are evaluated as part of the overall analysis of land uses associated with the Project Site development and included in the specific EIR sections cited above.

Conclusion with Mitigation: With implementation of the construction-related mitigation measures listed above, this impact would be less than significant.

Impact 4.M-3: Would the wind effects of the Project result in a substantial degradation of the recreational value of the nearby windsurfing recreational resource south of Candlestick Point State Recreation Area?

Impact Significance by Scenario (with Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
LTS	LTS	LTS	LTS

SU = Significant Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = no impact

DSP and DSP-V

Under the DSP and DSP-V scenarios, new buildings would be constructed on currently vacant land at the Project Site, near the shore of the Bay. These new buildings would increase the effective surface roughness of the site and would decrease the speed of the wind passing over the Project Site. The overall size of the development and proposed buildings would be large enough to cause an adverse wind speed reduction downwind in the CPSRA windsurfing area, but only for winds blowing from the northwest, west-northwest, west, and west-southwest directions. Winds from other directions would not be affected by the Project Site development.

Wind Speed

The DSP and DSP-V scenarios would result in wind speed decreases, relative to existing wind speeds, ranging from 5 to 10 percent for all four wind directions described above. Wind speed decreases occur in areas near the shore and in the central portion of the test grid. The largest decreases, of approximately 10 percent, would occur in the central area of the test grid under the DSP and DSP-V for west and west-southwest winds.

Wind speed ratios and the percentage changes in wind speed that would occur under the DSP and DSP-V, by wind direction, are as follows:

- Northwest Wind R-values would range from 0.40 to 0.65. Project wind speed decreases of between five and nine percent would occur in the central area of the test grid and in the southwest quadrant, near the shore.
- West-Northwest Wind R-values would range from 0.39 to 0.65. Project wind speed decreases of between five and nine percent would occur in the central area of the test grid.
- West Wind R-values would range from 0.52 to 0.63. Project wind speed decreases of between 5 and 10 percent would occur in two central areas of the grid, extending outward from the shore. One test point nearest the shore would decrease by 11 percent.
- West-Southwest Wind R-values would range from 0.55 to 0.65. Project wind speed decreases of between 6 and 10 percent would occur in the north-central area of the test grid, with one test point nearest the shore decreasing by 12 percent. There would be no Project changes over the rest of the grid.

Wind Turbulence

The DSP and DSP-V would result in relatively small changes in TI values over most of the study area for all wind directions, with the highest values of turbulence occurring near the shore and lower values occurring downwind. Projected wind turbulence changes, by wind direction, are as follows:

- Northwest Wind TI would range from 11 to 28 percent.
- West-Northwest TI would range from 10 to 31 percent.
- West Wind TI would range from 11 to 23 percent.
- West-Southwest TI would range from 13 to 16 percent.

To understand the magnitudes of the largest of these wind speed changes, it is helpful to consider that a decrease of five percent in wind speed would be a 1 mile-per-hour (mph) decrease from a speed of 20 mph, and a 10 percent decrease would be a 1 mph decrease from a speed of 10 mph.[7] Speed changes of 1 mph or more occur often as part of the natural variability of the wind. Such a 1-mph speed decrease, whether due to the Project Site development or due to natural variability of the wind, could have a physical consequence only if the wind speed were already at a threshold speed below which any particular windsurfer could not continue sailing. The limiting threshold speed for each individual would vary widely among all windsurfers, depending on their gear and widely varying skill and experience levels, as well as water conditions, so a 1-mph speed decrease in some portion of the sailing area might, at some particular time, affect one windsurfer but not affect others.

Conclusion: These incremental changes in wind speed and turbulence in the launch and sailing areas are expected to be undetectable to most windsurfers who use CPSRA, including beginning and intermediate windsurfers, who are more sensitive to adverse conditions. The changes in wind speed and turbulence would not impair a windsurfer's ability to launch the board, reach and sail in a desirable sailing area, or return safely to the launch site. Regardless of whether wind speed reductions and turbulence increases are detectable, they represent an increment too small to physically degrade the use of this area for windsurfing.

CPP and CPP-V

Wind Speed

Wind speed decreases under the CPP and CPP-V would be between 5 and 10 percent and would occur in areas near the shore and in the central portion of the test grid. The projected wind speed ratios and the percentage changes in wind speed that would occur under the CPP and CPP-V, by wind direction, are as follows:

- Northwest Wind R-values would range from 0.40 to 0.63. Project wind speed decreases of between five and seven percent would occur in the south-central area of the test grid and in the southwest quadrant, both near the shore.

[7] Due familiarity with the natural variability of wind, even if a 1-mph wind speed decrease in a 10-mph wind were to occur over the span of a minute or two, most people would be unlikely to notice the change.

- West-Northwest Wind R-values would range from 0.39 to 0.65. Project wind speed decreases of 5 to 10 percent would occur in the central area of the test grid.
- West Wind R-values would range from 0.53 to 0.64. Project wind speed decreases of five and eight percent would occur at two test points, while decreases over the remainder of the grid would be four percent or less.
- West-Southwest Wind R-values would range from 0.55 to 0.65. Project decreases of five percent or less would occur over the northern part of the test grid. There would be no Project changes over the rest of the grid.

Wind Turbulence

The CPP and CPP-V would result in relatively small changes in TI values over most of the study area for all wind directions. In general, wind turbulence would increase relative to the existing setting, with the highest values of turbulence occurring near the shore and lower values occurring downwind.

Projected wind turbulence changes, by wind direction, are as follows:

- Northwest Wind TI would range from 11 to 28 percent.
- West-Northwest Wind TI would range from 10 to 31 percent.
- West Wind TI would range from 11 to 19 percent.
- West-Southwest Wind TI would range from 14 to 18 percent.

Conclusion: As noted above, these incremental changes in wind speed and turbulence in the launch and sailing areas are expected to be undetectable to most windsurfers who use CPSRA, including beginning and intermediate windsurfers, who are more sensitive to adverse conditions. The changes in wind speed and turbulence would not impair a windsurfer's ability to launch the board, reach and sail in a desirable sailing area, or return safely to the launch site. Regardless of whether wind speed reductions and turbulence increases are detectable, they represent an increment too small to physically degrade the use of this area for windsurfing.

Overall Conclusion

Project Site development would not reduce wind speeds enough to substantially impair windsurfing in prime windsurfing areas on San Francisco Bay or substantially impair access to or from those areas from the CPSRA launch site. Therefore, this impact would be less than significant under all four development scenarios. No mitigation is required.

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4.N Traffic and Circulation

4.N.1 Introduction

This section analyzes the impacts of Project Site development on the existing and future transportation and circulation system in the vicinity of the Project Site under four distinct scenarios: the Developer-Sponsored Plan (DSP), the Developer-Sponsored Plan – Entertainment Variant (DSP-V), the Community Proposed Plan (CPP), and the Community Proposed Plan – Recology Expansion Variant (CPP-V). Transportation-related issues of concern that are addressed include traffic on local and regional roadways, transit, bicycles, pedestrians, parking, freight loading, and construction-related activities. Transportation impacts are assessed for Project Site development scenarios for weekday AM and PM commute periods for existing and cumulative[1] conditions. Impacts of events at the proposed arena under the DSP-V scenario are also examined separately for weekday PM peak period conditions. This section also identifies feasible mitigation measures that would reduce or avoid significant impacts.

4.N.2 Environmental Setting

This subsection describes existing transportation facilities serving the Project Site and conditions for motor vehicle, bicycle, and pedestrian travel, as well as for public transit.

Roadway Network

This subsection describes the freeways and streets that provide vehicle access and circulation within the Project Site and vicinity (see **Figure 4.N-1** and **Figure 4.N-2**). With the exception of the freeways, each of the facilities described in this subsection also provides the primary means of bicycle and pedestrian circulation (described in greater detail in the subsections describing travel by those modes).

Freeways

Regional vehicle access to the Project Site is provided by three freeways:

- **US Highway 101** (US 101) is a facility that operates near the Pacific coastline between Los Angeles and Olympia, Washington. Near the Project Site, US 101 is a limited-access eight-lane freeway that connects Brisbane and the Peninsula with San Francisco and Marin County to the north and San Jose to the south. US 101 borders the eastern portion of the Project Site and has southbound on- and off-ramps at Bayshore Boulevard, Beatty Avenue, and Lagoon Way, and northbound on- and off-ramps at Sierra Point Parkway and Harney Way.

[1] Cumulative conditions represents the future analysis year 2030 used for assessment of future year impacts for Project site development that includes background traffic and transit trips (generated by growth from other nearby development projects and regional travel demand) and planned roadway network improvements.

Figure 4.N-1 Transportation Study Area

Figure 4.N-2 Existing Roadways

- **Interstate 280** (I-280) is an eight- to ten-lane freeway that runs north-south, parallel to the west of US 101, between San Francisco and San Jose. I-280 is often used as a by-pass for travelers to avoid congestion on US 101, as it does not pass directly through urbanized areas. I-280 is located approximately 3 miles west of the proposed Project Site and can be reached via Geneva Avenue, Guadalupe Canyon Parkway, US 101, and I-380.

- **Interstate 380** (I-380) is a seven-lane east-west freeway that is approximately 3 miles in length and provides a connection between US 101 and I-280. The San Francisco International Airport (SFO) is located immediately southeast of the intersection of US 101 and I-380. I-380 is located approximately 4 miles south of the Project Site.

Local Roadways

Local access to the Project Site is provided by several key arterial and collector streets within Brisbane and the adjacent cities of San Francisco and Daly City:

- **Bayshore Boulevard** is a four-lane arterial street that flanks the Project Site to the west and parallels US 101 between Caesar Chavez Boulevard in San Francisco and South San Francisco, where it becomes Airport Boulevard. The road is designated as a Congestion Management Program (CMP) route in both San Francisco and San Mateo Counties. Bayshore Boulevard also provides a direct connection from the study area to the Third Street corridor in San Francisco. The Muni light-rail T-line operates in the median of Bayshore Boulevard north of Sunnydale Avenue.

- **Geneva Avenue** is a four-lane east-west arterial street between I-280 (adjacent to the Balboa Park BART Station and the City College of San Francisco Phelan Campus) and Bayshore Boulevard, where it currently terminates adjacent to the Project Site. Geneva Avenue is a CMP route in San Francisco and San Mateo Counties. Proposed plans were identified in the San Francisco and San Mateo Bi-County Transportation Study (2001 and current update) to extend Geneva Avenue through the Project Site to a proposed interchange with US 101 that would replace the current interchange at Beatty Avenue. The interchange replacement and roadway extension is currently unfunded. Preliminary design studies for the interchange are currently being conducted by Caltrans.

- **Guadalupe Canyon Parkway** is a four-lane east-west arterial street near the Project Site that runs from Bayshore Boulevard westerly over the hills to Daly City, where it becomes East Market Street. Guadalupe Canyon Parkway provides access to several office and residential developments within the City of Brisbane.

- **Valley Drive** is a four-lane east-west collector street between Bayshore Boulevard and West Hill Lane. The road connects Bayshore Boulevard to Crocker Industrial Park and Brisbane City Hall.

- **Sunnydale Avenue** is a two-lane east-west road north of Geneva Avenue that runs between Bayshore Boulevard and Persia Avenue and provides access to the Visitacion Valley neighborhood of San Francisco.

Project Site Roadways

Several roadways currently provide internal circulation within the Project Site:

- **Tunnel Avenue** is a two-lane, north-south collector street. Tunnel Avenue connects to Bayshore Boulevard at both ends and provides both vehicle access and internal circulation for the Project Site.

- **Beatty Avenue** is a two-lane east-west collector road near the northern edge of the Project Site. It is less than half a mile long and serves as a key connection to US 101 from Tunnel Avenue.

- **Lagoon Way** is a two-lane collector street that borders the lagoon in the southern portion of the Project Site and runs east-west from Sierra Point Parkway to Tunnel Avenue.

- **Sierra Point Parkway** is a two-lane collector roadway running parallel to US 101 and Bayshore Boulevard through the southern portion of the Project Site. Southbound on- and off-ramps are provided to and from US 101 within the Project Site (just north of the intersection with Lagoon Way), and northbound on- and off-ramps to US 101 are provided just south of the Project Site. Sierra Point Parkway also provides a connection with the Sierra Point Office Park, a short distance south of the Project Site.

Existing Intersection Operations

Existing conditions at local intersections were analyzed for the weekday AM (8:00 to 9:00 AM) and PM (5:00 to 6:00 PM) peak hours. The analysis of study intersections was conducted using methods described by the Transportation Research Board (TRB) in the 2000 Highway Capacity Manual (HCM). Traffic operations are typically described in terms of "Level of Service" (LOS), which is a qualitative measure of the effect of several factors on traffic operating conditions, including speed, travel time, traffic interruptions, freedom to maneuver, safety, driving comfort, and convenience. It is generally measured quantitatively in terms of vehicular delay[2] and described using a scale that ranges from LOS A to F, with LOS A representing essentially free-flow conditions and LOS F indicating over-capacity conditions with substantial congestion and delay. **Table 4.N-1** presents the relationship between LOS and delay for signalized and unsignalized intersections. The Brisbane General Plan (Chapter VI.1, Policy 38.1) has an adopted minimum standard of LOS D (except for the intersections of Bayshore Boulevard / Old County Road [signalized] and Bayshore Boulevard / San Bruno Avenue [unsignalized], which have a standard of LOS C).

Eighteen study intersections were chosen for analysis based on proximity to the Project Site, their location on key access roads, and the likelihood that each location would be adversely affected by Project-related trips. In determining which intersections to include in the analysis, the City of

[2] Delay is defined as the delay directly associated with the traffic control device (i.e., a stop sign or a traffic signal) and specifically includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. These delay estimates are considered meaningful indicators of driver discomfort and frustration, fuel consumption, and lost travel time.

TABLE 4.N-1
LEVEL OF SERVICE (LOS) DEFINITIONS FOR SIGNALIZED AND UNSIGNALIZED INTERSECTIONS

Unsignalized Intersections		Level of Service (LOS)	Signalized Intersections	
Description	Average Total Vehicle Delay (Seconds)		Average Control Vehicle Delay (Seconds)	Description
No delay for stop-controlled approaches.	≤10.0	A	≤10.0	Free Flow or Insignificant Delays: Operations with very low delay, when signal progression is extremely favorable and most vehicles arrive during the green light phase. Most vehicles do not stop at all.
Operations with minor delay.	>10.0 and ≤15.0	B	>10.0 and ≤20.0	Stable Operation or Minimal Delays: Generally occurs with good signal progression and/or short cycle lengths. More vehicles stop than with LOS A, causing higher levels of average delay. An occasional approach phase is fully utilized.
Operations with moderate delays.	>15.0 and ≤25.0	C	>20.0 and ≤35.0	Stable Operation or Acceptable Delays: Higher delays resulting from fair signal progression and/or longer cycle lengths. Drivers begin having to wait through more than one red light. Most drivers feel somewhat restricted.
Operations with increasingly unacceptable delays.	>25.0 and ≤35.0	D	>35.0 and ≤55.0	Approaching Unstable or Tolerable Delays: Influence of congestion becomes more noticeable. Longer delays result from unfavorable signal progression, long cycle lengths, or high volume to capacity ratios. Many vehicles stop. Drivers may have to wait through more than one red light. Queues may develop, but dissipate rapidly, without excessive delays.
Operations with high delays, and long queues.	>35.0 and ≤50.0	E	>55.0 and ≤80.0	Unstable Operation or Significant Delays: Considered to be the limit of acceptable delay. High delays indicate poor signal progression, long cycle lengths and high volume-to-capacity ratios. Individual cycle failures are frequent occurrences. Vehicles may wait through several signal cycles. Long queues form upstream from intersection.
Operations with extreme congestion, and with very high delays and long queues unacceptable to most drivers.	>50.0	F	>80.0	Forced Flow or Excessive Delays: Occurs with oversaturation when flows exceed the intersection capacity. Represents jammed conditions. Many cycle failures. Queues may block upstream intersections.

SOURCE: Transportation Research Board, 2000

Brisbane incorporated input received from the City and County of San Francisco, City of Daly City, and County of San Mateo. The following intersections were included in the analysis:

1. Geneva Avenue & Bayshore Boulevard
2. Guadalupe Canyon Parkway & Bayshore Boulevard
3. Valley Drive & Bayshore Boulevard
4. Old County Road & Bayshore Boulevard & Tunnel Avenue
5. San Bruno Avenue & Bayshore Boulevard
6. Sierra Point Parkway & US 101 Northbound Ramps
7. Lagoon Way & Tunnel Avenue
8. Lagoon Way & Sierra Point Parkway
9. Beatty Road & Alana Way
10. Harney Way & Alana Way & Thomas Mellon Drive
11. Jamestown Avenue & Third Street
12. Tunnel Avenue & Bayshore Boulevard
13. Blanken Avenue & Tunnel Avenue
14. Blanken Avenue & Bayshore Boulevard
15. Sunnydale Avenue & Bayshore Boulevard
16. Geneva Avenue & Carter Street
17. Geneva Avenue & Mission Street
18. E. Market Street & Orange Street

Figure 4.N-3 shows the location of each study intersection, and **Figure 4.N-4** shows existing intersection lane configurations and traffic control devices (stop signs or signals). Traffic counts used for analyzing intersection levels of service were taken in 2007. Subsequent traffic counts taken in November 2012 confirmed that volumes in pre-recession 2007 were higher than current volumes. Thus, the use of pre-recession 2007 traffic counts in this EIR results in a more conservative analysis of Project impacts than would re-running traffic models based on 2010 or 2012 traffic counts. Pre-recession traffic counts will also provide a more accurate depiction of future background traffic volumes as they would be reflective of traffic generated by post-recession economic activity. As a result, impact analyses based on the 2007 traffic counts provide an appropriate, conservative baseline for the purposes of the traffic impact analyses undertaken in this EIR. As shown in **Table 4.N-2**, under Existing Conditions, all of the study intersections are operating at acceptable levels during the AM and PM peak hours.

Freeway Mainline Operations

Freeway mainline existing operations were evaluated using the 2000 HCM volume-to-capacity ratio method, per City/County Association of Governments of San Mateo County (C/CAG) guidelines. Under this method, the peak hour volume on a segment in each direction is compared to the segment's vehicle carrying capacity and a volume-to-capacity (v/c) ratio is calculated. The capacity is estimated as the number of lanes multiplied by 2,200 vehicles per hour per lane for four-lane freeway segments and 2,300 vehicles per hour per lane for segments with six or more lanes. For this EIR, the freeway free-flow speed was determined to be 65 miles per hour. **Table 4.N-3** presents LOS ratings based on the maximum v/c ratio for freeways with a 65 mile per hour free flow speed.

Figure 4.N-3 Study Intersections

Figure 4.N-4 Existing Intersection Lane Geometries

TABLE 4.N-2
INTERSECTION LEVEL OF SERVICE – EXISTING CONDITIONS

Intersection	Control	Peak Hour	Delay	Level of Service (LOS)
1. Geneva Avenue & Bayshore Boulevard (Daly City)	Signal	AM	25	C
		PM	23	C
2. Guadalupe Canyon Pkwy. & Bayshore Blvd.	Signal	AM	15	B
		PM	13	B
3. Valley Drive & Bayshore Boulevard	Signal	AM	16	B
		PM	13	B
4. Old County Rd. – Tunnel Ave. & Bayshore Blvd.	Signal	AM	31	C
		PM	30	C
5. San Bruno Avenue & Bayshore Boulevard	Side-street stop	AM	29	$D_{(EB)}$
		PM	27	$D_{(EB)}$
6. Sierra Point Parkway & US 101 Ramps	Side-street stop	AM	20	$C_{(NB)}$
		PM	10	$A_{(NB)}$
7. Lagoon Way & Tunnel Avenue	All-way stop	AM	<10	A
		PM	<10	A
8. Lagoon Way & Sierra Point Parkway	All-way stop	AM	11	$B_{(WB)}$
		PM	13	$B_{(NB)}$
9. Beatty Road & Alana Way	Side-street stop	AM	11	$B_{(EB)}$
		PM	10	$A_{(SB)}$
10. Harney Way & Alana Way & Thomas Mellon Dr. (San Francisco)	Side-street stop	AM	<10	A
		PM	<10	A
11. Jamestown Avenue & Third Street (San Francisco)	Signal	AM	20	B
		PM	18	B
12. Tunnel Avenue & Bayshore Boulevard (San Francisco)	Signal	AM	27	C
		PM	20	B
13. Blanken Avenue & Tunnel Avenue (San Francisco)	All-way stop	AM	10	A
		PM	<10	A
14. Blanken Avenue & Bayshore Boulevard (San Francisco)	Signal	AM	10	A
		PM	11	B
15. Sunnydale Avenue & Bayshore Boulevard (San Francisco)	Signal	AM	19	B
		PM	20	B
16. Geneva Avenue & Carter Street (San Francisco)	Signal	AM	23	C
		PM	31	C
17. Geneva Avenue & Mission Street (San Francisco)	Signal	AM	18	B
		PM	20	C
18. E. Market Street & Orange Street (Daly City)	All-way stop	AM	12	$B_{(EB)}$
		PM	<10	A

NOTE: The LOS/Delay for Side-Street Stop-Control intersections represents the worst movement or approach; for Signalized and All-Way Stop-Control, the LOS/Delay represents overall intersection. **Shaded Bold typeface** indicates an unacceptable LOS E or worse.

EB = eastbound, WB = westbound, NB = northbound, SB = southbound

SOURCE: Fehr & Peers Transportation Consultants, July 2007. As previously discussed, baseline traffic counts were conducted in 2007 and, based on updated 2012 counts, remain an appropriate reflection of baseline conditions for the purposes of this analysis.

TABLE 4.N-3
LEVEL OF SERVICE DEFINITIONS FOR FREEWAY SEGMENTS

Level of Service (LOS)[a]	Description	Maximum Volume-to-Capacity Ratio
A	Free flow operations with average operating speeds at, or above, the speed limit. Vehicles are unimpeded in their ability to maneuver.	0.30
B	Free flow operations with average operating speeds at the speed limit. Ability to maneuver is slightly restricted. Minor incidents cause some local deterioration in operations.	0.50
C	Stable operations with average operating speeds near the speed limit. Freedom to maneuver is noticeably restricted. Minor incidents cause substantial local deterioration in service.	0.71
D	Speeds begin to decline slightly with increasing flows. Freedom to maneuver is more noticeably restricted. Minor incidents create queuing.	0.89
E	Operations at capacity. Vehicle spacing causes little room to maneuver but speeds exceed 50 miles per hour (mph). Any disruption to the traffic stream can cause a wave of delay that propagates throughout the upstream traffic flow. Minor incidents cause serious breakdown of service with extensive queuing. Maneuverability is extremely limited.	1.00
F	Operations with breakdowns in vehicle flow. Volumes exceed capacity causing bottlenecks and queue formation.	N/A

[a] Freeway mainline LOS based on a 65 miles per hour (mph) free-flow speed.

N/A = not applicable

SOURCE: Transportation Research Board, 2000

Freeway mainline analysis was conducted at the following four segments, selected on the basis of proximity to the Project Site and the likelihood that each location would be adversely affected by a substantial number of Project-related trips:

- US 101 northbound—between Sierra Point Parkway and Harney Way
- US 101 northbound—between Harney Way and Third Street/Bayshore Boulevard
- US 101 southbound—between Third Street/Bayshore Boulevard and Alana Way
- US 101 southbound—between Alana Way and Sierra Point Parkway

As shown in **Table 4.N-4**, all analysis segments currently experience LOS E or LOS F conditions during the commute periods—either in the AM or PM peak hours, with the segment of US 101 southbound between Third Street/Bayshore Boulevard and Sierra Point Parkway experiencing LOS E conditions during both the AM and PM peak hours.

TABLE 4.N-4
EXISTING FREEWAY MAINLINE OPERATING LEVEL OF SERVICE CONDITIONS

US 101 Freeway Segments	Weekday AM Peak Hour		Weekday PM Peak Hour	
	LOS	V/C Ratio	LOS	V/C Ratio
Northbound (Sierra Point to Harney Way)	D	0.77	E	0.90
Northbound (Harney Way to Third/Bayshore)	D	0.77	E	0.90
Southbound (Third/Bayshore to Harney Way)	E	0.90	E	0.81
Southbound (Harney/Geneva to Sierra Point)	E	0.89	E	0.82

LOS = Level of Service, V/C Ratio = Volume-to-Capacity Ratio

SOURCE: Fehr & Peers Transportation Consultants, 2012

Transit

The following agencies provide regional transit access, via bus or rail service, within the vicinity of the Project Site.

Peninsula Joint Powers Authority (Caltrain)

Caltrain provides commuter rail line operations between San Francisco and Gilroy (with the vast majority of service occurring between San Francisco and San Jose). Caltrain operates up to 90 daily weekday trains (45 in each direction). **Table 4.N-5** provides a summary of average weekday ridership by station based on February 2011 data. Information relevant to the Project Site and vicinity is summarized below.

Weekday Ridership and Stations

- Approximately 17,800 average daily weekday riders (nearly half of Caltrain ridership) are comprised of transit trips to or from downtown San Francisco, based on average weekday ridership data for the 4th & King Station.

- The Bayshore Station is located in the northwestern quadrant of the Project Site, north of Beatty Avenue. The station includes a pedestrian overpass with elevators, ticket machines, and furnished waiting areas. It currently serves fewer than 300 average daily weekday riders (138 outbound and 150 inbound in February 2011). A small parking lot provides about 40 spaces on the east side of the Bayshore Station that is generally well used on typical weekdays.

- During most weekday hours of operation, Caltrain service consists of two trains per hour in both directions, as follows:

    - One Local train that makes each stop (in both directions). Service to the Bayshore Station is currently one local train per hour in both directions (up to 38 daily Local trains, 19 in each direction).

TABLE 4.N-5
EXISTING CALTRAIN AVERAGE WEEKDAY RIDERSHIP [a]

Station	Northbound		Southbound		Total	
	On	Off	On	Off	On	Off
San Francisco	0	8,902	8,897	0	8,897	8,902
22nd Street	23	970	1,014	16	1,036	966
Bayshore (*within Project Site*)	18	132	120	18	138	150
South San Francisco	119	269	246	140	365	410
San Bruno	175	222	229	177	403	399
Millbrae	334	2,306	2,266	326	2,600	2,632
Burlingame	304	345	371	278	675	623
San Mateo	630	689	716	588	1,347	1,276
Hayward Park	128	157	160	136	288	293
Hillsdale	1,182	682	701	1,176	1,883	1,858
Belmont	202	160	167	207	369	367
San Carlos	477	476	460	478	937	954
Redwood City	1,408	700	699	1401	2,106	2,101
Menlo Park	776	523	535	826	1,312	1,349
Palo Alto	2,766	1,289	1,262	2,910	4,028	4,199
California Avenue	615	285	280	609	895	894
San Antonio	406	66	72	389	478	455
Mountain View	3,038	294	330	3,063	3,368	3,358
Sunnyvale	1,690	101	97	1,626	1,787	1,727
Lawrence	438	97	93	442	531	540
Santa Clara	603	54	52	585	656	639
College Park	43	52	31	87	74	139
San Jose Diridon	2,596	36	84	2,677	2,681	2,713
Tamien	571	71	6	438	577	510
Capitol	18	3	1	17	19	20
Blossom Hill	65	3	3	46	68	49
Morgan Hill	106	0	0	91	106	91
San Martin	43	1	0	36	43	36
Gilroy	113	0	0	111	113	111
TOTAL	**18,885**	**18,885**	**18,894**	**18,894**	**37,779**	**37,779**

[a] February 2011 Caltrain passenger counts. Service level of up to 90 daily weekday trains reflects service provided prior to 2011 service cuts that reduced service to 86 daily weekday trains due to an operating funds deficit.

SOURCE: Caltrain, February 2011

- One Limited train that stops only at designated stations. Limited trains currently do not stop at the Bayshore Station, given the low ridership demand compared to other stations, and also the station location on one of the few four-track segments on the Caltrain line.

- During peak commute periods, additional "Baby Bullet" trains (express trains that skip most stations, including Bayshore Station) provide two additional trains per hour in both directions, for a total of four trains per hour in the peak-commute directions: one Local, one Limited, and two Baby Bullet trains.[3]

Existing Caltrain Capacity, Demand, and Supply

- Per-Train Capacity is 650 passengers.

- Service Capacity at Bayshore Station (one train per hour in each direction stopping at Bayshore Station) is 1,300 passengers per hour (during all hours of service).

- Peak Hour Capacity (including those trains that pass through the Bayshore Station without stopping) is 6,500 passengers (based on a total of 10 trains in operation during the peak 60-minute AM and PM periods in both directions).

  During the AM and PM commute periods, a total of four trains per hour operate in both directions (increasing to a "peak hour" service level of five trains in each direction during the AM and PM Peak Hours).

- Demand (based on February 2011 ridership data) varies by type of service:

  - Average passengers per train:
    - Baby Bullet trains: 547 passengers
    - Limited trains: 472 passengers
    - Local trains: 278 passengers

  - Peak passengers per train (the maximum number of passengers at a single point on the line during AM and PM peak commute periods):
    - Northbound AM: 355 passengers (unused capacity of 295 passengers)
    - Southbound AM: 286 passengers (unused capacity of 364 passengers)
    - Northbound PM: 305 passengers (unused capacity of 345 passengers)
    - Southbound PM: 389 passengers (unused capacity of 261 passengers)

- Supply of Unused Seat Capacity (Bayshore Station service) is estimated to be about 800 seats per hour (based on average ridership on Local trains that provide hourly service to Bayshore Station).

- Supply of Unused Seat Capacity (all trains passing through Project Site) is estimated to be about 3,345 seats per hour during the AM peak hour and 3,080 seats per hour during the PM peak hour. This estimate is based on five peak-hour trains in both directions, including those trains that do not stop at Bayshore Station:

[3] The provision of Baby Bullet service was made possible following the construction of several four-track segments (each about 2 miles long) on the Caltrain line, allowing Baby Bullet trains to pass Local trains (and also allowing Limited trains to pass Local trains). One of the four-track segments is about 2 miles in length, extending from the Tunnel portal just north of Bayshore Station to the northern half of Brisbane Lagoon, within the Project Site.

- Northbound AM: 1,525 vacant seats during peak hour
- Southbound AM: 1,820 vacant seats during peak hour
- Northbound PM: 1,775 vacant seats during peak hour
- Southbound PM: 1,305 vacant seats during peak hour

San Mateo County Transit District (SamTrans)

SamTrans provides bus service to locations in San Mateo County, as well as limited service to select locations in San Francisco including the Transbay Temporary Terminal. SamTrans provides the following two local bus routes along Bayshore Boulevard, bordering the west side of the Project Site:

- Route #292 provides service from downtown San Francisco, through Brisbane, to South San Francisco, San Francisco International Airport, and Burlingame, and ends at Hillsdale Shopping Center in San Mateo. In Brisbane along the Project Site's western edge, the bus stops on Bayshore Boulevard at Geneva Avenue, Guadalupe Canyon Parkway, and Valley Drive. It also stops at the Park-n-Ride lot located at Old County Road and Bayshore Boulevard, just outside the Project Site boundary. This service provides about 43 buses per weekday between the hours of 5:00 AM and 2:00 AM with headways of approximately 20 minutes during peak periods. There are approximately 4,000 weekly boardings of Route #292, which is the fourth highest ridership in the SamTrans system.

- Route #397 provides "night owl" service from downtown Brisbane to downtown San Francisco, San Francisco International Airport, Burlingame, San Mateo, Belmont, San Carlos, Redwood City, and Palo Alto. In Brisbane, it stops at the Park-n-Ride lot located at Old County Road and Bayshore Boulevard and it provides connections to the Caltrain Palo Alto Station to the south and the Transbay Terminal to the north. This service provides about three buses in each direction between the hours of 1:30 AM and 5:00 AM.

San Francisco Bay Area Rapid Transit District (BART)

BART provides regional heavy-rail rapid transit service, serving approximately 360,000 average weekday boardings on the BART system. The Balboa Park Station, located 2.5 miles west of the Project Site via Geneva Avenue, serves about 26,000 average weekday riders (13,000 boardings and 13,000 exits).

San Francisco Municipal Transit (Muni)

Muni provides bus and light rail service, primarily within the borders of the City and County of San Francisco, serving approximately 700,000 average weekday boardings on the Muni system.

Muni service near the Project Site includes light rail and bus service that operates along the Third Street corridor, connecting downtown San Francisco, Mission Bay, and southeastern San Francisco. T-line service terminates at Third Street and Sunnydale Avenue (bordering the northwest corner of the Project Site, approximately 1,000 feet west of the Bayshore Caltrain Station). Routes include the following:

- Muni Route 8X and 8BX (about seven buses per hour) operates in an "L-shaped" alignment, with two legs that serve Visitacion Valley and Sunnydale Muni Station:

  - The east-west leg provides service from San Francisco City College / Phelan Loop (approximately 3 miles west of the Project Site) and Balboa Park BART Station (approximately 2.5 miles west of the Project Site) and Visitacion Valley, including a stop within a 900-foot walk to/from the Sunnydale Station (located at the intersection of Bayshore Boulevard and Sunnydale Avenue, about 1,000 feet west of the Bayshore Caltrain Station).
  - The north-south leg provides service on the San Bruno Avenue corridor between Sunnydale Station area and downtown San Francisco (approximately 6 miles north of the Project Site).

- Muni Route 9-San Bruno and Route 9L-San Bruno Limited (10 buses per hour) operate between Visitation Valley (including service on the segment of Geneva Avenue between Santos and Scherwin Streets) and downtown San Francisco via the Sunnydale Station and San Bruno Avenue corridor (sharing that portion of the route with Route 8X and 8BX).

- Muni Route 56 provides local community shuttle bus service between the Executive Business Park (east of US Highway 101) and Visitacion Valley via an east-west route north of the Project Site.

- Muni Line T-Third Street light-rail line (six trains per hour) operates between Sunnydale Station (located 1,000 feet west of the Bayshore Caltrain Station) and the downtown San Francisco along the Third Street corridor, including service to the Bayview and Mission Bay neighborhoods as well as the San Francisco waterfront (via The Embarcadero) and the Market Street Muni Metro stations (after entering the downtown subway south of Market Street). The following extensions of the T-Third line are planned or proposed:

  - The planned northern extension of the T-Third line (Central Subway project) will extend service directly north to Chinatown via Fourth and Stockton Streets (scheduled for completion prior to 2020). Funding has been secured for the Central Subway and construction is underway.
  - The proposed southern extension of the T-Third line would extend the line approximately 1,000 feet east to provide a direct transfer-point with the Bayshore Caltrain Station. Funding has not been secured for the proposed southern extension to serve the Project Site.

Brisbane-Crocker Park BART Shuttle

The Brisbane-Crocker Park BART Shuttle (described in more detail on pages 4.N-24 -4.N-25) runs between the Balboa Park BART Station and the Brisbane-Crocker Industrial Park via Geneva Avenue and Bayshore Boulevard. The shuttle operates adjacent to the Project Site on Bayshore Boulevard and provides afternoon-only connections to the Bayshore Caltrain Station within the Project Site.

Summary

A summary of service provided by each public transit agency is provided in **Table 4.N-6** and shown in **Figure 4.N-5**.

TABLE 4.N-6
EXISTING PUBLIC TRANSIT SERVICE CHARACTERISTICS

	Weekday Frequency	Saturday Frequency	Nearest Stop(s) to Project Site
San Francisco Muni Bus and Light-Rail Routes			
Route 8AX, 8BX, 8X Bayshore Express: Express bus service between San Francisco City College and downtown San Francisco via Balboa Park BART Station, Geneva Avenue (west of Santos Street), Visitacion Valley, Sunnydale Station, Bayshore Boulevard, San Bruno Avenue and US Highway 101 (north of Silver Avenue).	7 -9 minutes	15 minutes	900-foot walk from Sunnydale Station (Bayshore Boulevard at Sunnydale Avenue)
Route 9, 9L San Bruno: Local, Express, and Commuter Express Route connecting Visitacion Valley and Sunnydale Station with San Francisco neighborhoods including Bernal Heights, Mission District, and downtown San Francisco, via the San Bruno Avenue corridor.	6 minutes (local + limited combined)		Sunnydale Station (Bayshore Boulevard at Sunnydale Avenue)
Route 56 Rutland: Community service route serving Visitacion Valley and Executive Park and linking to the T-Third Muni Metro and Express Routes.	30 minutes	30 minutes	Sunnydale Station (Bayshore Boulevard at Sunnydale Avenue)
T-Third Street Light-Rail: Serves San Francisco's easternmost neighborhoods in a north/south alignment via Third Street, including the Bayview neighborhood, Mission Bay, South of Market area (SOMA), and downtown San Francisco (with continuing service as K-line west of Embarcadero Station, and transfer opportunities to Muni lines operating on Market Street corridor).	10 minutes (15 minutes evenings)	12 minutes (20 minutes evenings)	Sunnydale Station (Bayshore Boulevard at Sunnydale Avenue)
SamTrans Bus Routes			
Route #292 Caltrain Connection: This multi-city line provides local bus service linking Hillsdale Shopping Center, San Mateo, Burlingame, San Francisco International Airport, United Airlines Maintenance Base, South San Francisco, Brisbane, and San Francisco. It stops at most Caltrain stations along its route.	20-40 minutes (60 minutes evenings)	30 minutes (60 minutes evenings)	Sunnydale Station (Bayshore Boulevard at Sunnydale Avenue)
Route #397 All-Nighter: A multi-city line connecting San Francisco, South San Francisco, San Francisco International Airport, Burlingame, San Mateo, Belmont, San Carlos, Redwood City, and Palo Alto, Route #397 runs only from 1:30 AM to 5:00 AM.	60 minutes	60 minutes	Sunnydale Station (Bayshore Boulevard at Sunnydale Avenue)
Caltrain Service			
Caltrain: Commuter rail service between Gilroy and San Francisco (with majority of trains providing service to San Jose, northern Santa Clara County, San Mateo County, and downtown San Francisco) with key transfer points to other transit lines at 4th & King, Millbrae, Palo Alto, Mountain View, and San Jose stations.	60 minutes (serving Bayshore Station)	120 minutes (serving Bayshore Station)	Bayshore Station (Tunnel Avenue at the border of Brisbane and San Francisco)

Figure 4.N-5 Existing Transit Service

Bicycle Facilities

Bicycles may travel on all public roads except where they are specifically prohibited on designated highway or freeway segments. Dedicated bicycle facilities, known as "bikeways," are often provided to help facilitate bicycle travel. The three main types of bikeways defined by the Caltrans *Highway Design Manual* (Chapter 1000, Bikeway Planning and Design) are:

- **Class I Bicycle Paths**, or multiuse trails, provide for bicycle travel on a paved right-of-way that is separated from motor vehicle travel. Bicycle paths are often located along waterfronts, railroad rights-of-way (active and abandoned), through parks, or stream and river channels. In most cases, sidewalks cannot be considered Class I bicycle paths unless they are of an appropriate design, separation is provided from adjacent roadways (such as a landscape strip or raised divider), and intersection or driveway crossings are limited.

- **Class II Bicycle Lanes**, in which lane striping is used to delineate a travel lane (generally 5 feet wide, and a minimum of 4 feet wide) for exclusive use of bicyclists on a roadway. Typically, Class II bicycle lanes are provided in both directions along a street and accompanied by signage and lane markings consistent with Caltrans standards.

- **Class III Bicycle Routes** are facilities in which bicyclists share travel lanes with motorists, and are designated by signage only. As defined by Caltrans, Class III bicycle routes should direct cyclists to the superior through route. In order to achieve the best conditions for bicyclists and motorists to share travel lanes, curb lanes that are wider than standard are often provided, unless roadway volumes are relatively low such that additional width is unnecessary.

Another type of bikeway, not included in Caltrans classification standards, is the "bicycle boulevard." There is no standard definition for "bicycle boulevards," but in general, they are streets on which bicycles have priority over other modes. They can have several features such as forced right turns for vehicles (but not for bicycles and pedestrians), special signage, "flipped stop signs" (cross-street stops instead of the street with the bicycle boulevard), and street closures. These measures are intended to minimize automobile volumes and speeds.

Figure 4.N-6 shows existing and planned bikeways within or near the Project Site.

Regional Bicycle Facilities

The San Francisco Bay region enjoys one of the most extensive and interconnected bicycle networks in the nation. The key regional facility serving the Project Site is the San Francisco Bay Trail, an interconnected, multiuse bicycle path that follows the Bay shoreline and will eventually encircle the Bay from San Jose in the south to Napa in the north. Bay Trail segments near the Project Site include Class I bicycle path segments at Candlestick Point to the north (connecting with Class III facilities that continue north to downtown San Francisco) and Sierra Point to the south (connecting with additional Class I and II facilities that circulate past the Genentech campus and through South San Francisco).

The northern portion of the Project Site contains a gap in the Bay Trail network. Although bicyclists can travel west from the Bay shoreline and use Tunnel Avenue to travel north-south through the Project Site, this alignment is not officially designated as part of the Bay Trail.

Figure 4.N-6 Existing and Planned Bicycle Facilities

Within the southern portion of the Project Site, Class II bicycle lanes are provided for the Bay Trail segment on Sierra Point Parkway (south of Lagoon Way).

Local Facilities

The following roadways provide bicycle circulation near the Project Site:

- Bayshore Boulevard provides north-south circulation connecting Brisbane with San Francisco to the north and South San Francisco to the south. Bayshore Boulevard is striped with Class II bicycle lanes north of Geneva Avenue (within the San Francisco city limits), as well as south of Geneva Avenue (within Brisbane) where rumble strips are installed between the bikeway and outside travel lane. Within Brisbane, relatively high travel speeds may discourage the use of Brisbane Boulevard by inexperienced bicyclists.

- An east-west bicycle facility is provided on Guadalupe Canyon Parkway (between Bayshore Boulevard and Mission Blue Drive), providing a connection between Bayshore Boulevard and newer residential developments in the Brisbane hills. This bikeway includes a Class II bicycle lane in the westward direction only (traveling uphill from Bayshore Boulevard), while eastbound (downhill) bicyclists share a travel lane with motor vehicles (i.e., Class III bicycle route).

- Geneva Avenue is a Class III bicycle route providing east-west circulation between Bayshore Boulevard and Balboa Park BART Station. West of the Balboa Park BART Station, an additional east-west connection to San Francisco State University is provided by a Class III bicycle route on Holloway Street.

- Valley Drive is not a designated bicycle route, but as noted earlier, bicyclists are permitted to travel on all public roads unless specifically prohibited. Valley Drive provides the most direct connection for bicyclists traveling between Bayshore Boulevard, Brisbane City Hall, Crocker Business Park, and Guadalupe Canyon Parkway.

- Old County Road is not a designated bicycle route, but it provides the most direct connection for bicyclists traveling between the Project Site (via Tunnel Avenue) and Central Brisbane.

- Sunnydale and Visitacion Avenues are not designated as bicycle routes, but provide direct east-west connections west of Bayshore Boulevard to the Visitacion Valley and Excelsior neighborhoods of San Francisco.

According to the 2011 American Community Survey, 1.0 percent of Brisbane residents commute to work by bicycle on a regular basis, which is lower than the San Mateo County average of 1.2 percent, the San Francisco average of 3.1 percent, and the Bay Area regional average of 1.8 percent.[4] This mode split does not include commuters that travel by bicycle to transit stations (such as the Bayshore Caltrain Station). This factor could have a substantial effect on the overall rate of bicycling because Brisbane neighborhoods, including the Project Site, are all located within convenient bicycling distance of the Caltrain station. Because the Census data are based on the journey to work, they also exclude shopping, recreation, school, and other discretionary trips.

[4] Bay Area regional average based on Metropolitan Transportation Commission (MTC) 2000 Bay Area Travel Survey.

Project Site Facilities

Class II bicycle lanes are provided on Lagoon Way and Sierra Point Parkway (south of Lagoon Way). Sierra Point Parkway is designated as part of San Francisco Bay Trail and connects with Bay Trail segments to the south of the Project Site in South San Francisco. Within the Project Site, bicyclists traveling between Bay Trail segments to the north and south of the Project Site currently use Class II bicycle lanes on Lagoon Way and Class III bicycle routes on Tunnel and Beatty Avenues to circulate through the site, although those roads are not officially designated as Bay Trail segments. Installation of a Class I bicycle path between Lagoon Way and Beatty Drive is planned as part of the San Francisco Bay Trail Regional Development Plan to eliminate the current gap in the official Bay Trail alignment. The path would connect existing Bay Trail segments to the north and south of the Project Site but is currently unfunded.

Bicycle Support Facilities

Bicycle support facilities include bicycle parking facilities (such as racks or secure enclosures), as well as shower and locker facilities to encourage bicycle commuting, and measures to facilitate bicyclists' use of transit. Near the Project Site, regional support facilities include intermodal links with Caltrain rail service and Muni bus service. Local support facilities include bicycle racks at some local destinations along Bayshore Boulevard, although such facilities are currently scarce. At the northwest edge of the Project Site, the Bayshore Caltrain Station includes bicycle lockers to facilitate bicycle commuting, and bicyclists are allowed to take their bikes on designated train cars. In addition, bicycles can be transported on racks on the front of buses (Muni and SamTrans), and on BART trains (with some restrictions).

Pedestrian Facilities

Types of pedestrian facilities include:

- Sidewalks along roadways
- Curb ramps and crosswalks at intersections
- Pedestrian signals at controlled locations
- Pedestrian paths, including those that provide pedestrian circulation between buildings and within parking lots
- Pedestrian bridges, such as the bridge that provides a pedestrian overpass that connects the east and west sides of the Caltrain station

Regional Facilities

The San Francisco Bay Trail is a regional facility that provides pedestrian access along the Bay shoreline. North of the Project Site, at Candlestick Point in San Francisco, and south of the Project Site, at Sierra Point in South San Francisco, a dedicated bicycle/pedestrian pathway is provided for the Bay Trail. However, due to a lack of pathway connections through the Project Site, a gap currently exists in the trail facility.

Local Facilities

Within San Francisco and the developed areas of Brisbane, sidewalks are provided along most streets, and crosswalks are provided at many crossing locations. Key exceptions include segments of Bayshore Boulevard, which lacks sidewalks south of Geneva Avenue, and along several of the streets serving Candlestick Point.

Project Site Facilities

Pedestrian paths are provided along the lagoon at the southern end of the Project Site. The rest of the Project Site currently lacks dedicated pedestrian facilities. Internal roadways provide vehicle and truck access within the site, and to/from the US 101 freeway, but do not include sidewalks. As noted above, the northern portion of the Project Site represents a gap in the San Francisco Bay Trail.

Transportation Demand Management

There are two Transportation Management Associations that operate in the Brisbane area providing a variety of Transportation Demand Management (TDM) programs: the Peninsula Traffic Congestion Relief Alliance and the Transportation Management Association of San Francisco. Individual employers and employees on the Project Site would be eligible to participate in the TDM programs of both agencies.

Regional Programs

The Peninsula Traffic Congestion Relief Alliance (the ALLIANCE) is a public agency organized as a Joint Powers Authority to serve as San Mateo County's Transportation Demand Management (TDM) Agency. Its mission is "to reduce the number of single occupant vehicles traveling in, to or through San Mateo County, reducing vehicle emissions that result in improved air quality." The ALLIANCE is funded by:

- The City/County Association of Governments of San Mateo County (C/CAG)
- The San Mateo County Transportation Authority
- The Bay Area Air Quality Management District (BAAQMD)
- The Metropolitan Transportation Commission (MTC)

As noted above, the ALLIANCE is a public agency organized as a Joint Powers Authority. It is governed by a board of 18 elected officials, one from each of the 17 cities and counties that are ALLIANCE members. The ALLIANCE offers a wide variety of commuter programs including:

- Coordination with employers to provide commuter shuttles from BART and Caltrain to within easy walking distance of many San Mateo County employers (e.g., many business parks). There are currently 15 to 19 shuttle-type services in operation; some are commuter-only, some are commuter and residential, and some are residential and shopping shuttles serving major shopping destinations. There is one shuttle that serves Brisbane – the Crocker Industrial Park Shuttle – described in more detail below.
- Personalized commute planning to help employees find alternatives to driving alone.

- Free Transit Tickets for new riders of BART, Caltrain, SamTrans, or the Santa Clara Valley Transportation Authority (VTA).
- An Emergency Ride Home Program.
- Rebates for new vanpool participants.
- Cash incentives for new carpools.
- Bike Parking at Half Cost: The ALLIANCE will order and pay half the cost of new bike racks and lockers (up to $500 per unit), as well as up to $200 for installation.
- A Bike and Pedestrian Safety Program that offers free onsite employee trainings for employers.

Local Programs

As noted above, the ALLIANCE offers a variety of commuter programs including coordinating with employers to provide commuter shuttles from BART and Caltrain to within easy walking distance of many San Mateo County employers (e.g., many business parks). The Brisbane-Crocker Park BART Shuttle bus service (see **Figure 4.N-7**), managed by the ALLIANCE, provides service between the Balboa Park BART Station and Brisbane via Geneva Avenue and Bayshore Boulevard, including a stop at the T-line terminus. The shuttle operates adjacent to the Project Site on Bayshore Boulevard and provides afternoon-only connections to the Bayshore Caltrain Station within the Project Site.

Figure 4.N-7
Crocker Industrial Park Shuttle

The shuttle provides commute-oriented service between the Balboa Park BART Station and Brisbane employment locations on the west side of Bayshore Boulevard. It is operated by a private contractor (hired by the ALLIANCE). It is funded by the following sources:

- 75 percent of funding is grants from ALLIANCE supporters (i.e., City/County Association of Governments of San Mateo County [C/CAG], San Mateo Transportation Authority, and Bay Area Air Quality Management District]BAAQMD]).
- 25 percent of funding is from employer contributions.

In order to ride the shuttle, passengers must present a shuttle pass, which is distributed by their employer. Employers sign up on behalf of their employees and receive the passes from the operator; they are charged according to the number of employee riders they have. There are three tiers of pass prices depending on the number of employees signed up (these are total monthly prices to buy all the passes, not per-pass costs):

- Small (1-19 employees)
- Medium (20-99 employees)
- Large (100+ employees)

An employee of a company that is not participating in the shuttle program is able to buy a pass independently. The cost varies depending on the number of employers participating at any given time. This is a discounted price aided by grant funding and other finances. Free service is provided to Brisbane residents.

Additional information concerning the Brisbane-Crocker Industrial Park Shuttle is as follows:

- Prior to 2002, the shuttle served the Bayshore Station. However, when the station was reconfigured in 2002, no area was created for a bus turnaround at the new station.
- A separate shuttle that specifically serves the Bayshore Station via the Project Site has been proposed, but not yet funded.
- The weekday morning (AM) commute service consists of eight shuttles from the Balboa Park BART station between 5:45 and 8:50 AM. Three of the shuttles stop at the Sunnydale Station (1,000 feet west of the Bayshore Caltrain Station). All shuttles continue to the Industrial Park employers and then serve the residential stops before returning to the Caltrain and BART stations.
- The weekday afternoon (PM) commute service is provided between 3:00 and 7:30 PM.
- Daily ridership has varied in recent years, averaging between 300 and 500 daily boardings.

Project Site Programs

Individual employers and employees are eligible to participate in the regional and local TDM programs described above, including the Brisbane-Crocker Park BART Shuttle bus service that operates on Bayshore Boulevard. Although Recology is a unique use that is not subject to traditional TDM requirements, Recology offers a commuter benefit program even though most employees arrive between 5:00 and 6:00 AM and most trips are truck pickup/dropoff.

Parking

Parking in the Project Site Vicinity

In general, where on-street parking in the study area is permitted, it is generally unrestricted (other than weekly street cleaning), and is typically permitted on both sides of the street. The exceptions include:

- Bayshore Boulevard where no parking is allowed south of MacDonald Avenue.
- MacDonald Avenue where some parking has been eliminated due to the center-running T-Third light rail and some pockets have metered parking.
- Sierra Point Parkway where no parking is allowed.

There are no Residential Permit Parking areas within the study area.

Parking on the Project Site

On the primary roadways within the Project Site, such as Tunnel and Beatty Avenues, parking is accommodated on the soft shoulder of the roadway.

4.N.3 Regulatory Setting

Development within the Project Site must comply with federal, state, regional, and local regulations. This subsection discusses these requirements to the extent that they will affect the way Project Site development occurs. The subsection provides an overview of key state, regional, and local agencies with traffic and circulation-related policy and regulatory authority over the Project Site, and a summary of the plans and policies of those agencies. These plans and policies include the Brisbane General Plan, the San Mateo County Congestion Management Program, the San Francisco / San Mateo Bi-County Transportation Study, the San Mateo County Comprehensive Bicycle and Pedestrian Plan, the San Francisco General Plan, the Better Streets Plan, the San Francisco Bicycle Plan, the San Francisco Bay Trail Plan, and the Transit First Policy.

State Regulations

Interstate freeways and State Routes are under the jurisdiction of the California Department of Transportation (Caltrans), which sets standards, policies, and strategic plans for the more than 45,000 miles of California's highway and freeway lanes, including US 101 adjacent to the Project Site. Caltrans administers its services through its six primary programs: Aeronautics, Highway Transportation, Mass Transportation, Transportation Planning, Administration, and the Equipment Service Center. Under the Transportation Planning program, Caltrans runs the State of California's bicycle program. The Bicycle Facilities Unit, acting as Caltrans' bicycle division, provides policy, funding, planning, and technical expertise in bicycle transportation in consultation with federal, state, and local transportation agencies, Caltrans headquarters and district staff, legislative staff, and the public (Caltrans, 2007).

The Caltrans Local Assistance Procedures Manual, Chapter 11, describes the various procedures and establishes design standards required to process federal- and state-funded local transportation projects. The Caltrans Highway Design Manual establishes uniform policies and procedures to carry out the highway design functions of Caltrans.

The California Complete Streets Act of 2008 (Assembly Bill 1358) requires cities and counties making substantive revisions to the circulation element of their general plans to include modifications

to plan for complete streets. The act states: "In order to fulfill the commitment to reduce greenhouse gas emissions, make the most efficient use of urban land and transportation infrastructure, and improve public health by encouraging physical activity, transportation planners must find innovative ways to reduce vehicle miles traveled (VMT) and to shift from short trips in the automobile to biking, walking and use of public transit." California Government Code Section 65302(b)(2)(A) requires that, upon any substantial revision of a community's general plan circulation element, the circulation element must be amended to plan for "a balanced, multimodal transportation network that meets the needs of all users of the streets, roads, and highways for safe and convenient travel in a manner that is suitable to the rural, suburban, or urban context of the general plan." Subsection B defines "users of streets, roads, and highways" as "bicyclists, children, persons with disabilities, motorists, movers of commercial goods, pedestrians, users of public transportation, and seniors."

Regional Regulations

City/County Association of Governments (C/CAG) of San Mateo County

C/CAG is an association of 21 San Mateo County cities and the County of San Mateo that work together to address issues of regional concern (such as transportation, air quality, and hazardous waste disposal). C/CAG serves as the Congestion Management Agency (CMA) for San Mateo County, and in this capacity is responsible for developing, adopting, and updating a bi-annual Congestion Management Program (CMP) and administering the Countywide Transportation Plan.

San Mateo County Congestion Management Program (CMP)

Adopted as a response to requirements in 1990's Propositions 111 and 108, the 2005 San Mateo County CMP provides mitigation measures and procedures for anticipated increases in countywide roadway congestion. Administered by the CMA within the San Mateo C/CAG, the goal of the CMP "…is to help the C/CAG promote countywide solutions to transportation problems based upon cooperation and mutual support" (C/CAG, 2011). In addition to specifying the roadway network and establishing LOS criteria for measuring congestion on the network, the bi-annual CMP includes evaluative performance measures, a land-use impact analysis program, a 7-year Capital Improvement Program designed to maintain or improve transit performance and traffic LOS, and a TDM program. The CMP's TDM program is used to mitigate the impacts related to an increase of at least 100 project-related net new peak-hour vehicle trips. TDM measures, which give developers trip credits for each measure implemented, include:

- Provide secure bicycle storage
- Provide showers and changing rooms
- Operate a dedicated shuttle service during the peak period to a rail station or an urban residential area; alternatively, the development could buy into a shuttle consortium
- Charge employees for parking
- Subsidize transit tickets for employees
- Subsidize pedestrian/bicyclists who commute to work
- Create preferential parking for carpoolers

San Mateo County Comprehensive Bicycle and Pedestrian Plan

C/CAG, with support from the San Mateo County Transportation Authority (SMCTA), has developed the *San Mateo County Comprehensive Bicycle and Pedestrian Plan* (CBPP) to address the planning, design, funding, and implementation of bicycle and pedestrian projects of countywide significance (C/CAG, 2011). The CBPP updates the prior *San Mateo County Comprehensive Bicycle Route Plan* (2000) and expands the earlier plan by adding a pedestrian component. The following are the relevant goals and policies:

Goal 2: More People Riding and Walking for Transportation and Recreation

Policy 2.6: Serve as a resource to county employers on promotional information and resources related to bicycling and walking.

Goal 4: Complete Streets and Routine Accommodation of Bicyclists and Pedestrians

Policy 4.1: Comply with the complete streets policy requirements of Caltrans and the Metropolitan Transportation Commission concerning safe and convenient access for bicyclists and pedestrians, and assist local implementing agencies in meeting their responsibilities under the policy.

Policy 4.5: Encourage local agencies to adopt policies, guidelines, standards and regulations that result in truly bicycle-friendly and pedestrian-friendly land use developments, and provide them technical assistance and support in this area.

Policy 4.6: Discourage local agencies from removing, degrading or blocking access to bicycle and pedestrian facilities without providing a safe and convenient alternative.

The CBPP establishes eight Focus Areas for pedestrians. While no specific projects are outlined in the plan, the CBPP defers to local agencies (such as the City of Brisbane) to identify other pedestrian projects, such as new sidewalks, crossing improvements, and improved streetscape design. The following Focus Areas are applicable to potential pedestrian improvements in the Project Site vicinity:

- **Downtown Area Improvements.** Projects consist of improvements to pedestrian environments and connections on streets and corridors where there would be a substantial benefit from enhanced facilities. Sidewalks should ideally include a planted/furniture zone, a wide pedestrian through zone, and a frontage zone.

- **Major Barrier Crossings.** Barrier crossings are defined as improved connections across physical barriers to walking and may include traditional grade-separated crossings of freeways, railroads, and waterways, in addition to large arterials.

- **Safe Routes to School.** Safe Routes to School improvements facilitate walking and bicycling access to schools in San Mateo County. The area within a 1-mile radius of a school is considered the highest priority for Safe Routes to School infrastructure improvements.

- **Safe Routes to Transit**. Pedestrian access to transit hubs is critical for encouraging transit ridership. Stations that are isolated by freeways or busy arterials or have no safe or convenient walkways between residential areas and transit stops should be prioritized.

- **Access to County/Regional Activity Centers**. Many county and regional activity centers would benefit from improved walking connections. These include major hospitals, civic uses, employment districts, and parks, as well as rural town centers and neighborhood shopping / commercial districts. Projects would generally consist of new sidewalks, intersection improvements, and crossing improvements.

- **Regional Trails**. Regional trails provide key recreational and commute opportunities for pedestrians. All Class I paths identified in the County Bicycle Network are also considered Pedestrian Focus Areas, including the Bay Trail.

San Francisco County Transportation Authority (SFCTA)

General Responsibilities

The primary purpose of the San Francisco County Transportation Authority (SFCTA) is to administer and oversee the 2003 Proposition K half-cent local transportation sales tax program and New Expenditure Plan. Created in 1989, the SFCTA also has several other responsibilities: it is designated as the San Francisco CMA, it prepares and administers the San Francisco CMP, it tracks transportation system performance, it prepares a long-range Countywide Transportation Plan, and it serves as the San Francisco Program Manager for Transportation Fund for Clean Air (TFCA) grants.

San Francisco / San Mateo Bi-County Transportation Study

The San Francisco / San Mateo Bi-County Transportation Study was originally undertaken in 2001 to anticipate and address development-related transportation challenges expected to occur over the next 20 years in San Francisco and San Mateo Counties. The study was updated in 2012 and released by the San Francisco County Transportation Authority, with the purpose of reevaluating transportation improvements needed to address future growth demands. The study takes a broad look at the totality of proposed development with the purpose of identifying regional, multimodal transportation project investments that will be needed to support future growth and existing neighborhoods. It aims to build broad consensus on such a project list toward creating a multi-jurisdictional and shared public and private funding strategy and prioritization. The study presents four primary goals and objectives:

- Support local and regional strategic priorities with aligned transportation and land use investments and policies;

- Provide strong multimodal connections that facilitate safe travel within, among, and through neighborhoods;

- Support strong transit service; and

- Maximize cost-effectiveness and minimize implementation risks.

Key proposed land developments within the vicinity of the Project Site and identified in the draft 2012 document include:

- **San Francisco**
  - Hunters Point Shipyard (Phase 2)
    - 2,650 dwelling units
    - 5.2 million square feet of research & development, commercial, and community uses
  - Candlestick Point
    - 7,600 dwelling units
    - 1.2 million square feet of office, commercial, community, and hotel uses
  - Visitacion Valley / Schlage Lock Site
    - 1,250 dwelling units
    - 120,000 square feet of commercial, community uses
  - Executive Park
    - 1,600 dwelling units
    - Demolition of 230,000 square feet of office buildings and conversion to residential use
- **San Mateo County**
  - Brisbane Baylands[5]
    - 800 dwelling units
    - 7.5 million square feet of commercial, research & development, entertainment, hotel, office, and other uses
  - East Daly City / Cow Palace[6]
  - 1,700 dwelling units
  - 550,000 square feet of commercial uses

[5] The 2012 study notes that "at the time of the Bi-County needs assessment, the best information known about the Brisbane Baylands was the potential for some additional housing. New information since the assessment was completed has become available, including the option for up to 4,400 new housing units, but this information is not reflected in the assessment."

[6] The 2012 study notes that the "Cow Palace site is currently under the ownership of the California Department of Food and Agriculture but may be transferred from State ownership for development purposes. The fair share calculated within the Bi-County Study for that site applies, even if ownership changes."

The draft 2012 document identifies a 20-year, $548 million (in 2010 dollars) transportation improvement program, including the following projects in the vicinity of the Project Site:

- Traffic Calming Program (initiate 2010-2015);
- Full Harney-Geneva Bus Rapid Transit Line (initiate 2015-2020) (Item A on map);
- US 101 Candlestick Interchange Re-Configuration (initiate 2020-2025) (Item B on map);
- Geneva Avenue Extension (initiate 2015-2020) (Item C on map);T-Third Light Rail Extension (Segment "S") (initiate 2020-2025) (Item D on map).

- Bayshore Caltrain Station Re-Configuration (initiate 2015- 2020) (Item E on map); and
- Bicycle-Pedestrian Connections Project (initiate 2015-2020) (Item F on map).

As noted in the 2012 study, the study "does not actually represent a funding commitment by any agency or private interest; such commitments, if made, would be called for under future implementation steps. Instead, the Study represents a consensus approach among the public partners to project development and funding for the Bi-County transportation investment program and a commitment to continue efforts and discussions on Bi-County funding beyond the report."

The report further notes that the "level of required funds to implement the Bi-County program is ambitious for either the public or private sector to gather individually in the specified timeframe. But by combining public and private sources, the Bi-County partners can increase dramatically the prospects for funding the projects according to the specified schedule." A combination of potential public and private funding sources are identified in the November 2012 report "to serve as a starting point for discussions about sharing costs among the Bi-County public and private partners."

Association of Bay Area Governments (ABAG)

General Responsibilities

The Association of Bay Area Governments (ABAG) is the regional planning agency for the nine-county San Francisco Bay region. Created in 1961 as California's first council of governments, ABAG's purpose is to facilitate communication, cooperation, and coordination among the region's local governments in creating policies and development frameworks that will benefit the region as a whole. ABAG serves as the state-designated clearinghouse for reviewing state and federal projects within the region and administers numerous regional planning programs, including the San Francisco Bay Trail Project.

Bay Trail Regional Development Plan

The San Francisco Bay Trail is a planned 400-mile recreational corridor that will encircle the waterfront region of the San Francisco and San Pablo Bays. The Bay Trail consists of a network of hiking and bicycling trails that will connect the shorelines of all nine Bay Area counties. ABAG adopted the Bay Trail Regional Development Plan in 1989 in response to Senate Bill 100.

The 2005 Gap Analysis Study prepared by ABAG for the entire Bay Trail area attempted to identify the remaining gaps in the Bay Trail system; classify the gaps by phase, county, and benefit ranking; develop cost estimates for individual gap completion; identify strategies and actions to overcome gaps; and present an overall cost and timeframe for completion of the Bay Trail system. Within the Project Site, the 2005 Gap Analysis Study proposes to connect existing Bay Trail segments that are located within and north of the Project Site by completing the trail from its current southern gap terminus at Sierra Point Parkway, along the eastern edge of the Project Site and then extending the trail along the waterfront of Candlestick Point State Recreation Area.

Metropolitan Transportation Commission (MTC)

General Responsibilities

The Metropolitan Transportation Commission (MTC) is the federally designated Metropolitan Planning Organization and state-designated Regional Transportation Planning Agency for the Bay Area. The majority of federal, state, and local financing available for transportation projects is allocated at the regional level by MTC.

Regional Transportation Plan

The current regional transportation plan, known as *Transportation 2035 Plan: Change in Motion*, was adopted by MTC on April 22, 2009. *Transportation 2035* specifies a detailed set of investments and strategies throughout the region from 2010 through 2035 to maintain, manage, and improve the surface transportation system. The plan specifies how anticipated federal, state, and local transportation funds will be spent in the Bay Area during the next two decades. Most of this "committed funding" will go toward maintaining and/or enhancing the region's existing transportation infrastructure.

One Bay Area

One Bay Area is a new initiative meant to coordinate efforts among the region's nine counties and 101 towns and cities to create a more sustainable future. A consortium of regional agencies—MTC, ABAG, BAAQMD, and the Bay Conservation and Development Commission (BCDC)—unveiled the initiative on April 22, 2010. One major effort now underway is the development of *Plan Bay Area*, the region's long-range plan for sustainable land use, transportation, and housing. *Plan Bay Area* is one of the Bay Area region's most comprehensive planning efforts to date. It is a joint effort designed to produce a more integrated land use/transportation plan. The transportation component of Plan Bay Area will draw on lessons learned from MTC's most recent long-range regional transportation plan, *Transportation 2035 Plan: Change in Motion.* That plan anticipated many elements of Plan Bay Area's broader, more integrated focus on housing and sustainable

communities. MTC's performance-based planning approach will also focus on measurable outcomes to help ensure that high returns are achieved on regional transportation investments.

FOCUS

FOCUS is a regional development and conservation strategy that promotes a more compact land use pattern for the Bay Area. It unites the efforts of four regional agencies into a single program that links land use and transportation by encouraging the development of complete, livable communities in areas served by transit, and promotes conservation of the region's most significant resource lands. Through FOCUS, regional agencies will support local governments' commitment to these goals by working to direct existing and future incentives to Priority Development Areas and Priority Conservation Areas. Priority Development Areas are locally identified infill development opportunity areas near transit. Priority Conservation Areas are regionally significant open spaces for which there exists a broad consensus for long-term protection. These areas have been identified based on criteria that are consistent with the Bay Area's regional goals. FOCUS is led by ABAG and MTC, with support from BAAQMD and BCDC—in partnership with congestion management agencies, transit providers, and local governments throughout the Bay Area. It is partially funded by a Blueprint Grant from the State of California Business, Transportation, and Housing Agency.

Bay Area Air Quality Management District (BAAQMD)

BAAQMD is the regional agency with the authority to develop and enforce regulations for the control of air pollution throughout the Bay Area. The Clean Air Plan is BAAQMD's plan for reducing the emissions of air pollutants that lead to ozone. BAAQMD has also published CEQA Guidelines for the purpose of evaluating the air quality impact of projects and plans. One of the criteria that the BAAQMD CEQA Guidelines describe is that plans, including General Plans, must demonstrate reasonable efforts to implement transportation control measures included in the Clean Air Plan that identify local governments as the implementing agencies. On-road motor vehicles are the largest source of air pollution in the Bay Area. To address the impact of vehicles, the California Clean Air Act requires air districts to adopt, implement, and enforce transportation control measures.

Local Regulations

City of Brisbane

Incorporated in 1961, the City of Brisbane has local jurisdiction over the Project Site, with the exception of the northern portion of the Recology site which is located in San Francisco. The Project Site is served by a transportation network that includes the US 101 freeway, Caltrain, and SamTrans buses. Streets proposed as part of Project Site development would be subject to City of Brisbane standards.

City of Brisbane General Plan

The Transportation Element of the City of Brisbane General Plan, adopted in 1994, details a congestion and traffic demand management program designed to minimize the negative effects of

traffic within the city. Through roadway improvements, emphasis on multi-modal trip distribution, and land use considerations, it sets forth a comprehensive set of policies to guide development for a 20-year period. Roadway improvements that will directly affect Project Site traffic conditions include the following:

1. Geneva Avenue will be extended through the Project Site from Bayshore Boulevard to the US 101/Candlestick Point interchange. Although the precise alignment is not yet known, extension of this roadway is intended to benefit local traffic operations as well as the Project Site's connectivity to adjacent cities and areas west of Bayshore Boulevard.

2. The new Tunnel Avenue Bridge, which is located above the railroad tracks at the northwestern edge of Brisbane Lagoon, was identified in the General Plan as needing seismic retrofitting. It has been reconstructed to meet seismic standards and widened to accommodate truck traffic, thus improving site access for emergency vehicles and relieving congestion on nearby Bayshore Boulevard, which currently acts as the City's primary connection to US 101.

The 1994 General Plan further envisioned that a Caltrain station would be constructed near the northwestern corner of Brisbane Lagoon, adjacent to the Tunnel Avenue overpass. Construction of the Caltrain station was intended to increase central Brisbane's connectivity to other Bay Area cities and relieve local traffic conditions. However, the proximity to the Bayshore Caltrain Station makes it unlikely that such a station will be constructed because Caltrain intends to minimize the number of train stops in order to provide faster service. In addition, while the Bayshore Station was previously located within San Francisco, the platforms were replaced within the past 5 years and now extend more than 500 feet into Brisbane, thus providing greater access to the Project Site. Provision of an additional Caltrain station is not included in Project site development.

The following policies and programs are identified in the Transportation Element of the General Plan:

- **Levels of Service**

  ***Policy 38*:** Maintain a level of service on arterial streets that allows Brisbane residents and businesses to comfortably travel across town and to gain access to US 101.

  ***Policy 38.1*:** The level of service for all arterial streets within the City shall not be less than LOS "D" except for the intersections on Bayshore Boulevard at Old County Road and San Bruno Avenue, which shall not be less than LOS "C." The two intersections having LOS "C" shall not be degraded below that level as a result of increased impacts from other intersections within the City and such impacts shall be mitigated as necessary to maintain the LOS "C" standard at the identified intersections.

- **North-South and East-West Corridors**

  Policy 39: Plan for an additional east-west corridor to redirect non-destination traffic away from Bayshore Boulevard and to provide more direct access to US 101.

  Policy 39.2: Establish an alternative access route to the Tunnel Avenue overcrossing for emergency vehicles.

- **Street Standards**

  Policy 41: Require a minimum unobstructed street width of 20 feet, as required by the Uniform Fire Code.

  Policy 42: In addition to the above, develop residential and commercial City street standards that take into account the following factors as they apply to all streets, but particularly to hillside streets:

  - Grade
  - Topography
  - Average lot frontage size
  - Number of lots and potential intensity of development
  - Maximum block length
  - Maximum length of cul-de-sac streets
  - Length of street in relation to number of units served
  - Turnarounds
  - Parking
  - Secondary access

- **Local Residential Streets**

  Policy 44**:** Maintain and improve local residential streets to accommodate safe access for emergency vehicles and evacuation routes for residents.

  Policy 46**:** Develop a 10-year improvement program for improvements to existing hillside streets to include street widening, turn-arounds and the feasibility of secondary emergency access.

  Policy 46.1**:** Post and actively enforce the 25 mile per hour (mph) maximum speed limit in Central Brisbane, investigate creating 10-15 mph speed limit zones where appropriate, and promote a public awareness campaign regarding speed limits.

- **Arterial Streets**

  Policy 47**:** Maintain traffic flow on arterial streets.

- **Truck Routes**

  Policy 48**:** Maintain truck routes to avoid impacts on residential areas.

- **Improvements**

  Policy 49**:** Establish standards for the improvements of existing streets and the construction of new streets to provide a high level of service.

  Policy 50**:** In the design of internal circulation systems for new development or expansions of existing uses, provide for adequate emergency access around all buildings.

  Policy 51**:** Utilize gas tax, sales tax and other funding sources to implement circulation improvements.

- **Transit**

  Policy 52**:** Seek opportunities to install and improve transit facilities and establish multi-modal connections.

***Policy 53*:** Encourage SamTrans to install bus turn-offs and shelters and to upgrade service levels.

***Policy 54*:** Plan for park-and-ride facilities at the Caltrain Station and other major transit stops.

- **Transportation Management**

***Policy 55*:** Continue participation in sub-regional and regional transportation agencies.

***Policy 56*:** Maintain as much on-street parking in residential Brisbane as can be accommodated safely.

***Policy 57*:** Improve parking opportunities in the Central Brisbane business district and all other commercial areas.

- **Bicycle Routes**

***Policy 58*:** Provide bicycle access to all areas of the City.

***Policy 59*:** Connect Brisbane's bikeway system to the County bikeway network.

***Policy 60*:** Provide for the safety of bicyclists by dedicating bicycle routes where possible, by installing appropriate signing and striping, and by maintaining the pavement.

Program 60a: Install as many Class II bikeways as can safely be accommodated and are economically feasible.

Program 60b: Require new development and redevelopment to plan for and construct bicycle routes and parking facilities.

***Policy 61*:** All new arterial streets and any existing arterials that are improved should provide for bicycle transportation.

Program 61a: As a part of the annual budget and Capital Improvement Program development, seek opportunities to upgrade existing and to install new bicycle routes.

- **Bicycle Facilities**

***Policy 62*:** Provide or require bicycle parking facilities at major destination points.

Program 62a: Include bicycle lockers in park-and-ride facilities.

Program 62b: Encourage business and employment centers to provide bicycle parking facilities for their employees.

Program 62c: Design bicycle facilities to meet California Department of Transportation standards.

- **Bicycle Education and Information**

***Policy 63*:** Provide public information on bicycle transportation.

Program 63a: Establish a public information program on bicycle transportation.

Program 63b: Establish an education program on safe bicycle use for students.

Program 63c: Make bicycle network maps available to citizens.

Program 63d: Promote bicycle use through City publications and at special events.

- **Pedestrians**

***Policy 64*:** Provide safe pedestrian facilities throughout the City.

Program 64a: As part of the annual budget and Capital Improvement Program preparation, seek opportunities to upgrade and expand the system of pedestrian sidewalks, walkways and trails.

Program 64b: Study the possibility of signage on City walkways.

***Policy 65*:** In conjunction with street improvement projects, provide facilities for pedestrians.

Program 65a: Develop safe pedestrian access in Crocker Park.

***Policy 66*:** In conjunction with new development, provide pedestrian amenities within the project to connect with other areas of the City.

Program 66a: Consider an occasional bench along sidewalks, walkways and trails.

***Policy 67*:** Develop and promote a traffic safety education program for the schools.

***Policy 68*:** Continue to provide a crossing guard program.

- **Land Use Decisions**

***Policy 69*:** Consider potential traffic impacts and emergency evacuation in making land use decisions.

***Policy 70*:** Establish standards and criteria for the number of trips per acre that are generated by specific land uses, and establish development capacity for vacant sub-areas in relation to the capacity of arterial streets and public transit to accommodate the trips generated by the uses.

***Policy 71*:** For vacant sub-areas without existing infrastructure, require circulation plans and traffic impact analyses to be submitted as a part of any development application.

***Policy 72*:** Consider the impacts of transit facilities and Transportation Management Programs in making land use decisions.

***Policy 73*:** Actively participate in the development and implementation of the San Mateo County-wide Transportation Plan and the Congestion Management Plan (especially the land use impact part thereof) to improve circulation systems, to develop alternatives to automobile dependence for land use proposals and to assist in making transportation-sensitive land use decisions.

***Policy 74*:** Developers and property owners who wish to build on their land where City streets do not currently exist shall dedicate right-of-way and improve the streets to City standards at their own expense.

***Policy 75*:** Ensure access to properties in making land use decisions.

***Policy 76*:** Ensure that all land use development applications for a primary or secondary dwelling unit have adequate and legal access which complies with City street standards. Where a building site does not front directly on a public street, legal and adequate access, which complies with City street standards, shall be provided from the public street to the building site.

***Policy 77*:** Discourage the establishment of new private streets, private roadways and accessways.

***Policy 78*:** Encourage the improvement of existing private streets, private roadways and easement accessways to City standards and the dedication of the right-of-way to the City after improvements are installed.

***Policy 78.1*:** Require exactions and develop an impact fee program for new development and improvements to property to improve and maintain substandard streets to minimum safety standards.

***Policy 79*:** Monitor land use decisions under consideration by adjacent jurisdictions and their potential effect on Brisbane's streets. Comment through the public process in that jurisdiction and County-wide, and request mitigations as appropriate.

***Policy 80*:** Monitor regional developments and their effects on US 101 and Bayshore Boulevard to evaluate circulation impacts. Comment through the public process and request mitigations as appropriate.

Bicycle Policies, Programs, and Funding

The Brisbane General Plan outlines six bicycle policies (described in the previous subsection). In November 2006, under Resolution No. 2006-53, the City of Brisbane adopted the San Mateo County Comprehensive Bicycle Route Plan and the City of Brisbane Addendum thereto. This qualified the City of Brisbane for bicycle transportation funds, which helped it complete the Bayshore Bikeway Class II project. Through its policies, the City seeks to promote the use of bicycles as a viable mode of transportation, encourage the inclusion of bicycle facilities at major destination points and existing and future roadways, and provide public information on bicycle transportation. In addition, the City also plans to continue seeking federal, state, and regional bicycle program funds.

Provisions for Parking, Street Design, and Transportation Demand Management

Development of the Project Site is subject to City of Brisbane General Plan and zoning code requirements with regard to minimum parking requirements and street design standards, and is also subject to Transportation Demand Management (TDM) program requirements established by C/CAG. The site's public streets will be under the jurisdiction of the City of Brisbane, as will be the segment of the San Francisco Bay Trail that runs through the site. Existing and proposed freeway on- and off-ramps adjacent to the Project Site are under the jurisdiction of Caltrans.

City of Brisbane Municipal Code

Chapter 10.52 of the City of Brisbane Municipal Code sets forth the City's Transportation System Management Program (TSMP). Section 10.52.060 provides that each employer within San Mateo County that is subject to the BAAQMD Regulation 13, Rule 1 (regional employer-based trip reduction rule) shall conform to the employer-based reduction requirements established and enforced by BAAQMD. Moreover, each employer of 25 or more employees shall follow the progression of current and new rules under Regulation 13 so as to be prepared to comply with new mandates that may come into effect for such employer's worksite.

City of Daly City

Incorporated in 1911, Daly City borders Brisbane to the west and has jurisdictional control over a portion of Geneva Avenue near the Cow Palace (east of Santos Street to Bayshore Boulevard), a portion of Bayshore Boulevard (north of Geneva Avenue to just south of Sunnydale Avenue), and the western portion of Guadalupe Canyon Parkway (where the name changes to East Market Street). Daly City is served by a transportation network that includes the US 101 and I-280 freeways, and transit service operated by SamTrans and the San Francisco Bay Area Rapid Transit District (BART).

City and County of San Francisco

The City and County of San Francisco is located immediately north of Brisbane on the northern tip of the San Francisco Peninsula and has jurisdictional control over several key transportation facilities near the Project Site, including portions of Bayshore Boulevard (north of Sunnydale Avenue) and Geneva Avenue (west of Santos Street). In addition, the San Francisco Municipal Transportation Agency operates the Muni transit system that includes T-line light rail service on the Third Street corridor that currently terminates near the Project Site at Bayshore Boulevard and Sunnydale Avenue. Long-term plans call for the T-line to be extended to the Bayshore Caltrain Station, but the precise alignment has not been determined. Additional transportation facilities serving San Francisco include the US 101, I-80, and I-280 freeways; and transit services operated by BART, SamTrans, and Caltrain. The City and County of San Francisco has published *Transportation Impact Analysis Guidelines for Environmental Review* that contains criteria for determining the significance of impacts on transportation facilities in San Francisco (San Francisco Planning Department, 2002).

Peninsula Joint Powers Authority

The rail right-of-way, and overcrossings, that runs through the Project Site are under the jurisdiction of the Peninsula Joint Powers Authority, the agency that manages Caltrain for the counties of Santa Clara, San Mateo, and San Francisco.

4.N.4 Impacts and Mitigation Measures

Significance Criteria

General Criteria

Based on CEQA Guidelines Appendix G, a project would cause adverse impacts related to transportation and traffic if it would:

- Conflict with an applicable plan, ordinance, or policy establishing a measure of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit;

- Conflict with an applicable congestion management program, including but not limited to level-of-service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways;

- Result in a change in air traffic patterns, including either an increase in traffic levels, obstructions to flight, or a change in location, that results in substantial safety risks;

- Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses;

- Result in inadequate emergency access; or

- Conflict with adopted policies, plans, or programs regarding public transit, bikeways, or pedestrian facilities, or otherwise substantially decrease the performance or safety of such facilities.

Specific measures of effectiveness are used in this section to evaluate the performance of the circulation system in light of Project Site development. To determine whether development of the Baylands would "conflict with an applicable plan, ordinance, or policy establishing a measure of effectiveness for the performance of the circulation system," or "conflict with adopted policies, plans, or programs regarding public transit, bikeways, or pedestrian facilities, or otherwise substantially decrease the performance or safety of such facilities," the EIR evaluates certain Project Site development-related impacts in terms of quantitative transportation thresholds, which have been adapted from the Brisbane General Plan Transportation Element, prior City of Brisbane transportation impact analyses, the C/CAG CMP Guidelines, and the Candlestick Point-Hunters Point Shipyard EIR, based on the City's guidance. The thresholds used in the analysis are intended to quantitatively evaluate the impacts of the four Project Site development scenarios on the circulation system consistent with the broad Appendix G criteria set forth above.

Parking Issues

CEQA does not require analysis of parking impacts. Accordingly, the parking analysis, which presents supply, forecasted demand, and planning code requirements, where addressed in this EIR, is included for informational purposes only.

A parking deficit is considered to be a social effect, rather than a physical impact on the environment. Therefore, because CEQA only requires disclosure and analysis of a project's physical impacts, an EIR is not required to analyze parking. An EIR should, however, address any secondary physical impacts that are triggered by a social impact (CEQA Guidelines Section 15131(a)). Therefore, while the social inconvenience of a parking deficit, i.e., hunting for scarce parking spaces, is not an environmental impact, such a hunt may trigger secondary physical environmental impacts, including increased traffic congestion at intersections and the accompanying air quality, safety, and noise impacts.[7] Arguably, however, the absence of a ready supply of parking spaces, combined with available alternatives to auto travel (e.g., transit service,

[7] While it can be reasonably inferred that these secondary effects could result from a lack of sufficient parking spaces, reducing parking requirements is also sometimes suggested as a means of increasing transit ridership.

taxis, bicycles or travel by foot) and a relatively dense pattern of urban development, may induce drivers to seek and find alternative parking facilities, shift to other modes of travel, or change their overall travel habits.

Impact Assessment Methodology

This subsection presents the methodology for developing Existing (2010) plus Project and Cumulative (2030) Without Project conditions, and information considered in the travel demand and impact analysis.[8] Specifically, the following are addressed:

- **Analysis approach**, including analysis years and comparison of traffic conditions following Project Site development to Existing and to Cumulative Without Project conditions;
- **Cumulative Without Project transportation improvements**, identifying those transportation improvements that are assumed to be in place for Cumulative Without Project conditions;
- Methodology for development of traffic forecasts for **Cumulative Without Project conditions**;
- **Proposed transportation improvements** assumed to be completed under Existing plus Project conditions and included in assessment of travel demand and impact analysis;
- **Project travel demand**, including methodology and results of the travel demand forecasts for the four development scenarios; and
- **Transit capacity utilization analysis methodology**.

Analysis Approach

The analysis of the impacts associated with development of the Project Site was conducted for two conditions: Existing (2010) and Cumulative (2030) conditions. For Existing plus Project and Cumulative With Project conditions, the analysis was conducted for each of the four Project Scenarios: Developer-Sponsored Project (DSP), Developer-Sponsored Project – Entertainment Variant (DSP-V), Community Proposed Plan (CPP), and Community Proposed Plan – Recology Expansion Variant (CPP-V). In addition to the analyses conducted for all four scenarios, a specific analysis of a special event (sold-out arena) under the DSP-V scenario was analyzed.

Travel Demand Forecasting

The Cumulative Without Project travel demand forecasts use the Candlestick Point/Hunters Point Study (CPHPS) forecasts, developed using the SFCTA CHAMP 3 Model as a part of the analysis for the Candlestick Point-Hunters Point Shipyard EIR (San Francisco Planning Department, 2009). The study intersections analyzed in the CPHPS EIR have considerable overlap with the

[8] The analysis scenarios for future conditions are hereinafter named as follows: "Cumulative Without Project" for Cumulative (2030) conditions without Project site development, and "Cumulative With Project" for Cumulative (2030) conditions with Project site development.

Project Site study intersections due to the proximity of the two development areas. A set of forecasts consistent with this methodology were developed for this EIR by backing out the trips generated by the land uses for each of the development scenarios assumed for the CPHPS EIR and then adding in the newly calculated trips.

For the impact analysis for future conditions, substantial transportation network changes (associated with City and regional initiatives, and development of the Project Site) would occur prior to 2030, as described below. The cumulative development program assumed in these forecasts includes large projects such as CPHPS (over 10,000 housing units, 2.5 million square feet of research and development, and almost 1 million square feet of local- and regional-serving retail), Executive Park, Schlage Lock site, India Basin Shoreline, and Visitacion Valley. These projects represent at least 20 years of development.

Traffic counts used for analyzing intersection levels of service were taken in 2007. Although the counts conducted for this study were not done in December 2010 at the issuance of the revised EIR Notice of Preparation, they and the studies based on them throughout the report are still an accurate reflection of baseline conditions for the purposes of this analysis. Traffic counts taken in November 2012 confirmed that volumes in pre-recession 2007 were higher than current volumes. Thus, the use of pre-recession 2007 traffic counts in this EIR results in a more conservative analysis of Project impacts than would re-running traffic models based on post-recession 2010 or 2012 traffic counts.

Baseline

Project Site development impacts were determined by comparing existing and future conditions assuming Project Site buildout to existing and future conditions without Project site development, as follows:

1. Baseline scenario: Existing (2010) conditions were compared to Existing (2010) conditions with Project site development ("Existing plus Project"), evaluating impacts and proposing needed mitigation measures;[9] and

2. Cumulative scenario: Cumulative (2030) conditions with Project site development ("Cumulative With Project") were compared to Cumulative (2030) conditions without Project site development ("Cumulative Without Project"), providing an evaluation of cumulative impacts and the relative contribution of Project scenarios to those cumulative traffic impacts, along with needed mitigation measures.

The significance criteria presented above were applied for the analysis.

[9] Mitigation measures for Existing Plus Project conditions are proposed in relation to Project Site development impacts from baseline conditions, while mitigation measures for Cumulative With Project conditions are proposed in relation to Project Site development's contribution to cumulative impacts.

Cumulative Without Project Transportation Improvements

In addition to improvements proposed as part of Project Site development, as described under "Proposed Transportation Improvements" below, the analysis assumes completion of certain planned and reasonably foreseeable roadway and transit improvements in the vicinity of the Project Site by 2030 that, although not part of the project description set forth in Chapter 3 of this EIR, could affect roadway levels of service. These improvements would be completed by the City of Brisbane and the City and County of San Francisco directly or through other development project approvals.

Roadway Improvements

Roadway improvements were identified as mitigation measures in the EIRs prepared for the Bayview Hunters Point Redevelopment Plan, the Visitacion Valley Redevelopment Program, the Candlestick Point-Hunters Point Shipyard Phase II Development, and the Executive Park Development Plan. Implementation of these improvements is also identified as conditions of approval placed on the development projects by the San Francisco Planning Department and the Office of Community Investment and Infrastructure (Successor Agency to the San Francisco Redevelopment Agency, "Successor Agency"). Should these approved projects not be developed, the possibility exists that associated transportation improvements would not be constructed. However, impacts and mitigation associated with Project Site development on current transportation facilities are identified herein, and those impacts and mitigations do not rely on the future transportation improvements. In the event the nearby developments do not proceed but Project Site development does, mitigation measures would be the same as those identified in the Existing plus Project impacts and mitigation subsection of this EIR. In addition, Project Site development would still be required to meet the performance standards set forth in other mitigation measures in this EIR, even in the absence of roadway improvements anticipated to be constructed by other approved development projects in the area.

In addition, there are two regional roadway improvements (Bayshore Avenue & Sunnydale Avenue intersection improvements and Harney Way widening) currently being designed and analyzed to accommodate the travel demand associated with areawide projects in both San Francisco and San Mateo Counties. These improvements, requiring approval by the City of Brisbane, are being studied through their own CEQA environmental review process. Implementation of these regional improvements would be based on fair-share funding measures through inter-jurisdictional study and cooperation, such as the ongoing inter-jurisdictional Bi-County Transportation Study effort led by the SFCTA. Within San Francisco, the Planning Department and the Office of Community Investment and Infrastructure will require project developer fair-share contributions to these identified funding needs as a condition of development approval, or as a condition of any Owner Participation Agreement. Should these facilities not be constructed in a timely manner relative to development of the Baylands, Project Site development would still be required to meet the performance standards set forth by mitigation measures in this EIR.

Improvements assumed in the Cumulative Without Project transportation analysis are as follows (see **Figure 4.N-8**):

- **Bayshore Boulevard & Tunnel Avenue Intersection** – The Visitacion Valley Redevelopment Program called for improvements to the signal timing plan and to redistribute green time from the southbound left-turn movement to the northbound / southbound through movements.

- **Blanken Avenue & Tunnel Avenue Intersection** – At this existing all-way stop-control intersection, the Candlestick Point-Hunters Point Shipyard Phase II Development Plan calls for restriping the northbound and southbound approaches to provide dedicated left-turn lanes adjacent to shared through/right-turn lanes. The Visitacion Valley Redevelopment Program calls for reconfiguration to signalize this intersection. In addition, the approaches to the intersection would be restriped to provide for two travel lanes for each approach. The Candlestick Point-Hunters Point Shipyard Development Project was officially approved and expected to be under fair-share funding obligations for implementation of these improvements.

- **Bayshore Boulevard & Blanken Avenue Intersection** – The Visitacion Valley Redevelopment Program calls for restriping of the westbound approach of Blanken Avenue at Bayshore Boulevard to two lanes, thus providing for an exclusive left-turn lane and an exclusive right-turn lane.

- **Bayshore Avenue & Sunnydale Avenue Intersection** – The Visitacion Valley Redevelopment Program calls for reconfiguration of this signalized intersection to extend the southbound left-turn pocket by 100 feet. In addition, the program calls for improvements to the signal timing plan to redistribute green time from the northbound / southbound left-turn movements to the eastbound/westbound through movements. The westbound and eastbound approaches will be restriped to provide two travel lanes: a shared left-through and an exclusive right-turn lane.

- **Harney Way Widening** – The existing four-lane Harney Way would be widened as part of the Candlestick Point-Hunters Point Shipyard Development Plan to the north and south of its existing alignment, and would be rebuilt to contain between two and three travel lanes in each direction, turn pockets, two Bus Rapid Transit-only lanes, Class I and Class II bicycle facilities, new sidewalks, and a landscaped area.

- **Geneva Avenue/Harney Way Extension** – Geneva Avenue, which currently ends at Bayshore Boulevard west of the Project Site, would be extended east to meet Harney Way, improving east/west access in the area. The Geneva Avenue extension would have three eastbound and three westbound travel lanes between Bayshore Boulevard and a new interchange with US 101 (see below). Currently, the nearest east/west access road is Blanken Avenue, which is designed as a neighborhood collector roadway and could not accommodate the additional east/west traffic generated by area projects. The lead agency for this project is the City of Brisbane.

- **New US 101 Interchange at Geneva Avenue/Harney Way** – In conjunction with the extension of Geneva Avenue (see above), the existing Harney Way interchange is proposed to be redesigned as a diamond interchange, subject to review and approval by Caltrans. Caltrans and the City of Brisbane are the lead agencies for this project. Two alternatives are currently being assessed; one with Geneva Avenue/Harney Way crossing under US 101, and the other with Geneva Avenue/Harney Way crossing over US 101.

Figure 4.N-8 Assumed Roadway and Interchange Improvements Cumulative Without Project

At the time of publication of the Brisbane Baylands Draft EIR, the Geneva Avenue/Harney Way crossing of US 101 was proposed to have six eastbound lanes (three left-turn lanes and three through lanes) and six westbound lanes (three left-turn lanes and three through lanes) for a total of 12 lanes. The intersections of the northbound and southbound ramps with Geneva Avenue/Harney Way would be signalized. For both alternatives, a new bypass to the existing northbound Third Street off-ramp would be constructed with the extension, diverting traffic on the existing off-ramp from the northbound mainline and improving conditions at the weave section where the new proposed northbound on-ramp from Harney Way would join the mainline traffic.

Transit Improvements

Transit improvement projects within or near the Project Site assumed in the Cumulative Without Project transportation analysis include:

- **T-Third Line Extension:** Proposed extension of the T-Third line from the Sunnydale Station to provide a direct connection to Caltrain at the Bayshore Station.

- **Geneva Avenue Bus Rapid Transit (BRT):** Proposed transit service between the Balboa Park BART Station and Hunters Point Shipyard via Geneva Avenue and the Bayshore Intermodal Station. This proposed physical improvement is not yet funded, and capital costs (for bus acquisition) and operational funds have not been secured at this time, but they would include contributions from adjacent development projects (particularly segments to be implemented with planned redevelopment of the CPHPS site).

- **Bayshore Intermodal Station Access Study Improvements:** Proposed reconfiguration of the Bayshore Caltrain Station to accommodate the proposed BRT. Two intermodal station redesign alternatives are described as "feasible alternatives" in the Bayshore Intermodal Station Access Study (San Francisco County Transportation Authority, 2012) to accommodate the proposed extension of the Muni T-line light-rail line from its current terminus at the Sunnydale Station to serve the Bayshore Caltrain Station. These proposed improvements would cost an estimated $200 million to $300 million and are not yet funded. The two feasible alternatives (identified for further consideration) are:

  - *Alternative 1*: Move Caltrain platform 150 feet south, with elevated BRT via Beatty Street to accommodate intermodal transfers (see **Figure 4.N-9**).

  - *Alternative 2*: Move Caltrain platform 300 feet south, with elevated BRT via the proposed Geneva Avenue overpass (see (see **Figure 4.N-10**).

- **Improvements Described in the Candlestick Point-Hunters Point Shipyard EIR:** Planned and/or proposed service improvements in the vicinity of the Project Site (see **Figure 4.N-11**), although none beyond those described above would directly serve the Project Site.

Figure 4.N-9 Bayshore Intermodal Study (Alternative 1)

Figure 4.N-10 Bayshore Intermodal Study (Alternative 2)

Figure 4.N-11 Long Term CPHPS Transit Service (Planned)

Bicycle Improvements

Brisbane has six bicycle policies outlined in its General Plan. These policies are general goals rather than specific projects. The San Mateo County CBPP outlines the following improvements in Brisbane and Daly City within the vicinity of the Project Site:

- Class II bicycle lanes in both directions of travel along Geneva Avenue west of Bayshore Boulevard. The Geneva Avenue extension would continue these bicycle lanes to the US 101 interchange.

- Class II bicycle lanes in both directions of travel along Old County Road and Visitacion Avenue west of Bayshore Boulevard providing access to Central Brisbane.

- Class III bicycle route along San Bruno Avenue between Visitacion Avenue and Bayshore Boulevard.

Other Project Site-adjacent bicycle facilities improvements to be constructed by the City and County of San Francisco (as identified in the San Francisco Bicycle Plan) or through project mitigation proposed by the CPHPS project include the following:

- **CPHPS Project:** The CPHPS project includes construction of the regionally adopted Bay Trail in the southeastern portion of San Francisco and incorporation of the Blue Greenway, a network of enhanced pedestrian and bicycle links through the eastern portion of San Francisco to the waterfront. Trail improvements include a pedestrian and bicycle trail along the shoreline with connections to the existing and new parks, from the western boundary of Candlestick Point near the Harney Way/US 101 interchange, through the State Recreation Area, Yosemite Slough, and Hunters Point Shipyard shoreline to India Basin.

- **San Francisco Bicycle Plan Project 5-5 (near-term):** Cesar Chavez Bicycle Lanes will involve the installation of Class II bicycle lanes in both directions on Bicycle Route #25 on Cesar Chavez Street between Kansas Street (near US 101) and Mississippi Street (near I-280). To accommodate the bicycle lanes, one of the two eastbound travel lanes will be removed.

- **San Francisco Bicycle Plan Project 5-13 (near-term):** San Bruno Bicycle Lanes will involve the installation of Class II bicycle lanes in both directions on Bicycle Route #25 on San Bruno Avenue between Silver Avenue and Paul Avenue. To accommodate the bicycle lanes, on-street parking would need to be removed in the segment between Silliman Street and Silver Avenue.

Cumulative Without Project Traffic Forecasts

Cumulative Without Project conditions were developed via a two-step process that used (1) the SFCTA travel demand model (SF-CHAMP) to determine background traffic growth on roadways in the vicinity of the Project Site, and (2) traffic volume overlays to reflect traffic volume turning movements associated with nearby developments that are not fully reflected in the SF-CHAMP model output.

SF-CHAMP Model Growth Projections

Forecasts of Cumulative Without Project traffic volumes were estimated based on cumulative development and growth identified by the SF-CHAMP travel demand model. The SF-CHAMP model is an activity-based travel demand model that has been "validated" to existing conditions, meaning that the model's predicted travel volumes and patterns match observed travel volumes and patterns within a specified tolerance for the base year. The SF-CHAMP model is updated regularly and is designed to include traffic volumes and patterns at the southern periphery of the San Francisco. It can thus be used to forecast future transportation conditions in and around San Francisco, including in Brisbane. The model predicts daily person-trips based on assumptions of growth in population, housing units, and employment from Association of Bay Area Governments (ABAG), which are then allocated to different periods of time throughout the day using time-of-day sub-models. The SF-CHAMP model predicts future person-trips by mode for auto, transit, pedestrian, and bicycle trips. The SF-CHAMP model also provides forecasts of vehicular traffic on regional freeways, major arterials, and local roadway networks, and considers available roadway capacity, origin-destination demand, and congested travel speeds when assigning the future travel demand.

The SF-CHAMP model divides San Francisco into approximately 981 geographic areas, known as Traffic Analysis Zones (TAZs). The SF-CHAMP model also includes zones outside of the San Francisco, such as Brisbane, for which data are obtained through the current Metropolitan Transportation Commission (MTC) model. For each TAZ, the SF-CHAMP model estimates the travel demand based on TAZ population and employment growth assumptions for 2030 developed by ABAG,[10] determines the origin and destination and travel mode (i.e., auto, transit, walk and bicycle) for each trip, and then assigns those trips to the transportation system (roadway network and transit lines). The SF-CHAMP output is developed based on weekday daily and 3-hour AM and PM peak periods. The ABAG land use and socioeconomic database and growth forecasts provide forecasts of economic and population growth for San Francisco, as well as for the remaining eight Bay Area counties. Within San Francisco, the San Francisco Planning Department is responsible for allocating ABAG's countywide growth forecast to each SFCTA Model TAZ, based upon existing zoning and approved plans, using an area's potential zoning capacity and the anticipated extent of redevelopment of existing uses.

The increase in vehicle trips between Existing Conditions and Cumulative Without Project conditions was based on a comparison between model output that represents baseline conditions and model output for future year 2030 conditions.

Local Development Traffic and Transit Overlays

In the Project Site vicinity, several development proposals have recently been approved or are in environmental review. While these projects had been included as part of the growth projections in the SF-CHAMP model, to account for the localized effects of traffic and transit demand, the trip

[10] The ABAG growth assumptions are presented in ABAG's "Projections" series, and the SF-CHAMP model used for this analysis used ABAG's Projections 2007. Although not the most recent estimates, ABAG's 2007 projections still provide accurate forecasts for the purposes of this analysis, as they align with the 2007 baseline counts conducted for the study.

generation associated with those projects was extracted from the SF-CHAMP model output and replaced by more detailed travel demand estimates used in the environmental review of these projects, which include:

- Visitacion Valley Redevelopment Program (residential, commercial, community-serving cultural/institutional/educational space, and infill development along Bayshore Boulevard and along Leland Avenue);
- Executive Park Development Plan (conversion of office space to residential, neighborhood-serving commercial, and subsurface parking);
- Candlestick Point/Hunters Point Shipyard (residential, regional-serving commercial, office, and arena);
- Hunters Point Shipyard Phase I and II (residential, neighborhood-serving commercial, office, hotel, and stadium);
- India Basin Shoreline (residential, neighborhood-serving commercial, office, and hotel); and
- Daly City Cow Palace (residential, community-serving commercial, office, and research and development/industrial).

To make travel demand associated with these approved projects consistent with that included in the previous EIRs, travel demand and vehicle assignments were obtained from technical analyses conducted for the EIRs for these projects. Trip generation associated with Project site development that had been estimated in those EIRs was extracted from the adopted cumulative forecasts.

Proposed Transportation Improvements

The transportation improvements described in this subsection are included in the February 2011 Draft Brisbane Baylands Specific Plan ("Specific Plan"), which proposes the DSP and DSP-V development scenarios. Because the Concept Plans for the CPP and CPP-V scenarios focus on land use and do not provide the detailed roadway and infrastructure planning that is required for a specific plan, analysis of transportation impacts for the CPP and CPP-V scenarios uses the roadway configurations shown on the CPP and CPP-V conceptual plans as the starting point for analysis, based on the assumption that certain basic roadway and transit improvements would be the same for all four development scenarios. This assumption is reasonable, as the only substantive difference in the roadway improvements between DSP/DSP-V and CPP/CPP-V scenarios is that the frontage road would not continue to provide access to Geneva Avenue under the CPP/CPP-V scenarios. As a result, this frontage road was not assumed in the CPP and CPP-V scenarios.

Roadway Improvements

The majority of roadways internal to the Project Site would be new and would follow the City of Brisbane's street design standards, as well as the Caltrans and American Association of State Highway and Transportation Officials Design Manuals. The City standards reflect typical

roadway speeds of approximately 25 miles per hour on local and collector streets and 35 miles per hour or higher on arterial roads, such as Geneva Avenue. Bulb-outs are included at intersections within streets in all locations where on-street parking is included. All roads would include on-street parking except for Tunnel Avenue, Sierra Point Parkway, and the 70-foot-wide residential area streets where the Muni light rail transit (LRT) operates and ground-floor retail is not proposed (DSP and DSP-V scenarios). **Figure 4.N-12** shows the proposed roadway system for the DSP and DSP-V development scenarios.

Figures 4.N-13 and **4.N-14** show the conceptual roadway system used to analyze traffic impacts for the CPP and CPP-V development scenarios, respectively. For the traffic impact analysis, the roadway network for each scenario was assumed in distribution and assignment of Project trips. Roadways internal to the Project Site and new intersections with the external circulation system were not analyzed due to the inability to compare Project conditions to non-Project conditions.

For existing roadways internal to the Project Site, the following improvements would be made for all four development scenarios, except as noted:

- A frontage road named "Sierra Point Parkway" would be constructed along the eastern edge of the Project Site, extending the existing Sierra Point Parkway northward to link with Geneva Avenue (*DSP and DSP-V scenarios only*).

- Beatty Road access would be maintained and would provide a linkage to Tunnel Avenue (*DSP, DSP-V, and CPP scenarios only*). Under the CPP-V scenario, Beatty Road would be closed to make room for the Recology expansion.

- A realigned Tunnel Avenue would terminate at a "T" intersection with Lagoon Way after connecting with streets in the East Geneva and Visitacion Green districts. Primary access to these districts, however, would be from the extended Sierra Point Parkway rather than Tunnel Avenue.

- Tunnel Avenue would provide access to the Visitacion Valley and Little Hollywood neighborhoods in San Francisco as well as the neighborhoods along Geneva Avenue. Access to and from Central Brisbane would primarily be from Lagoon Way, with its intersection at Tunnel Avenue reconfigured to provide a through way from Old County Road to US 101. Roadway improvements would continue to permit the safe movement of tanker trucks between the Kinder Morgan Energy Tank Farm and US 101.

Transit Improvements

Proposed Transit Facilities

Development of the Project Site would rely upon a number of transit improvements being implemented by regional transit agencies that would enhance existing and proposed transit services operating within, or adjacent to, the Project Site. **Figure 4.N-15** and **Figure 4.N-16** illustrate the proposed transit improvements that would complement Project Site development under the DSP/DSP-V and CPP/CPP-V scenarios, respectively.

Figure 4.N-12 DSP/DSP-V Project Roadways

Figures 4.N-13 and 4.N-14 CPP/CPP-V Project Roadways (11x17)

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Figure 4.N-15 DSP/DSP-V Project Transit

Figure 4.N-16 CPP/CPP-V Project Transit

Transit circulation features would include the following:

- Transit services would be focused at the Bayshore Caltrain Station, located at the north end of the Project Site bordering San Francisco, and would be connected with other portions of the Project Site via Tunnel Avenue. The Bayshore Station would be upgraded to serve as an inter-modal transit hub to accommodate more frequent Caltrain service and allow convenient transfers between Caltrain, the proposed bus rapid transit on the Geneva Avenue corridor between the Balboa Park BART Station and Hunters Point Shipyard, the proposed new southern terminus of the Muni T-Third light rail line, and other Muni and San Mateo County Transit District (SamTrans) bus routes that could use the multi-modal transit hub.

- In addition, transit services would be available from the Sunnydale Muni Station, located at Bayshore Boulevard and Sunnydale Avenue approximately 1,000 feet west of the Bayshore Station. The Sunnydale Muni Station serves the Muni T-Line and Muni bus routes 8X, 8BX, 9 and 9L.

- The Geneva Avenue extension design would reserve a right-of-way to accommodate long-term planned Muni BRT service.

Funding for the proposed transit facilities has not been secured, and is subject to negotiation, but has been proposed to include a "Bi-County" funding agreement between the two counties (San Francisco and San Mateo) and neighboring cities (Brisbane, Daly City, and San Francisco).

Additional transit and related improvements that may become elements of a Transportation Demand Management program but are not currently contemplated in existing transportation studies and plans may be developed in the future, depending on future demand and funding availability. Examples of transit and related improvements that could be implemented include shuttle bus service connecting the Project Site with key employment centers and transit stops, creation of a transit center within the Project Site that would enable efficient and convenient transfers among Caltrain/SamTrans buses/Muni LRT and buses and for attended bicycle parking, and the inclusion of major BRT stops within the Project Site that include information kiosks and real-time transit updates. Other potential improvements are described under "Transportation Demand Management (TDM) Program" below.

The effectiveness of these potential additional improvements cannot be determined due to the lack of information on their locations, service capacities, and planning horizons as well as uncertainty related to implementation by other agencies. Therefore, additional transit and related improvements that would be considered speculative are not considered in this document.

Proximity of Proposed Land Uses to Transit Facilities

Convenient transit access is frequently defined based on provision of transit services within a walking distance of up to one-third mile from a transit stop. Specifically:

- Ridership studies at other Caltrain stations found higher rates of Caltrain ridership where employment sites are provided within one-third mile of a Caltrain station (with rates of Caltrain ridership found to be three times higher than the rate of Caltrain ridership for employment sites located more than one-half mile from the station).

- Employment sites located from one-third to one-half mile from a Caltrain station were found to have rates of Caltrain ridership roughly 40 percent lower than those land uses located within one-third mile of a Caltrain station.

Given the location of the key transit facilities at the north end of the site, the land use plans for each Project scenario cluster a significant portion of proposed development near proposed transit facilities, as follows:

- Proposed land uses north of Geneva Avenue would be within one-third mile of the Bayshore Station (existing Caltrain and proposed intermodal station) and Sunnydale Muni Station, as well as the proposed Geneva Avenue BRT.

- Proposed land uses south and southeast of Geneva Avenue would be within one-third mile of the proposed Geneva BRT. However, those land uses, south of Geneva Avenue, would be farther than one-third mile from the Caltrain and T-line stations. Therefore, a lower rate of transit use is likely for those sites south of Geneva Avenue.

- Proposed land uses in the southern half of the Project Site would be more than one-half mile from the Bayshore intermodal station.

Proposed Transit Access

Each of the Project site development scenarios proposes a network of pedestrian and bicycle paths across the Project Site. Pedestrian circulation would include sidewalks or single- or multi-use paths adjacent to roadways within the Project Site. Development of the Project Site also would establish streetscape standards and guidelines to ensure the provision of these facilities (e.g., by providing for continuous sidewalks along streets and enhanced pedestrian crossings at key intersections). Enhanced pedestrian street crossings within the Project Site would include elements that provide traffic calming effects and reduced distances at pedestrian crossings.

Each of the scenarios includes at least one pedestrian overcrossing over the Caltrain right-of-way and Tunnel Avenue to minimize lengthy internal travel distances for pedestrians and bicyclists.

Bicycle Circulation Improvements

The Transportation and Circulation Element of the Brisbane General Plan (1994) outlines policies and programs aimed toward diversifying the City's transportation network and establishing maximum land use intensities given each roadway's capacity (see Subsection 4.N.3, *Regulatory Setting*, for bicycle-related policies and programs).

The bicycle circulation plan component of the DSP and DSP-V development scenarios includes a comprehensive system of on- and off-street bicycle routes. Through a combination of east-west and north-south on-street bicycle lanes and off-street multiuse paths, bicyclists would have access to any part of the Project Site, including open space and natural resources. Because the same level of detail is not available for the CPP and CPP-V scenarios, and based on the intent of the CPP and CPP-V development scenarios to provide similar or better opportunities for alternative transportation modes as the DSP and DSP-V scenarios, it was assumed that the bicycle network would be the same for all four development scenarios.

The DSP and DSP-V development scenarios would provide for the following bicycle circulation system improvements (shown in **Figure 4.N-17**) within the Project Site:

- Class I (off-street) single- or multi-use paths on the west side of Sierra Point Parkway between the existing on-street Bay Trail terminus and the existing Sierra Point Parkway southbound ramp to N Street and on the east side of Tunnel Avenue from Lagoon Way to the boundary of the Project Site (just south of Beatty Road)

- Class II (on-street) bicycle lanes in both directions on both sides of N Street and 8th Street between Sierra Point Parkway and Beatty Road to the existing unimproved Bay Trail terminus at Alana Way, on the Geneva Avenue extension from Bayshore Boulevard to 8th Street, on P Street (neighborhood retail street), on 7th Street (main retail street), on 5th Street between P Street and Sunnydale Avenue, on 2nd Street and Roundhouse Circle, on Creek Parkway, on Lagoon Way, and on Tunnel Avenue

Consistent with the Brisbane General Plan and the *San Mateo County Bicycle and Pedestrian Plan*, the DSP and DSP-V development scenarios would provide a comprehensive circulation system designed to accommodates multiple travel modes. In addition to the motor vehicle, transit, and pedestrian network, a bicycle circulation system would enhance the planned roadway network and connect land uses within the development. The DSP and DSP-V development scenarios' bicycle network would connect the Project Site with local and regional pedestrian networks, most notably the San Francisco Bay Trail.

Class II bicycle facilities (bike lanes) or multiuse paths would be provided adjacent to most of the Project Site's roadways, creating a comprehensive network of on- and off-street bicycle facilities that would connect bicyclists with every destination point in the Project Site. In addition, a segment of the San Francisco Bay Trail would be constructed adjacent to Frontage Road, connecting the Bay Trail terminus at Sierra Point Parkway/US 101 Southbound Ramps with the terminus at Alana Road/Beatty Road. This segment of the Bay Trail would be a 12-foot-wide multiuse path with landscaping and would be buffered from the roadway by an 8-foot-wide landscaped bioswale.

Table 4.N-7 below summarizes the DSP and DSP-V scenarios' proposed bicycle infrastructure. While this level of detail regarding proposed bicycle infrastructure is not available for the CPP or CPP-V scenarios, and based on the intent of the CPP and CPP-V scenarios to provide similar or better opportunities for alternative transportation modes as the DSP and DSP-V scenarios, it is assumed that certain basic bicycle circulation improvements proposed in the Specific Plan for the DSP and DSP-V scenarios such as bicycle lanes on collector and arterial streets and multiuse paths, would also apply to the CPP and CPP-V scenarios, as noted in Table 4.N-7. A detailed pedestrian circulation plan for the CPP and CPP-V scenarios would be prepared as part of the required specific plan should either of these Concept Plan scenarios be approved (see Mitigation Measures 4.N-10 and 4.N-11).

Figure 4.N-17 Project Bicycle and Pedestrian Circulation

TABLE 4.N-7
BICYCLE COMPONENTS OF THE DSP AND DSP-V SCENARIOS

Street	Street Classification	Design Speed	Bicycle Facilities
Sierra Point Parkway	**Arterial**	**35**	**12-foot-wide multiuse path**
Geneva Avenue Extension	**Arterial**	**35**	**5-foot-wide bicycle lanes in each direction**[a,b]
Residential	Collector	25	5- to 6-foot-wide bicycle lanes in each direction[a]
Roundhouse Arc Road	Collector	25	8-foot-wide bicycle lanes in each direction[a]
Roundhouse Circle	Collector	25	6-foot-wide bicycle lanes in each direction[a]
Tunnel Avenue	**Collector**	**25**	**6-foot-wide bicycle lanes in each direction; 12-foot-wide multiuse path**
Lagoon Way	**Collector**	**25**	**5- to 6-foot-wide bicycle lanes in each direction**
Creek Parkway	Collector	25	6-foot-wide bicycle lanes in each direction[a]
Retail Main Street	Collector	25	6-foot-wide bicycle lanes in each direction[a]
Office/R&D	Collector	25	6-foot-wide bicycle lanes in each direction[a]
Neighborhood Retail	Local Street	25	5-foot-wide bicycle lanes in each direction[a]

NOTE: Components applying to all four development scenarios are indicated in **bold** type.

a The design guidelines for this roadway recommend bicycle racks be provided to serve nearby destinations; however, because they are part of the guidelines (and not included as a standard), installation of bicycle racks in these locations is optional.

b During peak hours, the bicycle lanes would be open to through vehicular traffic. Five-foot-wide bicycle lanes would be provided adjacent to the curb, next to the sidewalk.

SOURCE: UPC, 2011; ESA 2013

Pedestrian Circulation Improvements

The Transportation and Circulation Element of the Brisbane General Plan (1994) outlines policies and programs aimed toward diversifying the City's transportation network and establishing maximum land use intensities given each roadway's capacity (see Subsection 4.N.3, *Regulatory Setting*, for pedestrian-related policies and programs).

The pedestrian circulation plan component of the DSP and DSP-V Concept Plan scenarios provides for sidewalks or single- or multi-use paths adjacent to every roadway within the Project Site, allowing complete pedestrian access. The Specific Plan for the DSP and DSP-V scenarios also includes streetscape standards and guidelines for the design of these facilities. In addition to continuous sidewalks along all streets, key intersections would be provided with enhanced pedestrian street crossings, such as bulb-outs, which are designed to calm traffic speeds and reduce crossing distances for pedestrians.

The DSP and DSP-V scenarios include a number of off-street trails (which may be unpaved) designed primarily for pedestrian use. Trails would be located on both sides of Lagoon Way, throughout Lagoon Park, on both sides of Visitacion Creek Park East, on the east side of Visitacion Creek Park West, throughout South Visitation Park, on Icehouse Hill down toward Lagoon Park, and through Roundhouse Green to Bayshore Boulevard. Sidewalks would be provided on all streets where such off-street facilities are not provided.

The Caltrain right-of-way and Tunnel Avenue currently are at a lower elevation than the majority of the Project Site and create physical barriers to pedestrian and vehicular access. The DSP and DSP-V scenarios include at least one pedestrian overcrossing over these areas to facilitate circulation for pedestrians and bicycles. An overcrossing already exists at the current Bayshore Caltrain station. In one Caltrain Station improvement scenario, this would remain and an additional overcrossing would be constructed as part of the Bayshore intermodal transit station, to be located just north of Geneva Avenue. In an alternative Caltrain Station improvement scenario, the existing overcrossing would be moved from its current location to the location of the intermodal transit station.

Consistent with policies in the Brisbane General Plan, the DSP and DSP-V scenarios provide a comprehensive circulation system that accommodates multiple modes of travel, including a pedestrian circulation system that enhances the planned roadway network and connects land uses within the development. In addition, the pedestrian network would connect the Project Site with local and regional pedestrian networks, most notably the San Francisco Bay Trail.

Sidewalks would range from 6 to 15 feet in width and would generally be buffered from adjacent roadways by parked vehicles and/or landscaping. The pedestrian circulation system for the DSP and DSP-V scenarios is shown in Figure 4.N-17. Streetscape design guidelines and standards are consistent with typical design standards. The streetscape design guidelines and standards contained in the Specific Plan for the DSP and DSP-V scenarios are unique for each roadway within the development, with the stated aim of scaling roadways and orienting development to pedestrians. Inclusion of landscape amenities such as trees, attractive light fixtures, and street furniture is also proposed. For a detailed list of pedestrian components included in each roadway, see **Table 4.N-8**.

A 12-foot-wide multiuse path would be constructed on the east side of Sierra Point Parkway between the Bay Trail terminus at Sierra Point Parkway and Beatty Road, and on the west side of Frontage Road between its northwestern curve away from US 101 to the existing unimproved Bay Trail terminus at Alana Road. This path, which would become a part of the existing San Francisco Bay Trail and thus connect the Project Site with regional pedestrian and bicycle facilities, would be buffered from Frontage Road by an 8-foot-wide landscaped bioswale, and from US 101 by a landscaped area.

As noted above regarding proposed bicycle circulation improvements, the level of detail related to pedestrian circulation improvements proposed in the Specific Plan for the DSP and DSP-V Concept Plan scenarios is not currently available for the CPP and CPP-V scenarios. However, certain pedestrian circulation features proposed under the DSP and DSP-V scenarios also would apply to the CPP and CPP-V scenarios. These are noted in Table 4.N-8 below. A detailed pedestrian circulation plan for the CPP and CPP-V scenarios would be provided as part of preparation of the specific plan that would be required should either of these Concept Plan scenarios be selected (see Mitigation Measures 4.N-10 and 4.N-11).

TABLE 4.N-8
PEDESTRIAN COMPONENTS OF THE DSP AND DSP-V SCENARIOS

Street	Street Classification	Design Speed	Pedestrian Facilities
Sierra Point Parkway	**Arterial**	**35**	**12-foot-wide multiuse path**
Geneva Avenue Extension	**Arterial**	**35**	**10- to 11-foot-wide sidewalks** **On-street parking** **Street and pedestrian lights**
Residential	Collector	25	10-foot-wide sidewalks On-street parking Street lights
Roundhouse Arc Road	Collector	25	6-foot-wide sidewalks On-street parking Street lights
Roundhouse Circle	Collector	25	10- and 15-foot-wide sidewalks On-street parking Street and pedestrian lights
Tunnel Avenue	**Collector**	**25**	**6-foot-wide sidewalks; 12-foot-wide multiuse path** **Street lights**
Lagoon Way	**Collector**	**25**	**6-foot-wide sidewalks** **On-street parking** **Street lights**
Creek Parkway	Collector	25	6-foot-wide sidewalks On-street parking Street lights
Retail Main Street	Collector	25	14-foot-wide sidewalks On-street parking Street and pedestrian lights
Office/R&D	Collector	25	8-foot-wide sidewalks On-street parking Street lights
Neighborhood Retail	Local Street	25	10-foot-wide sidewalks On-street parking Street lights
Residential	Local Street	25	6- to 8-foot-wide sidewalks On-street parking Street lights
Office/R&D	Local Street	25	6-foot-wide sidewalks On-street parking Street lights

NOTE: Features applying to all development scenarios are shown in **bold** type.

SOURCE: UPC, 2011; ESA, 2013

Transportation Demand Management (TDM) Program

Development of the Project Site would include preparation and implementation of a Transportation Demand Management (TDM) program designed to reduce use of single-occupant vehicles and to increase the use of rideshare, transit, bicycle, and pedestrian modes for trips to and from, as well as within the Project Site. A draft TDM program, adapted from the Specific Plan prepared for the DSP and DSP-V scenarios, has been developed with aims to reduce automobile traffic. A similar plan would be implemented for the CPP or CPP-V scenario should either be selected; however, the TDM program for the CPP or CPP-V scenario would differ from the TDM program for the DSP and DSP-V scenarios since some measures/strategies described below, such as those that apply to residential units, would not be applicable,

In San Mateo County, the Congestion Management Program requires that new development expected to generate more than 100 peak hour trips incorporate measures necessary to reduce the net number of trips. Because development is expected to occur in several phases, TDM plans would be prepared for each applicable development project as it undergoes permit review. A wide range of TDM measures are available; implementation would earn credits toward the mitigation of overall traffic impacts from future development. The proposed Specific Plan for the DSP and DSP-V scenarios includes the following policy related to transportation demand management, which is relevant for all Project Site development scenarios:

> ***Policy 6-14*:** Require, as applicable, employers and home owner associations located in the Planning Area to implement applicable TDM-related measures to reduce vehicle trips, particularly during commute hours.

Additional measures are available as described in the City/County Association of Governments of San Mateo County's *Guidelines for the Implementation of the Land Use Component of the Congestion Management Program*.

The TDM program would highlight the demand management qualities of overall Project Site development, including:

> **Jobs-Housing Linkage.** By providing a range of job types (retail, research, hospitality, office, etc.) and a range of housing types from affordable apartments to single-family townhomes (DSP and DSP-V scenarios only) in proximity to those jobs, developments within the Project Site would maximize the potential job/housing "matches" onsite (DSP and DSP-V scenarios only) and with the 11,500 residential dwelling units proposed north of the Project Site within San Francisco. Large employers would be encouraged to offer relocation assistance to employees who agree to become Brisbane residents.
>
> **Streets Designed for Alternative Transportation Modes.** All new streets and intersections within the Project Site would be designed in consideration for the convenience and the safety of pedestrians and bicyclists. Project Site development would provide extensive Class I, II, and III bicycle routes within the Project Site and a "Safe Routes to School" program. Exclusive bike lanes and frequent bus rapid transit service provided by existing transit agencies and operating in dedicated lanes with signal priority constructed as part of Project Site development would offer convenient alternatives to driving to, from, and within the Project Site. Additional transit service would include extended Muni routes, increased Muni

frequencies, and enhanced connections to the regional network (BART and Caltrain). Project Site development would provide rights-of-way for BRT route and stations/stops.

Encouraging Walking. People tend to walk more when destinations are within close proximity, along flat routes with easy street crossings, and through interesting areas with storefronts, street furniture, and other pedestrian-oriented amenities. Project Site development would place approximately 50 percent of development within one-quarter mile (5-minute walking distance) and up to 90 percent of development within one-half mile (10-minute walking distance) of transit and neighborhood retail services integrated into residential blocks. All streets leading to the Caltrain intermodal station and BRT stops would have sidewalks and crosswalks. A comprehensive way-finding signage program would support the network of walkways and shared-use paths, encouraging pedestrian and bicycle trips.

The program would also include a menu of TDM tools including the following strategies:

Implementation and Monitoring Strategies

- Designate a TDM Coordinator. The TDM program includes a designated full-time TDM Coordinator in charge of the following activities:
  - Promote and manage implementation of the TDM program.
  - Establish modal split goals.
  - Develop a program to accomplish the goals mutually agreed upon with the City of Brisbane.
  - Develop an information package of transportation services on Project Site.
  - Monitor and update, as appropriate, the TDM program each year as the basis for updating the modal split status and the TDM program.
  - Conduct employees and visitor travel surveys on a biannual basis.
  - Coordinate with 511.org to establish a rideshare matching program.
  - Coordinate parking management and the shuttle bus program.
  - Help people plan their trips and work with transportation agencies and others to promote transit, vanpooling, carpooling and carsharing, bicycling, and walking.

- Promote TDM Program. Organize and conduct a Transportation Day Fair annually. The fair would include representatives from local and regional transportation agencies, the Bicycle Coalition, 511.org, and carshare companies, and provide information about transit, ridesharing, and bicycling. The TDM Coordinator would promote attendance at these events by providing incentives for employees and residents to attend the fair, such as free transit fast passes, free bicycles, and food and drink.

- Provide a centralized kiosk/booth with a computer terminal in a conveniently accessible area in each major building where employees could obtain maps, schedules, and regional transit information (such as 511.org); enroll in web-based “car sharing”/”ride sharing”; and reserve car sharing vehicles.

- Publish a quarterly newsletter with semi-regular update on transit and travel issues within the Project site development area, containing highlighted program elements and benefits and contact information.

- Create a dedicated intranet/website/page containing relevant transit and parking information and related links.

Transit Strategies

- Work with major employers to provide employees with an "Eco Pass" (transit pass) which would allow unlimited transit use in San Francisco or comparable benefits on other transit systems. The Eco Pass could be purchased at a discount bulk rate on a monthly and/or annual basis and then be made available to all employees who work on the Project Site.

- Include the cost of "Eco Passes" (transit passes) in homeowners' dues (DSP and DSP-V scenarios only). Eco Passes would allow unlimited transit use in San Francisco and/or comparable benefits on other transit systems. The Eco Pass would offer a group discount (transit pass costs, while mandatory, would be priced significantly lower than individual passes because they are mandatory), a steady funding stream for enhanced transit service, and a "self selection" incentive.

- Provide a shuttle bus connecting the Project Site with Executive Park, the housing development on the Schlage Lock site, and the Balboa Park BART Station.

- Work with SamTrans, the Caltrain Joint Powers Board, and SFMTA to provide transit shelters at the bus stops adjacent to buildings.

- Install "Next Bus" or similar technology at a prominent location to provide transit users with real-time transit and shuttle bus arrival time information.

- Develop a transit center within the Project Site to enable efficient and convenient transfers among Caltrain/SamTrans buses/Muni LRT and buses while providing a central location for transportation brochures and other information to be distributed and for attended bicycle parking.

- At major BRT stops throughout the Project Site, include information kiosks and real-time transit updates.

Support Strategies

- Include participation in the Commuter Benefits program for tax-free paycheck deductions of transit and bicycle commuter expenses.

- Work with major employers to encourage compressed work weeks, flex time, and telecommuting.

- Include a maximum permitted of one off-street parking space per residential unit within a one-quarter-mile radius of a transit station or BRT stop, as well as maximum permitted ratios for other development type.

- Promote carpools/vanpools. The TDM program would provide a Rideshare matching program by 511 Regional Rideshare Program, provide free parking for carpool/vanpool vehicles, and designate preferential carpool/vanpool parking spaces at parking facilities closest to the elevator(s) or main entrance to a building.

- Work with major employers to provide guaranteed ride home services for employees when an alternative means of travel is not available.

- Maintain a sufficient number of dedicated "car sharing" (e.g., City CarShare, ZipCar, or similar vendor) parking spaces.

- Investigate and implement, where feasible, "site license" arrangement with City CarShare or another vendor that would allow reduced cost memberships to the employees and residents.

Parking Strategies

- Residential parking (DSP and DSP-V scenarios only) would be "unbundled" and sold or leased separately from units. Unbundling parking makes the cost of parking visible to households and may encourage some residents to save money by opting for a single off-street space or no dedicated parking. Unbundled parking would also serve as a "self selection" incentive for residents who prefer to live in car-free or car-reduced neighborhoods.

- Additional parking management strategies such as residential permit parking (DSP and DSP-V scenarios only), time of day restrictions, parking technologies, and parking way-finding would also be considered as needed to supplement other parking strategies.

Bicycle Strategies

- Install at least the Leadership in Energy and Environmental Design (LEED)-level required number of bicycle parking spaces in or near each building. Provide bicycle support facilities that would include parking facilities for both residential and commercial developments (such as racks, indoor/long-term parking, lockers, and showers), attended bicycle parking, and repair facilities at major destinations. Provide a shared bicycle program.

Parking

As stated above, parking conditions described in this subsection are as presented in the Specific Plan prepared for the DSP and DSP-V Concept Plan scenarios. The same level of detail is not currently available for the CPP and CPP-V scenarios; however, it is assumed that parking provisions under the CPP and CPP-V scenarios would meet existing City standards, except where those standards would be modified as part of TDM program implementation.

For the DSP and DSP-V scenarios, private parking would be on-parcel with entrances prohibited on primary streets. Visitor parking is proposed to be accommodated on-street. Where podium or structured parking is proposed, it would be wrapped with active uses and not exposed to the street. The Specific Plan prepared for the DSP and DSP-V scenarios proposes parking ratios for each use on a per-square-foot or per-dwelling-unit basis. Parking standards for retail and mid- and high-rise office uses are also based on proximity to transit in the proposed Specific Plan for the DSP and DSP-V scenarios. Distances are from transit station entrance to building entrance, considering access to Muni T-Third and BRT and Caltrain. The following parking standards are proposed in the Specific Plan for the DSP and DSP-V scenarios:

- **Roundhouse District**
    - Residential High Density – 1 space per dwelling unit; 1 space per 1,000 square feet ground floor retail
    - Residential Medium Density – 1 space per dwelling unit; 2.5 spaces per 1,000 square feet ground floor retail

- Commercial Retail Single Use – 3 spaces per 1,000 square feet

- **East Geneva District**
  - Commercial Retail– 2.5 spaces per 1,000 square feet (one-quarter mile to transit); 3.0 spaces per 1,000 square feet (one-half mile to transit); 3.5 spaces per 1,000 square feet (more than one-half mile to transit)
  - Office High Rise/Mid-Rise – 2.0 spaces per 1,000 square feet (one-quarter mile to transit); 2.5 spaces per 1,000 square feet (one-half mile to transit); 3.0 spaces per 1,000 square feet (more than one-half mile to transit)
  - Hotel/Conference Center – 1space per room; 1 space per 1,000 square feet for other uses

- **East Geneva Entertainment Variant**
  - Multiplex/Cinema - 3.3 spaces per 1,000 square feet; 2.5 spaces per 1,000 square feet ground floor retail or other uses
  - Theater - 2.0 spaces per 1,000 square feet; 2.5 spaces per 1,000 square feet ground floor retail or other uses
  - Arena - 3.0 spaces per 1,000 square feet; 2.5 spaces per 1,000 square feet ground floor retail or other uses

- **Icehouse District**
  - Townhomes High Density - 1.5 spaces per unit
  - Townhomes Medium Density – 2.0 spaces per unit
  - School – Per Brisbane & Jefferson Unified School District Standards

- **Visitacion Green North District**
  - Office 1 – 2.0 spaces per 1,000 square feet (one-quarter mile to transit); 2.5 spaces per 1,000 square feet (one-half mile to transit); 3.0 spaces per 1,000 square feet (more than one-half mile to transit)
  - Research & Development 1 – 2.0 spaces per 1,000 s.f. (one-quarter mile to transit); 2.5 spaces per 1,000 square feet (one-half mile to transit); 2.5 spaces per 1,000 square feet (more than one-half mile to transit)
  - Light Industrial – 1 space per 1,000 square feet
  - Industrial Wastewater Treatment - 1 space per 1,000 square feet of Administration Building

- **Visitacion Green South District**
  - Office 2 – 2.0 spaces per 1,000 square feet (one-quarter mile to transit); 2.5 spaces per 1,000 square feet (one-half mile to transit); 3.0 spaces per 1,000 square feet (more than one-half mile to transit)
  - Research & Development 2 – 2.0 spaces per 1,000 square feet (one-quarter mile to transit); 2.5 spaces per 1,000 square feet (one-half mile to transit); 2.5 spaces per 1,000 s.f. (more than one-half mile to transit)

By comparison, existing City zoning standards require the following number of spaces:

- **Multi-Family Residential**
  - 0 bedroom or bachelor apartments: 1 off-street parking space
  - 1 and 2 bedroom units: 1½ garage spaces per living unit
  - Over 2 bedrooms: 2 garage spaces per living unit
- **Commercial**
  - Administrative offices: 1 space per 300 square feet (3.3 spaces per 1,000 square feet)
  - Professional offices: 1 space per 250 square feet (4.0 spaces per 1,000 square feet)
  - Retail stores, restaurants: 1 space per 300 square feet (3.3 spaces per 1,000 square feet)
  - Industrial: minimum of 2 spaces for every 3 employees on the shift having the largest number of employees, but not less than 1 space for each 1000 square feet of gross floor area

Specific information on the number and location of parking spaces on each development parcel within the Project Site would be developed as specific projects are proposed pursuant to the selected development scenario. As site-specific development projects are proposed within the Project Site, specific parking issues such as number and location of parking spaces, ingress and egress, and internal access within parking areas would be reviewed as part of the planning review process to ensure that adequate parking is provided.

Project Travel Demand

This subsection presents the travel demand methodology used in this EIR. The proposed land uses and development intensities used to determine travel demand are set forth in Tables 3-2A through 3-2C of this document.

Person and Vehicle Trip Generation

The transportation effects associated with the travel demand generated by Project Site development scenarios were determined by calculating the daily person trips generated by the different types of land uses proposed for each Project Site development scenario and the portion of those trips that would occur during the AM and PM peak hours. After determining the number of person trips generated by the development of Project Site development scenarios, the trips were distributed to geographical origins/destination areas, including five San Francisco areas (downtown, the rest of Superdistrict 1, Superdistrict 2, Superdistrict 3, Superdistrict 4) and three other regions in the Bay Area (South Bay, East Bay, and North Bay).[11] The mode split analysis then determined the portion of these trips made via automobile, transit, or any other mode of transportation, based upon the

[11] Superdistricts are travel analysis zones established by the Metropolitan Transportation Commission (MTC). San Francisco is divided into four Superdistricts delineated to capture the different travel characteristics that are associated with the various street network, transit opportunities, and geographical constraints of different areas of San Francisco.

origin/destination of the trips, the purpose of the trips, and the availability of various modes of transportation. Finally, automobile occupancy rates were determined, to yield the average number of individuals in a vehicle, and, thus, determine the number of vehicles that would be traveling to and from the Project Site during the morning and afternoon peak hours and over the course of the day.

Project Site development-generated vehicle trips were initially estimated based on the trip rates obtained from the Institute of Transportation Engineers (ITE) *Trip Generation* (ITE, 2008), which provides daily, AM, and PM peak hour vehicle trip generation rates for all uses except for the Recology site (recycling center land use). Trip generation calculation for the Recology site was based on the trip generation study for the *Recology Master Plan* (Recology, 2011). The ITE *Trip Generation* has been used by local jurisdictions throughout the county to estimate vehicle trips to be generated by development projects. As explained below, however, the ITE trip rates would not be suitable to Project Site development unless appropriate adjustments are made to account for the scale, mix, and availability of transit for Project Site development. The estimated AM and PM peak hour vehicle trips were therefore adjusted to account for internal trips, pass-by trips, and non-pass-by trips, as follows:

- **Internal Trips.** Internal trips are generated and remain within the Project Site and do not affect the adjacent system. To account for the trip-making patterns of Project Site development, a state-of-the-practice trip generation forecasting method was used. This method was originally developed by Fehr & Peers and others for the U.S. Environmental Protection Agency (U.S. EPA) and has been endorsed for use in project-specific and planning-level analyses by a number of jurisdictions, including Caltrans. This method is commonly referred to as the "4D" method and generally accounts for the following factors that may influence travel behavior:

  - Development scale – the amount of trips generated increases as the amount of development increases;
  - Density of the project – the higher the project's density, the less vehicular traffic generated per unit of development;
  - Diversity of uses – an appropriate mix of uses can lead to internalization of trips and trip-linking within a project site; and
  - Design of project – a walkable, pedestrian- and bicycle-oriented circulation system can help to reduce automobile dependence within a project site.

  The general concept behind the 4D method is that development projects that deviate from a base case (in this case, ITE trip generation rates, which represent a "national average") with respect to the four bulleted variables above exhibit different traffic generation patterns. Elasticities have been derived from travel behavior surveys from the Bay Area to help estimate how traffic generation changes as a function of changes in the 4Ds. Those elasticities are used to adjust the base case trip generation to account for Project site development's density, diversity, and pedestrian/bicycle friendliness (i.e., design) compared to typical suburban developments reflected in the ITE trip generation rates. Applying the 4D method resulted in a percentage reduction in trip generation from the base case (i.e., ITE *Trip Generation*), and yielded an estimated net external trips.

- **Pass-By Trips.** Pass-by trips are trips made as intermediate stops on the way from an origin outside of a project site to a primary trip destination that is also outside of a project site. Pass-by trips are attracted from traffic passing through a site on an adjacent street, thereby adding no extra trips to the surrounding roadway systems. For example, retail-oriented developments such as shopping centers, discount stores, and restaurants attract a portion of their trips from traffic passing the site on the way from an origin to an ultimate destination. Thus, a portion of the traffic associated with these retail uses may not add "new" traffic to the adjacent street system. Pass-by trips were removed from the estimated net external trips using the methodologies and rates established by the ITE *Trip Generation Handbook.*

- **Non-Pass-By Trips.** Non-pass-by trips are trips that include primary and diverted linked trips. Diverted linked trips are trips that are attracted from the traffic volume on roadways within the vicinity of the generator, but that require a diversion from that roadway to another roadway to gain access to the site. While diverted linked trips add traffic to streets adjacent to a site, they may not add traffic to the area's major travel routes. Diverted linked trips were removed from the estimated net external trips using the methodologies and rates established by the ITE *Trip Generation Handbook*.

It is also likely that the job opportunities provided by future development would cause shifts in live-work patterns. For example, an individual currently living in the city of San Mateo and working in San Francisco may find it more convenient to work at the Project Site to save commute time. This change would not cause an increase in traffic volumes on the adjacent freeway because this individual would be on the adjacent freeway with or without development of the Project Site. For the purpose of this EIR, a conservative approach was taken to not include any reduction caused by this potential shifts in origin-destination pairs.

The travel demand analysis assumes implementation of the improvements to transit service under each of the development scenarios, as described above. Transit improvements would be in addition to those currently proposed as part of the Sam Francisco Municipal Transportation Agency (SFMTA) Transit Effectiveness Program.

Project Site development is intended to achieve the TDM goals by providing improved transit options as well as a detailed package of TDM measures as described above. Due to uncertainty pertaining to quantifying the effectiveness of implementing the proposed TDM strategies, the travel demand analysis does not assume additional trip reduction due to specific TDM strategies beyond those associated with internal, pass-by, and diverted linked trips as described above.

Project Trip Generation by Mode

The steps in determining Project site development's trip generation by mode include:

1. **Trip Generation.** The number of weekday person trips generated by development of the Project Site was calculated using the 4D methodology. This process calculates the number of person trips generated by each of the four Project Site development scenarios (based on ITE rates), and estimates the percentage of those trips that occur as internal, pass-by, or diverted linked trips to the Project Site. The remaining external trips are then taken and used in the Project Site development offsite impact analysis.

2. **Trip Purpose.** The net external trips calculated in Step 1 were separated into work and non-work trips based on relative distributions contained in the 4D methodology.

3. **Trip Distribution and Assignment.** Once the trips were calculated by purpose, they were distributed to the four quadrants of San Francisco (Superdistricts 1, 2, 3, and 4), East Bay, North Bay, South Bay/Peninsula, and out of the region, based on the origin and destination of each trip. The trip distribution and assignment assumptions for the net new Project Site development trips were derived from output of several resources, including the MTC Regional Travel Demand Model, the SF-CHAMP model, the Bay Area Travel Survey 2000 (BATS 2000), the C/CAG Travel Demand Model, the CPHPS EIR, and the *SF Transportation Impact Analysis Guidelines*. From these sources, a recommended trip distribution to be used for this EIR was proposed. The following sources were evaluated:

   a. Metropolitan Transportation Commission

   Trip distribution results for the City of Brisbane were taken from the MTC Regional Travel Demand Model.

   b. Candlestick/Hunters Point EIR (MTC/TA hybrid travel demand model results)

   The Candlestick/Hunters Point project is located adjacent to and north of the Project Site to the east of US 101. The trip distribution identified for the Candlestick/ Hunters Point project was developed based on information obtained from the SF-CHAMP model for the TAZs included within the Candlestick/Hunters Point project boundaries in combination with information from the MTC regional demand model for areas outside of San Francisco. The similar style of development proposed as part of Project site development and the geographical proximity make this a relevant comparison.

   c. Bay Area Travel Survey 2000 (BATS 2000)

   The BATS 2000 study involved an extensive data collection effort that provided an introspective into how Bay Area residents commuted and traveled around the region. The information is based on census tracts; data for the neighboring census tract representing the City of Brisbane were used for the comparison. These results are based strictly on current travel patterns.

   d. C/CAG Travel Demand Model

   The C/CAG Travel Demand Model was used to evaluate a direct analysis of the Brisbane trip distribution. Land use inputs were adjusted to include Project Site development. A "select zone" analysis was conducted to track the trips both coming from and traveling to the Project Site.

   e. San Francisco Transportation Impact Analysis Guidelines

   The City and County of San Francisco developed matrices that prescribe trip distributions based on types of use and trip purpose. The values are based on extensive data research completed especially for San Francisco. Superdistrict 3 in the southeastern quadrant of San Francisco (consisting of the Visitacion Valley, Mission, and Bayview areas) is adjacent to the Project Site and provides a comparable trip distribution analysis because of its proximity to the Project Site.

   Table 4.N-9 compares the aggregated daily trip distribution for the various sources discussed above. **Table 4.N-10** and **Table 4.N-11** represent the individual distributions for work trips and non-work trips. These trip purposes are presented separately because some analyses identify completely separate trip patterns for the two types of trips. Trip distributions and assignments apply across all four development scenarios.

TABLE 4.N-9
PROJECT SITE DEVELOPMENT TRIP DISTRIBUTION – ALL TRIPS, ALL DEVELOPMENT SCENARIOS

Destination	MTC	Candlestick Point/Hunters Point EIR	BATS 2000	C/CAG Travel Demand Model	SF Guidelines	Proposed Trip Distribution
SF SD 1	7%	5%	6%	11%	12%	**7%**
SF SD 2	3%	8%	9%	4%	13%	**7%**
SF SD 3	31%	38%	19%	19%	38%	**28%**
SF SD 4	3%	3%	1%	9%	8%	**4%**
Brisbane	21%	27%	17%	6%	-	**16%**
Daly City/Colma	7%		4%	7%	-	**7%**
North Bay	1%	2%	1%	1%	3%	**2%**
South Bay	20%	6%	35%	31%	15%	**17%**
East Bay	7%	11%	8%	12%	11%	**12%**
TOTAL	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

SOURCE: Fehr & Peers, 2012

TABLE 4.N-10
PROJECT SITE DEVELOPMENT TRIP DISTRIBUTION –
WORK TRIPS, ALL DEVELOPMENT SCENARIOS

Destination	MTC/TA Hybrid Results	Candlestick Point/Hunters Point EIR	BATS 2000	C/CAG Travel Demand Model	SF Guidelines	Proposed Trip Distribution
SF SD 1	8%	5%	5%	-	9%	**7%**
SF SD 2	4%	10%	8%	-	11%	**7%**
SF SD 3	22%	28%	22%	-	25%	**24%**
SF SD 4	3%	4%	1%	-	8%	**4%**
Brisbane	8%	22%	11%	-	-	**13%**
Daly City/Colma	12%		3%	-	-	**7%**
North Bay	3%	4%	2%	-	6%	**3%**
South Bay	21%	8%	33%	-	28%	**18%**
East Bay	19%	19%	14%	-	15%	**17%**
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

SOURCE: Fehr & Peers, 2012

TABLE 4.N-11
PROJECT SITE DEVELOPMENT TRIP DISTRIBUTION –
NON-WORK TRIPS, ALL DEVELOPMENT SCENARIOS

Destination	MTC/TA Hybrid Results	Candlestick Point/Hunters Point EIR	BATS 2000	C/CAG Travel Demand Model	SF Guidelines	Proposed Trip Distribution
SF SD 1	6%	5%	7%	-	13%	**7%**
SF SD 2	3%	6%	9%	-	14%	**7%**
SF SD 3	34%	44%	15%	-	45%	**34%**
SF SD 4	3%	3%	2%	-	7%	**4%**
Brisbane	24%	30%	22%	-	-	**18%**
Daly City/Colma	6%		4%	-	-	**6%**
North Bay	1%	1%	1%	-	1%	**1%**
South Bay	19%	5%	37%	-	9%	**16%**
East Bay	4%	7%	3%	-	9%	**7%**
TOTAL	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

SOURCE: Fehr & Peers, 2012

4. **Mode Share.** A similar approach used for Step 3 was employed for the mode share. The analysis takes into consideration that mode split often varies by trip purpose. The person trips were assigned to travel modes in order to determine the number of auto, transit/shuttle, and other alternative mode trips (e.g., walk, bicycle) that would be generated by Project Site development. Mode share was evaluated and compared among several resources. The CPHPS EIR, the *SF Guidelines*, and the BATS 2000 (described above) were applicable, and each provided data on both work and non-work mode splits. The following sources were also evaluated and compared: the American Community Survey 2005-2009, the Census 2010, and travel characteristics of comparable transit-oriented developments in California. From these sources, a recommended mode split to be used for this EIR was proposed.

   a. Census 2010

   The census is conducted every ten years and targets all residents of the United States. In the past, the census included two forms, a long form and a short form. In 2000, the short form was sent to all U.S. households, while the long form was sent to about one in six households. The long form includes additional socioeconomic questions including questions about journey to work. Beginning in 2010, however, the decennial census included only the short form, while the long form questions will be collected by the American Community Survey.

   b. American Community Survey (2005-2009)

   The American Community Survey is an ongoing statistical survey by the U.S. Census Bureau. It is sent to about 250,000 addresses per month and collects information about individual and household characteristics including mode of transportation to work. The survey was initiated in 1995 in order to supplement the decennial census and enable more frequent data collection.

   c. Travel Characteristics of Transit Oriented Development (TOD) in California (2004)

   This report by Hollie Lund, Robert Cervero, and Richard Wilson provides a measurement of travel behavior in California TODs. Surveys were conducted around stations for a variety of transit types. Of particular interest to this analysis is the survey data of residents living near three Caltrain stations: Broadway, Mountain View, and Palo Alto. Because Project Site development is planned around the Bayshore Caltrain Station, mode share data from these residents is included in the tables below.

   Based on the mode share data in the above-cited sources, mode splits for work trips and non-work trips generated by the proposed development scenarios were set for the purpose of this EIR. That is, the mode split for work trips was assumed to be 80 percent by automobiles, 15 percent by transit, and 5 percent by walking, bicycling, and other modes, and the mode split for non-work trips was assumed to be 70 percent by automobiles, 10 percent by transit, and 20 percent by walking, bicycling, and others.

5. **Auto Person and Vehicle Trips.** Auto person trips are calculated by subtracting transit trips from all external person trips for each destination zone. The number of vehicle trips was determined from the *SF Guidelines* based on independent average vehicle occupancies for work and non-work trips to Superdistrict 3, which was selected due to its proximity of the Project site. For the purpose of this EIR, the average vehicle occupancy for work trips is 1.32, and 2.36 for non-work trips.[12]

[12] The average vehicle occupancies of "work trips to SD3" and "visitors trips to SD3 – all other" from Tables E-5 and E-15 of the *SF Guidelines* were taken to derive the average work and non-work vehicle occupancies by origin. The weighted average of work and non-work trips average vehicle occupancies was calculated using work/non-work split developed from the trip distribution step.

6. **Transit Trip Assignment.** After estimating the transit mode share of Project-related trips among each of the districts, the numbers of transit riders were assigned to specific transit routes serving or proposed to serve the study area.

The result of Steps 1 to 6 above is a projected person and vehicle trip generation, by land use and by mode, for the weekday daily, AM, and PM peak hours.

Table 4.N-12 and **Table 4.N-13** present the daily person trip generation for the four proposed development scenarios by land use category. The greatest number of daily person trips would occur under the CPP scenario at approximately 264,000 daily trips. The DSP scenario, though it has the largest amount of new development, would generate approximately 112,000 fewer daily trips than the CPP scenario due to internal capture of travel within the Project Site and increased use of pedestrian, bicycle, and transit modes of travel. Despite the CPP and CPP-V scenarios being less intense than the DSP and DSP-V scenarios in terms of the total amount of new development, the CPP and CPP-V propose 2,210,000 square feet of mixed commercial/office/retail, which is approximately four times the amount proposed under the DSP and eight times the amount proposed under the DSP-V, resulting in the higher daily trips for the CPP and CPP-V scenarios.

Table 4.N-14 and **Table 4.N-15** presents the peak hour vehicle trip generation for Project Site development by land use category. Similar to the daily trip generation, the CPP scenario would generate the greatest number of peak hour vehicle trips during both the AM and PM peak hours. The DSP scenario would generate 484 and 1,234 fewer trips than the CPP scenario during the AM and PM peak hours, respectively.

Table 4.N-16 summarizes peak hour person trips for each of the proposed development scenarios by mode and vehicle trips for the weekday daily, AM, and PM peak hours. Under the DSP and DSP-V scenarios, an average of 27 percent of weekday AM and PM peak hour person trips would be internal or linked trips that would remain within the Project Site and would occur primarily by walking and bicycling. Under the CPP and CPP-V scenarios, an average of 19 percent of weekday AM and PM peak hour person trips would be internal or linked trips. External trips would occur via automobile, transit, and bicycle.

Table 4.N-17 presents the distribution of the weekday AM and PM trips to and from San Francisco and areas outside of San Francisco. The majority of trips would occur to and from areas within the boundaries of San Francisco, with a greater portion of work trips occurring by transit than non-work trips. Within San Francisco, the greatest number of trips would occur between the Project Site and Superdistrict 3, consisting of the Visitacion Valley, Mission, Mission Bay, Noe Valley, Glen Park, and Bayview districts. Superdistrict 1 represents the downtown core of San Francisco and consists of the Financial District, SOMA, North Beach, and Chinatown districts. Superdistrict 2 consists of the Richmond, Haight, Pacific Heights, and Marina districts, while Superdistrict 4 includes the Sunset, West Portal, and Parkmerced districts.

TABLE 4.N-12
PROJECT DAILY PERSON TRIP GENERATION – DSP AND DSP-V

Land Use	Size	Units	ITE Land Use Code[a]	Rate or Eqn.[b]	Person-Trip Generation			Total Net Vehicle Trips[e]
					Raw Trips Total[c]	Total Net Trips[d]	Percent Reduction	
Developer-Sponsored Plan (DSP)								
Non-Residential								
General Retail	566	ksf[f]	820	Eqn	38,778	20,449	47%	6,852
General Office	2,651	ksf	710	Eqn	30,789	25,105	18%	10,543
Research & Development	3,328	ksf	760	Eqn	33,043	26,943	18%	11,315
Hotel	369	rooms	310	Rate	5,577	4,790	14%	2,412
Public / Civic / Cultural	28	ksf	814	Rate	2,312	1,615	30%	541
Conference / Exhibition	21	ksf	814	Rate	1,746	1,220	30%	409
Schools								
High School	1,000	students	530	Rate	3,164	2,753	13%	1,151
Elementary School	300	students	520	Rate	716	623	13%	260
Residential								
Apartment	3,950	units	232	Eqn	27,963	19,967	29%	7,524
Multi-Family	484	units	220	Eqn	5,655	4,038	29%	1,521
				Grand Total	**149,743**	**107,503**	**28%**	**42,528**
Developer-Sponsored Plan – Entertainment Variant (DSP-V)								
Non-Residential								
General Retail	283	ksf	820	Eqn	24,192	12,706	47%	4,258
General Office	2,252	ksf	710	Eqn	26,569	21,607	19%	9,071
Research & Development	2,599	ksf	760	Eqn	26,396	21,466	19%	9,012
Hotel	719	rooms	310	Rate	10,632	9,111	14%	4,585
Public / Civic / Cultural	28	ksf	814	Rate	2,262	1,574	30%	527
Conference / Exhibition	74	ksf	814	Rate	5,896	4,102	30%	1,374
Entertainment								
Movies/Theater	10	screens	445	Rate	3,173	2,719	14%	1,368
Live Theater	5,500	seats	441	Rate	1,991	1,706	14%	859
Arena [g]	630	ksf	460	Rate	872	748	14%	376
Schools								
High School	1000	students	530	Rate	3,095	2,674	14%	1,119
Elementary School	300	students	520	Rate	700	605	14%	253
Residential								
Apartment	3,950	units	232	Eqn	27,358	20,173	26%	7,578
Multi-Family	484	units	220	Eqn	5,532	4,022	27%	1,513
				Grand Total	**138,668**	**103,213**	**26%**	**41,893**

[a] Institute of Transportation Engineers, *Trip Generation*, 8th Edition (2008).
[b] *Trip Generation* generally provides both average rates and fitted curve equations for forecasting trip generation. The choice of which method to use is described in the *Trip Generation Handbook*. The analysis described in this table is consistent with the ITE methodology. When available, rates are based on "peak hour of adjacent street traffic."
[c] Results are based on ITE trip generation methodology.
[d] Results are based on MXD trip reduction analysis tool developed by Fehr & Peers.
[e] Mode split for work trips is assumed to be 80% auto, 15% transit, and 5% walk/bike/others, whereas mode split for non-work trips is assumed to be 70% auto, 10% transit, and 20% walk/bike/others.
[f] ksf = thousand square feet.
[g] No special event is assumed in the daily trip generation for the arena.

SOURCE: Fehr & Peers, 2012

TABLE 4.N-13
PROJECT DAILY PERSON TRIP GENERATION – CPP AND CPP-V

Land Use	Size	Units	ITE Land Use Code[a]	Rate or Eqn.[b]	Person-Trip Generation			Total Net Vehicle Trips[e]
					Raw Trips Total[c]	Total Net Trips[d]	Percent Reduction	
Community Proposed Plan (CPP)								
Non-Residential								
General Retail	2,210	ksf[f]	820	Eqn	99,029	66,630	33%	22,243
General Office	993	ksf	710	Eqn	15,232	13,609	11%	5,659
Research & Develop.	2,007	ksf	760	Eqn	23,004	20,553	11%	8,547
Industrial / Warehouse	366	ksf	151	Rate	1,786	1,645	8%	823
Hotel	1,990	rooms	310	Rate	31,704	29,205	8%	14,615
Public / Civic / Cultural	189	ksf	814	Rate	16,308	14,533	11%	4,852
Conference / Exhibition	275	ksf	814	Rate	23,723	21,142	11%	7,058
Entertainment								
Entertainment / Cultural.	611	ksf	814	Rate	52,831	47,081	11%	15,717
Schools								
High School	-	students	530	Rate	-	-	-	-
Elementary School	-	students	520	Rate	-	-	-	-
Residential								
Apartment	-	Units	232	Eqn	-	-	-	-
Multi-Family	-	Units	220	Eqn	-	-	-	-
				Grand Total	**263,617**	**214,398**	**19%**	**79,514**
Community Proposed Plan – Recology Expansion Variant (CPP-V)								
Non-Residential								
General Retail	2,210	ksf	820	Eqn	100,553	67,720	33%	22,562
General Office	993	ksf	710	Eqn	15,466	13,832	11%	5,743
Research & Develop.	1,672	ksf	760	Eqn	20,110	17,984	11%	7,467
Industrial/Warehouse	366	ksf	151	Rate	1,814	1,672	8%	836
Hotel	1,500	rooms	310	Rate	24,265	22,367	8%	11,180
Public / Civic / Cultural	189	ksf	814	Rate	16,559	14,771	11%	4,921
Conference / Exhibition	275	ksf	814	Rate	24,088	21,487	11%	7,159
Resource Recovery[g]	752	ksf	-	-	-	-	-	636
Entertainment								
Entertainment / Cultural	611	ksf	814	Rate	53,644	47,852	11%	15,943
Schools								
High School	-	students	530	Rate	-	-	-	-
Elementary School	-	students	520	Rate	-	-	-	-
Residential								
Apartment	-	Units	232	Eqn	-	-	-	-
Multi-Family	-	Units	220	Eqn	-	-	-	-
				Grand Total	**256,499**	**207,685**	**19%**	**76,447**

[a] Institute of Transportation Engineers, *Trip Generation*, 8th Edition (2008).
[b] *Trip Generation* generally provides both average rates and fitted curve equations for forecasting trip generation. The choice of which method to use is described in the *Trip Generation Handbook*. The analysis described in this table is consistent with the ITE methodology. When available, rates are based on "peak hour of adjacent street traffic."
[c] Results based on ITE trip generation methodology.
[d] Results based on MXD trip reduction analysis tool developed by Fehr & Peers.
[e] Mode split for work trips is assumed to be 80% auto, 15% transit, and 5% walk/bike/others, whereas mode split for non-work trips is assumed to be 70% auto, 10% transit, and 20% walk/bike/others.
[f] ksf = thousand square feet.
[g] Daily trip generation for the proposed expansion of the Recology recovery site is based on the trip generation study for the Recology Master Plan conducted by Arup, 2011.

SOURCE: Fehr & Peers, 2012

TABLE 4.N-14
PROJECT PEAK HOUR VEHICLE TRIP GENERATION – DSP AND DSP-V

Land Use	Size	Units	ITE Land Use Code[a]	Rate or Eqn.[b]	Net Vehicle Trips[c]					
					AM Peak Hour			PM Peak Hour		
					Total Trips	In	Out	Total Trips	In	Out
Developer-Sponsored Plan (DSP)										
Non-Residential										
General Retail	566	ksf[d]	820	Eqn	195	119	76	437	214	223
General Office	2,651	ksf	710	Eqn	1,848	1,626	222	1,949	331	1,618
Research & Develop.	3,328	ksf	760	Eqn	1,940	1,610	330	1,470	221	1,250
Hotel	369	rooms	310	Rate	169	103	66	173	92	81
Public / Civic / Cultural	28	ksf	814	Rate	35	17	18	32	18	14
Conference / Exhibition	21	ksf	814	Rate	26	13	14	24	14	11
Schools										
High School	1,000	students	530	Rate	235	160	75	82	38	43
Elementary School	300	students	520	Rate	76	42	34	28	14	14
Residential										
Apartment	3,950	units	232	Eqn	686	130	556	621	385	236
Multi-Family	484	units	220	Eqn	141	28	113	130	84	45
				Grand Total	**5,351**	**3,848**	**1,504**	**4,946**	**1,411**	**3,535**
Developer-Sponsored Plan – Entertainment Variant (DSP-V)										
Non-Residential										
General Retail	283	ksf	820	Eqn	129	79	50	269	132	137
General Office	2,252	ksf	710	Eqn	1,615	1,421	194	1,630	277	1,353
Research & Develop.	2,599	ksf	760	Eqn	1,561	1,296	265	1,177	176	1,000
Hotel	719	rooms	310	Rate	329	201	128	330	175	155
Public / Civic / Cultural	28	ksf	814	Rate	35	17	18	32	18	14
Conference / Exhibition	74	ksf	814	Rate	90	43	47	82	46	36
Entertainment										
Movies/Theater	10	screens	445	Rate	0	0	0	106	48	58
Live Theater	5,500	seats	441	Rate	0	0	0	86	43	43
Arena[e]	630	ksf	460	Rate	0	0	0	38	19	19
Schools										
High School	1000	students	530	Rate	234	159	75	80	38	42
Elementary School	300	students	520	Rate	75	41	34	28	14	14
Residential										
Apartment	3,950	units	232	Eqn	685	130	555	701	435	266
Multi-Family	484	units	220	Eqn	137	27	110	138	90	48
				Grand Total[f]	**4,890**	**3,414**	**1,476**	**4,697**	**1,511**	**3,185**

[a] Institute of Transportation Engineers, *Trip Generation*, 8th Edition (2008).
[b] *Trip Generation* generally provides both average rates and fitted curve equations for forecasting trip generation. The choice of which method to use is described in the *Trip Generation Handbook*. The analysis described in this table is consistent with the ITE methodology. When available, rates are based on "peak hour of adjacent street traffic."
[c] Results based on ITE trip generation methodology and MXD trip reduction analysis tool developed by Fehr & Peers.
[d] ksf = thousand square feet.
[e] Trip generation rates assume that special events at the arena do not occur during AM or PM peak hours. Under a scenario where a special event starts and ends within the PM peak hour, the PM peak hour trips are projected to be 2,303 trips (2,285 inbound and 18 outbound trips).
[f] For the Entertainment Variant with special event scenario, the grand total PM trip generation is projected to be 7,132 trips (3,896 inbound and 3,235 outbound trips).

SOURCE: Fehr & Peers, 2012

TABLE 4.N-15
PROJECT PEAK HOUR VEHICLE TRIP GENERATION – CPP AND CPP-V

Land Use	Size	Units	ITE Land Use Code[a]	Rate or Eqn.[b]	Net Vehicle Trips[c]					
					AM Peak Hour			PM Peak Hour		
					Total Trips	In	Out	Total Trips	In	Out
Community Proposed Plan (CPP)										
Non-Residential										
General Retail	2,210	ksf[d]	820	Eqn	587	358	229	1,446	708	737
General Office	993	ksf	710	Eqn	957	842	115	866	147	719
Research & Develop.	2,007	ksf	760	Eqn	1,426	1,184	242	1,105	166	939
Industrial/Warehouse	366	ksf	151	Rate	51	30	21	85	43	42
Hotel	1,990	rooms	310	Rate	1,026	626	400	1,048	555	492
Public / Civic / Cultural	189	ksf	814	Rate	314	151	163	286	160	126
Conference / Exhibition	275	ksf	814	Rate	457	219	238	417	233	183
Entertainment										
Entertainment / Cultural.	611	ksf	814	Rate	1,017	488	529	928	520	408
Schools										
High School	-	students	530	Rate	-	-	-	-	-	-
Elementary School	-	students	520	Rate	-	-	-	-	-	-
Residential										
Apartment	-	Units	232	Eqn	-	-	-	-	-	-
Multi-Family	-	Units	220	Eqn	-	-	-	-	-	-
				Grand Total	**5,835**	**3,898**	**1,937**	**6,180**	**2,533**	**3,647**
Community Proposed Plan – Recology Expansion Variant (CPP-V)										
Non-Residential										
General Retail	2,210	ksf	820	Eqn	594	362	232	1,460	715	745
General Office	993	ksf	710	Eqn	968	852	116	875	149	726
Research & Develop.	1,672	ksf	760	Eqn	1,233	1,023	210	961	144	817
Industrial / Warehouse	366	ksf	151	Rate	51	30	21	86	44	42
Hotel	1,500	rooms	310	Rate	782	477	305	798	423	375
Public / Civic / Cultural	189	ksf	814	Rate	317	152	165	289	162	127
Conference / Exhibition	275	ksf	814	Rate	462	222	240	421	236	185
Resource Recovery[e]	752	ksf	-	-	47	25	22	20	10	10
Entertainment										
Entertainment/ Cultural	611	ksf	814	Rate	990	455	535	937	525	412
Schools										
High School	-	students	530	Rate	-	-	-	-	-	-
Elementary School	-	students	520	Rate	-	-	-	-	-	-
Residential										
Apartment	-	units	232	Eqn	-	-	-	-	-	-
Multi-Family	-	units	220	Eqn	-	-	-	-	-	-
				Grand Total	**5,444**	**3,598**	**1,846**	**5,847**	**2,408**	**3,439**

[a] Institute of Transportation Engineers, *Trip Generation*, 8th Edition (2008).
[b] *Trip Generation* generally provides both average rates and fitted curve equations for forecasting trip generation. The choice of which method to use is described in the *Trip Generation Handbook*. The analysis described in this table is consistent with the ITE methodology. When available, rates are based on "peak hour of adjacent street traffic."
[c] Results based on ITE trip generation methodology and MXD trip reduction analysis tool developed by Fehr & Peers.
[d] ksf = thousand square feet.
[e] AM and PM peak hour trip generation for the proposed expansion of the Recology recovery site is based on the trip generation study for the Recology Master Plan conducted by Arup, 2011.

SOURCE: Fehr & Peers, 2012

TABLE 4.N-16
PROJECT PERSON AND VEHICLE TRIPS BY MODE

	Person Trips					Vehicle Trips
	Auto	Transit	Bicycle/ Walk	Internal/ Linked	Total	
DSP						
Weekday AM Peak	8,265	1,421	1,158	1,524	12,368	5,351
Weekday PM Peak	8,655	1,412	1,595	4,859	16,521	4,946
Daily	78,587	12,418	16,496	42,242	149,743	42,528
DSP-V						
Weekday AM Peak	7,553	1,299	1,059	1,470	11,381	4,890
Weekday PM Peak	8,005	1,313	1,441	3,809	14,568	4,697
Daily	75,790	12,092	15,330	35,458	138,670	41,893
CPP						
Weekday AM Peak	9,506	1,592	1,545	346	12,989	5,835
Weekday PM Peak	11,292	1,792	2,331	6,456	21,871	6,180
Daily	155,006	23,903	35,489	49,219	263,617	79,514
CPP-V						
Weekday AM Peak	8,957	1,493	1,493	332	12,275	5,444
Weekday PM Peak	10,782	1,703	2,268	6,432	21,185	5,875
Daily	149,805	22,981	34,899	48,813	256,499	76,447

NOTE: "Person trips" refers to the number of people using various modes of transportation. "Vehicle trips" identifies the number of vehicle trips associated with the auto person trips, and accounts for automobile trips with more than one occupant in the vehicle.

SOURCE: Fehr & Peers, 2012

TABLE 4.N-17
PROJECT WEEKDAY PEAK HOUR DISTRIBUTION PATTERNS

	Work	Non-Work	DSP Total	DSP-V Total	CPP Total	CPP-V Total
AM Peak Hour						
Superdistrict 1	7%	7%	7%	7%	7%	7%
Superdistrict 2	7%	7%	8%	8%	8%	7%
Superdistrict 3	24%	34%	27%	27%	27%	28%
Superdistrict 4	4%	4%	4%	4%	4%	4%
Total San Francisco	*42%*	*52%*	*46%*	*46%*	*46%*	*46%*
Brisbane, Daly City, Colma, San Bruno, South San Francisco	20%	24%	21%	21%	21%	21%
North Bay	3%	1%	2%	2%	2%	2%
South Bay	18%	16%	20%	20%	20%	20%
East Bay	17%	7%	12%	12%	11%	11%
Total	***100%***	***100%***	***100%***	***100%***	***100%***	***100%***

TABLE 4.N-17 (Continued)
PROJECT WEEKDAY PEAK HOUR DISTRIBUTION PATTERNS

	Work	Non-Work	DSP Total	DSP-V Total	CPP Total	CPP-V Total
PM Peak Hour						
Superdistrict 1	7%	7%	7%	7%	8%	8%
Superdistrict 2	7%	7%	8%	8%	8%	8%
Superdistrict 3	24%	34%	28%	28%	29%	29%
Superdistrict 4	4%	4%	4%	4%	4%	4%
Total San Francisco	*42%*	*52%*	*47%*	*47%*	*49%*	*49%*
Brisbane, Daly City, Colma, San Bruno, South San Francisco	20%	24%	21%	21%	22%	22%
North Bay	3%	1%	2%	2%	2%	2%
South Bay	18%	16%	19%	19%	19%	18%
East Bay	17%	7%	10%	11%	10%	10%
Total	***100%***	***100%***	***100%***	***100%***	***100%***	***100%***

SOURCE: Fehr & Peers, 2012

For trips outside of the immediate Project area and San Francisco, the highest share of work and non-work trips would be to the South Bay followed by the East Bay. For northern San Mateo County, which includes the areas immediately adjacent to the Project Site (cities of Brisbane, Daly City, San Bruno, and South San Francisco), 20 percent of work and 24 percent of non-work trips would have an origin or destination in this zone.

As described above, the mode split for work trips was assumed to be 80 percent by automobiles, 15 percent by transit, and 5 percent by walking, bicycling and other modes. The mode split for non-work trips was assumed to be 70 percent by automobiles, 10 percent by transit, and 20 percent by walking, bicycling, and other modes.

Arena Trip Generation (DSP-V Scenario only)

The number of person trips made by spectators to the proposed arena in the DSP-V scenario was analyzed for a special event. Trip generation was estimated based on the proposed 17,000 seats and a sell-out condition. The arena would be used for theater productions, concerts, speaking engagements, educational events, or sporting events. It is anticipated that up to 150 events per year could occur at the arena (e.g., Wednesday, Friday, and Saturday every week per year). Assuming an approximate weekday evening start time of about 7:00 PM, the weekday PM peak hour (5:00 to 6:00 PM) was analyzed for pre-event conditions to address transportation impacts associated with possible sold-out events occurring at the arena. Although no specific program has been developed for events at the arena, sell-out events with 17,000 attendees occurring during weekday evenings would likely be infrequent.

The analysis of a sold-out event at the arena assumes that only regularly scheduled transit service would be provided and that only a small number of attendees would arrive by private charter bus. The analysis assumes that 15 to 20 percent of attendees would arrive by transit. Therefore, of the 17,000 spectators, 3,400 would be expected to arrive by transit and 13,600 would be expected to arrive via automobile. **Table 4.N-18** summarizes the number of people onsite by mode of access and the number of pre-event transit and vehicle trips associated with a sell-out event. The number of vehicular trips was determined by dividing the number of attendees who arrive via automobile by the average vehicle occupancy rate. The average vehicle occupancy for spectators in a comparable arena in Candlestick Point was assumed to be 3.0 spectators per vehicle in the Candlestick Point-Hunters Point Shipyard Development Plan EIR. Assuming similar average vehicle occupancy for a sold-out event at the arena, the 13,600 people arriving via automobile would generate an additional 4,533 vehicles to the arena.

TABLE 4.N-18
PERSON AND VEHICLE TRIPS BY MODE FOR DSP-V WITH SELL-OUT EVENT AT ARENA

	Person Trips					
	Auto	**Transit**	**Bicycle/ Walk**	**Internal/ Linked**	**Total**	**Vehicle Trips**
DSP-V						
Weekday PM Peak	8,005	1,313	1,441	3,809	14,568	4,697
Arena						
Pre- Sell-Out Event	13,600	3,400	-	-	17,000	4,533
Weekday PM Peak	6,800	1,700	-	-	8,500	2,267
DSP-V with Sell-Out Event (Total)						
Weekday PM Peak	14,805	3,013	1,441	3,809	23,068	6,964

SOURCE: Fehr & Peers, 2012

A technical paper prepared for presentation to the ITE found that approximately 25 percent of the total number of spectators at the comparable arena in Candlestick Point had been assumed to arrive within the one hour prior to the event start time, 50 percent would arrive within the second hour, and the remaining 25 percent would arrive within the third hour prior to the event start time (Farran and Menaker, 1997). Assuming similar arrival rates for the proposed arena, 2,267 vehicles and 1,700 transit trips would arrive between 5:00 and 6:00 PM for an event that begins at 7:00 PM. Consistent with the arrival time distribution assumed for the proposed arena within Candlestick Point, all employees would arrive earlier and would not affect the 5:00 to 6:00 PM peak hour. For purpose of this analysis, the geographic location of the attendees was assumed to be similar to that of the comparable arena in Candlestick Point, with 40 percent of attendees arriving from the South Bay, 16 percent from the East Bay, 14 percent from within San Francisco, 10 percent from the North Bay, and 20 percent from locations outside the Bay Area.

Loading Demand

In the absence of loading demand rates specific to Brisbane and the close proximity of Brisbane to San Francisco Superdistrict 3, it is reasonable to use demand rates published in the *SF Guidelines* for the same land use types to calculate the demand associated with each analysis scenario. Daily truck trips were calculated and then converted to average hourly demand (based on a 9-hour day and a 25-minute average stay), and to peak hour demand by applying a peaking factor of 1.25. **Table 4.N-19** presents the projected number of trucks generated by the land uses proposed for Project scenarios on a daily basis, and the demand for loading dock spaces during the peak hour of loading activities.

TABLE 4.N-19
PROJECT LOADING DEMAND

Project	Daily Truck Generation	Peak Hour Loading Dock Space Demand
DSP	1,418	82
DSP-V	1,252	72
CPP	1,587	92
CPP-V[a]	1,485	86

[a] CPP-V excludes Recology site demand due to unique truck activity at the site that is atypical of normal loading activities. Unique truck activity was captured in the traffic impact analysis.

SOURCE: Fehr & Peers, 2012

Transit Capacity Utilization Analysis Methodology

Based on the transit impact criteria, as defined by the City of Brisbane, the impact of additional transit ridership that would be generated by development of the Project Site was assessed based on transit capacity. This analysis incorporated a "Transit Capacity Utilization" methodology used by the City and County of San Francisco. The methodology refers to transit riders as a percentage of the capacity of a transit line, or group of lines combined and analyzed as cordons or screenlines across which transit lines travel.[13]

Regional Transit Screenlines

Regional transit capacity, based on the anticipated distribution of Project Site development-related trips via BART and Caltrain, was evaluated where regional transit services enter San Francisco, at the following two screenline locations:

- East Bay (BART only)
- South Bay (BART and Caltrain only).

[13] The San Francisco analysis methodology does not distinguish between peak direction and reverse peak direction trips (because the focus of the analysis in San Francisco is typically geared toward assessing transit capacity utilization outbound from downtown San Francisco (the peak commute direction during the PM peak hour). The likely trip pattern for Project Site development trips within San Francisco would include a substantial number of "reverse peak" transit trips, so in that regard the screenline methodology may overstate the Project Site development impact at the San Francisco transit screenlines.

All of the regional transit operators except BART have a 1-hour load factor standard of 100 percent, which would indicate that all seats are full. BART has a peak period load factor standard of 115 percent, which indicates that all seats are full and an additional 15 percent of the seating capacity is standees (i.e., 1.15 passengers per seat). The regional screenline analysis, where applied for this study, is based on the methodology prescribed for San Francisco projects (as described in the CPHPS EIR).

San Francisco Muni Transit Screenlines

San Francisco transit capacity was evaluated based on the Existing and Cumulative Without Project ridership volumes and screenline capacities at the four standard San Francisco screenline locations (described in the CPHPS EIR).

The San Francisco Muni capacity methodology includes seated passengers and an appreciable number of standing passengers per vehicle (the number of standing passengers is between 30 and 80 percent of the seated passengers depending upon the specific transit vehicle configuration). The maximum loads, including both seated and standing passengers, vary by vehicle type and are 45 passengers for a 30-foot bus, 63 passengers for a 40-foot bus, 94 passengers for a 60-foot bus, and 119 passengers for a light-rail vehicle. The percent utilization of capacity was then calculated by comparing the ridership demand to the capacity provided. Muni has established a capacity utilization standard of 85 percent.

Project Trip Distribution and Assignment of Transit Trips

Based on the trip generation and trip assignment forecast that identified the origin and destination pattern for travel demand generated by Project Site development, the distribution and assignment pattern for transit trips was extrapolated as summarized on the following tables:

- Transit trip distribution by origin/destination is shown in **Table 4.N-20**;
- Transit trip distribution by transit corridor is shown in **Table 4.N-21**;
- Transit trip distribution by transit operator and corridor is shown in **Table 4.N-22**;
- Daily transit trip assignment is shown in **Table 4.N-23**; and
- PM peak hour transit trip assignment is shown in **Table 4.N-24**.

The DSP and DSP-V scenarios would generate a higher portion of transit trips to and from downtown San Francisco (located within San Francisco Superdistrict 1 as defined for transportation analysis purposes) compared to the CPP and CPP-V scenarios as the result of trips to work in downtown San Francisco by Baylands residents in the DSP and DSP-V scenarios.

TABLE 4.N-20
TRANSIT TRIP DISTRIBUTION BY ORIGIN/DESTINATION

Origin/Destination	Proposed Project Scenarios (% Distribution)			
	DSP	DSP-V	CPP	CPP-V
Brisbane, Daly City, Colma, San Bruno, South San Francisco	18%	18%	20%	20%
Rest of Peninsula & South Bay	18%	18%	20%	20%
East Bay	10%	10%	11%	11%
North Bay	0%	0%	0%	0%
San Francisco Superdistrict 1 (Northeast SF)	19%	19%	8%	8%
San Francisco Superdistrict 2 (Northwest SF)	6%	6%	8%	8%
San Francisco Superdistrict 3 (Southeast SF)	25%	25%	28%	28%
San Francisco Superdistrict 4 (Southwest SF)	4%	4%	5%	5%
Total	**100%**	**100%**	**100%**	**100%**

[a] Transit trip distribution for the CPP and CPP-V scenarios was derived from motor vehicle trip distribution.

[b] Transit trip distribution for the DSP and DSP-V scenarios applied the same method, but with a higher rate of transit ridership to/from downtown San Francisco (located within Superdistrict 1) given the proposed residential land uses under the DSP and DSP-V scenarios.

SOURCE: Nelson\Nygaard, 2012

TABLE 4.N-21
TRANSIT TRIP DISTRIBUTION BY TRANSIT CORRIDOR

Transit Corridor	Proposed Project Scenarios (% Distribution)			
	DSP	DSP-V	CPP	CPP-V
San Francisco (via Caltrain)	25%	25%	16%	16%
San Francisco (via Muni T-line)	13%	13%	14%	14%
San Francisco (via Muni San Bruno Avenue buses)	4%	4%	4%	4%
San Francisco CP/HP (via Proposed Muni CP/HP BRT)	8%	8%	10%	10%
San Francisco & Daly City, Colma (via Muni Geneva and transfers)	13%	13%	15%	15%
Subtotal San Francisco & Daly City/Colma	***63%***	***63%***	***59%***	***59%***
Brisbane (via Alliance shuttle)	2%	2%	1%	1%
San Mateo County (via SamTrans)	1%	1%	1%	1%
San Mateo County & South Bay (via Caltrain)	24%	24%	28%	28%
Subtotal Peninsula & South Bay (excluding Daly City/Colma)	***27%***	***27%***	***30%***	***30%***
East Bay (via Muni Geneva corridor and BART)	10%	10%	11%	11%
East Bay (via South San Francisco Ferry)	0%	0%	0%	0%
Subtotal East Bay	***10%***	***10%***	***11%***	***11%***
North Bay (via Caltrain to Golden Gate ferry or bus)	***0%***	***0%***	***0%***	***0%***
TOTAL	**100%**	**100%**	**100%**	**100%**

SOURCE: Nelson\Nygaard, 2012

TABLE 4.N-22
TRANSIT TRIP DISTRIBUTION BY TRANSIT OPERATOR AND CORRIDOR

Operator and Corridor	Proposed Project Scenarios (% Distribution)			
	DSP	DSP-V	CPP	CPP-V
Caltrain (to/from north)	25%	25%	16%	16%
Caltrain (to/from south)	24%	24%	28%	28%
Total Caltrain	***49%***	***49%***	***44%***	***44%***
Muni (Geneva to/from west)	23%	23%	26%	26%
Muni (T-line to/from north)	13%	13%	14%	14%
Muni (San Bruno Avenue to/from north)	4%	4%	4%	4%
Muni (to/from Candlestick Point/Hunters Point)	8%	8%	10%	10%
Total Muni	***48%***	***48%***	***54%***	***54%***
SamTrans (via direct service to Project Site)	**1%**	**1%**	**1%**	**1%**
Alliance Shuttle	**2%**	**2%**	**1%**	**1%**
South San Francisco Ferry	**0%**	**0%**	**0%**	**0%**
TOTAL	**100%**	**100%**	**100%**	**100%**

SOURCE: Nelson\Nygaard, 2012

TABLE 4.N-23
DAILY TRANSIT TRIP ASSIGNMENT BY TRANSIT OPERATOR AND CORRIDOR

Transit Operator and Corridor	Proposed Project Scenarios (Trips)			
	DSP	DSP-V	CPP	CPP-V
Caltrain (to/from north)	3,105	3,023	3,824	3,677
Caltrain (to/from south)	2,980	2,902	6,693	6,435
Total Caltrain	***6,085***	***5,925***	***10,517***	***10,112***
Muni (Geneva to/from west and BART)	2,856	2,781	6,215	5,975
Muni (T-line to/from north)	1,614	1,572	3,346	3,217
Muni (San Bruno Avenue to/from north)	497	484	956	919
Muni (to/from Candlestick Point/Hunters Point)	993	967	2,390	2,298
Total Muni	***5,961***	***5,804***	***12,908***	***12,410***
SamTrans (via direct service to Project Site)	**124**	**121**	**239**	**230**
Alliance Shuttle	**248**	**242**	**239**	**230**
South San Francisco Ferry	**0**	**0**	**0**	**0**
TOTAL	**12,418**	**12,092**	**23,903**	**22,981**

SOURCE: Nelson\Nygaard, 2012

TABLE 4.N-24
TRANSIT TRIP ASSIGNMENT (PM PEAK HOUR TRIPS)

Transit Operator and Corridor	Proposed Project Scenarios (PM Peak Trips)			
	DSP	DSP-V	CPP	CPP-V
Caltrain (inbound from north)	104	107	119	114
Caltrain (outbound to north)	249	222	168	159
TOTAL (Caltrain NORTH)	**353**	**328**	**287**	**272**
Caltrain (inbound from south)	100	102	208	199
Caltrain (outbound to south)	239	213	293	278
SCREENLINE (Caltrain SOUTH)	**339**	**315**	**502**	**477**
Total Caltrain	***692***	***643***	***788***	***749***
Muni (Muni Geneva inbound from west)	96	98	193	185
Muni (Muni Geneva outbound to west)	229	204	272	258
TOTAL (Muni Geneva WEST)	**325**	**302**	**466**	**443**
Muni (T-line inbound from north)	54	55	104	100
Muni (T-line outbound to north))	129	115	147	139
TOTAL (Muni Third Street T-Line)	**184**	**171**	**251**	**238**
Muni (San Bruno Avenue inbound from north)	17	17	30	28
Muni (San Bruno Avenue outbound to north)	40	35	42	40
TOTAL (Muni San Bruno Avenue)	**56**	**53**	**72**	**68**
SCREENLINE (Muni Third Street / San Bruno Avenue)	**240**	**223**	**323**	**307**
Muni (inbound from Candlestick Point/Hunters Point)	33	34	74	71
Muni (outbound to Candlestick Point/Hunters Point)	80	71	105	99
TOTAL (Muni to/from Candlestick Point/Hunters Point)	**113**	**105**	**179**	**170**
Total Muni	***678***	***630***	***968***	***920***
SamTrans (Bayshore inbound from south)	4	4	7	7
SamTrans (Bayshore outbound to south)	10	9	10	10
SamTrans (Bayshore total)	**14**	**13**	**18**	**17**
Alliance Shuttle inbound from Brisbane (west of Bayshore)	8	9	7	7
Alliance Shuttle outbound to Brisbane (west of Bayshore)	20	18	10	10
Alliance Shuttle	**28**	**26**	**18**	**17**
South San Francisco Ferry	**0**	**0**	**0**	**0**
TOTAL INBOUND	416	426	744	711
TOTAL OUTBOUND	996	887	1,048	992
TOTAL PEAK HOUR TRANSIT TRIPS	**1,412**	**1,313**	**1,792**	**1,703**

SOURCE: Nelson\Nygaard, 2012

Project Impacts and Mitigation Measures

The impact analysis below is presented as (1) a combined assessment (i.e., "Existing plus Project and Cumulative With Project") if the impact determination for Project Site development would be the same for both the baseline (2010) and Cumulative (2030) contexts, or (2) as separate assessments (i.e., "Existing plus Project," followed by "Cumulative With Project") if the Project Site development impact determination would be different for the baseline (2010) context versus

the cumulative (2030) context. Throughout the following analysis, "Project Site development" is used to refer to development of the Project Site under any of the four proposed development scenarios. Where impacts differ by scenario, the distinction is noted.

Conflict with an Applicable Plan, Ordinance, or Policy Establishing a Measure of Effectiveness for the Performance of the Circulation System

Traffic Conditions (Existing plus Project)

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
SU	SU	SU	SU

SU = Significant Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = no impact

Impact 4.N-1: Would the Project result in a substantial increase in traffic under Existing plus Project conditions at intersections in the vicinity of the Project Site?

An intersection level of service analysis was prepared for traffic operations at 18 intersections for Existing conditions. Impacts under each of the four development scenarios were assessed by comparing Existing conditions with the Existing plus Project conditions and applying the roadway performance standards established by the City of Brisbane.[14]

Table 4.N-25 and **Table 4.N-26** present a comparison of the intersection LOS analysis for Existing and Existing plus Project conditions for the weekday AM and PM peak hours, respectively. The tables show that 17 of the 18 study intersections currently operate at acceptable levels of service, and that the following 12 study intersections would continue to operate acceptably under Existing plus Project conditions.[15]

2. Guadalupe Canyon Parkway & Bayshore Boulevard
3. Valley Drive & Bayshore Boulevard
6. Sierra Point Parkway & US 101 Southbound Ramps
7. Lagoon Way & Tunnel Avenue
8. Lagoon Way & Sierra Point Parkway
11. Jamestown Avenue & Third Street
13. Blanken Avenue & Tunnel Avenue
14. Blanken Avenue & Bayshore Boulevard
15. Sunnydale Avenue & Bayshore Boulevard
16. Geneva Avenue & Carter Street
17. Geneva Avenue & Mission Street
18. E. Market Street & Orange Street

[14] LOS standards for the City of Brisbane are LOS D for signalized and unsignalized intersections with the exception of Old County Road & Bayshore Boulevard and San Bruno Avenue & Bayshore Boulevard, where the standard is LOS C.

[15] The analysis of Existing plus Project conditions assumes typical traffic conditions (i.e., not those conditions when the proposed arena under the DSP-V scenario would have a weekday evening sell-out event). Traffic impacts resulting from an infrequent occurrence of a weekday evening special event at the arena are described separately in Impact 4.N-5.

TABLE 4.N-25
INTERSECTION LEVEL OF SERVICE – EXISTING AND EXISTING PLUS PROJECT CONDITIONS – WEEKDAY AM PEAK HOUR

	Intersection[a]	Existing		DSP		DSP-V		CPP		CPP-V		Impact	LOS after Mitigation
		Delay[b]	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS		
1	**Geneva Avenue/ Bayshore Boulevard**	25	C	**>80**	**F**	**>80**	**F**	**62**	**E**	**60**	**E**	SU	D
2	Guadalupe Canyon Pkwy/ Bayshore Boulevard	15	B	26	C	25	C	18	B	18	B	-	-
3	Valley Drive/ Bayshore Boulevard	16	B	21	C	20	C	19	B	19	B	-	-
4	**Old County Road/ Bayshore Boulevard**	31	C	**45**	**D**	**41**	**D**	**50**	**D**	**46**	**D**	SM[d]/SU[e]	C
5	**San Bruno Avenue/ Bayshore Boulevard**	**29**	**$D_{(EB)}$**	**>50**	**$F_{(EB)}$**	**>50**	**$F_{(EB)}$**	**37**	**$E_{(EB)}$**	**37**	**$E_{(EB)}$**	LTS	-
6	Sierra Point Parkway/ US 101 NB Ramps	20	$C_{(NB)}$	21	$C_{(NB)}$	20	$C_{(NB)}$	20	$C_{(NB)}$	19	$C_{(NB)}$	-	-
7	Lagoon Way/Tunnel Avenue	<10	A	12	$B_{(NB)}$	11	$B_{(NB)}$	14	$B_{(NB)}$	13	$B_{(NB)}$	-	-
8	Lagoon Way/Sierra Point Pkwy	<10	$A_{(WB)}$	14	$B_{(NB)}$	13	$B_{(NB)}$	12	$B_{(NB)}$	12	$B_{(WB)}$	-	-
9	**Beatty Road/Alana Way/ US 101 SB Ramps**	10	$B_{(EB)}$	**>50**	**$F_{(WB)}$**	**>50**	**$F_{(WB)}$**	**>50**	**$F_{(WB)}$**	**>50**	**$F_{(WB)}$**	SU	D
10	**Harney Way/Alana Wy/ Thomas Mellon Drive**	<10	A	19	$C_{(NB)}$	17	$C_{(NB)}$	**>50**	**$F_{(NB)}$**	**>50**	**$F_{(NB)}$**	SU	D
11	Jamestown Avenue/Third Street	19	B	17	B	17	B	17	B	17	B	-	-
12	**Tunnel Avenue/ Bayshore Boulevard**	27	C	**74**	**E**	**66**	**E**	**76**	**E**	66	E	SU	D
13	Blanken Avenue/ Tunnel Avenue [c]	<10	A	13	$B_{(SB)}$	13	$B_{(SB)}$	17	$C_{(SB)}$	15	$C_{(NB)}$	-	-
14	Blanken Avenue/ Bayshore Boulevard	<10	A	<10	A	<10	A	11	B	11	B	-	-
15	Sunnydale Avenue/ Bayshore Boulevard	19	B	29	C	28	C	25	C	24	C	-	-
16	Geneva Avenue/Carter Street	28	C	39	D	37	D	39	D	37	D	-	-

TABLE 4.N-25 (Continued)
INTERSECTION LEVEL OF SERVICE – EXISTING AND EXISTING PLUS PROJECT CONDITIONS – WEEKDAY AM PEAK HOUR

Intersection[a]		Existing		DSP		DSP-V		CPP		CPP-V		Impact	LOS after Mitigation
		Delay[b]	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS		
17	Geneva Avenue/Mission Street	18	B	31	C	28	C	32	C	29	C	-	-
18	E. Market Street/Orange Street	12	$B_{(EB)}$	14	$B_{(EB)}$	13	$B_{(EB)}$	14	$B_{(EB)}$	14	$B_{(EB)}$	-	-

[a] Intersections operating at unacceptable level of service (LOS) conditions highlighted in **bold**.
[b] Delay in seconds per vehicle. For Side Street STOP-controlled intersections, delay and LOS presented for worst approach. Worst approach indicated in ( ).
[c] The intersection of Blanken Avenue & Tunnel Avenue would be adversely affected under the DSP-V with weekday evening sell-out event at the arena.
[d] DSP and DSP-V scenarios only.
[e] CPP and CPP-V scenarios only.
[f] DSP-V scenario only.
[g] DSP, CPP, and CPP-V scenarios only.

- = No Impact
LTS = Less than Significant
SM = Significant but Mitigable
SU = Significant Unavoidable

SOURCE: Fehr & Peers, 2012

TABLE 4.N-26
INTERSECTION LEVEL OF SERVICE – EXISTING AND EXISTING PLUS PROJECT CONDITIONS – WEEKDAY PM PEAK HOUR[a]

	Intersection[a]	Existing		DSP		DSP-V		CPP		CPP-V		Impact	LOS after Mitigation
		Delay[b]	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS		
1	**Geneva Avenue/ Bayshore Boulevard**	24	C	**>80**	**F**	**79**	**E**	**72**	**E**	**69**	**E**	SU	D
2	Guadalupe Canyon Pkwy/ Bayshore Boulevard	13	B	16	B	16	B	16	B	16	B	-	-
3	Valley Drive/ Bayshore Boulevard	13	B	16	B	16	B	14	B	14	B	-	-
4	**Old County Road/ Bayshore Boulevard**	30	C	**43**	**D**	**42**	**D**	**54**	**D**	**51**	**D**	SM[d]/SU[e]	C
5	**San Bruno Avenue/Bayshore Boulevard**	**27**	**$D_{(EB)}$**	**45**	**$E_{(EB)}$**	**44**	**$E_{(EB)}$**	**37**	**$E_{(EB)}$**	**37**	**$E_{(EB)}$**	LTS	-
6	Sierra Point Parkway/ US 101 NB Ramps	<10	$A_{(NB)}$	12	$B_{(NB)}$	12	$B_{(NB)}$	12	$B_{(NB)}$	12	$B_{(NB)}$	-	-
7	Lagoon Way/ Tunnel Avenue	<10	A	11	$B_{(WB)}$	11	$B_{(WB)}$	13	$B_{(NB)}$	13	$B_{(NB)}$	-	-
8	Lagoon Way/Sierra Point Pkwy	12	$B_{(NB)}$	17	$C_{(EB)}$	15	$C_{(NB)}$	14	$B_{(NB)}$	14	$B_{(NB)}$	-	-
9	**Beatty Road/Alana Way/ US 101 SB Ramps**	<10	$A_{(SB)}$	**>50**	**$F_{(EB)}$**	**>50**	**$F_{(EB)}$**	**>50**	**$F_{(EB)}$**	**>50**	**$F_{(EB)}$**	SM[d]/SU[e]	D
10	**Harney Way/ Alana Way/ Thomas Mellon Drive**	<10	A	**>50**	**$F_{(EB)}$**	**>50**	**$F_{(EB)}$**	**>50**	**$F_{(EB)}$**	**>50**	**$F_{(EB)}$**	SM[d]/SU[e]	D
11	Jamestown Avenue/ Third Street	18	B	16	B	16	B	16	B	16	B	-	-
12	**Tunnel Avenue/ Bayshore Boulevard**	20	B	**>80**	**F**	**>80**	**F**	**>80**	**F**	**>80**	**F**	SU	D
13	Blanken Avenue/ Tunnel Avenue [c]	<10	A	12	$B_{(NB)}$	12	$B_{(NB)}$	16	$C_{(NB)}$	14	$B_{(NB)}$	-	-
14	Blanken Avenue/ Bayshore Boulevard	11	B	11	B	11	B	13	B	13	B	-	-
15	Sunnydale Avenue/ Bayshore Boulevard	20	C	30	C	31	C	26	C	25	C	-	-

TABLE 4.N-26 (Continued)
INTERSECTION LEVEL OF SERVICE – EXISTING AND EXISTING PLUS PROJECT CONDITIONS – WEEKDAY PM PEAK HOUR[a]

Intersection		Existing		DSP		DSP-V		CPP		CPP-V		Impact	LOS after Mitigation
		Delay[b]	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS		
16	Geneva Avenue/ Carter Street	31	C	30	C	31	D	32	C	32	C	-	-
17	Geneva Avenue Mission Street	20	C	43	D	38	D	54	D	48	D	-	-
18	E. Market Street/Orange Street	<10	A	<10	$A_{(WB)}$	<10	$A_{(WB)}$	<10	$A_{(WB)}$	<10	$A_{(WB)}$	-	-

[a] Intersections operating at unacceptable level of service (LOS) conditions highlighted in **bold**.
[b] Delay in seconds per vehicle. For Side Street STOP-controlled intersections, delay and LOS presented for worst approach. Worst approach indicated in ( ).
[c] The intersection of Blanken Avenue & Tunnel Avenue would be adversely affected under the DSP-V with weekday evening sell-out event at the arena.
[d] DSP and DSP-V scenarios only.
[e] CPP and CPP-V scenarios only.
[f] DSP-V scenario only.
[g] DSP, CPP, and CPP-V scenarios only.

- = No Impact
LTS = Less than Significant
SM = Significant but Mitigable
SU = Significant Unavoidable

SOURCE: Fehr & Peers, 2012

Below is a discussion of the significant impacts found at study intersections based on the significance thresholds presented previously. Mitigation measures are recommended.

Impact at San Bruno Avenue & Bayshore Boulevard (Intersection 5)

The unsignalized intersection of San Bruno Avenue & Bayshore Boulevard (#5) currently operates at LOS D on the eastbound approach during the AM and PM peak hours, which is worse than the LOS C standard established by the Brisbane General Plan for this intersection.[16] The eastbound left-turn movement incurs the most delay at this side street stop-controlled intersection, causing the intersection operate below the LOS standard. With implementation of any of the proposed development scenarios, the intersection would operate at LOS E or F. However, the intersection does not meet the criteria for the Caltrans peak hour signal warrant under Existing plus Project conditions, and Project Site development would add less than 5 percent of trips to the critical movement on the eastbound approach. Therefore, the impact on the intersection of San Bruno Avenue & Bayshore Boulevard under Existing plus Project conditions would be less than significant for all proposed development scenarios.

Impact at Geneva Avenue and Bayshore Boulevard (Intersection 1)

At the signalized intersection of Geneva Avenue & Bayshore Boulevard, intersection operating conditions would worsen in the AM peak hour from LOS C under Existing conditions to LOS F under Existing plus Project with the DSP or DSP-V scenario and to LOS E with the CPP or CPP-V scenario, resulting in a significant impact. In the PM peak hour, the intersection would worsen from LOS C to LOS F with implementation of the DSP scenario and to LOS E for the DSP-V, CPP, and CPP-V scenarios.

Vehicular traffic to and from the Project Site generated by the development scenarios was distributed to Bayshore Boulevard site access points based on Project site development land use layout and internal circulation system.

Conclusion: At the signalized intersection of Geneva Avenue & Bayshore Boulevard (#1), the addition of Project-generated traffic to existing volumes under each development scenario (DSP, DSP-V, CPP, and CPP-V) would result in significant AM and PM peak hour traffic impacts. **Mitigation Measure 4.N-1a** below is recommended.

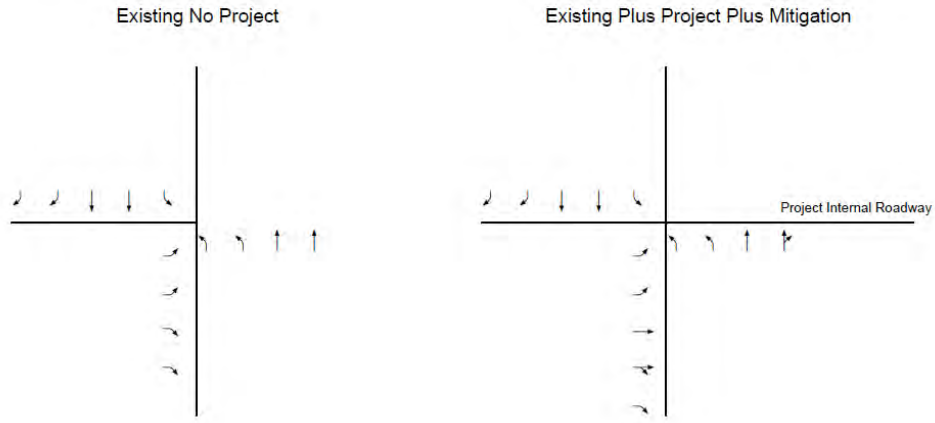
Mitigation

Mitigation Measure 4.N-1a: Prior to issuance of the first building occupancy permit for new development within the Project Site other than relocation or improvement of an existing use, the eastbound approach on Geneva Avenue to Bayshore Boulevard shall be restriped to create one additional through lane. One of the existing two right-turn lanes shall also be modified to become a

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	✓	✓
✓ = measure applies - = measure does not apply			

[16] As noted in Section 4.I, *Land Use and Planning*, each of the Project Site development scenarios are inconsistent with the General Plan in that they result in levels of service in excess of General Plan standards.

shared through/right-turn lane. In addition, existing AM signal timing setting shall be modified by shifting 8 seconds of green time from the protected eastbound left and westbound left phases to the protected southbound left and southbound through phases. For the PM signal timing settings, 6 seconds of green time shall be shifted from the protected eastbound left and westbound left phases to the protected northbound left and southbound left phases.



Conclusion with Mitigation: Implementation of this mitigation measure would improve intersection operations under Existing plus Project with the DSP, DSP-V, CPP, or CPP-V scenario from LOS F to LOS D during both AM and PM peak hours. The existing Geneva Avenue connection to its terminus at the west side of Bayshore Boulevard is approximately 90 feet in width, with two lanes of traffic in the westbound direction, two left-turn lanes and two right-turn lanes for the eastbound direction, and a median of six feet wide in between. No parking is allowed on either side of Geneva Avenue. It would therefore be feasible to create functional access to the Project Site from Geneva Avenue by removing the median (without relocating the center line) to provide seven travel lanes – two for the westbound direction and one left-turn pocket, one through lane, one shared through/right-turn lane, and one right-turn pocket for the eastbound direction. Restriping without relocating the center line would not result in conflict with operations of Muni 9AX buses that need to make wide turns at this intersection.

While the implementation of **Mitigation Measure 4.N-1a** would reduce operational impacts at Geneva Avenue and Bayshore Boulevard to a less-than-significant level under all four proposed development scenarios, such implementation would require action by the City of Daly City and is not within the City of Brisbane's power to impose. The mitigation measure is therefore legally infeasible, although it is physically feasible. Thus, the impact is considered to be significant and unavoidable.

Impact at Old County Road and Bayshore Boulevard (Intersection 4)

At the signalized intersection of Old County Road and Bayshore Boulevard, intersection operations would worsen in both AM and PM peak hours from LOS C to LOS D with any of the four development scenarios. The Brisbane General Plan requires this intersection to operate at no worse than LOS C.

As discussed above, Old County Road is one of the six proposed major access points on Bayshore Boulevard for Project Site-generated trips. Most vehicular traffic to and from the Project Site has been distributed to these six Bayshore Boulevard access points based on Project site development land use layout and internal circulation system.

Conclusion: At the signalized intersection of Old County Road and Bayshore Boulevard (#4), the addition of Project Site development-generated traffic to existing volumes under each development scenario (DSP, DSP-V, CPP, and CPP-V) would result in significant AM and PM peak hour traffic impacts. **Mitigation Measure 4.N-1b** below is recommended.

Mitigation

Mitigation Measure 4.N-1b: Prior to issuance of the first building occupancy permit for new development other than improvement or relocation of an existing use, the intersection of Bayshore Boulevard and Old County Road shall be improved, including modifications to the tunnel to provide additional lanes and modify signal timing to improve intersection operations to achieve, at a minimum, LOS C during both AM and PM peak hours under the DSP and DSP-V scenarios and ensure that LOS remains at LOS D or better under the CPP and CPP-V scenarios.

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	✓	✓

✓ = measure applies
- = measure does not apply

Conclusion with Mitigation: An evaluation of engineering design considerations to mitigate traffic impacts at this intersection indicated that needed improvements might not be feasible without removal of the existing median at this location. Even with removal of the median, improvements at this intersection under the CPP and CPP-V scenarios would result in LOS D traffic conditions. Thus, to provide flexibility for the design of needed improvements at this intersection, a performance standard rather than a prescriptive mitigation measure is proposed.

Implementation of this mitigation measure would improve operations at the intersection under Existing plus Project conditions with the DSP and DSP-V scenarios to acceptable levels (LOS C) during both AM and PM peak hours. Under the CPP and CPP-V scenarios, LOS would remain at LOS D, exceeding the LOS C standard. Therefore, with the inclusion of **Mitigation Measure 4.N-1b**, operational impacts at Old County Road & Bayshore Boulevard would be less than significant under the DSP and DSP-V scenarios and significant and unavoidable under the CPP and CPP-V scenarios.

Impact at Alana Way and Beatty Road & US 101 Southbound Ramps (Intersection 9)

At the existing interchange, which includes the all-way stop-controlled intersection of Alana Way, Beatty Road, and US 101 Southbound Ramps, intersection operations would worsen in both AM and PM peak hours from LOS B and LOS A, respectively, to LOS F under Existing plus Project conditions under all four development scenarios. Project Site development-generated trips originating from US 101 southbound would exit at the interchange at Alana Way and Beatty Road and result in substantial increase in traffic volumes on the critical westbound through movement.

Conclusion: At the unsignalized intersection of Alana Way, Beatty Road, and US 101 Southbound Ramps (#9), the addition of Project Site development-generated traffic to existing volumes under each development scenario (DSP, DSP-V, CPP, and CPP-V) would result in significant AM and PM peak hour traffic impacts. **Mitigation Measure 4.N-1c** below is therefore recommended.

Mitigation

Mitigation Measure 4.N-1c: Prior to issuance of the first building occupancy permit for new development other than for improvement or relocation of an existing use, the intersection of Alana Way/Beatty Road/US 101 Southbound Ramps shall be signalized and longer green time shall be allowed for the eastbound/westbound traffic than for the northbound/southbound traffic. In addition, the southbound (Alana Way) approach shall be restriped to provide an additional exclusive right-turn pocket, and the westbound (off-ramp) approach shall be restriped to provide an additional through lane to increase the capacity at the off-ramp.

Mitigation Measure Applicability by Scenario

DSP	DSP-V	CPP	CPP-V
✓	✓	✓	✓

✓ = measure applies
- = measure does not apply

Conclusion with Mitigation: While implementation of this mitigation measure would improve the operations at this intersection from LOS F to acceptable (LOS C) levels for both the AM and PM peak hours under the DSP and DSP-V scenarios, operations under the CPP and CPP-V scenarios improve, but remain at an unacceptable LOS E. Therefore, with the inclusion of **Mitigation Measure 4.N-1c**, operational impacts at the Alana Way, Beatty Road, and US 101 Southbound Ramps would be less than significant under the DSP and DSP-V scenarios and would be significant and unavoidable under the CPP and CPP-V scenarios. However, implementation of this recommended mitigation measure is beyond Brisbane's jurisdiction and requires Caltrans approval. This measure is therefore legally infeasible, although it is physically feasible As a result, operational impacts at the Alana Way, Beatty Road, and US 101 Southbound Ramps are considered to be significant and unavoidable.

Impact at Alana Way, Harney Way, and Thomas Mellon Drive (Intersection 10)

At the existing side-street stop-controlled intersection of Alana Way/Harney Way/Thomas Mellon Drive, intersection operations would worsen during AM peak hour from LOS A to LOS F under Existing plus Project with either the CPP or CPP-V scenario. Intersection operations would also worsen during PM peak hour from LOS A to LOS F under Existing plus Project with all four development scenarios. Based on traffic model runs for each of the four development scenarios, Project Site development-generated trips originating from US 101 southbound would exit at the interchange at Alana Way/Beatty Road and result in substantial increase in traffic volumes on the critical westbound through movement.

The poor operating conditions at the Alana Way/Harney Way/Thomas Mellon Drive intersection under Existing plus Project conditions would be due to increased delays at the eastbound right-turn movement. The capacity provided by the existing westbound shared through/right lane would not be able to accommodate the increase in US 101 northbound on-ramp traffic.

Conclusion: At the unsignalized intersection of Alana Way/Harney Way/Thomas Mellon Drive (#10), the addition of Project Site development-generated traffic to existing volumes would result in significant AM and PM peak hour traffic impacts. Each development scenario would result in a significant PM peak hour impact at this intersection, and the CPP and CPP-V scenarios would also result in a significant AM peak hour impact. **Mitigation Measure 4.N-1d** is recommended.

Mitigation

Mitigation Measure 4.N-1d: Prior to issuance of the first building occupancy permit for new development other than for relocation or improvement of an existing use, the eastbound approach to the Alana Way/Harney Way/Thomas Mellon Drive intersection shall be restriped to provide an additional right-turn lane. Harney Way shall be widened to the south of its existing alignment to accommodate this change.

Mitigation Measure Applicability by Scenario/Variant			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	✓	✓
✓ = measure applies - = measure does not apply			

Conclusion with Mitigation: Implementation of this mitigation measure would improve operations at this intersection to LOS C under Existing plus Project with the DSP and DSP-V scenarios. The operations under the CPP and CPP-V scenarios would remain at LOS F. This mitigation measure is consistent with the Harney Way widening project that was assumed under the Cumulative Year 2030 conditions. With implementation of Mitigation Measure 4.N-1d, operational impacts at Alana Way/Harney Way/Thomas Mellon Drive intersection would be less than significant under the DSP and DSP-V scenarios and would be significant and unavoidable for the CPP and CPP-V scenarios. Since this intersection is within San Francisco, however, it is not within the power of Brisbane to impose. Therefore, due to legal infeasibility, its implementation cannot be assumed under Existing plus Project conditions, even though the mitigation measure is consistent with the Harney Way widening project in San Francisco. Therefore, impacts at the Alana Way/Harney Way/Thomas Mellon Drive intersection are considered to be significant and unavoidable.

Impact at Tunnel Avenue and Bayshore Boulevard (Intersection 12)

The existing Tunnel Avenue/Bayshore Boulevard intersection is signalized at the northbound and southbound approaches and is stop-controlled on the westbound approach. The intersection operating conditions would worsen in the AM peak hour from LOS C under Existing conditions to LOS E under Existing plus Project condition for all four development scenarios. In the PM peak hour, the intersection would worsen from LOS B to LOS F under each of the four development scenarios.

Conclusion: At the signalized intersection of Tunnel Avenue & Bayshore Boulevard (#12), the addition of Project Site development -generated traffic to existing volumes would result in significant AM and PM peak hour traffic impacts. Each development scenario would result in a significant PM peak hour impact, and the DSP, DSP-V, and CPP scenarios would result in a significant AM peak hour impact. **Mitigation Measure 4.N-1e** below is recommended.

Mitigation

Mitigation Measure 4.N-1e: Prior to issuance of the first building occupancy permit for new development other than for relocation or improvement of an existing use, a signal phase shall be provided for the westbound right approach at the intersection of Tunnel Avenue & Bayshore Boulevard, and signal timing settings for the AM and PM peak periods shall be modified by changing the southbound left phase from the existing permitted to protected phase, and shifting 20 seconds of green time from the northbound and southbound movements to each of the southbound left and westbound right phases.

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	✓	✓
✓ = measure applies - = measure does not apply			

Conclusion with Mitigation: Implementation of this mitigation measure would improve operations at the intersection to acceptable (LOS D) levels in the AM peak hour with the DSP and DSP-V scenarios and in the PM peak hour with the DSP-V scenario. Under the CPP scenario, both AM and PM operations would remain at an unacceptable LOS F. Under the CPP-V scenario, both AM and PM operations would remain at an unacceptable LOS E. Therefore, with implementation of **Mitigation Measure 4.N-1e**, operational impacts at Tunnel Avenue and Bayshore Boulevard would be less than significant under the DSP-V scenario. The impacts would be significant and unavoidable for the DSP, CPP, and CPP-V scenarios. However, the intersection of Tunnel Avenue & Bayshore Boulevard is located within San Francisco, and implementation of the recommended mitigation measure would require San Francisco's approval. While the mitigation measure may be physically feasible, because Brisbane cannot compel San Francisco to accept proposed improvements, the measure's approval cannot be ensured and therefore the measure is legally infeasible. Therefore, impacts at Tunnel Avenue and Bayshore Boulevard are considered to be significant and unavoidable.

Impact at Blanken Avenue and Tunnel Avenue (Intersection 13)

Impacts of the DSP, CPP, and CPP-V Scenarios

The addition of Project Site development-related trips from the DSP, CPP, and CPP-V scenarios to the existing all-way stop-controlled intersection would not deteriorate its existing operating conditions to unacceptable levels. Therefore, Project Site development under the DSP, CPP, or CPP-V scenarios would result in a less-than-significant impact at the intersection of Blanken Avenue & Tunnel Avenue during both the AM and PM peak hours.

Impacts of the DSP-V Scenario (Sold-Out Arena Event)

On days when no sold-out events are occurring at the arena, Project Site development under the DSP-V scenario would result in a less-than-significant impact at the intersection of Blanken Avenue & Tunnel Avenue during both the AM and PM peak hours. The following analysis evaluates intersection conditions on days when sold-out arena events are occurring.

The majority of arena-bound traffic would use a portion of US 101 to reach the arena within the Project Site on event days. Traffic from the south would predominantly use northbound US 101 and reach the site via Harney Way, while traffic from the north would predominantly use

southbound US 101 and I-280 and reach the site via Geneva Avenue, Bayshore Boulevard, and Tunnel Avenue (or via J Street [Roundhouse Circle] to cross toward the west side of the Project Site). For a special event that begins at 7:00 PM, traffic flow on the site's roadways would be geared toward inbound flow during the PM peak hour.

Table 4.N-27 presents a comparison of intersection LOS operating conditions for Project Site development during weekday PM peak hour conditions without a sell-out event to conditions with a sell-out event at the arena. Only the intersections along the access routes that would be primarily affected by arena traffic are listed. Assuming that the special event is sold out and that 50 percent of the attendants would arrive at the site within the second hour prior to the event start at 7:00 PM, the intersection operating conditions at Blanken Avenue/Tunnel Avenue would worsen in the PM peak hour from LOS B under the DSP-V on non-event days to LOS C on event days. The intersection of Blanken Avenue/Tunnel Avenue is located within San Francisco and its signal control is within the control of SFMTA.

TABLE 4.N-27
INTERSECTION LEVEL OF SERVICE – EXISTING PLUS PROJECT WITH THE DSP-V SCENARIO NO EVENT AND SOLD-OUT ARENA EVENT – WEEKDAY PM PEAK HOUR

Intersection		DSP-V with No Arena Event		DSP-V with Sold-Out Arena Event	
		Delay[a]	LOS[b]	Delay[a]	LOS[b]
1	Geneva Avenue/Bayshore Boulevard	**79**	**E**	**77**	**E**
4	Old County Road/Bayshore Boulevard	**42**	**D**	**48**	**D**
5	San Bruno Avenue/Bayshore Boulevard	**44**	**E**	**44**	**E**
9	Beatty Road/Alana Way/US 101 SB Ramps	**>50**	**$F_{(EB)}$**	**>50**	**$F_{(EB)}$**
10	Alana Way/Harney Way/Thomas Mellon Drive	**>50**	**$F_{(EB)}$**	**>50**	**$F_{(EB)}$**
12	Tunnel Avenue/Bayshore Boulevard	**>80**	**F**	**>80**	**F**
13	Blanken Avenue/Tunnel Avenue	12	$B_{(NB)}$	15	$C_{(SB)}$

[a] Delay in seconds per vehicle.
[b] Intersections operating at Level of Service (LOS) E or LOS F conditions highlighted in **bold.**

SOURCE: Fehr & Peers, 2013

Traffic associated with a sell-out event at the arena would exacerbate traffic operations at six intersections that would operate at LOS E or LOS F conditions under Existing plus Project with the DSP-V scenario without an event during the PM peak hour:

1. Geneva Avenue & Bayshore Boulevard (LOS E to LOS E)
4. Old County Road & Bayshore Boulevard (LOS D to LOS D)
5. San Bruno Avenue & Bayshore Boulevard (LOS E to LOS E)
9. Beatty Road & Alana Way & US 101 Southbound Ramps (LOS F to LOS F)
10. Alana Way & Harney Way & Thomas Mellon Drive (LOS F to LOS F)
12. Tunnel Avenue & Bayshore Boulevard (LOS F to LOS F)

Conclusion: Although at the unsignalized intersection of Blanken Avenue and Tunnel Avenue (#13), Project Site development (DSP-V scenario only) would result in the PM peak hour LOS going from B to C due to weekday evening events at the arena. Because existing congestion at intersections 1, 4, 5, 9, 10, and 12 would be exacerbated by the DSP-V scenario, a significant impact would result. Impacts under the DSP, CPP and CPP-V would be less than significant. **Mitigation Measure 4.N-1f** below is recommended.

Mitigation

Mitigation Measure 4.N-1f: Prior to issuance of the building occupancy permit for an arena within the Project Site, the arena operator shall develop a Transportation Management Plan (TMP) for coordination with the San Francisco Municipal Transportation Agency (SFMTA), the San Francisco Police Department, and the City of Brisbane, developing incentives to increase transit ridership to the arena, and deploying traffic control officers at the unsignalized intersection of Blanken Avenue and Tunnel Avenue to approximate traffic control with traffic signals of LOS C.

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
-	✓	-	-

✓ = measure applies
- = measure does not apply

The final arena TMP shall be approved by the City of Brisbane and developed in cooperation with SFMTA. Preparation of the TMP shall be fully funded by the arena operator and shall be completed in time for implementation on opening night of the arena.

Conclusion with Mitigation: Implementation of this mitigation measure would improve the operating conditions at the intersection to acceptable (LOS C) levels by approximating operating conditions if the intersection were signalized. Implementation of this mitigation measure would facilitate entrance and exit to the arena site for vehicles that choose Tunnel Avenue as the gateway into and out of the arena site, as well as maintain orderly traffic operations and reduce intrusion onto Bayshore Boulevard and/or neighborhood streets. Traffic delays could still occur at the other adversely affected intersections; these impacts are described under Impacts 4.N-1a through 4.N-1e above. Implementation of **Mitigation Measure 4.N-1f** would reduce the impact on the existing operating conditions at the intersection of Blanken Avenue/Tunnel Avenue during the PM peak hour resulting from a sold-out weekday evening event to a less-than-significant level. Implementation of this measure would entail actions being taken by San Francisco, however, which the City of Brisbane cannot compel. Therefore, while the mitigation measure may be physically feasible, because Brisbane cannot require San Francisco to accept proposed improvements, the mitigation measure is legally infeasible. This impact is therefore considered to be significant and unavoidable.

Intersection Spacing along the Geneva Avenue Extension (DSP and DSP-V Scenarios)

The Specific Plan prepared for the DSP and DSP-V scenarios proposes the following three intersections with full turning movements along the Geneva Avenue extension, including the roadway links between:

- Bayshore Boulevard and "2nd Street" (approximately 600 feet between roadway centerlines):

- "5th Street" and Tunnel Avenue, along either side of the Caltrain overpass (approximately 400 feet between roadway centerlines); and
- "7th Street" and 8th Street west of US 101 (approximately 400 feet between roadway centerlines).

The close spacing of these intersections could cause traffic to queue up at one intersection along Geneva Avenue and back up into another intersection, even if each intersection met applicable LOS standards on its own. Such an interaction between two intersections would constitute a significant impact.

Conclusion: Because of the close spacing of certain intersections along the Geneva Avenue extension, traffic queuing up at one intersection along Geneva Avenue would back up into another intersection, creating congestion under the DSP and DSP-V development scenarios. **Mitigation Measure 4.N-1g** below is therefore recommended.

Mitigation

Mitigation Measure 4.N-1g: Approval of any tentative map providing for spacing of less than 1,200 feet between full-access intersections along the Geneva Avenue extension shall require that the interactions of green and red signal timing at any one intersection along the Geneva Avenue extension shall not affect operations at any other intersection along the extension, by backing traffic waiting for a green signal at one intersection along the Geneva Avenue extension into another intersection along the extension. Should full-access intersections along the Geneva Avenue extension with spacing of less than 1,200 feet be proposed, a microsimulation of all proposed intersections along the extension (e.g., Synchro, VISSUM) shall be undertaken to analyze interactions of green and red signal timing and demonstrate that operations at any one intersection along the Geneva Avenue extension would not affect operations at any other intersection along the extension.

Mitigation Measure Applicability by Scenario

DSP	DSP-V	CPP	CPP-V
✓	✓	-	-

✓ = measure applies
- = measure does not apply

Conclusion with Mitigation: While implementation of this mitigation measure would ensure that efforts are made to eliminate any adverse interactions of signal timing at closely spaced full-access intersections along the Geneva Avenue extension, it is unknown if this performance standard can, in fact, be met, or whether the elimination of one or more full turning movement intersection along the Geneva Avenue extension would result in other significant adverse impacts. Therefore, this impact is significant and unavoidable.

Elimination of Beatty Road in the CPP and CPP-V Scenarios

As show in Figures 3-11 through 3-14 in Chapter 3, *Project Description*, of this EIR, Beatty Avenue would provide access to a small area of land east of the Caltrain tracks between the existing Recology site and the Geneva Avenue extension under the DSP and DSP-V scenarios, whereas, Beatty Avenue would be eliminated under the CPP and CPP-V scenarios. Thus, proposed land uses east of the Caltrain tracks between the existing Recology site and the Geneva Avenue extension in the CPP scenario would not be able to take access from Beatty Avenue, and

would instead be required to take access from north/south local street intersecting with Geneva Avenue to the south. In the CPP-V scenario, the Recology expansion would encompass the entire area east of the Caltrain tracks and north of the Geneva Avenue extension. Should Beatty Avenue be abandoned prior to the completion of Geneva Avenue extension, non-Recology lands east of the Caltrain tracks between the existing Recology site and the future Geneva Avenue extension would be left without access until the Geneva Avenue extension was completed, and traffic that would have otherwise used Beatty Avenue would be forced onto other streets, adversely affecting traffic flow. As a result, the City would not be able to make the necessary findings required for abandonment of Beatty Avenue prior to the completion of Geneva Avenue extension.

Conclusion: Depending on the relative timing of abandonment of Beatty Avenue and completion the Geneva Avenue extension, non-Recology lands east of the Caltrain tracks between the existing Recology site and the future Geneva Avenue extension would be left without access, which would constitute a significant impact and require mitigation.

Mitigation

Mitigation Measure 4.N-1h: Access via public street(s) to non-Recology lands east of the Caltrain tracks shall be maintained at all times prior to the completion of the proposed Geneva Avenue extension.

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
-	-	✓	✓

✓ = measure applies
- = measure does not apply

Conclusion with Mitigation: Implementation of this mitigation measure would ensure that non-Recology lands east of the Caltrain tracks between the existing Recology site and the future Geneva Avenue extension would have access and would avoid adverse effects of re-routing traffic onto other roadways, thus reducing the impact to a less-than-significant level.

Impact 4.N-2: Would implementation of the Project contribute to significant existing traffic delays at freeway mainline segments?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
SU	SU	SU	SU

SU = Significant Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = no impact

Freeway mainline level of service analysis was conducted for four locations on US 101. Freeway ramp analysis was prepared for six locations on US 101. For freeway mainline and ramp analyses, analysis was undertaken at locations where Project Site development would change operations from LOS D or better under Existing conditions to LOS E or LOS F with Project Site development. At locations that operate at LOS E or LOS F under Existing conditions and would continue to operate at LOS E or LOS F under Existing plus Project conditions, Project Site development-related trips, as a percentage of total traffic volumes on the facility, were reviewed to determine whether the increase would contribute considerably to total volumes on the facility.

Table 4.N-28 presents the results of the freeway mainline section analysis for Existing and Existing plus Project conditions. Each of the four development scenarios would cause the following freeway mainline segments to degrade from an acceptable LOS condition (LOS E or better) to an unacceptable LOS F under one or more of the development scenarios:

- US 101 southbound mainline from Third Street / Bayshore Boulevard (AM peak hour) to Harney Way under all four development scenarios.
- US 101 northbound mainline from Sierra Point to Harney Way (PM peak hour) under the CPP and CPP-V development scenarios.
- US 101 northbound mainline from Harney Way to Third Street / Bayshore Boulevard (PM peak hour) under all four development scenarios.

TABLE 4.N-28
US 101 MAINLINE SEGMENT LEVEL OF SERVICE –
EXISTING AND EXISTING PLUS PROJECT CONDITIONS

	Existing		Existing Plus DSP		Existing Plus DSP-V		Existing Plus CPP		Existing Plus CPP-V	
Freeway Segment (by direction)	**LOS**	**V/C**	**LOS**	**V/C**	**LOS**	**V/C**	**LOS**	**V/C**	**LOS**	**V/C**
Weekday AM Peak Hour										
NB—Sierra Point to Harney Way	D	0.77	E	0.81	E	0.81	E	0.82	E	0.81
NB—Harney Way to Third/Bayshore	D	0.77	E	0.79	E	0.79	E	0.81	E	0.81
SB—Third/Bayshore to Harney Way	E	0.90	**F**	**1.01**	**F**	**1.00**	**F**	**1.01**	**F**	**1.00**
SB—Harney/Geneva to Sierra Point	E	0.89	E	0.90	E	0.90	E	0.92	E	0.92
Weekday PM Peak Hour										
NB—Sierra Point to Harney Way	E	0.90	E	0.91	E	0.92	**F**	**0.95**	**F**	**0.95**
NB—Harney Way to Third/Bayshore	E	0.90	**F**	**1.00**	**F**	**0.99**	**F**	**1.01**	**F**	**1.00**
SB—Third/Bayshore to Harney Way	E	0.81	E	0.84	E	0.84	E	0.89	E	0.89
SB—Harney/Geneva to Sierra Point	E	0.82	E	0.86	E	0.86	E	0.88	E	0.88

Segments operating at LOS F conditions highlighted in **bold**
LOS determination for freeway mainline segments were based on HCM 2000 LOS V/C Methodology per C/CAG guidelines.
Freeway directions: NB = Northbound; SB = Southbound

SOURCE: Fehr and Peers, 2012

All other study segments would continue to operate no worse than an acceptable LOS E.

Conclusion: Impacts at three freeway mainline segments would be significant under each of the four proposed development scenarios. To minimize the potential for an increase in Project Site

development-generated vehicles and impacts on freeway mainline LOS conditions, implementation of a TDM program (**Mitigation Measure 4.N-13**)[17] would be required.

Conclusion with Mitigation: Mitigation Measure 4.N-13 would reduce the impact but not to a less-than-significant level. There is no mitigation available to reduce this impact to a less-than-significant level. Therefore, impacts on freeway mainline operations would be significant and unavoidable under all four development scenarios.

Traffic Conditions (Cumulative With Project)

Cumulative (2030) No Project conditions, which represent baseline conditions for the analysis of cumulative impacts, assume that in addition to improvements proposed by Project Site development scenarios, certain roadway improvements that are not part of Project Site development that could affect traffic circulation in the Project Site vicinity would be completed by others. (See "Impact Assessment Methodology" above for descriptions of improvements proposed by Project Site development scenarios and improvements that are not part of Project Site development.) These latter improvements would be completed through area development approvals within Brisbane and San Francisco or directly by one of those two city governments. Also relevant to analysis of future conditions is the assumption that signal timing for all signalized study intersections would follow the existing signal timing settings, except for the intersections of Blanken Avenue/Tunnel Avenue, Tunnel Avenue/Bayshore Boulevard, and Sunnydale Avenue/Bayshore Boulevard. Signal timing changes are proposed as mitigation at these three intersections as part of the Visitacion Valley Redevelopment Project and are assumed to be implemented under Cumulative Without Project conditions.

The extension of Geneva Avenue from its current terminus at Bayshore Boulevard eastward to the US 101 Southbound ramps would divert part of existing and future (generated by other development projects) traffic volumes on Bayshore Boulevard to the Geneva Avenue extension for access to US 101. The diversion of traffic from Bayshore Boulevard would result in operational improvements at intersections in the immediate vicinity of Geneva Avenue & Bayshore Boulevard and along Bayshore Boulevard, without consideration of Project Site development-generated trips. **Table 4.N-29** (AM Peak Hour) and **Table 4.N-30** (PM Peak Hour) compare intersection peak hour LOS with the Geneva Avenue extension to conditions without the extension, under Cumulative Without Project conditions.

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[17] Mitigation Measure 4.N-13 reads as follows: **"**Prior to issuance of the first building occupancy permit for new development other than improvement or relocation of an existing use within the Project Site, the developer(s) and/or tenants of Project Site land uses shall prepare, submit to the City/County Association of Governments of San Mateo County (C/CAG) for approval, and establish a Transportation Demand Management (TDM) program to mitigate the C/CAG project impact of generating more than 100 net new vehicle trips during the peak traffic hours. Implementation of TDM programs shall be made a condition of approval for all new development within the Project Site that generates 100 or more net new trips during the AM or PM peak hour. A summary of TDM strategies can be found in Table 4.N-45."

TABLE 4.N-29
INTERSECTION LEVEL OF SERVICE – CUMULATIVE WITHOUT PROJECT CONDITIONS WITHOUT AND WITH GENEVA EXTENSION – WEEKDAY AM PEAK HOUR

Intersection		Cumulative Without Project, Without Geneva Extension		Cumulative Without Project, With Geneva Extension	
		Delay[a]	LOS[b]	Delay	LOS
1	Geneva Avenue/Bayshore Boulevard	33	C	**58**	**E**
2	Guadalupe Canyon Parkway/Bayshore Boulevard	47	D	18	B
3	Valley Drive/Bayshore Boulevard	**60**	**E**	20	B
4	Old County Road/Bayshore Boulevard[c]	**47**	**D**	32	C
5	San Bruno Avenue/Bayshore Boulevard	**> 50**	**$F_{(EB)}$**	**> 50**	**$F_{(EB)}$**
6	Sierra Point Parkway/US 101 NB Ramps	**> 50**	**$F_{(NB)}$**	**> 50**	**$F_{(EB)}$**
7	Tunnel Avenue/Lagoon Way	**> 50**	**$F_{(WB)}$**	**> 50**	**$F_{(WB)}$**
8	Airport Boulevard/Lagoon Way	**> 50**	**$F_{(WB)}$**	**> 50**	**$F_{(WB)}$**
9	Beatty Road/Alana Way/US 101 SB Ramps OR Geneva Avenue/US 101 SB Ramps	**> 50**	**$F_{(SB)}$**	**> 80**	**F**
10	Alana Way/Harney Way/Thomas Mellon Drive OR Harney Way/Thomas Mellon Drive	**> 50**	**$F_{(WB)}$**	34	C
11	Third Street/Jamestown Avenue	54	D	54	D
12	Tunnel Avenue/Bayshore Boulevard	**> 80**	**F**	**> 80**	**F**
13	Blanken Avenue/Tunnel Avenue	28	C	18	B
14	Blanken Avenue/Bayshore Boulevard	**> 80**	**F**	36	D
15	Sunnydale Avenue/Bayshore Boulevard	**> 80**	**F**	**> 80**	**F**
16	Carter Street/Geneva Avenue	**> 80**	**F**	**> 80**	**F**
17	Mission Street/Geneva Avenue	**> 80**	**F**	**> 80**	**F**
18	Orange Street/Guadalupe Canyon Parkway	**> 50**	**$F_{(EB)}$**	**> 50**	**$F_{(EB)}$**

[a] Delay in seconds per vehicle.
[b] Intersections operating at unacceptable level of service (LOS) conditions highlighted in **bold**.
[c] Threshold of significance is LOS C for the intersection of Old County Road & Bayshore Boulevard per City of Brisbane General Plan.

SOURCE: Fehr & Peers, 2012

TABLE 4.N-30
INTERSECTION LEVEL OF SERVICE – CUMULATIVE WITHOUT PROJECT CONDITIONS WITHOUT AND WITH GENEVA EXTENSION – WEEKDAY PM PEAK HOUR

Intersection		Cumulative Without Project, Without Geneva Extension		Cumulative Without Project, With Geneva Extension	
		Delay[a]	LOS[b]	Delay	LOS
1	Geneva Avenue/Bayshore Boulevard	**> 80**	**F**	**85**	**F**
2	Guadalupe Canyon Parkway/Bayshore Boulevard	**> 80**	**F**	47	D
3	Valley Drive/Bayshore Boulevard	**75**	**E**	39	D
4	Old County Road/Bayshore Boulevard [c]	**> 80**	**F**	**> 80**	**F**
5	San Bruno Avenue/Bayshore Boulevard	**> 50**	**$F_{(EB)}$**	**> 50**	**$F_{(EB)}$**
6	Sierra Point Parkway/US 101 NB Ramps	**> 50**	**$F_{(NB)}$**	**> 50**	**$F_{(WB)}$**
7	Tunnel Avenue/Lagoon Way	**> 50**	**$F_{(WB)}$**	**> 50**	**$F_{(WB)}$**
8	Airport Boulevard/Lagoon Way	**> 50**	**$F_{(EB)}$**	**> 50**	**$F_{(EB)}$**
9	Beatty Road/Alana Way/US 101 SB Ramps OR Geneva Avenue/US 101 SB Ramps	**> 50**	**$F_{(WB)}$**	**> 80**	**F**
10	Alana Way/Harney Way/Thomas Mellon Drive OR Harney Way/Thomas Mellon Drive	**> 50**	**$F_{(EB)}$**	26	C
11	Third Street/Jamestown Avenue	**> 80**	**F**	**> 80**	**F**
12	Tunnel Avenue/Bayshore Boulevard	**> 80**	**F**	**72**	**E**
13	Blanken Avenue/Tunnel Avenue [c]	31	C	25	C
14	Blanken Avenue/Bayshore Boulevard	**> 80**	**F**	**35**	**D**
15	Sunnydale Avenue/Bayshore Boulevard	**> 80**	**F**	**> 80**	**F**
16	Carter Street/Geneva Avenue	**> 80**	**F**	**> 80**	**F**
17	Mission Street/Geneva Avenue	**> 80**	**F**	**> 80**	**F**
18	Orange Street/Guadalupe Canyon Parkway	16	$C_{(WB)}$	16	$C_{(WB)}$

[a] Delay in seconds per vehicle.
[b] Intersections operating at unacceptable level of service (LOS) conditions highlighted in **bold**.
[c] Threshold of significance is LOS C for the intersection of Old County Road & Bayshore Boulevard per City of Brisbane General Plan.

SOURCE: Fehr & Peers, 2012

Traffic Impact: Intersections

Impact 4.N-3: Would the Project result in a substantial increase in traffic under Cumulative With Project conditions at the study intersections?

Table 4.N-31 and **Table 4.N-32** present a comparison of intersection LOS analysis for Cumulative Without Project and Cumulative With Project conditions for the AM and PM peak hours, respectively.

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
SU	SU	SU	SU

SU = Significant Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = no impact

As shown in those tables, among the intersections analyzed in this document, the following four would operate acceptably under Cumulative With Project conditions during both AM and PM peak hour, and the cumulative impact would be less than significant:

2. Guadalupe Canyon Parkway & Bayshore Boulevard
3. Valley Drive & Bayshore Boulevard
10. Harney Way & Thomas Mellon Drive
13. Blanken Avenue & Tunnel Avenue
19. Tunnel Avenue & Geneva Avenue

Impact at San Bruno Avenue & Bayshore Boulevard (Intersection 5)

The unsignalized intersection of San Bruno Avenue/Bayshore Boulevard would operate at unacceptable peak hour levels of service on the critical stop sign-controlled approach both without and with Project Site development under all four development scenarios.[18] However, the intersection would not meet the criteria for the Caltrans peak hour signal warrant, and each of the proposed development scenarios would add less than 5 percent of trips to the critical movement at the intersection. Therefore, Project Site development's contribution to the unacceptable cumulative conditions would be less than considerable, and the cumulative impact would be less than significant.

Impact at Geneva Avenue & Bayshore Boulevard (Intersection 1)

At the signalized intersection of Geneva Avenue & Bayshore Boulevard, all four development scenarios would contribute considerably to a significant cumulative impact during the AM and PM peak hours (i.e., by degrading the intersection from LOS E to LOS F in the AM and contributing more than 5 percent of trips to the critical vehicle movements in the PM).

Conclusion: The cumulative impact of each development scenario would be significant at this intersection. Implementation of **Mitigation Measure 4.N-3a** below is recommended.

[18] The eastbound left-turn movement incurs the most delay at this side street stop-controlled intersection, causing the intersection operate below the LOS standard.

TABLE 4.N-31
INTERSECTION LEVEL OF SERVICE – CUMULATIVE WITHOUT PROJECT AND CUMULATIVE WITH PROJECT CONDITIONS – WEEKDAY AM PEAK HOUR

	Intersection	Existing		Cumulative Without Project		Cumulative With DSP		Cumulative With DSP-V		Cumulative With CPP		Cumulative With CPP-V		Impact	LOS after Mitigation
		Delay[a]	LOS[b]	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS		
1	**Geneva Avenue/ Bayshore Boulevard**	25	C	**58**	**E**	**> 80**	**F**	**> 80**	**F**	**> 80**	**F**	**> 80**	**F**	SU	-
2	Guadalupe Canyon Parkway/ Bayshore Boulevard	15	B	18	B	21	C	21	C	19	B	19	B	-	-
3	Valley Drive/ Bayshore Boulevard	16	B	19	B	28	C	28	C	24	C	24	C	-	-
4	**Old County Road/ Bayshore Boulevard**	31	C	32	C	**66**	**E**	**59**	**E**	**64**	**E**	**60**	**E**	SU	-
5	**San Bruno Avenue/ Bayshore Boulevard**	29	$D_{(EB)}$	**> 50**	**$F_{(EB)}$**	**> 50**	**$F_{(EB)}$**	**> 50**	**$F_{(EB)}$**	**> 50**	**$F_{(EB)}$**	**> 50**	**$F_{(EB)}$**	LTS	-
6	**Sierra Point Parkway/ US 101 NB Ramps**	20	$C_{(NB)}$	**>50**	**$F_{(EB)}$**	**> 50**	**$F_{(EB)}$**	**> 50**	**$F_{(EB)}$**	**> 50**	**$F_{(EB)}$**	**> 50**	**$F_{(EB)}$**	SU	-
7	**Lagoon Way/Tunnel Avenue**	<10	A	**> 50**	**$F_{(WB)}$**	**> 50**	**$F_{(WB)}$**	**> 50**	**$F_{(WB)}$**	**> 50**	**$F_{(WB)}$**	**> 50**	**$F_{(WB)}$**	SU	-
8	**Lagoon Way/ Sierra Point Parkway**	<10	$A_{(WB)}$	**> 50**	**$F_{(WB)}$**	**> 50**	**$F_{(WB)}$**	**> 50**	**$F_{(WB)}$**	**> 50**	**$F_{(WB)}$**	**> 50**	**$F_{(WB)}$**	SU	-
9	**Geneva Avenue/ US 101 SB Ramps**[c]	10	$B_{(EB)}$	**> 80**	**F**	**> 80**	**F**	**> 80**	**F**	**> 80**	**F**	**> 80**	**F**	SU	-
10	Harney Way/ Thomas Mellon Drive[d]	<10	A	34	C	35	D	35	D	35	D	35	D	-	-
11	**Jamestown Avenue/ Third Street**	19	B	54	D	**72**	**E**	**69**	**E**	**75**	**E**	**73**	**E**	SU	-
12	**Tunnel Avenue/ Bayshore Boulevard**	27	C	**> 80**	**F**	**> 80**	**F**	**> 80**	**F**	**> 80**	**F**	**> 80**	**F**	SU	-
13	Blanken Avenue/ Tunnel Avenue[e]	<10	A	18	B	19	B	19	B	19	B	19	B	-	-
14	Blanken Avenue/ Bayshore Boulevard	<10	A	36	D	54	D	55	D	44	D	44	D	-	-
15	**Sunnydale Avenue/ Bayshore Boulevard**	19	B	**> 80**	**F**	**> 80**	**F**	**> 80**	**F**	**> 80**	**F**	**> 80**	**F**	SU	-

TABLE 4.N-31 (Continued)
INTERSECTION LEVEL OF SERVICE – CUMULATIVE WITHOUT PROJECT AND CUMULATIVE WITH PROJECT CONDITIONS – WEEKDAY AM PEAK HOUR

	Intersection	Existing		Cumulative Without Project		Cumulative With DSP		Cumulative With DSP-V		Cumulative With CPP		Cumulative With CPP-V		Impact	LOS after Mitigation
		Delay[a]	LOS[b]	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS		
16	**Geneva Avenue/ Carter Street**	28	C	**> 80**	**F**	**> 80**	**F**	**> 80**	**F**	**> 80**	**F**	**> 80**	**F**	SU	-
17	**Geneva Avenue/ Mission Street**	18	B	**> 80**	**F**	**> 80**	**F**	**> 80**	**F**	**> 80**	**F**	**> 80**	**F**	SU	-
18	**E. Market Street/ Orange Street**	12	$B_{(EB)}$	**> 50**	**$F_{(EB)}$**	**> 50**	**$F_{(EB)}$**	**> 50**	**$F_{(EB)}$**	**> 50**	**$F_{(EB)}$**	**> 50**	**$F_{(EB)}$**	SU	-
19	Tunnel Avenue/ Geneva Avenue[f]											32	C	-	-

[a] Delay in seconds per vehicle.
[b] Intersections operating at unacceptable level of service (LOS) conditions highlighted in **bold**.
[c] Year 2030 analysis includes signalization at Geneva Avenue & US 101 Southbound Ramps as part of the Geneva Avenue extension project.
[d] Year 2030 analysis includes signalization at Harney Way & US 101 Northbound Ramps as part of the Harney Way widening project.
[e] Year 2030 analysis includes signalization at Blanken Avenue & Tunnel Avenue.
[f] Year 2030 analysis includes signalization at Tunnel Avenue & Geneva Avenue as part of the CPP-V.

- = No Impact
LTS = Less than Significant
SM = Significant but Mitigable
SU = Significant Unavoidable

SOURCE: Fehr & Peers, 2012

TABLE 4.N-32
INTERSECTION LEVEL OF SERVICE – CUMULATIVE WITHOUT PROJECT AND CUMULATIVE WITH PROJECT CONDITIONS – WEEKDAY PM PEAK HOUR

	Intersection	Existing		Cumulative Without Project		Cumulative With DSP		Cumulative With DSP-V		Cumulative With CPP		Cumulative With CPP-V		Impact	LOS after Mitigation
		Delay[a]	LOS[b]	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS		
1	**Geneva Avenue/ Bayshore Boulevard**	24	C	**> 80**	**F**	**> 80**	**F**	**> 80**	**F**	**> 80**	**F**	**> 80**	**F**	SU	E
2	Guadalupe Canyon Parkway/ Bayshore Boulevard	13	B	47	D	48	D	47	D	48	D	47	D	-	-
3	Valley Drive/ Bayshore Boulevard	13	B	39	D	45	D	45	D	47	D	47	D	-	-
4	**Old County Road/ Bayshore Boulevard**	30	C	**> 80**	**F**	**> 80**	**F**	**> 80**	**F**	**> 80**	**F**	**> 80**	**F**	SU	F
5	San Bruno Avenue/ Bayshore Boulevard	27	$D_{(EB)}$	**> 50**	**$F_{(EB)}$**	**> 50**	**$F_{(EB)}$**	**> 50**	**$F_{(EB)}$**	**> 50**	**$F_{(EB)}$**	**> 50**	**$F_{(EB)}$**	LTS	-
6	**Sierra Point Parkway/ US 101 NB Ramps**	<10	$A_{(NB)}$	**> 50**	**$F_{(WB)}$**	**> 50**	**$F_{(WB)}$**	**> 50**	**$F_{(WB)}$**	**> 50**	**$F_{(WB)}$**	**> 50**	**$F_{(EB)}$**	SU	F
7	**Lagoon Way/Tunnel Avenue**	<10	A	**> 50**	**$F_{(WB)}$**	**> 50**	**$F_{(SB)}$**	**> 50**	**$F_{(SB)}$**	**> 50**	**$F_{(SB)}$**	**> 50**	**$F_{(SB)}$**	SU	F
8	**Lagoon Way/ Sierra Point Parkway**	12	$B_{(NB)}$	**> 50**	**$F_{(EB)}$**	**> 50**	**$F_{(EB)}$**	**> 50**	**$F_{(EB)}$**	**> 50**	**$F_{(EB)}$**	**> 50**	**$F_{(EB)}$**	SU	F/E[i]
9	**Geneva Avenue/ US 101 SB Ramps**[c]	<10	$A_{(SB)}$	**> 80**	**F**	**> 80**	**F**	**> 80**	**F**	**> 80**	**F**	**> 80**	**F**	SU	D
10	Harney Way/ Thomas Mellon Drive[d]	<10	A	26	C	26	C	27	C	27	C	27	C	-	-
11	**Jamestown Avenue/ Third Street**	18	B	**> 80**	**F**	**> 80**	**F**	**> 80**	**F**	**> 80**	**F**	**> 80**	**F**	SU	F
12	**Tunnel Avenue/ Bayshore Boulevard**	20	B	**72**	**E**	**> 80**	**F**	**> 80**	**F**	**> 80**	**F**	**> 80**	**F**	SU	F
13	Blanken Avenue/ Tunnel Avenue[e]	<10	A	25	C	25	C	25	C	25	C	25	C	-	-
14	Blanken Avenue/ Bayshore Boulevard	11	B	35	D	54	D	53	D	50	D	49	D	-	-
15	**Sunnydale Avenue/ Bayshore Boulevard**	20	C	**> 80**	**F**	**> 80**	**F**	**> 80**	**F**	**> 80**	**F**	**> 80**	**F**	SU	F

TABLE 4.N-32 (Continued)
INTERSECTION LEVEL OF SERVICE – CUMULATIVE WITHOUT PROJECT AND CUMULATIVE WITH PROJECT CONDITIONS – WEEKDAY PM PEAK HOUR

	Intersection	Existing		Cumulative Without Project		Cumulative With DSP		Cumulative With DSP-V		Cumulative With CPP		Cumulative With CPP-V		Impact	LOS after Mitigation
		Delay[a]	LOS[b]	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS		
16	**Geneva Avenue/ Carter Street**	31	C	**> 80**	**F**	**> 80**	**F**	**> 80**	**F**	**> 80**	**F**	**> 80**	**F**	SU	-D
17	**Geneva Avenue/ Mission Street/**	20	C	**> 80**	**F**	**> 80**	**F**	**> 80**	**F**	**> 80**	**F**	**> 80**	**F**	SU	F
18	**E. Market Street/ Orange Street**	<10	A	16	$C_{(WB)}$	23	$C_{(WB)}$	22	$C_{(WB)}$	25	$C_{(WB)}$	24	$C_{WB)}$	SM	-
19	Tunnel Avenue/ Geneva Avenue[f]											**> 80**	**F**	-	-

a Delay in seconds per vehicle.
b Intersections operating at unacceptable level of service (LOS) conditions highlighted in **bold**.
c Year 2030 analysis includes signalization at Geneva Avenue & US 101 Southbound Ramps as part of the Geneva Avenue extension project.
d Year 2030 analysis includes signalization at Harney Way & US 101 Northbound Ramps as part of the Harney Way Widening project.
e Year 2030 analysis includes signalization at Blanken Avenue & Tunnel Avenue.
f Year 2030 analysis includes signalization at Tunnel Avenue & Geneva Avenue as part of the CPP-V.
g No impact for DSP and DSP-V, SU for CPP and CPP-V.
k LTS for DSP and DSP-V, SU for CPP and CPP-V.
l LOS F for the DSP scenario; LOS E for the DSP-V, CPP, and CPP-V scenarios.

- = No Impact
LTS = Less than Significant
SM = Significant but Mitigable
SU = Significant Unavoidable

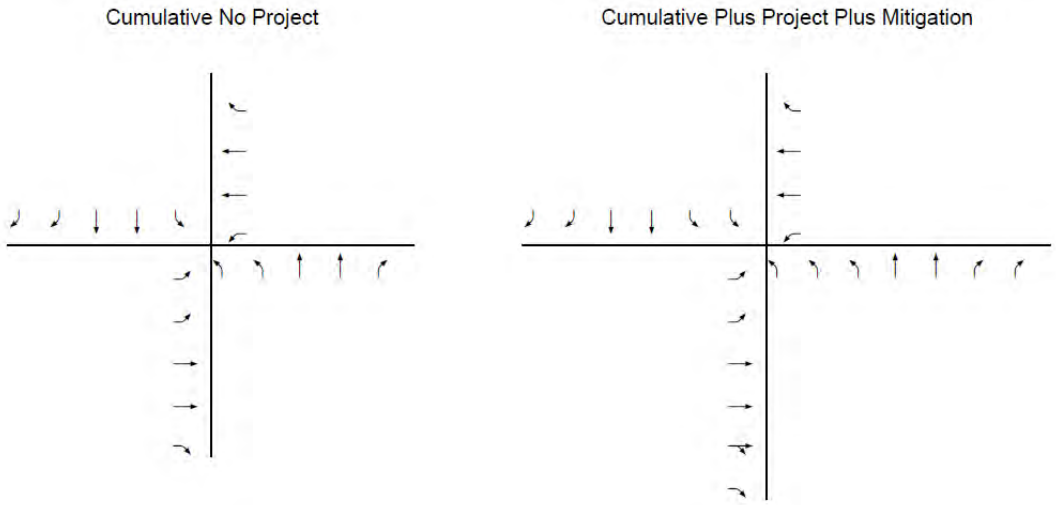
SOURCE: Fehr & Peers

Mitigation

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	✓	✓
✓ = measure applies - = measure does not apply			

Mitigation Measure 4.N-3a:[19] Prior to issuance of the first building occupancy permit for new development other than improvement or relocation of an existing use within the Project Site, the improvements required by Mitigation Measure 4.N-1a (which addressed Existing Plus Project conditions) shall be supplemented to account for cumulative traffic conditions. Thus, the full extent of improvements shall include the following:

The eastbound approach at the signalized intersection of Geneva Avenue & Bayshore Boulevard shall be restriped to create one additional through lane and to modify one of the existing two right-turn lanes to become a shared through/right-turn lane. In addition, the southbound approach shall be restriped to provide an additional exclusive left-turn pocket. Finally, the northbound approach shall be restriped to provide two additional lanes: an additional left-turn pocket and an added right-turn lane.



As a condition of approval for the first discretionary action taken for development within the Project Site, the applicant shall be required to initiate a corridor plan for Bayshore Boulevard in cooperation with Daly City and San Francisco to determine the suite of improvements necessary to resolve long-term cumulative traffic issues along the corridor. Because the effectiveness of such a corridor plan would necessitate participation by Daly City and San Francisco in recognition of increases in traffic along the Bayshore corridor that will be generated by future development within those two jurisdictions, Brisbane will also make its best efforts to assist the developer in securing the agreement of Daly City and San Francisco to participate in the corridor study and its implementation.

[19] Mitigation Measure 4.N-1a provides for mitigation of Project Site development-related impacts in the Existing plus Project condition, while this mitigation measure provides for mitigation in the Cumulative With Project condition. This mitigation measure is based on needed modification to the existing, baseline configuration of the intersection and does not assume that Mitigation Measure 4.N-1a is implemented.

Conclusion with Mitigation: Currently, Bayshore Boulevard is approximately 100 feet wide, with two lanes of traffic in each direction, two left-turn pockets for the northbound direction, one left-turn pocket and two right-turn pockets for the southbound direction, and a median. Parking is not allowed on either side of Bayshore Boulevard. Bayshore Boulevard is also a Class II bicycle lane south of Geneva Avenue, and a Class II bicycle lane north of Geneva Avenue is being proposed in the *San Mateo County Comprehensive Bicycle and Pedestrian Plan (2011)*. It is possible to restripe the connection to accommodate this change through removal of the existing median or further widening to the east of its existing alignment.

Currently, the Geneva Avenue connection to the west side of Bayshore Boulevard is approximately 90 feet wide, with two lanes of traffic for the westbound direction, two left-turn lanes and two right-turn lanes for the eastbound approach, and a median 6 feet wide. As part of the Geneva Avenue extension project, Geneva Avenue between Bayshore Boulevard and the US 101 southbound ramps would be configured as a six-lane corridor (three lanes of traffic in each direction). Restriping the westbound approach to provide one through lane and one through/right-turn lane would allow the westbound through lanes to align with the inner two of the three receiving lanes on the extension of Geneva Avenue. Furthermore, removal of the median would make restriping the eastbound approach feasible without relocating the center line and compromising the turn movements of Muni 9AX buses.

Restriping the eastbound and southbound approaches as proposed in the above mitigation measure would improve intersection operations to acceptable levels at LOS D during the AM peak hour, but operations during the PM peak hour would remain unacceptable at LOS E. The poor PM peak hour operations would be due to substantial increase in northbound left-turn traffic. To provide the capacity to accommodate the northbound left-turn traffic, the northbound approach would be restriped by either removal of the existing median or widening to add the third left-turn pocket.

There would also be secondary impacts associated with all measures identified in **Mitigation Measure 4.N-3a**, including major right-of-way acquisition and safety concerns for pedestrians due to longer crosswalks and lack of a safety median. This secondary impact could be partially mitigated through pedestrian enhancements such as separated sidewalks along the length of Bayshore Boulevard; incorporating design elements that would reduce speeds to less than 30 miles per hour such as narrower travel lanes, landscape features, and more frequent signalization; and providing frequent (every 500 to 750 feet) safe crossing treatments for pedestrians. Given the proposed six-lane cross-section, use of traffic signals or “HAWK beacons” would be the likely safe crossing treatments. Buffered bike lanes could also be considered to mitigate the impact of increased traffic on bicyclists. All of the above are likely best addressed through the development of a corridor plan for Bayshore Boulevard.

While preparation and implementation of a corridor plan for Bayshore Boulevard would be the appropriate venue for determining the suite of improvements necessary to resolve long-term cumulative traffic issues along the corridor, the effectiveness of such a corridor plan would necessitate participation by Daly City and San Francisco in recognition of future increases in traffic along the Bayshore corridor that will be generated by future development in those two

jurisdictions. While Brisbane believes that it would be beneficial for both Daly City and San Francisco to participate in such a study, it cannot require their participation. Brisbane will however, as a condition of approval, require the developer to initiate such a corridor study, and will also make its best efforts to assist the developer in securing the agreement of Daly City and San Francisco to participate in the corridor study and its implementation.

Therefore, even with inclusion of **Mitigation Measure 4.N-3a**, Project Site development impacts on the cumulative traffic conditions at the intersection of Geneva Avenue & Bayshore Boulevard would be significant and unavoidable based on the maximum allowable standard (LOS D).

Impact at Old County Road & Bayshore Boulevard (Intersection 4)

At the signalized intersection of Old County Road & Bayshore Boulevard, intersection LOS would deteriorate to unacceptable levels under Cumulative With Project conditions. All four proposed development scenarios would contribute considerably to this significant cumulative impact during the AM and PM peak hours (i.e., by contributing more than 5 percent of trips to the critical vehicle movements).

Conclusion: Operations at the intersection of Old County Road and Bayshore Boulevard would be reduced to unacceptable levels under all four development scenarios. This would result in a significant cumulative impact. **Mitigation Measure 4.N-3b** is recommended.

Mitigation

Mitigation Measure 4.N-3b:[20] At the signalized intersection of Old County Road & Bayshore Boulevard,[21] the eastbound approach shall be restriped to create one additional exclusive through lane. In addition, the southbound approach shall be restriped to create two additional lanes: an added exclusive left-turn pocket and an added through lane for the southbound approach. Eastbound Tunnel Avenue shall be widened to the east of its existing alignment to accommodate two receiving lanes for the southbound left and eastbound through traffic. These improvements shall be completed prior to issuance of the first building occupancy permit for new development other than improvement or relocation of an existing use within the Project Site.

Mitigation Measure Applicability by Scenario

DSP	DSP-V	CPP	CPP-V
✓	✓	✓	✓

✓ = measure applies
- = measure does not apply

Conclusion with Mitigation: For the AM peak hour, implementation of **Mitigation Measure 4.N-3b** would improve operations at Old County Road & Bayshore Boulevard (#4) to acceptable (LOS C) levels, reducing the impact to less than significant. In the PM peak hour, the mitigation would improve the operations to LOS E, which still exceeds the maximum allowable standard (LOS C) assigned for this intersection per the Brisbane General Plan. Therefore, even with

[20] Mitigation Measure 4.N-1b provides for mitigation of Project Site development-related impacts in the Existing plus Project condition, while this mitigation measure provides for mitigation in the Cumulative With Project condition. This mitigation measure is based on needed modification to the existing, baseline configuration of the intersection, and does not assume that Mitigation Measure 4.N-1b is implemented.

[21] Existing Bayshore Boulevard at Old County Road is approximately 80 feet wide and includes two through lanes for each direction and a median. Dedicated right-turn yield lanes are currently provided at all four approaches.

inclusion of **Mitigation Measure 4.N-3b**, Project Site development impacts on the cumulative traffic conditions at the intersection of Old County Road & Bayshore Boulevard would be significant and unavoidable based on the maximum allowable standard (LOS C).

Impact at Tunnel Avenue & Bayshore Boulevard (Intersection 12)

At the signalized intersection of Tunnel Avenue & Bayshore Boulevard, all four proposed development scenarios would contribute considerably to a significant cumulative impact during the AM and PM peak hours (i.e., by contributing more than 5 percent of trips to the critical vehicle movements).

Mitigation

No feasible mitigation measures were identified to reduce the impact below a level of significance. Traffic signals on the Tunnel Avenue & Bayshore Boulevard intersection are under control of SFMTA and currently timed to give priority to transit movements. SFMTA has indicated that there may be slight adjustments to the traffic signal timing for intersections along the T-Third route that could be implemented to reduce auto delay at signalized intersections without degrading transit travel times. However, those improvements would not be sufficient to improve intersection operations to the acceptable levels.

Conclusion: Operations at the intersection of Tunnel Avenue and Bayshore Boulevard would be reduced to unacceptable levels under all four development scenarios. No feasible mitigation measure exists, and the cumulative impact would be significant and unavoidable.

Impact at Sunnydale Avenue & Bayshore Boulevard (Intersection 15)

At the signalized intersection of Sunnydale & Bayshore Boulevard, all four proposed development scenarios would contribute considerably to a significant cumulative impact during the AM and PM peak hours (i.e., by contributing more than 5 percent of trips to the critical vehicle movements).

Mitigation

No feasible mitigation measures were identified to reduce the impact below a level of significance. Traffic signals on the Sunnydale Avenue & Bayshore Boulevard intersection are under control of SFMTA and currently timed to give priority to transit movements. SFMTA has indicated that there may be slight adjustments to the traffic signal timing for intersections along the T-Third route that could be implemented to reduce auto delay at signalized intersections without degrading transit travel times. However, those improvements would not be sufficient to improve intersection operations to the acceptable levels.

Conclusion: Operations at the intersection of Sunnydale Avenue and Bayshore Boulevard would be reduced to unacceptable levels under all four development scenarios. No feasible mitigation measure exists, and the cumulative impact would be significant and unavoidable.

Overall Conclusion for Impacts at Bayshore Boulevard Intersections

In addition to Mitigation Measures 4.N-3a and 4.N-3b, evaluation was made of the potential for widening Bayshore Boulevard to provide three travel lanes in each direction, turn pockets at each intersection, and sidewalk improvements, along with re-coordinating signal timing settings to provide more green time to the westbound and eastbound split phases and reduce green time for the northbound and southbound approaches to the increase in capacity on Bayshore Boulevard. Currently, the Bayshore Boulevard corridor is approximately 90 feet wide, with two lanes each direction and a median of approximately 20 feet. It would therefore be possible to restripe Bayshore Boulevard as proposed to provide six through lanes, three northbound and three southbound. Reconfiguring Bayshore Boulevard would require major right-of-way acquisition and result in secondary impacts pertaining to transit operations, pedestrian and bicycle circulation, and safety due to longer crossing distances. This secondary impact could be partially mitigated through pedestrian enhancements such as separated sidewalks along the length of Bayshore Boulevard; incorporating design elements that would reduce speeds to less than 30 miles per hour such as narrower travel lanes, landscape features, more frequent signalization; and providing frequent (every 500 to 750 feet) safe crossing treatments for pedestrians. Widening of Bayshore Boulevard would also require major construction costs as well as potential displacement of existing businesses.

While widening of Bayshore Boulevard and modifying signal timing would improve intersection operations to LOS D at the adversely affected intersections at Geneva Avenue & Bayshore Boulevard (#1) and Old County Road & Bayshore Boulevard (#4), restriping Bayshore Boulevard north of Geneva Avenue is infeasible due to right-of-way constraints associated with the T-Third LRT that terminates at the station just south of Sunnydale Avenue. Traffic signals on intersections at Sunnydale Avenue (#15) as well as Tunnel Avenue (#12) are under control of SFMTA and currently timed to give priority to transit movements. SFMTA has indicated that there may be slight adjustments to the traffic signal timing for intersections along the T-Third route that could be implemented to reduce auto delay at signalized intersections without degrading transit travel times. However, those improvements would not be sufficient to improve intersection operations to the acceptable levels.

With inclusion of **Mitigation Measure 4.N-3a** and **Mitigation Measure 4.N-3b**, Project Site development would result in significant impacts on the cumulative traffic conditions along Bayshore Boulevard south of Geneva Avenue (i.e. Geneva Avenue & Bayshore Boulevard and Old County Road & Bayshore Boulevard), but Project Site development impacts would remain significant and unavoidable for Bayshore intersections north of Geneva Avenue (i.e. Tunnel Avenue & Bayshore Boulevard [#12] and Sunnydale Avenue & Bayshore Boulevard [#15]). In addition, significant secondary impacts associated with Mitigation Measures 4.N-3a and 4.N-3b could be mitigated, but to an unspecified degree. Therefore, Project Site development impacts on the cumulative traffic operations at intersections on Bayshore Boulevard in the Project Site vicinity would remain significant and unavoidable.

Impact at Sierra Point Parkway & US 101 Ramps (Intersection 6)

At the intersection of Sierra Point Parkway & US 101 Ramps, Project Site development would contribute to significant cumulative traffic impacts in the AM and PM peak hours (i.e., the

unsignalized intersection would already operate at LOS F and Project site development would contribute more than 5 percent of trips to the worst approach).

Conclusion: Operations at the intersection of Sierra Point Parkway & US 101 Ramps would be reduced to unacceptable levels under all four development scenarios. This would result in a cumulatively considerable impact, and mitigation is required.

Mitigation

Mitigation Measure 4.N-3c: Installation of a traffic signal at the intersection of Sierra Point Parkway and the US 101 freeway ramps shall be required when the peak hour signal warrant is met in the AM or PM peak hour.

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	✓	✓

✓ = measure applies
- = measure does not apply

Conclusion with Mitigation: This mitigation measure would still result in LOS F conditions at the intersection. With implementation of Mitigation Measure 4.N-3c, the cumulative traffic impacts at the intersection of Sierra Point Parkway & US 101 Ramps would remain significant and unavoidable under all four development scenarios.

Impact at Lagoon Way & Tunnel Avenue (Intersection 7)

At the intersection of Lagoon Way & Tunnel Avenue, Project Site development would result in significant traffic impacts under the cumulative scenario (i.e. Project Site development would contribute more than 5 percent of traffic volumes to the worst approach) in each development scenario.

Conclusion: Operations at the intersection of Lagoon Way & Tunnel Avenue would be reduced to unacceptable levels under all four development scenarios. This would result in a cumulatively considerable impact, and mitigation is required.

Mitigation

Mitigation Measure 4.N-3d: A traffic signal shall be installed when the peak hour signal warrant is met in either the AM or PM peak period. In addition, widening and restriping of the intersection approaches to provide one through lane and one left-turn lane in the southbound direction, one through lane and one right-turn lane in the northbound direction, and one shared left/through and one right-turn lane in the westbound direction shall be provided.

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	✓	✓

✓ = measure applies
- = measure does not apply

Conclusion with Mitigation: This mitigation measure would improve operating conditions at Lagoon Way & Tunnel Avenue to an acceptable LOS D in the AM peak hour for the DSP scenario and LOS C for the DSP-V, CPP and CPP-V scenarios. LOS in the PM peak hour would be improved, but it would remain at LOS F under all development scenarios. Therefore, the

cumulative traffic impacts at the intersection would be significant and unavoidable. Because Project Site development would contribute more than 5 percent of the traffic to the worst approach, its contribution would be cumulatively considerable.

Impact at Lagoon Way & Sierra Point Parkway (Intersection 8)

At the intersection of Lagoon Way & Sierra Point Parkway, Project Site development would result in significant traffic impacts under the cumulative scenario (i.e. Project Site development-related traffic would contribute more than 5 percent of traffic volumes to the worst approach) for each development scenario.

Conclusion: Operations at the intersection of Lagoon Way & Sierra Point Parkway would be reduced to unacceptable levels under all four development scenarios. This would result in a cumulatively considerable impact, and mitigation is required.

Mitigation

Mitigation Measure 4.N-3e: A traffic signal shall be installed when the peak hour signal warrant is met in either the AM or PM peak period. In addition, the Lagoon Way/Sierra Point Parkway intersection shall be widened and intersection approaches shall be restriped to provide two through lanes and one right-turn lane in the southbound direction, one through lane and two left-turn lanes in the northbound direction, and two left-turn lanes and one right-turn lane in the eastbound direction. Additional road widening on Lagoon Road & Sierra Point Parkway would also be required.

Mitigation Measure Applicability by Scenario

DSP	DSP-V	CPP	CPP-V
✓	✓	✓	✓

✓ = measure applies
- = measure does not apply

Conclusion with Mitigation: This mitigation measure would improve operating conditions at Lagoon Way & Sierra Point Parkway to an acceptable LOS C in the AM peak hour. LOS would be improved, but it would remain unacceptable at LOS F under the DSP scenario and LOS E under the DSP-V, CPP, and CPP-V scenarios in the PM peak hour. Even with the implementation of Mitigation Measure 4.N-3e, the cumulative traffic impacts at the intersection would be significant and unavoidable. Because Project Site development-related traffic would contribute more than 5 percent of traffic volumes to the worst approach, its contribution to the significant unavoidable impact is considered to be cumulatively considerable.

Impact at Geneva Avenue/US 101 SB Ramps (Intersection 9)

At the intersection of Geneva Avenue and the US 101 SB Ramps, development of the Project site would result in significant traffic impacts under the cumulative scenario (i.e. Project Site development would contribute more than 5 percent of traffic volumes to the eastbound critical movement) under each development scenario.

Conclusion: Operations at the intersection of Geneva Avenue & US 101 SB Ramps would be reduced to unacceptable levels under all four development scenarios. This would result in a cumulatively considerable impact, and mitigation is required.

Mitigation

Mitigation Measure 4.N-3f: The City of Brisbane shall work with the San Francisco County Transportation Authority (SFCTA), San Francisco Municipal Transportation Authority (SFMTA), and Caltrans to ensure that projected traffic volumes are accounted for in the design of the Geneva Avenue & US 101 SB Ramps intersection as part of the Geneva Avenue extension project.

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	✓	✓
✓ = measure applies - = measure does not apply			

Mitigations and associated fair-share funding measures for cumulative regional roadway system impacts will be formulated through the current inter-jurisdictional Bi-County Transportation Study effort being led by the SFCTA. Development within the Project Site shall contribute its fair share to the Geneva Avenue & US 101 SB Ramps intersection and improvements.

Conclusion with Mitigation: Implementation of Mitigation Measure 4.N-3f is uncertain and outside of Brisbane's jurisdiction because (1) environmental review of the interchange project is not yet complete, (2) the final Project Study Report has yet to be approved for the interchange, (3) the mitigation measure requires coordination with and action by the SFCTA, and (4) the interchange requires approval by Caltrans and is currently unfunded. While the proposed mitigation measure would improve operating conditions at the intersection to an acceptable LOS C in the AM peak hour and LOS D in the PM peak hour, Project Site development's contributions to significant cumulative traffic impacts would remain significant and unavoidable.

Impact at Jamestown Avenue & Third Street (Intersection 11)

At the intersection of Jamestown Avenue & Third Street, development of the Project Site would result in significant traffic impacts under the cumulative scenario (i.e. Project Site development would cause the intersection to deteriorate from LOS D to LOS E in the AM peak hour and contribute more than 5 percent of traffic volumes to the southbound critical movement) under each development scenario.

Conclusion: Due to right-of-way constraints, no feasible mitigation measures were identified to reduce the impact to a less-than-significant level. The cumulatively considerable traffic impacts at the intersection of Jamestown Avenue & Third Street would therefore remain significant and unavoidable.

Impact at Carter Street & Geneva Avenue (Intersection 16)

At the signalized intersection of Carter Street & Geneva Avenue, Project Site development was determined to contribute significant impacts (i.e. Project Site development would contribute more than 5 percent of traffic volumes to the eastbound critical movement) to the intersection under each development scenario.

Regardless of the traffic contributions from Project Site development, operating conditions at this intersection would be poor due to the traffic volume increases associated with other developments in the Project Site vicinity as well as trips that would be diverted onto the extended Geneva

Avenue for access to US 101, and for Project Site development-generated trips to and from the Daly City and Colma areas.

Conclusion: At the signalized intersection of Carter Street & Geneva Avenue, Project Site development would contribute to cumulatively considerable impacts under all development scenarios. Implementation of **Mitigation Measure 4.N-3g** below is therefore recommended.

Mitigation

Mitigation Measure 4.N-3g: Prior to the issuance of the first building occupancy permit for new development other than relocation or improvement of an existing use within the Project Site, signal timing settings at the Carter Street/Geneva Avenue intersection shall be modified by the City and County of San Francisco to provide longer green time on eastbound/westbound permitted movements and longer cycle length.

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	✓	✓

✓ = measure applies
- = measure does not apply

Conclusion with Mitigation: Implementation of this mitigation measure would improve delay conditions at the critical movements of eastbound through and northbound left movements, but it not enough to allow the intersection to operate at acceptable levels. In addition, implementation would require action by San Francisco that is not within Brisbane's power to impose. Thus, although this mitigation measure is physically feasible, it is legally infeasible. As a result, impacts at the intersection of Carter Street/Geneva Avenue would remain significant and unavoidable under all Project Site development scenarios.

Impact at Geneva Avenue & Mission Street (Intersection 17)

At the intersection of Geneva Avenue & Mission Street, development of the Project Site would result in significant traffic impacts under the cumulative scenario (i.e. Project site development would more than 5 percent of traffic volumes to the eastbound critical movement) under each development scenario.

Conclusion: Due to right-of-way constraints, no feasible mitigation measures were identified to reduce the impact to a less-than-significant level. The cumulative traffic impact at the intersection of Geneva Avenue & Mission Street would therefore remain significant and unavoidable.

Impact at E. Market Street & Orange Street (Intersection 18)

At the unsignalized intersection of E. Market Street & Orange Street, development of the Project Site would contribute to significant cumulative traffic impacts in the AM peak hour with LOS F for any Project site development. Furthermore, the intersection would meet the criteria for the Caltrans peak hour signal warrant under all Project site development. Therefore, the impact on the intersection of E. Market Street & Orange Street is significant.

Conclusion: At the unsignalized intersection of E. Market Street & Orange Street, Project Site development would contribute to cumulatively considerable impacts under all development

scenarios in the AM peak hour. Implementation of **Mitigation Measure 4.N-3h** below is recommended.

Mitigation

Mitigation Measure 4.N-3h: A traffic signal shall be installed if determined to be safe when the hour signal warrant for the E. Market Street/Orange Street intersection is met in the PM peak hour.

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	✓	✓
✓ = measure applies - = measure does not apply			

Conclusion with Mitigation: Implementation of this mitigation measure would improve operating conditions at the intersection to an acceptable LOS A in the AM peak hour and reduce cumulative traffic impacts at the intersection of E. Market Street & Orange Street to below a less-than-significant level. However, prior to installation of a traffic signal, the full set of warrants should be investigated based on field-measured, rather than forecast, traffic data. Because the installation of signals can lead to certain types of collisions, regular monitoring of actual traffic conditions and accident data should be undertaken, along with timely reevaluation of the full set of warrants, prior to actual signalization of the intersection. Due to these considerations, it is uncertain that actual signalization of the intersection would occur, and mitigation of impacts at this intersection cannot therefore be guaranteed.

In addition, (1) this intersection is outside of Brisbane's jurisdiction, within Daly City; and (2) there is currently no funding in place or any procedure that would guarantee the implementation of this suggested mitigation measure.

For these reasons, the cumulatively considerable impact at the intersection of E. Market Street & Orange Street would remain significant and unavoidable under all Project Site development scenarios.

Intersection Spacing along the Geneva Avenue Extension

As discussed under Impact 4.N-1, the Specific Plan prepared for the DSP and DSP-V scenarios proposes three intersections with full turning movements along the Geneva Avenue extension, including the roadway links between:

- Bayshore Boulevard and "2nd Street" (approximately 600 feet between roadway centerlines):
- "5th Street" and Tunnel Avenue, along either side of the Caltrain overpass (approximately 400 feet between roadway centerlines); and
- "7th Street" and 8th Street west of US 101 (approximately 400 feet between roadway centerlines).

The close spacing of these intersections could cause traffic queuing up at one intersection along Geneva Avenue to back up into another intersection, even if each intersection met applicable LOS standards on its own. Such an interaction between two intersections would constitute a significant impact.

Conclusion: Because of the close spacing of certain intersections along the Geneva Avenue extension, traffic queuing up at one intersection along Geneva Avenue would back up into another intersection, creating congestion under the DSP and DSP-V development scenarios. **Mitigation Measure 4.N-1g** above was therefore recommended, and would ensure that significant impacts related to interactions between intersection operations do not occur under either Existing plus Project or Cumulative With Project conditions.

Traffic Impact: Freeways

Impact 4.N-4: Would the Project's contribution to future cumulative traffic impacts at freeway mainline segments be significant?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
SU	SU	SU	SU

SU = Significant Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = no impact

Freeway mainline level of service analysis was conducted for four locations on US 101 and freeway ramp analysis was prepared for six locations on US 101 under Cumulative Without Project conditions. For freeway mainline and ramp analyses, locations where Project Site development would result in a change from LOS D or better under Cumulative Without Project conditions to LOS E or LOS F, or a change from LOS E to LOS F, are identified as Project Site development impacts. At locations that would operate at LOS E or LOS F under Cumulative Without Project conditions and would continue to operate at LOS E or LOS F under Cumulative With Project conditions, trips associated with each of the proposed development scenarios, as a percentage of total traffic volumes on the facility, were reviewed to determine whether the increase would contribute considerably to total volumes on the facility.

Table 4.N-33 presents the results of the freeway mainline section analysis for Cumulative Without Project and Cumulative With Project conditions. None of the development scenarios would cause any freeway mainline segment to deteriorate from acceptable LOS D or better to LOS E or LOS F conditions.

Project Site development would also contribute cumulatively considerable amounts of traffic to three freeway mainline segments expected to operate at LOS E or LOS F under both Cumulative Without Project and Cumulative With Project conditions:

Weekday AM peak hour:

- US 101 northbound mainline from Sierra Point Parkway to Harney Way/Geneva Avenue (LOS E to LOS E; DSP, DSP-V, CPP, and CPP-V scenarios)
- US 101 northbound mainline from Harney Way/Geneva Avenue to Third Street/Bayshore Boulevard (LOS F to LOS F; all Project scenarios)
- US 101 southbound from Harney Way/Geneva Avenue to Sierra Point Parkway (LOS F to LOS F; all Project scenarios)

TABLE 4.N-33
MAINLINE SEGMENT LEVEL OF SERVICE –
CUMULATIVE WITHOUT PROJECT AND CUMULATIVE WITH PROJECT CONDITIONS

	Cumulative Without Project		Cumulative With DSP		Cumulative With DSP-V		Cumulative With CPP		Cumulative With CPP-V	
Mainline Segment	**LOS**	**V/C[a]**	**LOS**	**V/C**	**LOS**	**V/C**	**LOS**	**V/C**	**LOS**	**V/C**
Weekday AM Peak Hour										
US 101										
NB—Harney Way to Third/Bayshore	**F**	**1.01**	**F**	**1.05**	**F**	**1.04**	**F**	**1.06**	**F**	**1.06**
NB—Sierra Point to Harney Way	E	0.88	E	0.91	E	0.91	E	0.92	E	0.92
SB—Third/Bayshore to Harney Way	F	1.19	F	1.31	F	1.30	F	1.30	F	1.30
SB—Harney/Geneva to Sierra Point	F	1.14	F	1.16	F	1.16	F	1.16	F	1.16
Weekday PM Peak Hour										
US 101										
NB—Harney Way to Third/Bayshore	**F**	**1.12**	**F**	**1.23**	**F**	**1.22**	**F**	**1.24**	**F**	**1.24**
NB—Sierra Point to Harney Way	**F**	**1.03**	**F**	**1.05**	**F**	**1.05**	**F**	**1.09**	**F**	**1.08**
SB—Third/Bayshore to Harney Way	**F**	**1.12**	**F**	**1.15**	**F**	**1.16**	**F**	**1.20**	**F**	**1.20**
SB—Harney/Geneva to Sierra Point	**F**	**0.93**	**F**	**0.97**	**F**	**0.97**	**F**	**0.99**	**F**	**0.99**

Segments operating at Level of Service (LOS) F conditions highlighted in bold
LOS determinations for freeway mainline segments were based on HCM 2000 LOS V/C Methodology per C/CAG guidelines.

SOURCE: Fehr and Peers, 2012

Weekday PM peak hour:

- US 101 northbound mainline from Sierra Point Parkway to Harney Way/Geneva Avenue (LOS F to LOS F; all Project scenarios)
- US 101 northbound mainline from Harney Way/Geneva Avenue to Third Street/Bayshore Boulevard (LOS F to LOS F; all Project scenarios)
- US 101 southbound from Harney Way/Geneva Avenue to Sierra Point Parkway (LOS F to LOS F; all Project scenarios)

Conclusion: The cumulative contributions of Project Site development to LOS E or LOS F conditions at the three freeway mainline segments would be significant.

To minimize the potential for an increase in Project Site development-generated vehicles and Project Site development's contribution to freeway mainline impacts, implementation of a TDM program (**Mitigation Measure 4.N-13**) would be required. With implementation of this mitigation measure, alternative modes would be encouraged, the use of single-occupant vehicles would be discouraged, and the impact of additional vehicles generated by development of the Project Site would be lessened. However, the impacts of Project Site development on freeway mainline operations would still remain significant. Implementation of **Mitigation Measure 4.N-4** below is recommended.

Mitigation

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	✓	✓
✓ = measure applies - = measure does not apply			

Mitigation Measure 4.N-4: The City of Brisbane, as part of the Geneva Avenue extension project, shall account for existing traffic, background traffic growth, and the most recent forecasts of traffic expected to be associated with each of several adjacent development projects, including development of the Project Site. Brisbane shall work with the San Francisco County Transportation Authority (SFCTA) and San Francisco Municipal Transportation Agency (SFMTA) to ensure projected traffic volumes are accounted for in the design of the Geneva Avenue Extension.

Mitigation measures and associated fair-share funding measures for cumulative regional roadway system impacts, including freeway segment impacts, will be formulated through the current inter-jurisdictional Bi-County Transportation Study update effort being led by the SFCTA. Development within the Project Site shall contribute its fair share to the Geneva Avenue extension project, based upon the SF-CHAMP model or such other model used by the SFCTA in the Bi-County Study. If the Bi-County Study is terminated prior to identification of required mitigations and adoption of fair share funding obligations, the City and County of San Francisco, the SFCTA, and the City of Brisbane shall meet and confer to establish an alternative method for determination of the respective fair shares of project costs, including amounts to be contributed by Project Site development, using the SF-CHAMP model or such other model agreed upon by the agencies.

Conclusion with Mitigation: While implementation of **Mitigation Measures 4.N-13 and 4.N-4** would reduce this impact, Mitigation Measure 4.N-4 requires participation or and decisions by agencies over which Brisbane has no authority, and it is not within the City's power to impose such mitigation. Thus, although Mitigation Measure 4.N-4 is physically feasible, it is legally infeasible. As a result, implementation of Mitigation Measure 4.N-4 cannot be guaranteed, and there can be no assurance that impacts would be reduced to a less-than-significant level. The impact would therefore remain significant and unavoidable under all four proposed development scenarios.

Traffic Impact: DSP-V (Sold-Out Arena Event)

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
-	SU	-	-
SU = Significant Unavoidable SM = Significant but Mitigable LTS = Less than Significant - = no impact			

Impact 4.N-5: Would the Project (DSP-V scenario) result in a substantial increase in PM peak hour traffic at study intersections and freeway mainline segments that would operate unacceptably due to weekday evening events at the arena?

The impact analysis of arena events under Cumulative (2030) conditions with the DSP-V scenario assumed a weekday evening sold-out event at the approximately 17,000-seat arena.[22] Although no specific program has been developed for events

[22] Existing plus project arena impacts are evaluated as part of Impact 4.N-1. Mitigation for existing plus project arena traffic is provided in Mitigation Measure 4.N-1f.

at the arena, sold-out events with 17,000 attendees occurring during weekday evenings would likely be infrequent. Smaller-sized events during weekday evenings and events occurring during the day and on weekends would have fewer impacts due to the lower traffic volumes demands on the study area roadways.

Access to the arena would be via US 101, Bayshore Boulevard, Tunnel Avenue, and the improved roadway network at Geneva Avenue. The number of vehicles would vary by route and the size of the event.

During a weekday evening event, it is projected that approximately one half of vehicle trips generated by a sold-out arena event, or 2,267 vehicles, would arrive approximately 1 hour prior to an event beginning, likely between 5:00 and 6:00 PM, and therefore would coincide with the weekday PM peak hour. Project vehicle trips would be added to the following freeway facilities that would operate at LOS F during the weekday PM peak hour for the DSP-V scenario:

- US 101 northbound from Sierra Point to Harney Way
- US 101 northbound off-ramp to Harney Way
- US 101 southbound from Bayshore/Third Street to Harney Way
- US 101 southbound off-ramp to Harney Way

Table 4.N-34 presents a comparison of intersection LOS operating conditions for developed Project site weekday PM peak hour conditions without a sold-out event to conditions with a sold-out event at the arena.

Traffic associated with a sold-out arena event would exacerbate traffic operations at 13 intersections that would operate at LOS E or LOS F conditions under the DSP-V scenario without an event:

- Geneva Avenue & Bayshore Boulevard
- Old County Road & Bayshore Boulevard
- San Bruno Avenue & Bayshore Boulevard
- Sierra Point Parkway & US 101 Northbound Ramps
- Lagoon Way & Tunnel Avenue
- Lagoon Way & Sierra Point Parkway
- Geneva Avenue & US 101 Southbound Ramps
- Jamestown Avenue & Third Street
- Tunnel Avenue & Bayshore Boulevard
- Sunnydale Avenue & Bayshore Boulevard
- Geneva Avenue & Carter Street
- Geneva Avenue & Mission Street

At the intersection of Blanken Avenue and Bayshore Boulevard, a sold out even would increase weekday PM peak hour traffic from LOS D to LOS E.

Conclusion: Overall, because local streets and freeway facilities would experience increased congestion prior to an arena event, traffic impacts associated with the new arena under the DSP-V would be significant. **Mitigation Measure 4.N-5** below is recommended.

TABLE 4.N-34
INTERSECTION LEVEL OF SERVICE – PROJECT NO EVENT AND SOLD-OUT ARENA EVENT – WEEKDAY PM PEAK HOUR – CUMULATIVE WITH DSP-V SCENARIO

Intersection		Cumulative With DSP-V No Event		Cumulative With DSP-V Sold-Out Event	
		Delay[a]	LOS[b]	Delay	LOS
1	Geneva Avenue/Bayshore Boulevard	**> 80**	**F**	**>80**	**F**
2	Guadalupe Canyon Parkway/Bayshore Boulevard	47	D	46	D
3	Valley Drive/Bayshore Boulevard	45	D	53	D
4	Old County Road/Bayshore Boulevard	**> 80**	**F**	**> 80**	**F**
5	San Bruno Avenue/Bayshore Boulevard	**> 50**	**$F_{(EB)}$**	**> 50**	**$F_{(EB)}$**
6	Sierra Point Parkway/US 101 NB Ramps	**> 50**	**$F_{(WB)}$**	**> 50**	**$F_{(WB)}$**
7	Lagoon Way/Tunnel Avenue	**> 50**	**$F_{(SB)}$**	**> 50**	**$F_{(SB)}$**
8	Lagoon Way/Sierra Point Parkway	**> 50**	**$F_{(EB)}$**	**> 50**	**$F_{(EB)}$**
9	Geneva Avenue/US 101 SB Ramps[c]	**> 80**	**F**	**> 80**	**F**
10	Harney Way/Thomas Mellon Drive[d]	27	C	27	C
11	Jamestown Avenue/Third Street	**> 80**	**F**	**> 80**	**F**
12	Tunnel Avenue/Bayshore Boulevard	**> 80**	**F**	**> 80**	**F**
13	Blanken Avenue/Tunnel Avenue[e]	25	C	26	C
14	Blanken Avenue/Bayshore Boulevard	**53**	**D**	**58**	**E**
15	Sunnydale Avenue/Bayshore Boulevard	**> 80**	**F**	**> 80**	**F**
16	Geneva Avenue/Carter Street	**> 80**	**F**	**> 80**	**F**
17	Geneva Avenue/Mission Street	**> 80**	**F**	**> 80**	**F**
18	E. Market Street/Orange Street	22	$C_{(WB)}$	25	$C_{(WB)}$

[a] Delay in seconds per vehicle.
[b] Intersections operating at unacceptable level of service (LOS) conditions highlighted in **bold**.
[c] Year 2030 analysis includes signalization at Geneva Avenue & US 101 Southbound Ramps as part of the Geneva Avenue extension project.
[d] Year 2030 analysis includes signalization at Harney Way & US 101 Northbound Ramps as part of the Harney Way widening project.
[e] Year 2030 analysis includes signalization at Blanken Avenue & Tunnel Avenue.

SOURCE: Fehr & Peers, 2012

Mitigation

Mitigation Measure 4.N-5: Prior to issuance of building occupancy permits for the arena, the operator shall develop and submit to the City a Transportation Management Plan for deploying traffic control officers in the Project Site vicinity to increase efficiency of pre- and post-event traffic, and for developing incentives to increase transit ridership to the arena, such as parking pricing policies, customer information strategies, and/or ticket/other related discounts with proof of payment for transit. Implementation of this plan shall be designed to speed vehicle entrance to and exit from the arena site, as well as maintain

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
-	✓	-	-

✓ = measure applies
- = measure does not apply

orderly traffic operations and prevent turning movements that would intrude onto minor routes to and from the arena. Traffic control officers shall be provided on event dates to, at a minimum, facilitate traffic flow at the intersection of Valley Drive & Bayshore Boulevard, which would otherwise operate at LOS E conditions without manual traffic control by officers at the intersection with a sold-out arena event. Preparation and implementation of the plan shall be fully funded by the arena operator and shall be completed to the satisfaction of the City prior to opening day of the arena.

Conclusion with Mitigation: Implementing this mitigation measure would likely reduce automobile traffic to the arena and encourage transit usage. However, significant traffic delays would still likely occur at some of the adversely affected intersections. Therefore, even with the inclusion of **Mitigation Measure 4.N-5**, impacts on the study roadway network during a sold-out event at the arena would be significant and unavoidable under the DSP-V scenario.

Conflict with Adopted Policies, Plans, or Programs Regarding Public Transit, Bikeways, or Pedestrian Facilities

Transit Conditions (Existing plus Project and Cumulative With Project)

Transit Impact: BART/Caltrain

Impact 4.N-6: Would the Project cause an increase in transit demand that could not be accommodated by train transit capacity (BART and Caltrain), or would require changes to Caltrain operations at the Bayshore Station and on the Bayshore/Brisbane four-track rail segment, resulting in unacceptable levels of transit service?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
LTS	LTS	LTS	LTS

SU = Significant Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = no impact

Regional Transit Screenlines

Existing and Cumulative Without Project regional transit screenlines are presented in **Table 4.N-35**. The contribution of Project Site development to existing and cumulative transit volumes at regional screenline locations is shown below for each Project Site development scenario. The regional screenline analysis was conducted for the following three screenline locations (see **Table 4.N-36** [DSP], **Table 4.N-37** [DSP-V], **Table 4.N-38** [CPP], and **Table 4.N-39** [CPP-V] for Project Site development screenline analysis):

- ***BART East Bay (Transbay Tube)*:** Project Site development's contribution to the BART East Bay screenline (based on Transbay Tube transit ridership and capacity) reflects the forecasted volume of Project Site development-generated transit trips to and from the East Bay (approximately 10 to 11 percent of generated trips). The Existing and Cumulative Without Project transit volumes and capacity assumptions are derived from the CPHPS EIR.

- ***BART South Bay (Daly City/Colma/South San Francisco)*:** Project Site development's contribution to the BART South Bay screenline is based on transit ridership and capacity on the BART line at the peak load point south of the Daly City Station (based on the Cumulative

TABLE 4.N-35
EXISTING AND CUMULATIVE WITHOUT PROJECT REGIONAL TRAIN TRANSIT SCREENLINES

Existing – AM Peak Hour				Cumulative Without Project – AM Peak Hour			
	Ridership	**Capacity**	**Utilization**		**Ridership**	**Capacity**	**Utilization**
BART East Bay	18,064	14,686	**123%**	BART East Bay	36,202	19,569	**185%**
BART South Bay	11,185	10,652	**105%**	BART South Bay	12,416	13,951	89%
Caltrain South Bay	3,155	6,500	49%	Caltrain South Bay	5,478	6,500	84%

Existing – PM Peak Hour				Cumulative Without Project – PM Peak Hour			
	Ridership	**Capacity**	**Utilization**		**Ridership**	**Capacity**	**Utilization**
BART East Bay	16,985	14,154	**120%**	BART East Bay	30,268	19,655	**154%**
BART South Bay	9,545	10,375	92%	BART South Bay	10,707	14,088	76%
Caltrain South Bay	3,420	6,500	53%	Caltrain South Bay	5,442	6,500	84%

SOURCE: Fehr & Peers, 2012

TABLE 4.N-36
DSP CONTRIBUTION TO REGIONAL TRAIN TRANSIT SCREENLINES

	Existing plus DSP – AM Peak Hour			Increase Due to Project	Cumulative With DSP – AM Peak Hour			Project Share of Cumulative Growth
	Ridership	**Capacity**	**Utilization**		**Ridership**	**Capacity**	**Utilization**	
BART East Bay	18,220	14,486	**126%**	**0.9%**	36,358	19,569	**186%**	**0.9%**
BART South Bay	11,327	10,652	**106%**	**1.3%**	12,558	13,951	90%	10%
Caltrain South Bay	3,510	6,500	54%	11%	5,819	6,500	90%	14%

	Existing plus DSP – PM Peak			Increase Due to Project	Cumulative With DSP – PM Peak			Project Share of Cumulative Growth
	Ridership	**Capacity**	**Utilization**		**Ridership**	**Capacity**	**Utilization**	
BART East Bay	17,140	14,154	**121%**	**0.9%**	30,423	19,655	**155%**	**1.2%**
BART South Bay	9,686	10,652	91%	1%	10,848	13,951	78%	11%
Caltrain South Bay	3,759	6,500	58%	10%	5,781	6,500	89%	14%

SOURCE: Fehr & Peers, 2012

TABLE 4.N-37
DSP-V CONTRIBUTION TO REGIONAL TRAIN TRANSIT SCREENLINES

	Existing plus DSP-V – AM Peak			Increase Due to Project	Cumulative With DSP-V – AM Peak			Project Share of Cumulative Growth
	Ridership	Capacity	Utilization		Ridership	Capacity	Utilization	
BART East Bay	18,194	14,486	**126%**	**0.7%**	36,332	19,569	**186%**	**0.7%**
BART South Bay	11,315	10,652	**106%**	**1.2%**	12,546	13,951	90%	10%
Caltrain South Bay	3,467	6,500	53%	10%	5,790	6,500	89%	13%

	Existing plus DSP-V – PM Peak			Increase Due to Project	Cumulative With DSP-V – PM Peak			Project Share of Cumulative Growth
	Ridership	Capacity	Utilization		Ridership	Capacity	Utilization	
BART East Bay	17,116	14,154	**121%**	**0.8%**	30,399	19,655	**155%**	**1.0%**
BART South Bay	9,676	10,652	91%	1.4%	10,838	13,951	78%	10%
Caltrain South Bay	3,735	6,500	57%	9%	5,757	6,500	89%	13%

SOURCE: Fehr & Peers, 2012

TABLE 4.N-38
CPP CONTRIBUTION TO REGIONAL TRAIN TRANSIT SCREENLINES

	Existing plus CPP – AM Peak			Increase Due to Project	Cumulative With CPP – AM Peak			Project Share of Cumulative Growth
	Ridership	Capacity	Utilization		Ridership	Capacity	Utilization	
BART East Bay	18,239	14,486	**126%**	**1.0%**	36,377	19,569	**186%**	**1.0%**
BART South Bay	11,344	10,652	**106%**	**1.4%**	12,543	13,951	90%	9%
Caltrain	3,601	6,500	55%	14%	5,860	6,500	90%	15%

	Existing plus CPP – PM Peak			Increase Due to Project	Cumulative With CPP – PM Peak			Project Share of Cumulative Growth
	Ridership	Capacity	Utilization		Ridership	Capacity	Utilization	
BART East Bay	17,182	14,154	**121%**	**1.2%**	30,465	19,655	**155%**	**1.5%**
BART South Bay	9,724	10,652	91%	2%	10,886	13,951	78%	13%
Caltrain South Bay	3,922	6,500	60%	15%	5,872	6,500	90%	18%

SOURCE: Fehr & Peers, 2012

TABLE 4.N-39
CPP-V CONTRIBUTION TO REGIONAL TRANSIT SCREENLINES

	Existing plus CPP-V – AM Peak			Increase Due to Project	Cumulative With CPP-V – AM Peak			Project Share of Cumulative Growth
	Ridership	Capacity	Utilization		Ridership	Capacity	Utilization	
BART East Bay	18,228	14,486	**126%**	**0.9%**	36,366	19,569	**186%**	**0.9%**
BART South Bay	11,334	10,652	**106%**	**1.3%**	12,535	13,951	90%	9%
Caltrain	3,573	6,500	55%	13%	5,836	6,500	90%	15%

	Existing plus CPP-V – PM Peak			Increase Due to Project	Cumulative With CPP-V – PM Peak			Project Share of Cumulative Growth
	Ridership	Capacity	Utilization		Ridership	Capacity	Utilization	
BART East Bay	17,172	14,154	**121%**	**1.1%**	30,455	19,655	**155%**	**1.4%**
BART South Bay	9,715	10,652	91%	2%	10,877	13,951	78%	13%
Caltrain South Bay	3,897	6,500	60%	14%	5,851	6,500	90%	17%

SOURCE: Fehr & Peers, 2012

Without Project volumes and capacity as described in the CPHPS EIR) to account for Project Site transit trips to/from Daly City, Colma, and adjacent locations in the northern San Mateo County area. Based on the travel demand forecast, 20 percent of Project Site development-related trips would be to and from northern San Mateo County destinations. Based on that forecast, up to 10 percent of Project Site development -related transit trips would be made via BART (via a connection to the Project Site from the Balboa Park BART Station). Given the many transit services available at the Daly City BART Station, a significant portion of riders would enter and exit the BART system at that station and thus would not affect ridership volumes at the screenline to the south (where BART capacity is reduced because a portion of BART service terminates at the Daly City BART Station).

- ***Caltrain:*** Project Site development's contribution to the Caltrain South Bay screenline is based on transit ridership and capacity on the Caltrain line at the peak load point south of San Francisco. The increase in ridership under Cumulative Without Project conditions is based on the net increase in ridership described in the CPHPS EIR (including trips generated by the approved CPHPS development). Because the Project Site is located roughly at the peak load point, Project Site development-related trips would be dispersed, such that northbound and southbound Project Site development-related trips would not affect the peak load volume (i.e., passengers traveling to and from the south would occupy different trains from passengers traveling to and from the north). Given this dispersal, the maximum contribution of Project Site development to Caltrain peak-load volume would be about 600 PM peak hour riders (to and from the south) under the CPP scenario. The maximum Project contribution to the Caltrain peak load volume under the DPP scenario would be about 384 PM Peak Hour riders.

Impact on BART Capacity

The additional of transit ridership resulting from proposed Project Site development scenarios would contribute to regional train transit volumes that exceed capacity on the BART East Bay

line (under Existing and Cumulative Without Project conditions) and on the BART South Bay line (under Cumulative Without Project conditions). However, the contribution of Project Site development would represent less than 2 percent of the forecasted *increase* in transit demand. The increase in Project Site development -related ridership demand would cause neither an unacceptable level of transit service nor an increase to transit demand greater than 2 percent.[23] Therefore, Project site development's contribution to the cumulative impact is less than significant. Impacts resulting from increased BART ridership demand on Muni service in the Geneva Avenue corridor, to/from the Balboa Park BART Station, are described separately in **Impact 4.N-7**.

Impact on Caltrain Capacity

Ridership volume with or without Project Site development is not forecasted to exceed capacity on the Caltrain line, based on the peak hour service levels operated by Caltrain as of April 2012 (five trains in each direction during the AM and PM peak hours),[24] including those trains that currently pass the screenline without stopping at the Bayshore Station. This finding does not require an increase in the total number of trains operated by Caltrain.

Impact on Caltrain Operations at Bayshore Station and on Bayshore/Brisbane Four-Track Rail Segment

Under Existing conditions, Baby Bullet and Limited trains do not stop at the Bayshore Station, in part due to low ridership demand compared to other stations, as current ridership demand is less than 300 transit trips per day via Caltrain (inbound and outbound), and also due to the station location on one of the few four-track segments on the Caltrain line.

During most hours of operation, two trains per hour operate in both directions, with one Local train making all stops including the Bayshore Station and one Limited train that does not stop at the Bayshore Station. During peak commute periods, additional Baby Bullet trains provide two to three additional trains per hour in both directions, for a total of four to five trains per hour in the peak commute directions. Following electrification, which is scheduled for completion in 2019, Caltrain would operate six trains per peak hour per direction. Service at the Bayshore Station

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23 As discussed in Section 4.N.4 in relation to transit use, project site development would have a significant effect on the environment if it would:

- Cause an increase in transit demand that:
  - could not be accommodated by adjacent transit capacity (i.e., would exceed 100-percent capacity), or
  - would necessitate changes to Caltrain operations at the Bayshore Station and on the Bayshore/Brisbane four-track rail segment, resulting in unacceptable levels of transit service; or
- cause an increase of more than 2 percent in transit demand on transit lines where transit demand exceeds 100-percent capacity under Existing or Cumulative Without Project conditions; or
- cause a substantial increase in delays or operating costs such that significant adverse impacts in transit service levels could result (e.g., require additional buses or trains due to project transit trips); or
- cause an onsite transit demand that would not be adequately served by adjacent transit service (i.e., project-generated demand for transit service would be located more than one-third mile from transit service at the Caltrain stations).

24 The number of trains serving the Bayshore Station has remained at one per hour per direction since issuance of the NOP (December 2010). Thus, current schedules provide an appropriate baseline condition.

without Project Site development is expected to remain the same as today, although no schedules have been finalized.

The provision of Baby Bullet service was made possible following the construction of several four-track segments on the Caltrain line, allowing Baby Bullet trains to pass Local trains at key points on the line. Under Existing conditions, four-track operation is limited to just three segments on the 75-mile Caltrain line, including the four-track Bayshore Station / Brisbane segment (approximately 2 miles in length, extending from the Tunnel portal just north of the Bayshore Station to the northern half of Brisbane Lagoon, within the Project Site).

Project Site development would generate a substantial increase in Caltrain ridership, ranging from about 6,000 daily riders under the DSP and DSP-V scenarios to over 10,000 daily riders under the CPP and CPP-V scenarios.[25] This level of ridership exceeds that of most stations on the Caltrain line today. In addition, additional ridership demand via the Bayshore Station would be generated by the planned CPHPS project, while improved connectivity between Bayshore Boulevard and the Bayshore Station would allow for increased use of the Bayshore Station to accommodate transfers from the Muni T-line and San Bruno Avenue bus lines.

Given the increased ridership demand, changes to Caltrain operations would be required. For example, based on the level of service provided to other, high-ridership Caltrain stations, it is likely that all, or at least most, trains (including Baby Bullet trains) would stop at the Bayshore Station, and Caltrain would not continue its current use of the Bayshore Station's four-track segment as a strategic "passing zone" for Baby Bullet service. This, however, would be part of a natural adjustment process of operational changes that Caltrain and other transit providers make in response to changes to ridership levels and would not represent an adverse effect on level of transit service.

In addition, the added Caltrain ridership would generate a substantial increase in "farebox" revenue for Caltrain (a beneficial impact). Based on the CPP and CPP-V scenario ridership forecasts, approximately three million annual trips would be made via Caltrain to/from the Bayshore Station, potentially generating over $10 million in annual revenue (while the DPP and DPP-V scenarios could generate over $6 million in annual revenue).

Conclusion: None of the proposed development scenarios would cause an increase in transit demand that could not be accommodated by train transit capacity (BART and Caltrain), nor would any of the proposed scenarios require changes to Caltrain operations at the Bayshore Station or on the Bayshore/Brisbane four-track rail segment. The baseline and cumulative impacts would be less than significant under all four development scenarios, and no mitigation is required.

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[25] The increased transit ridership in the CPP and CPP-V scenarios would occur even though vehicle trips in those scenarios are greater than for the DSP and DSP-V scenarios due to the greater capture of onsite home-work trips in the DSP and DSP-V scenarios.

Transit Impact: San Francisco Muni/SamTrans Demand

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
SU	SU	SU	SU

SU = Significant Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = no impact

Impact 4.N-7: Would the Project cause an increase in transit demand that could not be accommodated by San Francisco Muni or SamTrans transit capacity?

San Francisco Transit Screenlines

The San Francisco screenline analysis was conducted for four quadrant screenline locations within San Francisco: northeast, northwest, southeast, and southwest. Existing and Cumulative Without Project San Francisco transit screenlines are presented in **Table 4.N-40**. The contribution of Project Site development scenarios to existing and cumulative transit volumes at San Francisco screenline locations is shown in **Table 4.N-41** (DSP scenario), **Table 4.N-42** (DSP-V scenario), **Table 4.N-43** (CPP scenario), and **Table 4.N-44** (CPP-V scenario).

TABLE 4.N-40
EXISTING AND CUMULATIVE WITHOUT PROJECT SAN FRANCISCO TRANSIT SCREENLINES

AM Peak Hour

	Existing			Cumulative Without Project		
	Ridership	**Capacity**	**Utilization**	**Ridership**	**Capacity**	**Utilization**
Northeast	1,882	3,764	50%	3,008	3,856	78%
Northwest	7,434	11,437	65%	8,949	11,932	75%
Southeast	4,248	6,340	67%	7,536	10,184	74%
Southwest	6,627	8,720	76%	7,674	10,097	76%
Total	20,191	30,261	67%	27,167	36,069	75%

PM Peak Hour

	Existing			Cumulative Without Project		
	Ridership	**Capacity**	**Utilization**	**Ridership**	**Capacity**	**Utilization**
Northeast	1,886	3,627	52%	3,140	4,026	78%
Northwest	6,621	10,186	65%	8,155	10,873	75%
Southeast	4,668	7,073	66%	8,223	9,907	83%
Southwest	7,434	9,655	77%	8,829	10,767	82%
Total	20,609	30,540	67%	28,347	35,573	80%

SOURCE: City and County of San Francisco, 2010

Impacts would occur if volume exceeds 85 percent capacity at San Francisco screenlines (based on capacity with standing passengers).

TABLE 4.N-41
DSP CONTRIBUTION TO SAN FRANCISCO TRANSIT SCREENLINES

	AM Peak Hour						
	Existing plus DSP			Cumulative With DSP			Project Share of Growth
	Ridership	Capacity	Utilization	Ridership	Capacity	Utilization	
Northeast	2,252	3,764	60%	3,378	3,856	**88%**	**25%**
Northwest	7,548	11,437	66%	9,063	11,932	76%	
Southeast	4,603	6,340	73%	7,891	10,184	77%	
Southwest	6,684	8,720	77%	7,731	10,097	77%	
Total	21,086	30,261	70%	28,062	36,069	78%	
	PM Peak Hour						
	Existing plus DSP			Cumulative With DSP			Project Share of Growth
	Ridership	Capacity	Utilization	Ridership	Capacity	Utilization	
Northeast	2,253	3,627	62%	3,507	4,026	**87%**	**23%**
Northwest	6,734	10,186	66%	8,268	10,873	76%	
Southeast	5,021	7,073	71%	8,576	9,907	**87%**	**17%**
Southwest	7,490	9,655	78%	8,885	10,767	83%	
Total	21,499	30,540	70%	29,237	35,573	82%	

SOURCE: City and County of San Francisco, 2010

TABLE 4.N-42
DSP-V CONTRIBUTION TO REGIONAL TRANSIT SCREENLINES

	AM Peak Hour						
	Existing plus DSP-V			Cumulative With DSP-V			Project Share of Growth
	Ridership	Capacity	Utilization	Ridership	Capacity	Utilization	
Northeast	2,220	3,764	59%	3,346	3,856	**87%**	**23%**
Northwest	7,538	11,437	66%	9,053	11,932	76%	
Southeast	4,573	6,340	72%	7,861	10,184	77%	
Southwest	6,679	8,720	77%	7,726	10,097	77%	
Total	21,009	30,261	69%	27,985	36,069	78%	
	PM Peak Hour						
	Existing plus DSP-V			Cumulative With DSP-V			Project Share of Growth
	Ridership	Capacity	Utilization	Ridership	Capacity	Utilization	
Northeast	2,227	3,627	61%	3,481	4,026	**86%**	**21%**
Northwest	6,726	10,186	66%	8,260	10,873	76%	
Southeast	4,996	7,073	71%	8,551	9,907	**86%**	**17%**
Southwest	7,487	9,655	78%	8,882	10,767	82%	
Total	21,436	30,540	70%	29,174	35,573	82%	

SOURCE: City and County of San Francisco, 2010

TABLE 4.N-43
CPP CONTRIBUTION TO SAN FRANCISCO TRANSIT SCREENLINES

	AM Peak Hour						
	Existing plus CPP			Cumulative With CPP			
	Ridership	Capacity	Utilization	Ridership	Capacity	Utilization	
Northeast	2,137	3,764	57%	3,263	3,856	85%	
Northwest	7,561	11,437	66%	9,076	11,932	76%	
Southeast	4,694	6,340	74%	7,982	10,184	78%	
Southwest	6,707	8,720	77%	7,754	10,097	77%	
Total	21,099	30,261	70%	28,075	36,069	78%	
	PM Peak Hour						
	Existing plus CPP			Cumulative With CPP			Project Share of Growth
	Ridership	Capacity	Utilization	Ridership	Capacity	Utilization	
Northeast	2,173	3,627	60%	3,427	4,026	**85%**	**19%**
Northwest	6,764	10,186	66%	8,298	10,873	76%	
Southeast	5,114	7,073	72%	8,669	9,907	**88%**	**17%**
Southwest	7,514	9,655	78%	8,909	10,767	83%	
Total	21,565	30,540	71%	29,303	35,573	82%	

SOURCE: City and County of San Francisco, 2010

TABLE 4.N-44
CPP-V CONTRIBUTION TO SAN FRANCISCO TRANSIT SCREENLINES

	AM Peak Hour						
	Existing plus CPP-V			Cumulative With CPP-V			
	Ridership	Capacity	Utilization	Ridership	Capacity	Utilization	
Northeast	2,121	3,764	56%	3,247	3,856	84%	
Northwest	7,553	11,437	66%	9,068	11,932	76%	
Southeast	4,666	6,340	74%	7,954	10,184	78%	
Southwest	6,702	8,720	77%	7,749	10,097	77%	
Total	21,042	30,261	70%	28,018	36,069	78%	
	PM Peak Hour						
	Existing plus CPP-V			Cumulative With CPP-V			Project Share of Growth
	Ridership	Capacity	Utilization	Ridership	Capacity	Utilization	
Northeast	2,158	3,627	60%	3,412	4,026	**85%**	**18%**
Northwest	6,757	10,186	66%	8,291	10,873	76%	
Southeast	5,086	7,073	72%	8,641	9,907	**87%**	**17%**
Southwest	7,509	9,655	78%	8,904	10,767	83%	
Total	21,510	30,540	70%	29,248	35,573	82%	

SOURCE: City and County of San Francisco, 2010

Impact on San Francisco Transit Screenline Capacity

Based on the anticipated trip distribution pattern, roughly one-fourth of trips under each of the development scenarios would be made to or from the southeastern quadrant of San Francisco (including the Mission Bay, Bernal Heights, Bayview, Hunters Point, and Candlestick Point districts). Trips associated with Project Site development would contribute to total transit volumes exceeding Muni's capacity threshold of 85 percent at the Northeast and Southeast screenlines (based on the Year 2030 transit volumes and capacities at those screenlines as described in the CPHPS EIR). Tables 4.N-41 through 4.N-44 provide the Existing plus Project and Cumulative With Project transit volumes and screenline capacities. As shown, the contribution of Project Site development to Cumulative With Project transit ridership represents between 17 and 25 percent of the forecasted growth in transit ridership at those screenlines; therefore, the impact of all four Project Site development scenarios would be significant.

Impact on T-Line and San Bruno Avenue Transit Corridors

Peak ridership on the T-Line and San Bruno Avenue Muni routes is highest in the downtown San Francisco peak direction (i.e., northbound to downtown San Francisco during the AM peak period and southbound from downtown San Francisco during the PM peak period). The majority of transit trips between San Francisco and the Project Site would be in the "reverse peak" direction (i.e., southbound to the Project Site during the AM peak period and northbound from the Project Site during the PM peak period). Therefore, none of the proposed Project Site development scenarios would result in unacceptable levels of transit service or increased operating costs to the Muni T-line or San Bruno Avenue bus lines due to the anticipated pattern of Project Site development travel; therefore, the impact of all four development scenarios would be less than significant.

Impact on Geneva Avenue Transit Corridor

Project Site development would have a significant impact on transit capacity on the Geneva Avenue corridor, as follows:

- Approximately 3,000 daily riders under the DSP and DSP-V scenarios, including approximately 350 PM peak hour riders (total for both directions)
- Approximately 6,500 daily riders under the CPP and CPP-V scenarios, including approximately 550 PM peak hour riders (total for both directions).

Current service on that corridor consists of:

- Muni Route 8X and 8BX service between the Sunnydale Station and the Balboa Park Station (8 peak hours in both directions)
- Alliance Shuttle Service (six buses per day between the Sunnydale Station and the Balboa Park Station)

Implementation of the proposed Geneva BRT, as described in the SF-TEP (SFMTA, 2012) and CPHPS EIR (San Francisco Planning Department, 2009), would provide a significant increase in

transit service and capacity on the Geneva Avenue corridor, with 12 peak hour buses (6 in each direction) operating between the Balboa Park BART Station and Hunters Point Shipyard.

Portions of the Geneva BRT would operate within an exclusive right-of-way, including segments within the Project Site. Funding for the Geneva BRT has not yet been obtained, with a portion of funding to be contingent on the timeline for redevelopment of Candlestick Point and Hunters Point.

Impact on SamTrans Service

As noted in Table 4.N-22, only 1 percent of Project Site transit riders are anticipated to use SamTrans service. This would result in 14 trips during the PM peak hour under the DSP and DSP-V development scenarios and 17 trips during the PM peak hour under the CPP and CPP-V scenarios. Otherwise, Project Site transit riders would be accommodated on the BART, Caltrain, and Muni systems. Given the projected low ridership on SamTrans, no significant impacts would result from Project Site development.

Conclusion: Transit ridership under all four proposed development scenarios would contribute to cumulatively significant impacts on Muni operations at San Francisco transit screenline locations and would result in significant impacts on San Francisco Muni transit service on the Geneva Avenue corridor. **Mitigation Measure 4.N-7** below is recommended. No significant impact on SamTrans operations is anticipated.

Mitigation

Mitigation Measure 4.N-7: Prior to issuance of the first building occupancy permit for new development other than improvement of relocation of an existing use within the Project Site, the developer(s) of Project Site land uses shall work with the San Francisco Municipal Transportation Agency (SFMTA) to provide a fair-share contribution to capital costs for providing additional transit service to accommodate Project Site development-related ridership demand on San Francisco Muni transit corridors. In addition, provision shall be made for implementation of shuttle service between the Project Site and the Balboa Park BART Station in the Geneva Avenue corridor.

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	✓	✓

✓ = measure applies
- = measure does not apply

Conclusion with Mitigation: The inclusion of **Mitigation Measure 4.N-7** would provide SFMTA with the ability to reduce impacts on transit capacity to a less-than-significant level under all four development scenarios if such funds were used to increase transit service to the Project Site. While payment of such mitigation fees is common for projects within San Francisco, how SFMTA would actually use such funds would be beyond Brisbane's ability to control. Therefore, the implementation of this measure is uncertain, and the impact would be significant and unavoidable.

Transit Impact: Transit Operations

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
SU	SU	SU	SU

SU = Significant Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = no impact

Impact 4.N-8: Would the Project cause an increase in delays or operating costs resulting in substantial adverse effects on transit service levels (i.e., additional buses or trains could be required due to Project transit trips)?

As described above (Impact 4.N-6), none of the proposed Project Site development scenarios would cause transit ridership volume to exceed 100 percent of seated capacity on Caltrain, and although all scenarios would contribute to cumulative ridership exceeding 100 percent seated capacity on BART, Project Site development's contribution to cumulative BART ridership under any of the Project Site development scenarios would represent less than 2 percent of the cumulative ridership increase[26] and would not result in additional operating costs for Caltrain or BART that would exceed farebox revenue resulting from Project-generated trips.

As described above (Impact 4.N-7), all of the development scenarios would contribute to total transit volumes exceeding Muni's capacity threshold of 85 percent at the Northeast and Southeast Muni screenlines. Project Site development's contribution under all four scenarios to Cumulative With Project transit ridership represents between 17 and 24 percent of the forecasted growth in transit ridership at those screenlines.

Conclusion: Project Site development would cause an increase in delays or operating costs such that significant adverse impacts on Muni transit service levels could result (i.e., additional buses or trains could be required due to Project transit trips). This impact is addressed by **Mitigation Measure 4.N-7** above, which provides that, prior to issuance of a building occupancy permit, the developer(s) of Project land uses shall work with SFMTA to provide a fair-share contribution to the capital costs for providing additional transit services to accommodate ridership demand on San Francisco Muni transit corridors. As noted above, however, while payment of such mitigation fees is common within San Francisco, how SFMTA would actually use such funds would be beyond Brisbane's ability to control. Therefore, the implementation of this measure is uncertain, and the impact would be significant and unavoidable.

Conclusion with Mitigation: Because implementation of **Mitigation Measure 4.N-7** is beyond the jurisdiction of the City of Brisbane, cumulative impacts on Muni transit service levels would be significant and unavoidable under all four development scenarios.

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[26] As noted in Section 4.N.4, a two percent increase in ridership and resulting in increased operating costs for Caltrain or BART that would exceed farebox revenue resulting from Project Site development-generated trips is the criterion used to determine whether a significant impact would result.

Transit Impact: Onsite Demand

Impact 4.N-9: Would the Project cause an onsite transit demand that would not be adequately served by adjacent transit service for those proposed land uses that would be located more than one-third mile from the Caltrain and Muni T-line station(s)?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
SM	SM	SM	SM
SU = Significant Unavoidable SM = Significant but Mitigable LTS = Less than Significant - = no impact			

All four proposed development scenarios would generate a significant increase in baseline and cumulative transit demand on Caltrain and the Muni T-line, and some increase in demand on Muni San Bruno Avenue buses. However, access to those transit services would be limited to the northwestern corner of the Project Site, at the Bayshore Caltrain Station and Sunnydale Muni Station. Proposed land uses south of proposed Geneva Avenue and east of the Caltrain line would be located more than one-third mile from those station locations, with some proposed land uses located over one mile from those stations.

Although provision of the proposed Geneva Avenue BRT would accommodate a significant portion of trips, relying entirely on that line to accommodate transit demand to and from southern portions of the Project Site would be inadequate to accommodate anticipated transit demand.

Conclusion: Project Site development would cause an onsite transit demand that would not be adequately served by adjacent transit service for those proposed land uses that would be located more than one-third mile from the Caltrain and Muni T-line stations. This would result in significant baseline and cumulative impacts under all four proposed development scenarios. **Mitigation Measure 4.N-9** below is recommended.

Mitigation

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	✓	✓
✓ = measure applies - = measure does not apply			

Mitigation Measure 4.N-9: Prior to issuance of the first building occupancy permit for any new development other than improvement or relocation of an existing use within the Project Site, a shuttle bus service plan shall be developed and approved by the City that provides convenient transit service between Project Site land uses located more than one-third mile from the Bayshore Caltrain Station or Sunnydale Muni Station to those stations. Shuttle service shall be implemented as described in the plan prior to occupancy of any qualifying Project Site land use other than improvement or relocation of an existing use within the Project Site.

This requirement shall also be included in any specific plan approved for development within the Project Site.

Conclusion with Mitigation: With the inclusion of **Mitigation Measure 4.N-9**, impacts on transit accessibility would be less than significant under all four proposed development scenarios. While the Specific Plan outlines shuttle service, this mitigation measure would ensure that onsite transit service to regional transit connections would be provided.

Pedestrian Access (Existing plus Project and Cumulative With Project)

Impact 4.N-10: Would the Project have an adverse effect on pedestrian accessibility?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
SM	SM	SM	SM

SU = Significant Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = no impact

Pedestrian circulation within the Project Site would be improved under all four development scenarios (as described under "Pedestrian Circulation Improvements" in the "Impact Assessment Methodology" subsection above) under existing and cumulative conditions, and Project Site development would not disrupt existing pedestrian facilities outside the Project Site (as described under "Pedestrian Facilities" in Subsection 4.N.2, *Environmental Setting*, above). None of the proposed development scenarios would interfere with (i.e., prevent) planned pedestrian facilities in existing and/or planned areas, main streets, or pedestrian districts, nor would any of the four development scenarios conflict with or create inconsistencies with adopted pedestrian system plans, guidelines, policies, or standards.

However, on the periphery of the Project Site, baseline and cumulative pedestrian accessibility would be limited under all of the development scenarios due to the lack of existing pedestrian facilities in some areas (including segments of Bayshore Boulevard with no sidewalks south of Geneva Avenue).

Conclusion: All four proposed development scenarios would result in a significant impact related to baseline and cumulative pedestrian accessibility. **Mitigation Measure 4.N-10** below is recommended.

Mitigation

Mitigation Measure 4.N-10: Prior to issuance of the first building occupancy permit for new development other than improvement or relocation of an existing use within the Project Site, at a minimum, the following measures shall be implemented to improve pedestrian accessibility:

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	✓	✓

✓ = measure applies
- = measure does not apply

- The Bay Trail in the northern portion of the Project Site shall be realigned to provide a more direct route to the east side of US 101, following Geneva Avenue through the US 101 interchange.

- Sidewalks or equivalent pedestrian paths shall be provided to safely permit pedestrian access to all uses within the Project Site intended for human occupancy and use, including provision of through pedestrian routes to minimize pedestrian travel distances between uses.

- Specific provisions shall be made for safe pedestrian movement within and through parking areas to access buildings.

- Sidewalks shall be provided along the Project Site frontage on Bayshore Boulevard between Sunnydale Avenue and Tunnel Avenue.

These minimum requirements, along with the equivalent of the facilities shown in Table 4.N-8, shall also be included within each specific plan approved within the Project Site.

Conclusion with Mitigation: Installing pedestrian facilities throughout the Project Site and along Bayshore Boulevard would improve pedestrian connectivity to and from the site, as Bayshore Boulevard intersects with Geneva and Tunnel Avenues, two major roads that lead directly into the Project Site. In addition, per the Brisbane 1994 General Plan, as the "spine of the community," Bayshore Boulevard's performance "…is key to traffic circulation and access in the City…" With the inclusion of **Mitigation Measure 4.N-10**, impacts related to pedestrian accessibility would be less than significant under all four proposed development scenarios.

Bicycle Access (Existing plus Project and Cumulative With Project)

Impact 4.N-11: Would the Project have an adverse effect related to bicycle accessibility?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
SM	SM	SM	SM

SU = Significant Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = no impact

Bicycle circulation within the Project Site would be improved under all four development scenarios under existing and cumulative conditions, and Project Site development would not disrupt existing bicycle facilities outside the Project Site (as described under "Bicycle Facilities" in Subsection 4.N.2, *Environmental Setting*, above). As noted above, the Specific Plan prepared for the DSP and DSP-V scenarios proposes a bicycle circulation plan. While a comparably detailed plan has not yet been developed for the CPP and CPP-V scenarios, certain improvements proposed under the DSP and DSP-V scenarios would also be applicable to the CPP and CPP-V scenarios (see Table 4.N-7 above) since it is the intent of the CPP and CPP-V scenarios to make at least equal provision for alternative transportation modes within the Project Site as are provided by the DSP and DSP-V scenarios. A detailed bicycle circulation plan for the CPP and CPP-V would be specified as part of preparation of the required specific plan should either the CPP or CPP-V Concept Plan scenario be approved, which makes type of network improvements defined for the DSP and DSP-V scenarios a reasonable assumption for the CPP and CPP-V scenarios in this assessment.

None of the proposed Project Site development scenarios would interfere with (i.e., prevent) planned bicycle facilities, or conflict or create inconsistencies with adopted bicycle system plans, guidelines, policies, or standards. However, because the Specific Plan for the DSP and DSP-V scenarios does not include detailed requirements to both enhance the bicycling environment and maximize bicycle accessibility (e.g., requirements for the inclusion of bicycle parking near all destination points and recreational areas, and on roadways with high volumes), and the CPP and

CPP-V Concept Plan scenarios do not include a detailed bicycle circulation plan at this time, significant impacts related to existing and cumulative bicycle accessibility could occur.

Conclusion: A significant impact related to existing and cumulative bicycle accessibility would occur under all four proposed development scenarios. **Mitigation Measure 4.N-11** below is recommended.

Mitigation

Mitigation Measure 4.N-11: Prior to issuance of the first building occupancy permit for new development other than improvement or relocation of an existing use within the Project Site, roadways and trails shall provide for safe accessibility for bicycles to buildings and recreational areas throughout the Project Site, including connections to offsite bicycle routes and trails. In addition, Project Site land uses shall provide bicycle parking in appropriate areas (i.e., where they will get the most use, where security is maximized, and where pedestrian circulation is minimally affected by their presence).

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	✓	✓

✓ = measure applies
- = measure does not apply

The minimum standards contained in this mitigation measure, along with the equivalent bicycle access as that shown in Table 4.N-7, shall be included in any specific plan approved for development within the Project Site. In addition, details of Project Site development-provided bicycle parking spaces (number and location) shall be determined at the time when site-specific development projects are proposed pursuant to the adopted Specific Plan, and shall adhere to the following guidelines which shall also be included in any specific plan adopted for development within the Project Site:

- Bicycle parking shall be placed within 50 feet of building and facility entrances, where it can be well-lit, clearly visible, and out of the primary travel path of pedestrians. Retail shopping centers and supermarkets shall include one Class I rack (covered bicycle locker for long-term parking) per 30 employees, and one Class II rack (able to secure both the frame and at least one wheel of a bicycle for short-term parking) per 6,000 square feet of retail space.

- Parks and recreational fields normally shall include one Class I rack per 30 employees and one Class II rack per 9 users (during peak daylight times of peak season).

- Transit centers normally shall include individual parking spaces equal to 2 percent of daily boardings (75 percent Class I and 25 percent Class II).

Conclusion with Mitigation: With the inclusion of **Mitigation Measure 4.N-11**, implementation impacts related to bicycle accessibility would be less than significant under all for proposed development scenarios.

Construction (Existing plus Project and Cumulative With Project)

Impact 4.N-12: Would Project construction activities result in adverse effects on traffic flow or transit service, and/or interfere with pedestrian and bicycle circulation patterns?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
SM	SM	SM	SM

SU = Significant Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = no impact

Development of the Project Site would result in temporary traffic increases at and near the site over the course of the years it would take to build out the Project Site (with periods of activity and periods of no activity). The traffic impacts associated with construction under any of the Project Site development scenarios would be temporary and intermittent related to the delivery of materials and equipment, removal of debris, and daily commute trips for construction workers. Any construction traffic (especially truck traffic) occurring during typical commute hours (7:00 a.m. to 9:00 a.m., or 4:00 p.m. to 6:00 p.m.) would coincide with peak hour traffic, which could exacerbate adverse effects on traffic flow, transit services, and pedestrian and bicycle circulation. Construction staging is anticipated to occur on the Project Site.

Conclusion: Construction activities would result in significant impacts on existing and cumulative traffic flow and transit service and interfere with pedestrian and bicycle circulation patterns. **Mitigation Measure 4.N-12** below is recommended.

Mitigation

Mitigation Measure 4.N-12: In conjunction with all construction permits, site-specific development projects shall develop, submit for City review and approval, and implement Construction Management Plans that specify measures that would reduce impacts on motor vehicle, bicycle, pedestrian, and transit circulation. The Construction Management Plans shall include, but not necessarily be limited to, the following:

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	✓	✓

✓ = measure applies
- = measure does not apply

- Location of construction staging areas for materials, equipment, and vehicles.
- Notification procedures for adjacent property owners and public safety personnel regarding when major deliveries, detours, and lane closures will occur.
- Identification of haul routes for movement of construction vehicles that would minimize impacts on vehicular and pedestrian traffic, circulation and safety; and provision for monitoring surface streets used for haul routes so that any damage and debris attributable to the haul trucks can be identified and corrected by the project applicant.
- Provisions for removal of trash generated by construction activity.
- A process for responding to, and tracking, complaints pertaining to construction activity, including identification of an onsite complaint manager.

Conclusion with Mitigation: With the inclusion of **Mitigation Measure 4.N-12**, existing and cumulative construction-related impacts would be less than significant under all four proposed development scenarios.

Conflict with an Applicable Congestion Management Program

Transportation Demand Management Program (C/CAG) (Existing plus Project and Cumulative With Project)

Impact 4.N-13: Would the Project conflict with an applicable congestion management program, including but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
SM	SM	SM	SM

SU = Significant Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = no impact

The City/County Association of Governments of San Mateo County (C/CAG) is the Congestion Management Agency for San Mateo County that develops the Congestion Management Program (CMP). As part of the land use element of the CMP, all projects that generate 100 or more net new trips during the AM or PM peak hour are required to mitigate the impacts of all net new trips. One of the possible ways to mitigate these trips is to implement Transportation Demand Management (TDM) plans that have the capacity to reduce the demand for new peak hour trips. Other mitigation measures include reducing the scope of the project to generate fewer than 100 peak hour trips or paying a one-time fee of $20,000 per peak hour trip to a TDM fund.

Development of the Project Site under any of the Project Site development scenarios would generate more than 100 vehicle trips during both the AM and PM peak hours. Therefore, per C/CAG guidelines, development of a TDM plan is required. Conformance with the C/CAG requirement would be met through development and implementation of a TDM program designed to reduce use of single-occupant vehicles and to increase the use of rideshare, transit, bicycle, and walk modes for trips to, from, and within the Project Site. As described above (see "Transportation Demand Management (TDM) Program" in the "Impact Assessment Methodology" subsection above), a preliminary (conceptual) TDM program has been developed as part of the Specific Plan prepared for the DSP and DSP-V scenarios. Because development is expected to occur in several phases, TDM plans would be prepared for each qualifying development project as it undergoes site-specific development review. Each qualifying development project would be required to mitigate the impacts of all net new trips. As described above, no trip reduction due to specific TDM measures was assumed in the trip generation calculation used in the analysis of traffic impacts resulting from Project Site development.

C/CAG has identified acceptable TDM measures with equivalent numbers of peak hour trip credits that will be granted with implementation of each measure, including, but not limited to, a shuttle program, employee parking cash-out, infill development, and a guaranteed ride home program.

Measures can be mixed and matched so that the total number of trip credits is equal to or greater than the new peak hour trips generated by the project. These programs, once implemented, must be ongoing for the occupied life of the development. Programs may be substituted, with prior approval of C/CAG, as long as the number of reduced trips remains the same.

A 20 percent alternative mode share was assumed for all work trips and a 30 percent alternative mode share was assumed for all non-work trips. The following composition of different mode shares for Project Site workers, residents, and visitors would therefore be expected:

- Transit: 15 percent/work and 10 percent/non-work
- Carpool: 10 percent/work and 8 percent/non-work
- Vanpool: 5 percent/work and 4 percent/non-work
- Walk/Bike: 3 percent/work and 20 percent/non-work
- Flextime: 1 percent/work
- Telecommute: 1 percent/work

Conclusion: Project site development would generate more than 100 vehicle trips during the AM and PM peak hours, resulting in significant existing and cumulative impacts and triggering the C/CAG requirement to mitigate the impacts of these trips. **Mitigation Measure 4.N-13** below is recommended.

Mitigation

Mitigation Measure 4.N-13: Prior to issuance of the first building occupancy permit for new development other than improvement or relocation of an existing use within the Project Site, the developer(s) and/or tenants of Project Site land uses shall prepare, submit to the City/County Association of Governments of San Mateo County (C/CAG) for approval, and establish a Transportation Demand Management (TDM) program to mitigate the C/CAG project impact of generating more than 100 net new vehicle trips during the peak traffic hours. Implementation of TDM programs shall be made a condition of approval for all new development within the Project Site that generates 100 or more net new trips during the AM or PM peak hour. A summary of recommended TDM strategies can be found in **Table 4.N-45**.

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	✓	✓
✓ = measure applies - = measure does not apply			

Conclusion with Mitigation: Table 4.N-45 presents a summary of recommended TDM measures and their associated available trip credits (reductions). Total reductions are estimated to be approximately 35,000 trip credits, which is substantially greater than would be required given the estimated totals of between 7,553 and 9,506 AM peak hour trips and between 8,005 and 11,292 PM peak hour trips generated by the various development scenarios. Note that the total numbers of projected employees, residents, and generated trips were used in this analysis, and that estimates were made for specific C/CAG-recognized TDM strategies. This should be considered as a sample assessment, and refinements would be made to the TDM trip credit analysis when the approved land uses are known. C/CAG and Brisbane would require implementation of an appropriate TDM

TABLE 4.N-45
PRELIMINARY ESTIMATES OF C/CAG
TRANSPORTATION DEMAND MANAGEMENT (TDM) TRIP CREDITS

C/CAG Number	TDM Measure	Amount	Unit/Explanation	C/CAG Credit Rate	C/CAG Trip Credits
1	Secure Bicycle Storage	200	Lockers	0.33	66
2	Showers/Clothes Lockers	10	Showers	10	100
2	Additional Credit for Shower Combination with Bicycle Lockers	1		5	5
3	Shuttle Program	120	Peak period seats	1	120
3	Additional Credit for Guaranteed Ride Home Program	120		1	120
4	Market Rate Parking Pricing for Employees	500	Paid spaces	2	1000
5	Transit Subsidies	17,259	Subsidized transit passes	1	17,259
7	Preferential Carpool Parking	250	Spaces	2	500
8	Preferential Vanpool Parking	25	Spaces	7	175
9	Vanpool Ridematching Service	20	Vanpools	7	140
10	Commute Assistance Center with TDM Coordinator Staffing	20	Multiple	1	20
11	Biannual Employee Commute Survey	1	Survey	3	3
12	Employee Parking Cash-Out	5,000	Employees offered parking cash-out	1	5,000
14	Telecommuting	100	Employees with company provided high-speed internet	0.33	33
15	Video Conferencing Centers	10	Centers	5	50
16	Compressed Work Week	2,000	Employees offered compressed work week	0.20	400
17	Flextime	2,000	Employees offered flextime	1	2,000
18	Live-Work Assistance	500	Employees offered local residential assistance	1	500
19	Preferential Hiring of Local Residents	250	Local residents hired	1	250
20	Onsite Amenities	25	Amenities	5	125
25	Guaranteed Ride Home Program	5,000	Employees offered guaranteed ride home	1	5,000
26	Additional Credit for Providing Ten or More TDM Program Measures	1		5	5
27	Develop Transportation Action Plan with the Transportation Management Association	1		10	10
29	Infill Development	5,350	2% of peak hour trips	2%	107
31	Transportation Management Association Participation (Alliance)	1		5	5
35	Develop Schools, Neighborhood-Serving Retail, and Childcare	25	Amenities	5	125
37	Pedestrian- and Bicycle-Friendly Streets	100	Street segments	5	500
39	Non-Motorized Connections	100	Connections	5	500
41	Street Design that Encourages Pedestrian and Bicycle Access	20	Streets	5	100
42	Information Boards/Kiosks	10	Kiosks	5	50
45	Locate Residential Development within 1/3 Mile of Rail	620	74% of peak hour residential trips	1	620
	Total TDM Program Measures				**34,888**

SOURCE: UPC, 2011; CCAG, 2004

program for the life of Project site development to reduce impacts on area roadways. With implementation of **Mitigation Measure 4.N-13**, the impact related to the C/CAG requirement would be less than significant.

Result in a Change in Air Traffic Patterns (Existing plus Project and Cumulative With Project)

Impact 4.N-14: Would the Project result in a change in air traffic patterns?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
-	-	-	-

SU = Significant Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = no impact

As noted in Section 4.G, *Hazards and Hazardous Materials*, the Project Site is located more than 2 miles from the nearest public airport, the San Francisco International Airport, or airstrip. Development under any of the proposed scenarios would not conflict with an airport land use plan nor present any other impact related to a public airport use or private airstrip.

Conclusion: No Project component would result in a change in air traffic patterns in either the existing or cumulative project scenarios. Therefore, there would be no impact. No mitigation is required.

Substantially Increase Hazards (Existing plus Project and Cumulative With Project)

Impact 4.N-15: Would the Project substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
LTS	LTS	LTS	LTS

SU = Significant Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = no impact

Design of all proposed transportation and circulation features would be required to be consistent with the Brisbane General Plan and applicable City roadway design standards. The review of Specific Plan(s) proposed in fulfillment of General Plan requirements would provide for implementation of City roadway design standards. Site-specific development within the Project Site would also be subject to review and approval by the City. While each of the Project Site development scenarios would include installation of a circulation system, including roadways and pedestrian and bicycle facilities, the City's development review process would ensure that applicable roadway and trail design standards are adhered to, and that safety hazards or incompatible uses are avoided.

Conclusion: Because detailed designs for roadway, pedestrian, or bicycle features for subsequent development within the Project Site would be reviewed as part of the City's development review process and would be required to meet all applicable design standards, this impact would be less

than significant in either the existing or cumulative project scenarios, and mitigation measures are not required.

Result in Inadequate Emergency Access

Emergency Services (Existing plus Project and Cumulative With Project)

Impact 4.N-16: Would the Project result in inadequate emergency access, defined as physical or traffic congestion impediments that would prevent emergency vehicles from traveling to and from an emergency situation?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
LTS	LTS	LTS	LTS

SU = Significant Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = no impact

Each of the four Project Site development scenarios would include the construction of new roadways to facilitate emergency access to locations within the Project Site. Existing emergency response routes in the vicinity of the Project Site would either be maintained as is or rerouted as necessary. As described in Section 4.L, *Public Services*, each development scenario includes a circulation plan designed to ensure appropriate emergency access to and from the Project Site and to provide access to all development areas through the above-cited new roadways (specifically to facilitate North County Fire Authority's emergency response within the Baylands). Further, all development will be required to be designed in accordance with City and North County Fire Authority standards, which include provisions that address emergency access (e.g., minimum street widths, minimum turning radii). In addition, emergency vehicles would be able to use transit lanes when streets are congested. Therefore, impacts on emergency access would be less than significant.

Conclusion: None of the proposed development scenarios would result in inadequate emergency access in either the existing or cumulative project scenarios. The impact would be less than significant, and no mitigation is required.

Loading (Existing plus Project and Cumulative With Project)

Impact 4.N-17: Would the Project result in a loading demand during the peak hour of loading activities that could not be accommodated within proposed onsite loading facilities or within convenient on-street loading zones, creating potentially hazardous conditions or significant delays affecting traffic, transit, bicycles, or pedestrians?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
SM	SM	SM	SM

SU = Significant Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = no impact

Assessment of loading impacts associated with the proposed development scenarios includes the comparison

of the demand for the loading spaces to the minimum number of loading spaces specified in the Project description. (This comparison would be the same under existing and cumulative conditions due to the assumption of full buildout under all proposed development scenarios.) As indicated in Table 4.N-19 under "Impact Assessment Methodology" above, the demand for loading spaces was estimated based on the development program and the daily truck trip generation rates for 1,000 gross square feet of use, then converted to hourly demand.

There are not sufficient details (e.g., number and location of parking spaces) at this time to assess loading conditions in this Program EIR, but as site-specific development projects are proposed under the selected development scenario and required specific plan, loading (demand and supply) would be reviewed to ensure that demand would be met. Because there are no specific loading requirements in the Brisbane Municipal Code, however, a significant impact could result, and mitigation would be required.

Mitigation

Mitigation Measure 4.N-17: Each site-specific development project shall provide sufficient loading areas in appropriate locations such that loading activities, including loading vehicle queuing, will not block roadway or onsite parking area travel lanes, or bicycle or pedestrian facilities.

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	✓	✓

✓ = measure applies
- = measure does not apply

Conclusion with Mitigation: Table 4.N-45 Adherence to the performance standard set forth in Mitigation Measure 4.N-17 would ensure that significant impacts would not result from loading activities required for proposed development within the Project Site. The mitigation measure would reduce the significant impact to a less-than-significant level.

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4.O Utilities, Service Systems, and Water Supply

4.O.1 Introduction

This section describes existing utilities and service systems in the Project Site and vicinity, including water and wastewater utilities, drainage facilities, and solid waste management. This section also provides a description of water demand, supply, and reliability associated with development of Project Site, including the proposed water transfer agreement for purchase and transfer of water supplies from the Oakdale Irrigation District (OID) to the City of Brisbane, along with an evaluation of environmental effects associated with the proposed water transfer agreement. Feasible mitigation measures are identified to reduce significant impacts. Energy, energy infrastructure, and renewable resources are discussed in Section 4.P, *Energy Resources*.

4.O.2 Environmental Setting

Water Supply

Service Within Brisbane

The City of Brisbane is the water retailer to a service area of almost 4 square miles and a service population of approximately 4,282 (approximately 1,920 service connections) (Flanagan, 2013). The City operates two water districts, which are managed as a single water system. The Brisbane Water District (BWD) serves Central Brisbane, Sierra Point, and the Baylands, while the Guadalupe Valley Municipal Improvement District (GVMID) covers an area of approximately 0.5 square mile and serves the Crocker Industrial Park and the North East Ridge residential development (City of Brisbane, 2006a). Both districts are interconnected, giving the City the capability of moving water, at no cost, between the two districts (City of Brisbane, 2006b). The existing Recology site is served by the San Francisco Public Utilities Commission (SFPUC).

Supply Source – SFPUC

The City does not have its own groundwater or surface water supplies and purchases potable water from the SFPUC, which owns and operates a regional water system that serves San Francisco and the southern San Francisco Bay Area region. The source of the SFPUC's water currently being delivered to Brisbane is primarily from Tuolumne River diversions, and tributaries thereto, stored in the Hetch Hetchy Reservoir and Lake Eleanor in Yosemite National Park, and Lake Lloyd in the Stanislaus National Forest, in combination with supply from the SFPUC's local East Bay (Alameda) and Peninsula watersheds. The Hetch Hetchy system water comes from Sierra snowmelt and is generally of high quality, requiring only primary disinfection and pH adjustment to control corrosion in the pipelines (SFPUC, 2005). Occasionally water supplies to the City may be supplemented or come directly from the SFPUC's reservoirs in the East Bay or San Mateo Peninsula from local runoff that flows into reservoirs in the Alameda and Peninsula watersheds. This water requires filtration and treatment and is usually blended with Hetch Hetchy water before it is sent to customers. The SFPUC delivers water to Brisbane through five turnouts along the Crystal Springs pipelines.

2009 Water Supply Agreement

In July 2009, the SFPUC entered into the Water Supply Agreement with its Wholesale Customers (2009 Agreement) to replace the original 1984 contract that expired in June 2009 (SFPUC, 2009). Individual contracts with each of the Wholesale Customers were then executed with term dates to begin on July 1, 2009 and expire on June 30, 2034. The 2009 Agreement outlines the water rates for the SFPUC's wholesale customers and the allocation of supply. The 2009 Agreement continues the 184 million gallon per day (mgd) Supply Assurance established in the 1984 Agreement. This Supply Assurance is the total maximum annual supply amount allocated to the Wholesale Customer group. It is not a guarantee for water delivery in every year, but is the basis for establishing individual allocations to each wholesale customer. These supply allocations can be reduced during water shortages, emergencies, or maintenance of the system, and the 2009 Agreement establishes the rules and procedures for such delivery reductions.

Water System Improvement Program

In October 2008, the SFPUC adopted the San Francisco Public Utilities Commission's Water System Improvement Program (WSIP) (SFPUC Resolution No. 08-200). The SFPUC's WSIP is an extensive $4.6 billion infrastructure program to upgrade the regional water system facilities that extend from the Sierra Nevada mountains to San Francisco to provide improved delivery and supply reliability. WSIP infrastructure projects throughout the SFPUC's regional system are well underway, including major reservoir and pipeline upgrades. The WSIP is designed to meet projected water delivery needs from the regional water system through a planning horizon year of 2030. Originally, the program included developing additional water supplies to meet future customer demands out to 2030. However, the program alternative adopted by the SFPUC, called the Phased WSIP Variant, provided for full implementation of all proposed WSIP facility improvements to achieve the public health, seismic safety, and delivery reliability goals as soon as possible, but phased implementation of the water supply program to meet projected water purchases through 2030 (SFPUC, 2011 – UWMP p. 22). As described in the SFPUC's 2010 Urban Water Management Plan (UWMP), the adopted WSIP included a requirement to re-evaluate 2030 demand projections for its water supply customers, supply purchase requests, and water supply options and make a decision by the end of 2018 about future water deliveries from the regional water system with respect to whether to increase the supply assurance on water deliveries from the regional system or not (SFPUC, 2011). Based on the water demand studies completed as part of developing the WSIP, the 2030 water purchase estimates by the Wholesale Customers were projected to increase to a maximum of 209 mgd, but the adopted WSIP program deferred the 2030 water supply element of the WSIP and held deliveries from the regional water system to the Wholesale Customer to the existing limit of 184 mgd. In accordance with the adopted WSIP, the SFPUC will revisit the demand projections and determine water supply deliveries through 2030 by 2018.

Additional Water Supply Provisions

The 2009 Agreement reflects the SFPUC's decision to re-evaluate customer demand and regional water system deliveries in 2018 by incorporating an "Interim Supply Limitation" that limits water sales to the SFPUC's Retail and Wholesale Customers to a combined total of 265 mgd from the

regional water system watersheds (i.e., the Tuolumne, Alameda, and Peninsula watersheds) through 2018. Under the Interim Supply Limitation, the Wholesale Customers receive a combined 184 mgd, representing 69.4 percent of the SFPUC's water supplies. Further, on December 14, 2010, the SFPUC established each individual wholesale customer's share of the Interim Supply Limitation, referred to as "Interim Supply Allocations" ("ISAs" – SFPUC Res. No. 10-0213), that is effective until December 31, 2018.

For BWD and GVMID, the 2009 Agreement includes a total supply guarantee (i.e., total maximum annual delivery of water supply) of 0.46 mgd for BWD and 0.52 mgd for GVMID for a combined 0.98 mgd (See **Table 4.O-1**) (SFPUC, 2009). BWD's and GVMID's combined Interim Supply Agreement is 0.96 mgd, almost their full maximum allocation (98 percent).

TABLE 4.O-1
SAN FRANCISCO PUBLIC UTILITIES COMMISSION (SFPUC)
WATER SUPPLY GUARANTEE FOR CITY OF BRISBANE

Water District	100 Cubic Feet/Year	Million Gallons/Year	Million Gallons per Day
Brisbane Water District	224,435	167.88	0.46
Guadalupe Valley Municipal Improvement District	254,436	190.32	0.52
Total Supply Guarantee	**478,871**	**358.20**	**0.98**

SOURCE: SFPUC, 2009

Water Shortages

Per Article 3, Section 3.01 of the 2009 Agreement, although BWD and GVMID have a supply guarantee from the SFPUC, this guarantee can be reduced during emergencies, drought situations, or maintenance activities. According to the 2010 UWMP, the SFPUC can meet water demands for all wholesale customers in average and above average water years. In order to address allocation during dry years, the Interim Water Shortage Allocation Plan (IWSAP) was created and outlined reductions between the SFPUC and its Wholesale Customers (as a whole) of up to 20 percent. Each year, the SFPUC forecasts its total water supplies and the water demands of its customers to determine if water reductions are necessary. **Table 4.O-2** below shows wholesale customer allocations depending on the level of systemwide water reductions required. Under normal hydrologic conditions, Wholesale Customers receive 69.4 percent of the SFPUC's total water supply of 265 mgd, or 184 mgd. During a 20-percent reduction in total SFPUC supply (212 mgd total available), Wholesale Customers would receive 62.5 percent (or 132.5 mgd). Thus, a 20-percent systemwide drought reduction scenario results in a total 28-percent reduction in supplies for Wholesale Customers. Individual agency cutbacks could be higher depending on the allocation of the reduced supply (CDM Smith, 2012).

In addition, the SFPUC presented Wholesale Customer allocations in normal, dry, and multiple dry years in the 2010 UWMP through 2035 as shown in **Table 4.O-3** below. The table shows that the SFPUC would have sufficient water supplies to meet wholesale water demands through 2035,

TABLE 4.O-2
WATER SHORTAGE ALLOCATION PLAN

Level of Systemwide Reduction in Water Use Required	SFPUC Share of Water Available	
	Percent Total SFPUC Supply Available (Volume in MGD)	Percent Wholesale Customers Share of SFPUC Total (Volume in MGD)
No reductions	100% (265)	69.4% (184)
5% or less	95% (251.75)	64.5% (162.37)
6% through 10%	94% to 90% (249.1 to 238.5)	64% (152.64)
11% through 15%	89% to 85% (235.85 to 225.25)	63% (141.9)
16% through 20%	84% to 80% (222.6 to 212)	62.5% (132.5)

NOTE: This table is intended to provide the general ranges of reductions in supply and corresponding reduction in deliveries by the SFPUC on a systemwide level for all Wholesale Customers.

SFPUC = San Francisco Public Utilities Commission, mgd = million gallons per day

SOURCE: CDM Smith, 2012

TABLE 4.O-3
SAN FRANCISCO PUBLIC UTILITIES COMMISSION (SFPUC) WHOLESALE ALLOCATIONS IN NORMAL, SINGLE DRY, AND MULTIPLE DRY YEARS

Year Types	Normal Year		Single Dry Year		Multiple Dry Years					
					Year 1		Year 2		Year 3	
Year	MGD	%	MGD	%	MGD	%	MGD	%	MGD	%
2010 through 2035	184.0	100	152.6	83	152.6	83	132.5	72	132.5	72

NOTE: mgd = million gallons per day

SOURCE: CDM Smith, 2012

with the assumption that the supply assurance of 184 mgd will not be exceeded by increased demands or from new water supplies developed beyond those necessary to meet demands of 2018. During the multiple dry years, a shortage of up to 17 percent could occur for Wholesale Customers and would affect both BWD and GVMID.

Current Water Use

The City of Brisbane's water use for 2006 through 2011 is presented in **Table 4.O-4**. The average annual use for the most recent year (2011) is 0.55 mgd. As shown in the table, annual water use has decreased within Brisbane almost by 0.1 mgd over the last 5 years, as it has generally across the Bay region, due to a combination of the economic recession, implementation of conservation measures, and drought years.

The existing Recology site that is partially within Brisbane and partially within San Francisco is provided with water service by the SFPUC directly. The most recent water demand for operations

TABLE 4.O-4
CITY OF BRISBANE ANNUAL WATER USE (2006 THROUGH 2011)

Year	BWD MG/Year	GVMID MG/Year	Total MG/Year	MGD
2006	132.51	102.68	235.19	0.65
2007	83.98	145.23	229.21	0.63
2008	98.52	137.18	235.70	0.65
2009	101.88	114.50	216.38	0.59
2010	97.49	106.64	204.13	0.56
2011	107.14	95.61	202.75	0.55

NOTE: BWD = Brisbane Water District, GVMID = Guadalupe Valley Municipal Improvement District, MG = million gallons, mgd = million gallons per day

SOURCE: Flannagan, 2012

at the Recology site was 0.05 mgd, used for drinking water, toilets, cooling towers, truck washes, and other uses specific to Recology's recycling processes (Arup North, 2010). Since Recology is supplied water by the SFPUC directly, its demand is not included in Brisbane's existing demand figures.

Projected Water Demand

The projected water demand for Brisbane from 2015 through 2035 is shown in **Table 4.O-5** below. Future water demands for the City of Brisbane (both BWD and GVMID) were developed in 2010 using a demand model called the DSS model (CDM Smith, 2012). The DSS model used water demand in 2001 as the base year to determine future demand to 2030. The model was also used to determine conservation potential. The results of the model were provided to the SFPUC to be used in planning studies for the WSIP and have been published in the SFPUC's 2010 Urban Water Management Plan (UWMP) (SFPUC, 2011). These projections account for changes to the California Plumbing Code requiring water-efficient plumbing fixtures and conservation measures that will continue to be implemented by the SFPUC in the future.[1] The SFPUC's 2010 UWMP estimated a demand of 1.07 mgd in 2035 for the City of Brisbane that was based on the DSS model projections through 2030 (CDM Smith, 2012) without the Baylands or three planned future Sierra Point developments.[2] Thus, even without proposed Project Site development and other developments at Sierra Point, these projections show that the City's water demand increases from the current level of 0.55 mgd presented for 2011 and would exceed the total supply assurance of 0.98 from the SFPUC sometime after 2015. Development and associated water demand have not

1 Low-flow plumbing fixtures, for example, are required by law. Thus, as older homes are sold, they are required to be upgraded to low-flow fixtures. As a result, it is reasonable to assume a certain number for homes will be upgraded each year and thus conservation amounts will increase. This can be true in other areas where conservation is required, such as possibly landscaping. The demand modelers tailored the assumptions for each city to reflect what each city actually requires in terms of conservation. The model assumptions are thorough and detailed. The conservation estimates are reasonable.

2 This modeling was initially done for the SFPUC's WSIP planning effort, by URS, with input from all customers such as Brisbane.

TABLE 4.O-5
EXISTING AND FUTURE PROJECTED WATER DEMAND FOR THE CITY OF BRISBANE 2011-2035 (in million gallons per day)

Water District	2011[1]	2015	2020	2025	2030	2035
BWD	0.29	0.49	0.50	0.51	0.52	0.53
GVMID	0.26	0.49	0.52	0.53	0.54	0.54
Total	**0.55**	**0.98**	**1.02**	**1.04**	**1.06**	**1.07**

NOTE: BWD = Brisbane Water District, GVMID = Guadalupe Valley Municipal Improvement District

[1] Column data from Table 4.O-4.

SOURCE: SFPUC, 2011

been increasing as rapidly as projected in the 2010 UWMP; nonetheless, it is projected that the City's demand will ultimately exceed its current water allocation from the SFPUC. By 2035, the projected demand of 1.07 mgd would be 0.9 mgd above the City's existing supply allocation from the SFPUC.

The most recent water demand projection for operations at the Recology site was 0.05 mgd. Since the Recology site expansion involves modernization of existing onsite facilities and consolidation of existing offsite facilities within San Francisco, Recology's total demand for water from the SFPUC is not expected to change as the result of the expansion proposed in the CPP-V scenario; no change in Recology operations is proposed under other Project Site development scenarios (Arup North, 2010).

Oakdale Irrigation District

As discussed in Chapter 3, *Project Description*, acquisition of a supplemental water supply via a water transfer with the Oakdale Irrigation District (OID) has been proposed to meet the water supply needs of Project Site development and a remaining increment of additional development allowed under the Brisbane General Plan. OID is located in the northeast portion of the San Joaquin Valley in Stanislaus and San Joaquin Counties. The majority of OID's water supplies come from pre-1914 surface water rights that enable OID to divert up to 257,074 acre-feet per year[3] (AFY) from the Stanislaus River at Goodwin Dam upstream of the City of Oakdale without restrictions. OID's rights to divert this water are senior to other rights along the river and give OID priority to divert over other downstream water rights holders.

In 2007 OID prepared, certified, and adopted the *Oakdale Irrigation District Water Resources Plan (WRP) Programmatic Environmental Impact Report* (PEIR) (State Clearinghouse Number 2006012075) to provide for the long-term management of its water resources. The WRP PEIR is incorporated in its entirety by reference into this EIR; it can be viewed at the City of Brisbane Community Development Department during normal working hours and is available online at

[3] One acre-foot is equal to 325,851.429 gallons. Therefore, 2,400 AFY is equivalent to 782,043,429.6 gallons per year, or 2.14 million gallons per day (mgd).

http://www.oidwaterresources.org/. The WRP goals included providing for long-term protection of OID's water rights, addressing regulatory challenges, rebuilding and modernizing the dated and inefficient water supply infrastructure, and developing affordable financing for future improvements. Recommendations for policy, organizational, and facility improvements to accommodate current and future water demands within OID are set forth in the comprehensive WRP. The WRP accounts for changes within OID's service area over the next 20 years, including water demand decreases due to land use changes from agriculture to urban and pasture to orchards, and water supply increases resulting from infrastructure improvements. As such, the WRP anticipates an increase in water supplies made available for transfer or annexation from 30,000 acre-feet to 50,000 acre-feet for firm water transfers, and from 11,000 acre-feet to 17,000 acre-feet for variable water transfers, resulting in a total volume (firm and variable) of available water equal to approximately 67,000 acre-feet by 2030. A "firm water transfer" is defined in the WRP as the quantity of water that would be made available in all water years irrespective of the hydrologic yield of the basin.

The WRP PEIR concluded that implementation of the WRP improvements in infrastructure would result in decreasing losses of water in OID's dated and leaky delivery system. The PEIR analyzed environmental impacts related to implementation of the WRP including those from construction and operation of improvements, operations, maintenance, and export of water to customers outside OID's service area. The PEIR provided program-level review of the impacts of such transfers within OID's service area and a description of existing transfers outside OID's service area of about 41,000 AFY. The PEIR concluded that there were no significant impacts on OID's service area from transfers to customers outside its service area. Subsequent to the approval of the WRP and certification of the WRP PEIR, transfers of up to 41,000 AFY water from OID's system to Modesto Irrigation District's (MID) system continued on a yearly basis until recently for purchasers including the Stockton East Water District and MID. Although the 2007 WRP PEIR did not analyze impacts of specific water transfers to specific recipients outside OID in the future, it did analyze continued and increased transfer of water outside the service area above the then-current volumes (41,000 AFY in 2007) up to 67,000 AFY and determined that such transfers would not result in significant environmental impacts occurring within the OID service area (OID, 2007). Environmental review of the proposed water transfer between OID and Brisbane tiers from the analysis set forth in OID's certified 2007 WRP PEIR and is provided in the impacts analysis section below (see Impact 4.O-1).

Water Service and Facilities

Water service is provided to the Baylands by the City through the Brisbane Water District, which as previously noted is one of the two separate water districts that are interconnected and are operated together by the City to maximize circulation and move water freely across the districts when needed.

Water Supply and Treatment

The water supplied by the SFPUC to Brisbane is primarily from the Tuolumne River, which is diverted and delivered via the Hetch Hetchy Reservoir and Aqueduct that are part of the SFPUC's

regional water system. This water comes from the High Sierra snowmelt and is generally of high quality, requiring only primary disinfection and pH adjustment to control corrosion in the pipelines (SFPUC, 2005). A smaller portion of water supplied by the SFPUC is from local runoff that flows into reservoirs in the Alameda and Peninsula watersheds. This water requires filtration and treatment, and is usually blended with Hetch Hetchy water before it is sent to customers. SFPUC water is continually monitored and tested to ensure it meets or exceeds United States Environmental Protection Agency (U.S. EPA) and California Department of Public Health (DPH) primary and secondary drinking water standards for disinfection and health safety (SFPUC, 2008). In addition, because there is a potential for degradation from loss of residual disinfectant and microbial growth due to excessive detention time in the City's distribution system (City of Brisbane, 2003b), the City monitors water at the water storage tanks and flushes water mains to maintain federal and state water quality standards.

Water Distribution System

Five turnouts from the SFPUC Crystal Springs pipelines #1 and #2 supply water to the Brisbane area. Brisbane's water distribution system is made up of almost 25 miles of water mains, and is currently divided into six pressure zones (BWD 1 through 3 and GVMID 1 through 3)[4] serviced by four pumping stations and five storage tanks (City of Brisbane, 2003b). The Brisbane Supervisory Control and Data Acquisition system monitors and controls the City's water system. Two pump stations located in the hills south of downtown Brisbane serve demands in the upper Brisbane pressure zones and maintain storage in the Margaret and Glen Park tanks. Two pump stations located in the GVMID service area serve demand in upper GVMID pressure zones and maintain storage in the Crocker and Guadalupe tanks (Brown & Caldwell, 2011). **Figure 4.O-1** shows the existing water distribution system in Brisbane.

The BWD/GVMID system has three emergency water interconnections, two with Daly City to the north and one with California Water Service Company (CalWater) to the south (See **Figure 4.O-1**). Memorandums of Understanding exist between Brisbane and Daly City and between Brisbane and CalWater to provide emergency fire flow protection and an emergency water source during any unforeseen circumstances of short duration. The emergency water interconnections are intended only for emergency situations and not to provide water service to meet a higher daily demand than anticipated or to provide capacity for new service connections. The locations of the emergency water interconnections are as follows:

- **Carter Street and Guadalupe Canyon Parkway:** provides emergency water supply from Brisbane to Daly City.
- **Main Street, east of Linda Vista Drive:** provides emergency water supply from Daly City to Brisbane.
- **Shoreline Court, south of Sierra Point Parkway:** provides emergency water supply in both directions between Brisbane and CalWater.

[4] Two future pressure zones (BWD 4 and GVMID 4) are planned.

Water Storage

Brisbane has five existing water storage tanks (see **Figure 4.O-1** for locations), with capacities ranging from 0.2 million gallons (MG) to 1.0 MG, for a total water storage capacity of 2.9 MG (City of Brisbane, 2003b; Brown & Caldwell, 2011). According to the City's 2003 Water Master Plan, existing storage capacity may not be adequate for the City because:

- There is no storage within the BWD 1 and GVMID 1 pressure zones that connect directly to the SFPUC pipelines; therefore peak demand flows and fire flows must be drawn directly from these pipelines.
- The City may have difficulty providing emergency water delivery during times when SFPUC supplies are not available.
- An earthquake that damages SFPUC infrastructure may result in reduced deliveries to Brisbane.
- Areas around the San Bruno Mountain may need additional storage in order to provide adequate fire flows in the event of a wildfire.

The City's 2003 Water Master Plan recommended a 1.3-MG storage tank increase to meet peak demands and fire flows. The plan also recommended a new 0.2-MG tank at the existing Glen Park Tank site at the southern end of the City and a new 1.1 MG tank off Guadalupe Canyon Parkway. The new 1.1-MG tank would be centrally located within the system and both new tanks would be close to several major potential fire flow locations (City of Brisbane, 2003b). In 2006, the second 0.2-MG tank was added to the Glen Park site, as recommended in the 2003 Water Master Plan, increasing the total storage from 2.7 MG to about 2.9 MG (Brown & Caldwell, 2011).

Recycled Water

The City does not currently have access to a supply of recycled water, and San Francisco currently produces and uses only a very small quantity of recycled water. Disinfected secondary-treated recycled water from the SFPUC's Southeast Water Pollution Control Plant (SEP) is used on a limited basis (less than 1 million gallons per day [mgd]) for plant wash-down operations, and is also provided to construction contractors for soil compaction and dust control during construction (SFPUC, 2006; SFPUC, 2011). This limited use of recycled water is generally not enough to offset existing retail water demands and does not affect wholesale customer demands. While there are additional recycled water projects currently under construction in San Francisco, they would not provide recycled water to Brisbane. Therefore, there is currently no opportunity for Brisbane to obtain recycled water.

Water Service to the Baylands Project Site

The Project Site is located within the BWD 1 pressure zone (see Figure 4.O-1). Existing City infrastructure includes a 12-inch water line that runs south of the northwestern corner of Bayshore Boulevard and Main Street and a 14-inch line that connects to the 12-inch line at Bayshore Boulevard and Main Street, which runs to Tunnel Avenue in the southwestern corner of the site. There is also a 12-inch line at the intersection of Bayshore Boulevard and Old County Road in the

Figure 4.O-1
City of Brisbane Existing Water Distribution System

southern portion of the site (City of Brisbane, 2006). GVMID has a 12-inch water line connected from the SFPUC meter facility on North Hill Drive near Guadalupe Canyon Parkway near the southwestern corner of the Project Site (City of Brisbane 2006).

There are several other existing water facilities in the vicinity of the Project Site:

- Daly City has a 6-inch water line on MacDonald Avenue near the northwest corner of the Project Site.
- The SFPUC has a12-inch water line on Tunnel Avenue at the north end of the site that provides water service to customers in Brisbane.
- GVMID has a 12-inch water line connected from the SFPUC meter facility on North Hill Drive near Guadalupe Canyon Parkway near the southwestern corner of the Project Site (City of Brisbane, 2006).

Wastewater

Wastewater services to the Baylands, except for the existing Recology site, are provided by the Bayshore Sanitary District (BSD) for all upland areas of the Baylands north of Brisbane Lagoon (see **Figure 4.O-2**). The BSD maintains wastewater collection facilities and contracts with the SFPUC for wastewater treatment. The existing Recology site is provided with wastewater services directly by the SFPUC. Wastewater generation for the Recology site is estimated to be 18.7 MG (Arup North, 2010).[5]

Bayshore Sanitary District

The BSD is a special district independent from the City. The BSD was created in 1925 to collect wastewater from unincorporated areas of San Mateo County. In 1963, when Brisbane was incorporated as a City and a remaining unincorporated area once referred to as Bayshore City was annexed to Daly City (Gallagher, 2005), the BSD was retained as the sewer agency serving the Bayshore area of Daly City and the northern portion of Brisbane, including the Baylands north of the lagoon. The Brisbane Industrial Park and the Kinder Morgan Energy Tank Farm are also within BSD jurisdiction and served by the BSD.

The BSD currently maintains three sewer lines within the Project Site: a line that flows to the Tunnel Avenue Interceptor, a line that flows to the Carlyle Pump Station, and a line along Geneva Avenue and associated side streets from Pasadena to Schwerin (BSD, 2001). The BSD does not own or operate wastewater treatment facilities and contracts with the SFPUC for the treatment of peak wastewater discharge of 6.7 mgd at the SEP. The current wastewater agreement prohibits the BSD's wastewater flows from containing any stormwater flows. The established protocol between the BSD and the SFPUC for any new development that would generate wastewater in excess of 0.200 mgd is for the BSD to notify staff at the SFPUC to confirm available capacity

[5] Wastewater generation from the Recology site is approximately the same as water use. Water use, and therefore wastewater flows, remain generally constant from year to year. The most recent information about water use at the Recology site is from 2008 (Arup North, 2010).

Figure 4.O-2
Bayshore Sanitary District Service Area

(UPC et al., 2011). Current annual BSD discharges to the SFPUC are approximately 0.41 mgd (Yeager, 2012). The BSD contract with the SFPUC does not have a maximum capacity allocation for wastewater discharge to the SEP (UPC et al., 2011).

The BSD has 53,810 feet of gravity-fed sewer lines that range from 6 to 24 inches in diameter. Approximately 17,460 feet of pipeline in the system date back to 1925 and have not been lined or replaced (BSD, 2006). Flows from Daly City and the Project Site are collected through a system of gravity pipes and force mains at the BSD lift station, at the intersection of Bayshore Boulevard and Industrial Way. From the lift station, wastewater flow is pumped to the SFPUC's 78-inch combined sewer line and eventually conveyed to the SEP (UPC et al., 2011).

The Carlyle Pump Station and force main were constructed in 1971 to replace an older pump station near Tunnel Avenue. The force main is a 3,320-foot-long asbestos cement-lined pipe with a 14-inch diameter that discharges into an SFPUC manhole (BSD, 2001).

Table 4.O-6 presents the wastewater flows for the BSD from 2007 to 2011.

TABLE 4.O-6
ANNUAL WASTEWATER FLOWS FOR BAYSHORE SANITARY DISTRICT, 2007-2011

	For Period Ending June 30				
	2011	**2010**	**2009**	**2008**	**2007**
Total Annual Flow (MG)	148.17	144.57	137.30	140.80	141.75
Daily Flow (mgd)	0.41	0.40	0.38	0.39	0.39

NOTES: MG = million gallons, mgd = million gallons per day

SOURCE: Adapted from Yeager, 2012

City of Brisbane

Wastewater collection is provided by the City to approximately 3,600 residences and several commercial and light industrial areas. The City has a contract with the SFPUC for the treatment of 6.0 mgd of total daily dry weather sewage flow (City of Brisbane, 1999) with a maximum peak dry weather daily flow of 6.7 mgd (UPC et al., 2011). The City's average daily dry weather wastewater flows for June through August 2011 were 0.11 mgd (Flanagan, 2012) or approximately 0.12 percent of the dry weather capacity at the SEP, and reported average wet weather flows are approximately 1.5 mgd (UPC et al., 2011) or approximately 0.6 percent of wet weather capacity at the SEP. Base sanitary dry weather flows projected for future buildout through 2020 (mainly planned developments and new office districts) are 0.45 mgd exclusive of future development of the Baylands (City of Brisbane, 2003a) which leaves approximately 5.5 mgd of wastewater flow capacity available for the City's contractual wastewater flow limit with the SFPUC.

Wastewater flows from the City are not allowed to contain stormwater. Wastewater flows are sent to the Valley Drive Pump Station, where flow is conveyed north on Bayshore Boulevard through force mains to a 78-inch combined storm and wastewater pipeline at Sunnydale Avenue operated

by the SFPUC. This line flows by gravity under US Highway 101 to the Harney Way Box Storage Culvert and Sunnydale lift station. Flow is then conveyed from the lift station through a series of conduits, tunnels, and additional lift stations, to the SFPUC's SEP for treatment (BKF, 2011).

The City's wastewater collection system is made up of approximately 80,000 feet of laterals, mains, and trunks; 20,000 feet of force mains; and four pumping stations. There are also approximately 4,350 feet of private sewers. Gravity collection system mains and small pumping stations convey the City's wastewater flow to the Valley Drive Pump Station. The wastewater is eventually delivered to the SFPUC interceptor and conveyed to the SEP.

An evaluation of the City's wastewater system conducted for the 2003 *Brisbane Sewer Master Plan* identified approximately 7,200 linear feet of sewer lines and 21 manholes that were in moderate to severely deteriorated condition that have since been repaired. Other issues of lower priority included needed repairs to several lift stations and replacement of additional pipelines. The evaluation concluded that, based on hydraulic modeling results, no new major pipeline facilities would be required to serve future planned development through 2020 (City of Brisbane, 2003a). This conclusion, however, does not include improvements that may be required as the result of Project Site development.

Project Site Sewer Facilities

Existing wastewater flows from the portion of the Project Site north of Brisbane Lagoon are collected and conveyed by the BSD to the SFPUC for treatment at the SEP through two connections to the existing SFPUC 78-inch diameter combined sewer transmission main (SFCS) located in Sunnydale Avenue and underneath portions of the Recology facility. The SFCS facility collects stormwater runoff and sewage flows. The catchment area for stormwater runoff consists of over 500 acres, including portions of San Francisco and Daly City. Wastewater flows are from San Francisco and lands within Brisbane and Daly City. From the combined sewer main, flows are eventually conveyed to the SEP. The Recology facility discharges directly into the SFCS main located in Sunnydale Avenue.

BSD wastewater lines currently serve the Industrial Way Industrial Park and other existing or demolished buildings within the former railyard portion of the Project Site. On the former landfill portion of the Project Site, wastewater from the existing tank farm is pumped from a small lift station at the tank farm through a 4-inch force main to the 21-inch BSD line on Tunnel Avenue. From the sewer main in Tunnel Avenue, flow is conveyed to the SFPUC transmission main and on to the SEP (UPC et al., 2011).

Wastewater Treatment by SFPUC

Located in the Bayview District of southeastern San Francisco**,** the SEP is a 250-mgd pure-oxygen activated-sludge treatment facility that provides secondary treatment and serves municipal and industrial customers on the east side of San Francisco, as well as Brisbane and the BSD. The treatment plant was originally constructed in 1952 and has been expanded several

times. The SEP is part of San Francisco's combined sewer system, which allows the collection and treatment of both wastewater and stormwater. The SEP does not have the capability to produce recycled water. It has a daily average design capacity of 85.4 mgd (City of Brisbane, 1999), a peak hour design capacity of 142 mgd, and can treat up to 250 mgd (100 mgd of primary treatment and 150 mgd of secondary treatment) of wet weather flows (SFPUC, 2003; SFPUC, 2010a). Dry-weather flow averages approximately 63 mgd (2003 to 2007 dry-weather average flows) (SFPUC, 2010a).

In dry weather, wastewater is sent to the SEP for secondary treatment before being discharged through the Southeast Bay Outfall. The Southeast Bay Outfall is a deep water outfall at Pier 80 with a capacity of 110 mgd and discharges directly to San Francisco Bay. During wet weather, the primary treated effluent (100 mgd) and up to 10 mgd of the secondary treated effluent are discharged to Southeast Bay Outfall. The remaining secondary effluent (140 mgd) is discharged through the Quint Street Outfall to Islais Creek (SFPUC, 2010a). The Islais Creek Outfall serves as a wet weather overflow point and receives treated secondary effluent during wet weather events. Flows are discharged into Islais Creek (which discharges into San Francisco Bay) through the shallow water Quint Street Outfall. The Quint Street Outfall is on the south bank of Islais Creek and has a capacity of 150 MGD (SFPUC, 2010a).

During wet weather, when the capacity of the SEP and the SFPUC's Combined Sewer Overflow storage facilities are exceeded, the additional flows are diverted to the North Point Water Pollution Control Plant (North Point Plant) in northern San Francisco for primary treatment before being discharged. The North Point Plant has a peak primary treatment capacity of 150 mgd. The Combined Sewer Overflow system is a series of storage tanks, tunnels, and overflow structures that store and provide primary treatment to both stormwater and wastewater during wet weather. If flows exceed the capacity of both treatment plants and the Combined Sewer Overflow system, they are discharged directly to San Francisco Bay through the SFPUC's near-shore outfalls (SFPUC, 2010b).

The Solids Handling Facility is the oldest facility at the SEP, built in 1951. Equipment at this facility is aging and, as a result, there are a variety of maintenance issues including structural integrity of the anaerobic mixers, ineffective mixing of the digesters, odor emissions, and foam. In addition, the Solids Handling Facility produces Class B biosolids that are reused for land application and landfill daily cover. Because of growing public concern and increased regulatory restrictions, reuse opportunities for Class B biosolids may not be possible through 2030. The 2010 Draft Sewer Master Plan (SFPUC, 2010a) recommends the construction of a new biosolids digester facility to replace the old SEP facility. The new facility would produce high quality (Class A) biosolids (SFPUC, 2010a).

The SFPUC operates its wastewater facilities in compliance with its National Pollutant Discharge Elimination System (NPDES) permits issued by the San Francisco Regional Water Quality Control Board (SFRWQCB) that allow discharge of treated wastewater effluent and surface stormwater flows to surface waters, and the United States Environmental Protection Agency (U.S. EPA) Combined Sewer Overflow Control Policy (SFPUC, 2010b).

Stormwater Drainage

Existing Stormwater Drainage

For the purposes of stormwater drainage, the Brisbane area is divided into two main watersheds: the Bayshore Basin (Guadalupe Canyon Parkway, Industrial Way, the Bayshore neighborhood of Daly City, and most of the Baylands), and the GVMID Basin (Central Brisbane, Crocker Park, most of the Northeast Ridge, and the Quarry) (City of Brisbane, 1993). There are also three smaller drainage basins in the city: the Beatty Basin at the northern tip of the City; the Downtown Basin encompassing the residential portion of the City; and the San Bruno/Bayshore Basin at the southern end of the City. Brisbane's storm drainage systems consist of open concrete ditches, underground gravity flow pipes, storm drain detention basins, and major outfalls that discharge into Brisbane Lagoon (Guadalupe Valley Drain) and San Francisco Bay (Eastern Bayshore Outfall) (City of Brisbane, 2004). A northeastern portion of the city that is not part of the Bayshore or GVMID Basins discharges to the 78-inch SFPUC pipeline at Beatty Avenue. Please see Figure 4.H-2, Watershed Boundaries, in Section 4.H, *Hydrology and Water Quality*, for a depiction of regional watersheds.

NPDES Permit

Brisbane operates under the 2009 San Francisco Bay Regional Water Quality Control Board (SFBRWQCB) Municipal Regional Stormwater NPDES Permit (ORDER R2-2009-0074, NPDES Permit No. CAS612008), issued by the SFRWQCB. As required by the permit, the City implements specific best management practices (BMPs) to help reduce pollutants and eliminate non-stormwater discharges to the storm drain system (SFRWQCB, 2009).

Stormwater Infrastructure at the Project Site

The majority of the Project Site is within the Bayshore and Beatty Avenue basins. The Bayshore Basin is approximately 994 acres and encompasses portions of Daly City and Brisbane, as described above. Stormwater from the 568 acres of the upstream basin (west of Bayshore Boulevard in Daly City), referred to as the Upper Reach, is collected by an underground drainage network leading to a series of open channels and conduits that flow through Brisbane and discharge to San Francisco Bay (Cities of Daly City and Brisbane, 1995). East of Bayshore Boulevard is the Lower Reach, which drains approximately 426 acres and is entirely in the City of Brisbane. A portion of the Project Site is within the Upper Reach of the Bayshore Basin. The Beatty Avenue basin is in the northeastern portion of the Project Site and drains 55 acres of the former landfill. The Brisbane Lagoon basin includes a 52-acre area of the former landfill and drains into Brisbane Lagoon. **Figure 4.O-3** shows the existing stormwater system within the Project Site.

The following is a brief overview of stormwater infrastructure within the Project Site, as described in the Brisbane Storm Drainage Master Plan Final Report (City of Brisbane, 2003c), the *Brisbane Baylands Specific Plan* (UPC, 2011), the Brisbane Baylands Draft Infrastructure Plan (BKF, 2011), and the Eastern Bayshore Drainage Outfall Study (Cities of Daly City and Brisbane, 1995).

Figure 4.O-3
Stormwater System on the Baylands Site

Brick Arch Sewer

Runoff from an open channel in the Upper Reach drains through an 8-foot-by-5-foot box culvert under Bayshore Boulevard and into a 3,500-foot-long brick arch sewer that is 7.5 feet high and 8 feet wide. The brick arch sewer conveys flows from the box culvert, along Bayshore Boulevard, to the east side of the Caltrain tracks.

Timber Box Culvert

The brick arch sewer discharges to a 440-foot-long, 5.3-foot wide-by-10-foot high timber box culvert in the former landfill area. The timber box culvert also conveys flows from the tracks to the lower open earth channel west of Tunnel Avenue.

Visitacion Creek

An open earth channel, approximately 2,400 feet long, runs east-west through the center of the Project Site near the former landfill. The top of the channel is approximately 60 feet wide and the bottom is approximately 17 feet wide. Three roads cross over the channel using double 84-inch and 96-inch diameter culverts. The channel discharges to San Francisco Bay though a 12-foot-by-12-foot box culvert under US Highway 101. This culvert is referred to as the Eastern Bayshore Outfall.

Railroad Yard Drainage Channel

An earthen railyard drainage channel runs parallel to Industrial Way and drains the former railyard. This channel discharges near the end of brick arch sewer, upstream of the Caltrain tracks.

Beatty Avenue

The Beatty Avenue stormwater system is not part of the Bayshore Basin and does not discharge to the Eastern Bayshore Outfall, but it is within the Project Site. This stormwater system is in the northeastern portion of the Baylands. Stormwater flows are conveyed through a 42-inch storm drain on Beatty Avenue from Tunnel Avenue to Alanna Way. The 42-inch storm drain discharges to a 30-inch storm drain that crosses under US Highway 101 and drains into the SFPUCs combined sewer system and into the Sunnydale pump station (Cities of Daly City and Brisbane, 1995).

Brisbane Lagoon

Approximately 52 acres of the former Landfill, adjacent to Brisbane Lagoon, drain to Brisbane Lagoon. Flow from the landfill is conveyed through shallow swales adjacent to Lagoon Way and discharges through culverts running under Lagoon Way. Flow then continues south to Brisbane Lagoon (BKF, 2011).

Non-Hazardous Solid Waste

The South San Francisco Scavenger Company (SSFSC) provides solid waste collection and recycling services to the City. Waste is transported to the Blue Line Transfer Incorporated Public Disposal and Recycling Facility for sorting and processing. The Blue Line Facility is located in South San Francisco and has a permitted capacity of 2,400 tons of waste per day and an average daily throughput of 1,200 tons a day (CalRecycle, 2012a).

In 2009, solid waste from Brisbane was sent to the Forward Landfill (San Joaquin County), Guadalupe Sanitary Landfill (Santa Clara County), Newby Island Sanitary Landfill (Santa Clara County), Ox Mountain Sanitary Landfill (San Mateo County), Recology Hay Road (Solano County), Zanker Material Processing Facility (Santa Clara County), and Zanker Road Class III Landfill (Santa Clara County) (CalRecycle, 2012b). **Table 4.O-7** shows the landfills receiving solid waste from Brisbane, their remaining capacities, and projected closure dates. Other landfills in the region that are actively accepting solid waste and could be used in the future include Kirby Canyon and Potrero Hills Landfill Recycling and Disposal Facility with a combined remaining capacity of 71,143,507 cubic yards and projected closure dates of December 21, 2022 and February 14, 2048, respectively (CalRecycle, 2012c). Adding these two additional landfills to the portfolio of existing landfill capacity results in an aggregate remaining estimated landfill capacity of 204,037,708 cubic yards.

TABLE 4.O-7
LANDFILLS RECEIVING SOLID WASTE FROM THE CITY OF BRISBANE

Name	Location (County)	Total Permitted Capacity (cubic yards)	Total Estimated Capacity Used (cubic yards) (% of total)	Remaining Estimated Capacity (cubic yards)	Estimated Closure Date	Permitted Maximum Disposal (tons/day)
Forward Landfill, Inc.	San Joaquin	51,040,000	27,340,000 (54%)	23,700,000	1/1/2020	8,668
Guadalupe Sanitary Landfill	Santa Clara	28,600,000	14,000,000 (49%)	14,600,000	1/1/2048	1,300
Newby Island Sanitary Landfill	Santa Clara	50,800,000	32,525,047 (64%)	18,274,953	6/1/2025	4,000
Ox Mountain Sanitary Landfill	San Mateo	37,900,000	N/A	44,646,148	1/1/2018	3,598
Recology Hay Road	Solano	37,000,000	6,567,000 (18%)	30,433,000	1/1/2077	2,400
Zanker Material Processing Facility	Santa Clara	540,100	N/R	540,100	12/31/2018	350
Zanker Road Class III Landfill	Santa Clara	1,300,000	600,000 (46%)	700,000	12/12/2003	1,300
Total		**207,180,100**		**132,894,201**		**21,616**

NOTE: N/R = not reported, N/A = not available

SOURCE: CalRecycle, 2012b

The City's overall landfill waste stream disposal was 5,661 tons in 2009, 5,497 tons in 2010, and 5,381 tons in 2011 (CalRecycle, 2012d). In 2010, Brisbane had approximately 45 different waste diversion programs in effect to reduce waste generation, including composting, recycling, and public education programs. The City's annual waste diversion rate[6] from 2005 to 2007 ranged from 73 percent to 75 percent (CalRecycle, 2011).

6 Diversion rate refers to the amount of waste diverted from landfills by composting, recycling, etc.

In the northeast portion of the Project Site (501 Tunnel Avenue) is the existing 259,000-square-foot solid waste transfer station and recycling complex operated by Recology San Francisco. This facility processes recyclable materials mainly from San Francisco. The San Francisco Board of Supervisors has mandated a goal of 75 percent waste diversion for all of San Francisco and zero waste by 2020. To meet this goal, Recology San Francisco has determined that expansion of its facility is necessary.[7]

4.O.3 Regulatory Setting

This subsection presents the applicable federal, state, and local laws, regulations, and policies as they relate to utilities.

Federal Regulations

Water

The federal Safe Drinking Water Act was established to protect the quality of drinking water in the United States. This law focuses on all waters actually or potentially designated for drinking use, whether from aboveground or underground sources. The Safe Drinking Water Act authorized the United States Environmental Protection Agency (U.S. EPA) to establish water quality standards and required all owners or operators of public water systems to comply with primary (health-related) standards. Section 4.H, *Hydrology and Water Quality*, of this EIR provides additional information on the Safe Drinking Water Act.

Wastewater and Stormwater

Section 402 of the Clean Water Act establishes the federal NPDES program, which regulates all point sources that discharge pollutants into the waters of the United States. Types of point source discharges that are regulated include any discharge of wastewaters to surface waters, including stormwater runoff from construction sites, wastewater treatment discharges to surface waters, and municipal storm water discharges. This program is managed by the U.S. EPA; however the U.S. EPA has delegated many of the permitting responsibilities to state agencies. In California, the State Water Resources Control Board (SWRCB) and nine Regional Water Quality Control Boards (RWQCBs) administer permits for this program. Applicants must submit permit applications to the appropriate agency and along with a detailed Storm Water Pollution Prevention Plan outlining measures that will be implemented to prevent water pollution. See "Wastewater and Stormwater" under "State Regulations" below for more information.

While there are no specific federal regulations governing the use of recycled water, the U.S. EPA has published Guidelines for Water Reuse (U.S. EPA, 2004), including a discussion on types of reuse applications, technical issues in planning water reuse systems, water reuse regulations and guidelines in the U.S., legal and institutional issues, funding of water reuse systems, and public involvement programs. Recycled water use is primarily regulated by individual states.

[7] The proposed expansion of the existing Recology facility is included as part of the CPP-V Concept Plan scenario and is described in Chapter 3, *Project Description*, in this EIR.

Non-Hazardous Solid Waste

At the federal level, the U.S. EPA regulates the management of non-hazardous solid waste according to the Resource Conservation and Recovery Act (RCRA), Subtitle D. Subtitle D establishes state and local governments as the primary planning, regulating, and implementing agencies for management of solid waste. The U.S. EPA provides these governments with information, guidance, and policies to promote recycling, waste reduction, and safe handling of solid waste. As required by RCRA, the U.S. EPA has developed federal criteria for the design and operation of municipal solid waste landfills and other disposal facilities, which have since been adopted by most states, including California.

State Regulations

Water

California State Drinking Water Act

The California Safe Drinking Water Act authorizes the California Department of Public Health (DPH) to protect the public from contaminants in drinking water by establishing maximum contaminants levels that are as stringent as those required by the federal Safe Drinking Water Act.

Porter-Cologne Water Quality Control Act of 1970

The Porter-Cologne Water Quality Control Act of 1970 established the SWRCB and nine RWQCBs within California. These groups are the primary state agencies responsible for protecting California water quality to meet present and future beneficial uses and regulating appropriative surface rights allocations. The SFRWQCB is the regional board responsible for the Project Site and vicinity.

California Senate Bills 610 and 221

California Senate Bill (SB) 610 requires any project that meets the development criteria listed below and that would be subject to CEQA to obtain a Water Supply Assessment in order to determine if there is an adequate water supply to meet the project's demand. A city or county must request a Water Supply Assessment from the local water provider when the type of environmental review has been determined. The water agency is then required to provide the assessment no later than 90 days after the request. The governing board of the water agency must approve the assessment at a public meeting and the assessment must be included in the CEQA document. California SB 221 requires applicable projects as listed below to provide written proof of adequate water supply from the local water supplier before the final subdivision map can be approved. Projects would be subject to SB 610/221 if they meet one or more of the following criteria:

- A proposed residential development of more than 500 dwelling units.
- A proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space.
- A proposed commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space.

- A proposed hotel or motel, or both, having more than 500 rooms.
- A proposed industrial, manufacturing, or processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area.
- A mixed-use project that includes one or more of the projects specified in this act.
- A project that would demand an amount of water equivalent to, or greater than, the amount of water required by a 500-dwelling-unit project.

Because the proposed development of the Project Site meets several of these criteria, a water supply assessment was completed according to the requirements of SB 610. Further, because the City of Brisbane is its own water agency, the water supply assessment was completed by the City and is included as **Appendix L** in this EIR.

Wastewater and Stormwater

Recycled Water

In California, the Department of Public Health and the SWRCB are the primary agencies responsible for regulating the treatment, distribution, and use of recycled water. The main state laws and regulations governing the use of recycled water include:

- **California Health and Safety Code (Division 104; Part 12):** requires recycled water pipes installed above or below ground to be colored purple.
- **California Water Code (Division 7; Chapters 2,6, 7, and 22):** requires submission of an engineering report to the Department of Public Health and SWRCB for anyone proposing a recycled water project, in order to describe compliance with California Code of Regulations Title 22 requirements, establishes recycled water permits to streamline the permitting process for recycled water, prohibits unauthorized discharges of recycled water, and requires the use of recycled water for non-potable purposes whenever suitable recycled water is available.
- **Title 17 of California Code of Regulations (Division 1; Chapter 5):** sets specific infrastructure standards to prevent contamination of potable water with recycled water.
- **Title 22 of California Code of Regulations (Division 4; Chapters 1, 2, and 3):** contains regulations for the design of recycled water treatment plants and the treatment, distribution, and use of recycled water.

The California Water Code (Sections 13575-13583) contains the Water Recycling Act of 1991, which establishes a statewide goal of recycling 1 million acre-feet of water annually by the year 2010 and encourages retail water suppliers to increase the use of recycled water. This is meant to encourage state and local agencies to implement recycled water projects whenever feasible.

Stormwater Discharges

Any action or project that disturbs more than one acre of soil resulting in waste discharge to waters of the State must obtain a NPDES General Permit for Discharges of Storm Water Runoff Associated with Construction and Land Disturbance Activities (Construction General Permit

CAS000002, Board Order No. 2009-0009-DWQ, and amended by Board Order No. 2010-0014-DWQ). Construction activities subject to this permit include clearing, grading, excavation, stockpiling and other disturbances to the land. While this is a federally required permit under the Clean Water Act, in California the SWRCB and nine RWQCBs are responsible for the implementation of the NPDES permitting process at the state and regional levels, respectively. For development on the Project Site, the SFRWQCB would issue this permit to the project applicant and the applicant's associated construction contractor(s). See the discussion of water quality in Section 4.H, *Hydrology and Water Quality*, of this EIR for information on the NPDES General Permit for Construction under the NPDES program.

The NPDES program also regulates stormwater discharges from municipal sewer systems. Stormwater discharge from the City of Brisbane, including the Project Site, is currently covered under the Municipal Regional Stormwater NPDES Permit (NPDES Permit No. CAS612008), issued October 14, 2009 by the SFRWQCB. This permit, which expires on November 30, 2014, outlines specific measures to be implemented to reduce stormwater runoff and pollution and describes required monitoring and reporting procedures. See the discussion of water quality in Section 4.H, *Hydrology and Water Quality*, of this EIR for information on municipal separate storm sewer systems under the NPDES program.

Non-Hazardous Solid Waste

California Integrated Waste Management Act

The California Integrated Waste Management Act (Assembly Bill [AB] 939) was signed into law in 1989. Under AB 939, the six-member California Integrated Waste Management Board (CIWMB) was established with the authority to manage solid waste in the State of California to protect public health and the environment. AB 939 required all cities and counties to divert 25 percent of solid waste from landfills and transformation facilities by 1995 and 50 percent of all solid waste by January 1, 2000. Each county was required to create a task force to develop city and unincorporated area source reduction and recycling elements and a countywide siting element for disposal sites for waste disposal capacity. The plans must promote 1) source reduction, 2) recycling and composting, and 3) environmentally safe transformation and land disposal. AB 939 also facilitated the development of a statewide system of permitting including inspections, enforcement, and solid waste facilities maintenance.

SB 63, signed into law on July 28, 2009, abolished the CIWMB as of January 1, 2010 and transferred its duties and responsibilities to the Department of Resources Recycling and Recovery, referred to as CalRecycle.

Assembly Bill 341

AB 341, signed into law on October 6, 2011, mandates that California reduce, recycle, or compost 75 percent of solid waste by the year 2020. CalRecycle is responsible for developing a plan to achieve that goal and has drafted a working document to spur discussion among interested parties on the future development of the final plan.

Senate Bill 1374

SB 1374 was signed into law in 2002 and contains requirements for diversion of construction and demolition wastes by local governments. As part of SB 1374, CalRecycle is required to provide information to jurisdictions and general contractors on methods and activities to divert construction and demolition materials. This bill also directs CalRecycle to develop and adopt a model construction and demolition debris diversion ordinance for voluntary use by local jurisdictions. CalRecycle adopted a model at its March 16, 2004 meeting (agenda item 13). The City of Brisbane has adopted a construction and demolition ordinance, as described below under "Local Regulations."

California Solid Waste Reuse and Recycling Access Act of 1991

The California Solid Waste Reuse and Recycling Access Act of 1991 (AB 1327) requires local jurisdictions to adopt an ordinance requiring commercial, industrial, or institutional buildings, marinas, or residential buildings to provide adequate storage areas to collect and load recyclable materials. As required by AB 1327, CalRecycle developed a model ordinance for adoption by local agencies that did not have an existing ordinance. The City of Brisbane has adopted an ordinance for collection and loading of recyclable materials, as described below under "Local Regulations."

Title 17 of California Code of Regulations

Title 17 of the California Code of Regulations (Division 7; Chapters 3 through 10) outlines specific regulations for non-hazardous solid waste management and presents guidelines for preparing Countywide or Regional Integrated Waste Management Plans.

Title 2 of California Code of Regulations

Title 2 of the California Code of Regulations (Division 2) describes criteria for waste disposal on land, including solid waste facility and landfill permitting, siting, construction, operation, maintenance, and closure.

Other

California Occupational Safety and Health Requirements for Excavation

The California Occupational Safety and Health Regulations outline specific requirements for any person planning to conduct excavation. The excavator is required to notify the Underground Service Alert at least 2 days prior to excavation and to delineate the area to be excavated. Any operator of a subsurface utility in the area who receives notification must locate and field mark the approximate location of any utilities that could be affected by the excavation. Utilities in conflict with the excavation must be exposed by digging with hand tools prior to the use of any power equipment (Underground Service Alert, undated).

California Public Utilities Commission

The California Public Utilities Commission (CPUC) has constitutional authority to regulate privately owned public utilities, including electric, natural gas, telecommunications, water,

railroad, rail transit, and passenger transportation companies. As part of its mission the CPUC "…ensures the provision of safe, reliable utility service and infrastructure at reasonable rates" to its consumers including a commitment to enhancement of the environment and a "healthy California economy." The CPUC regulates utility services and promotes innovation as well as a competitive marketplace for services (CPUC, 2007).

Local Regulations

Water

Brisbane Municipal Code

Chapter 13.12 of the Brisbane Municipal Code contains provisions for water fees, connection fees, and the responsibilities for maintenance of water meters and laterals. New water connections require an application to be submitted to the Director of Public Works.

Brisbane General Plan

Chapter IX, Conservation, of the Brisbane General Plan (City of Brisbane, 1994) includes the following policy and programs regarding water conservation:

> ***Policy 138*:** Encourage conservation of domestic water.
>
> > *Program 138a*: Require the use of water conserving fixtures in new construction and remodeling projects.
> >
> > *Program 138b*: Encourage the use of water conserving landscape and irrigation systems.
> >
> > *Program 138c*: Utilize, if safe and appropriate, recycled water for landscape irrigation and dust control.
> >
> > *Program 138d*: Provide public information on water conservation practices.
> >
> > *Program 138e*: As a part of the land use planning process, consider how water conserving features are incorporated into project design.

Chapter X, Community Health and Safety, of the Brisbane General Plan (City of Brisbane, 1994) includes the following policies and programs regarding water supply and quality:

> ***Policy 207*:** Establish pressure zone(s) for water improvements and prohibit private on-site water tanks.
>
> ***Policy 208*:** If new development occurs, require infrastructure to be installed to City standards.
>
> > *Program 208x*: In conjunction with land use development applications for vacant lands, require studies to estimate the needs for domestic water and fire protection and require infrastructure to be designed and installed, at the developer's expense, to the satisfaction of the City.
>
> ***Policy 209*:** Require, as feasible, all trunk water lines to be installed in dedicated public streets.

***Policy 210*:** Developers and property owners who wish to build on their land in undeveloped areas where infrastructure does not currently exist shall provide the infrastructure for water distribution, fire protection and water connections to the City's service at their own expense.

***Policy 211*:** On an ongoing basis, review requirements for fire protection.

***Policy 224*:** In conjunction with development applications that place substantial increased demands upon the existing system, require that the system be upgraded or replaced to the satisfaction of the City. Contributions from responsible parties should be proportional to the impact of their projects.

Wastewater

Brisbane Municipal Code

Title 13.04 of the Brisbane Municipal Code provides standards for the installation and use of sanitary sewers as well as the types of waste that can be discharged.

Brisbane General Plan

Chapter X, Community Health and Safety, of the Brisbane General Plan (City of Brisbane, 1994) includes the following applicable policies and program regarding wastewater infrastructure and service:

***Policy 213*:** If new development occurs, require trunk and lateral lines to be installed to City standards.

Program 213a: In conjunction with land use development applications for vacant lands, require studies to determine capacity and design requirements for sanitary sewer services and require infrastructure design and installation to the satisfaction of the City at developer's expense.

***Policy 214*:** Require, as feasible, that all sanitary sewer lines be installed within dedicated public streets.

***Policy 215*:** Sanitary sewer service to undeveloped areas where facilities do not currently exist shall be installed and connected to the City's system at the property owner or developer's expense.

***Policy 216*:** If development occurs, extend City sanitary sewer service to currently undeveloped areas so that all new users within the City Limits are served by the City as legally permissible.

Stormwater

Chapter X, Community Health and Safety, of the Brisbane General Plan (City of Brisbane, 1994) includes the following applicable policies and programs regarding stormwater infrastructure and quality:

***Policy 221*:** If new development occurs, require storm drain systems to be installed to City standards.

Program 221a: In conjunction with land use development applications for vacant lands, require studies to determine design requirements to collect and remove stormwater from the property or reuse stormwater to benefit the public. Require facilities to be designed and installed to City standards, at developer's expense.

***Policy 222*:** Require that all storm drain lines be installed within dedicated public streets.

***Policy 223*:** Storm drains in undeveloped areas where facilities do not currently exist shall be installed at the property owner or developer's expense.

***Policy 224*:** In conjunction with development applications that place substantial increased demands upon the existing system, require that the system be upgraded or replaced to the satisfaction of the City. Contributions from responsible parties should be proportional to the impact of their projects.

Program 228d: Comply with National Pollutant Discharge Elimination System, as required.

Non-Hazardous Solid Waste

Brisbane Municipal Code

Chapter 15.75 of the Brisbane Municipal Code requires that 50 percent of construction and demolition debris be either recycled or reused to reduce landfill disposal. Before a building permit can be obtained, an applicant must submit a Recycling and Waste Reduction Plan and provide a cash deposit, which is refundable if 50 percent of all wastes have been diverted. The applicant is required to keep receipts and other records in order to provide proof that the wastes have been diverted. Records and receipts must be submitted to the City no later than 60 days following the completion of a project, and may also be required throughout construction. For projects that take more than 6 months or projects with a value of more than $1 million, progress reports during the construction may be required.

Chapter 18.32 of the Brisbane Municipal Code establishes a citywide recycling program for all city residents and describes requirements for the collection and disposal of recyclable materials.

Brisbane General Plan

Chapter IX, Conservation, of the Brisbane General Plan (City of Brisbane, 1994) includes the following applicable policy and programs regarding solid waste:

***Policy 143*:** Maximize opportunities to recycle solid waste.

Program 143a: Continue to participate in joint planning and collection programs with other agencies, such as those required by AB 939, to manage solid waste in order to maximize reclamation and reuse of the resources contained in the solid waste stream and reduce the impacts on landfills.

Program 143e: In the review of land use development applications, consider design factors pertaining to the storage and disposal of recycling materials.

4.O.4 Impacts and Mitigation Measures

Significance Criteria

Criteria outlined in the CEQA Guidelines were used to determine the level of significance of identified impacts on utilities and service systems. Appendix G of the CEQA Guidelines indicates that a project would have a significant effect on the environment if it were to:

- Not have sufficient water supplies available to serve the project from existing entitlements and resources, and would require new or expanded entitlements;
- Result in a determination by the wastewater treatment provider which serves or may serve the project that it does not have adequate capacity to serve the project's projected demand in addition to the provider's existing commitments;
- Result in the construction of new water, wastewater treatment, or stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;
- Exceed wastewater treatment requirements of the SFRWQCB;
- Be served by a landfill without sufficient permitted capacity to accommodate the project's solid waste disposal needs;8 or
- Not comply with federal, state, or local statutes or regulations related to solid waste.

Impact Assessment Methodology

Impacts of Project Site development were assessed according to the significance criteria stated above. Information on utility demands and proposed infrastructure for the DSP and DSP-V scenarios was obtained from the Brisbane Baylands Infrastructure Plan, which was prepared by BKF in 2011 (**Appendix B**) and submitted to the City along with the Brisbane Baylands Specific Plan (UPC, 2011). Appendix L of this EIR contains the "Water Use Projections and Water Balance for Base Land Use Scenario (DSP) and Entertainment Land Use Scenario (DSP-V)" Technical Memo prepared by Brown and Caldwell that provides water demands (both indoor and outdoor irrigation) for the DSP and DSP-V Concept Plan scenarios (Brown and Caldwell, 2011). Both the infrastructure plan and the water use projections technical memo were peer-reviewed on behalf of Brisbane by CDM Smith, who prepared a water supply assessment (WSA) for the Project in compliance with SB 610 requirements (Appendix L).

Water Demand and Wastewater Generation Estimates

Water consumption and wastewater generation figures for the DSP and DSP-V scenarios were provided by Brown and Caldwell (2011) and independently peer-reviewed by CDM Smith of behalf of the City for technical adequacy. Water consumption and wastewater generation for the CPP and CPP-V scenarios were developed by CDM Smith for the water supply assessment by applying the water demand and wastewater generation rates used for the DSP and DSP-V

8 This threshold is analyzed in two separate impact statements, one addressing impacts during construction of Project Site development and one addressing impacts during operation of Project Site development.

scenarios to the land uses proposed for the CPP and CPP-V scenarios. Water demand per square foot for the DSP and DSP-V land use types was calculated and then applied to each of the different land use types of the CPP and CPP-V. If the rates per square foot varied between the DSP and DSP-V scenarios for the same land use type, the higher rate was applied to the CPP and CPP-V scenarios to ensure a conservative estimate of water demand for the scenarios.

Water Demand under Water Savings Programs

Brown and Caldwell also calculated water demand for Project Site development under five different Water Savings Programs (A through E) (See EIR Appendix B for the Brisbane Baylands Infrastructure Plan and the appendices of Appendix L for the Brown and Caldwell technical memo). The Water Savings Programs include educational, physical, and regulatory measures to reduce water demand and increase water use efficiency. Each of the programs builds on the previous program and progressively adds more stringent measures to reduce water use and conserve water. As described in Chapter 3, *Project Description*, the Project Site development under all four scenarios includes implementation of Water Savings Program E, which is the most extensive and rigorous of the programs (described in more detail below). Water Savings Program E includes all of the conservation measures identified in Water Savings Programs A through D, plus the additional construction of an onsite recycled water plant that would reduce overall water demand of Project Site development by providing recycled water for non-potable uses. The actual construction of the recycled water plant would not be completed until a sufficient amount of Project Site development has been completed generating sufficient wastewater to allow for efficient operation of the plant and related recycled water system, which is expected to occur by year 15 of Project Site development. Therefore, to account for a 15-year time lag between start of development and availability of recycled water onsite to offset potable water demands, two different water demand scenarios are presented, one without the recycled water plant in operation to provide recycled water (Water Savings Program D) and one with the recycled water plant in operation providing recycled water for irrigation and other non-potable uses (Water Savings Program E). It is assumed that for up to the first 15 years of the Project Site's 20-year buildout, water demand could be higher until the water recycling plant is brought online and working at full capacity to deliver recycled water. Under Program D, summer water demands are higher than winter demand because of irrigation requirements. Because Program E would use recycled water for all irrigation, water demands are the same in the summer and winter.

Water Supply Assessment

The Water Supply Assessment prepared by CDM Smith for Project Site development (Appendix L) evaluates the water demands for each of the four Project site development scenarios (DSP, DSP-V, CPP, and CPP-V) under both Water Savings Programs D (without the recycled water plant) and E (with the recycled water plant). The WSA was completed to meet SB 610 requirements to determine if there are sufficient water supplies to meet the Project's water demands through 2035.

Wastewater Generation Estimates

With respect to wastewater generation projections for Project Site development, as stated in the Brisbane Baylands Infrastructure Plan, industry standards indicate that wastewater demands in general are 90 percent of water demand; however, a more conservative value of 95 percent of the proposed Project Site development water demand was used to calculate wastewater demands (BKF, 2011), recognizing the relatively high development intensity of proposed Project Site development under each scenario in relation to the amount of land devoted to irrigated landscaping.

Water Savings Programs D and E

Water Savings Program D includes several measures to conserve water, while Water Savings Program E includes all the applicable measures in Program D as well as the construction of an onsite recycled water plant to allow for the use of recycled water for all outdoor irrigation and non-potable indoor plumbing for toilets and cooling water within the Project Site. (For further information on these water savings programs see EIR Appendix B for the Brisbane Baylands Infrastructure Plan and the appendices of Appendix L for the Brown and Caldwell technical memo).

Water Savings Program D (without onsite recycled water plant) includes the following water savings measures:

- **water budgets** that compare the supply to the demand of Project Site development as presented in the Water Supply Assessment to ensure the appropriate level of development in relation to limits on water supplies in the future;
- **public outreach information** that includes promoting watershed stewardship such as preventing contaminants from entering stormwater, conserving precious water supplies, and funding environmental education initiatives;
- **landscape requirements for new systems** that require tracking and managing irrigation water use through the installation of a dedicated irrigation water service, preventing dry weather runoff from faulty irrigation systems, and enforcement of non-watering days;
- **water audits for commercial users** that offer expert evaluation of indoor and outdoor water use for any building type, including assessing the water efficiency of plumbing fixtures and landscape irrigation, identifying leaks, and providing information about incentives available for replacing inefficient fixtures and review customer water use history;
- **water audits for hotels-motels** that offer expert evaluation of indoor and outdoor water use for any building type, including assessing the water efficiency of plumbing fixtures and landscape irrigation, identifying leaks, and providing information about incentives available for replacing inefficient fixtures and review customer water use history;
- requirements for **multi-family unit sub-metering** to more accurately bill individual households for water use and provide residents with incentives to use water more efficiently;
- multi-family residential efficient **clothes washer rebate**;
- **Water Alliances for Voluntary Efficiency (WAVE) Program (USEPA) for Hotels** that provides hotels with tools to increase water use efficiency and decrease water costs;
- **dedicated landscape meters** for outdoor irrigation use;

- **native plant landscaping** incorporating plants with low to no water demands;
- **subsurface irrigation for turf** to decrease water lost to evaporation from above-ground sprinklers or misters;
- **hardscape** (e.g., area is covered with materials other than vegetation) to increase stormwater infiltration and decrease irrigation demand;
- **high efficiency toilets** (1.28 gallons per flush [gpf] or less) or dual-flush toilets (0.8 gpf half-flush and 1.6 gpf full-flush) in new commercial, industrial, and institutional buildings;
- **automatic faucets with on/off valves** that prevent wasted water; and
- **waterless urinals**.

Water Savings Program E includes all of the measures listed above for Program D plus the construction of an onsite recycled water plant to provide recycled water for irrigation and other non-potable uses. As discussed above, implementation of Water Savings Program E is proposed as part of Project Site development; however, as also explained above, it is assumed that the onsite recycled water plant would not be constructed until year 15 and operational the next year; therefore, the impacts of the Project on water supply are evaluated under both Water Savings Programs D and E.

Solid Waste Generation Estimates

Solid waste generation rates for construction and operation of all development scenarios were obtained from a variety of sources, as discussed under "Project Impacts and Mitigation Measures" below.

Impacts of Constructing Onsite Utilities

Impacts related to construction of onsite utilities to serve proposed Project Site development are analyzed in the relevant environmental topic area sections throughout this EIR and summarized here in Impact 4.O-3.

Project Impacts and Mitigation Measures

Impact 4.O-1: Would existing entitlements and resources provide sufficient water supplies to serve the Project, or would it require new or expanded entitlements?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
SM	SM	SM	SM

SU = Significant Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = No Impact

DSP, DSP-V, CPP, and CPP-V

Summary

The City of Brisbane does not have adequate existing water supplies to serve proposed Project Site development under any of the four scenarios. As a result, a new supplemental water supply – a surface water transfer of 2,400 AFY from OID to Brisbane, and an extensive water conservation program (Water Savings Program E) that includes demand management measures and provision of recycled water via an

onsite recycled water plant, are included as part of Project Site development. The proposed OID water transfer coupled with the proposed water conservation and recycled water actions would provide adequate water supply to meet the long-term water supply needs of Project Site development under all four scenarios. Thus, while Project Site development would require new water supply, this supply would be provided as part of Project Site development; therefore the impact on water supply would be less than significant.

While there would be sufficient water supply to meet the long-term annual water demands of Project Site development if the proposed water transfer agreement is approved, the City has determined that it does not have existing facilities that could provide adequate peak day / peak hour water flow to the Project Site in the event of an emergency. Additional storage capacity within the City is needed to provide adequate fire flows and meet peak daily water demands. This would be a significant but mitigable impact.

The OID water transfer of 2,400 AFY to Brisbane would contribute to a potential impact on the Tuolumne River associated with changes in the SFPUC's existing reservoir release pattern from Hetch Hetchy Reservoir that, in some years, could lead to flow changes that could adversely affect streamside meadows and other alluvial deposits. This impact was first identified in the SFPUC WSIP Program EIR (SF Planning Department, 2008) as a consequence of the SFPUC's proposed WSIP and in October 2008 the SFPUC adopted a mitigation measure to address this impact as part of its approval of its Phased WSIP Variant (SFPUC Resolution No. 08-200). In implementing this adopted mitigation measure, the SFPUC will modify the way it releases water from Hetch Hetchy Reservoir such that significant impacts to the streamside meadows and other alluvial deposits along the Tuolumne River below this reservoir will be avoided. Although the SFPUC has already adopted the mitigation measure needed to address this impact, this impact is considered significant but mitigable for this Project as well, and that same mitigation measure is also included here as Measure 4.O-1b for the proposed Brisbane-OID water transfer. This issue is also disclosed in Section 4.C *Biological Resources,* in this EIR.

Water Supply Adequacy

As described above, because the actual construction of the onsite recycled water plant may not be completed until as late as 15 years into development of the Project Site, two different water demand scenarios were evaluated, one without the recycled water plant making recycled water available to offset some of the potable demand, and one with the recycled water plant in operation providing recycled water for irrigation and other non-potable uses. As a result, for the first 15 years of Project Site development, potable water demand would be higher until the onsite recycled water plant was brought online and working at full capacity to provide recycled water for non-potable irrigation and other uses.

Water demand was estimated in 2011 by Brown and Caldwell (Brown and Caldwell, 2011) for the DSP and DSP-V scenarios with and without the recycled water plant as part of the infrastructure planning for the Brisbane Baylands Specific Plan.[9] Water demands for the CPP and

[9] Water demand estimates prepared by Brown and Caldwell were independently reviewed by CDM Smith on behalf of the City as part of the preparation of this EIR.

CPP-V scenarios were then calculated using the water demand per square foot of building area that was used for the DSP and DSP-V scenarios and applying that demand factor to each of the land uses proposed under the CPP and CPP-V scenarios. If the rates per square foot varied between the DSP and DSP-V scenarios for the same land use type, the higher rate was applied to both the CPP and CPP-V scenarios. **Table 4.O-8** below presents estimated water demand for both water savings programs (i.e., without and with the recycled water plant delivering recycled water to the Project Site development). The table includes projected water demand for the Project Site alone, water demand with other projected City water demands, and water demand for projected City buildout (i.e., with three future developments planned for Sierra Point that were not included in the DSS model projections of water demand prepared for Brisbane).

As described in Subsection 4.O.2, *Environmental Setting*, under "Water Supply," Brisbane's current water supply allocation from the SFPUC is not sufficient to meet the Project Site development needs combined with other projected future water needs of the City under buildout of the General Plan, based upon the DSS model. Potable water supply for Project Site development would be provided through a proposed water transfer agreement between the City and OID.[10] The majority of OID's water supplies come from pre-1914 surface water rights that enable OID to divert up to 257,074 AFY from the Stanislaus River. The proposed water transfer agreement between OID and the City guarantees the transfer of up to 2,400 AFY (less than 1 percent of OID's total water diversion rights) for a term of 50 years with the option of renewal (Oakdale Irrigation District, 2012). The water from OID would come without any restrictions for diversion from the State Water Resources Control Board (SWRCB) because OID has pre-1914 water rights that are not regulated by the SWRCB.

As described previously in Chapter 3, *Project Description*, the proposed water transfer would be implemented by OID physically delivering up to 2,400 AFY of water into the Modesto Irrigation District (MID) system, via existing facilities (i.e., released from OID's Claribel canal system generally located near Claribel Road south of the City of Riverbank into MID's South Main Canal). MID would make use of the 2,400 AFY and, in turn, would hold an equivalent amount in storage in New Don Pedro Reservoir, located downstream from the SFPUC's Hetch Hetchy Reservoir on the Tuolumne River and northeast La Grange. By a similar exchange, MID would forego delivery of 2,400 AFY from the SFPUC's Hetch Hetchy system. Thus, the SFPUC would reduce its water bypass or releases from Hetch Hetchy Reservoir to the Tuolumne River by up to 2,400 AFY. The SFPUC has a water bank account in New Don Pedro Reservoir, and MID would credit the SFPUC with the annual amount provided by OID to the City, up to the maximum 2,400 AFY. The SFPUC would, in turn, deliver up to 2,400 AFY from its regional water supply system to Brisbane using existing water supply infrastructure and operational plans. The City is responsible for establishing the necessary exchange and wheeling agreements to accomplish the transfer of water from OID to MID and from MID to the SFPUC.

[10] A potential project alternative consisting of approval of the project components described in Table 3-1, except for the proposed water supply transfer, was considered as part of the alternatives evaluated in this EIR. That alternative was, however, rejected since Project site development would not be feasible without a firm water supply, which would not exist in the absence of the proposed water transfer agreement.

TABLE 4.O-8
PROJECTED WATER DEMAND UNDER BOTH WATER SAVINGS PROGRAMS D AND E
(in million gallons per day)

Concept Plan Scenario (Water Savings Program)	Project Average Daily Water Demand	Project Average Daily Irrigation Demand	Total Project Demand[1]	Projected Project Demand + Projected City Water Demand (+ demand from Sierra Point development)				
				2015	2020	2025	2030	2035
DSP(D)	1.333[a]	0.304[a]	1.638[a]	2.618 (3.029)[a]	2.658 (3.069)[a]	2.678 (3.089)[a]	2.698 (3.109)[a]	2.708 (3.119)[a]
	1.333[b]	0[b]	1.333[b]	2.313 (2.725)[b]	2.353 (2.765)[b]	2.373 (2.785)[b]	2.393 (2.805)[b]	2.403 (2.815)[b]
DSP(E)	0.955[a]	0[a]	0.955[a]	1.935 (2.347)[a]	1.975 (2.387)[a]	1.995 (2.407)[a]	2.015 (2.427)[a]	2.025 (2.437)[a]
	0.955[b]	0[b]	0.955[b]	1.935 (2.347)[b]	1.975 (2.387)[b]	1.995 (2.407)[b]	2.015 (2.427)[b]	2.025 (2.437)[b]
DSP-V(D)	1.386[a]	0.304[a]	1.691[a]	2.671 (3.082)[a]	2.711 (3.122)[a]	2.731 (3.142)[a]	2.751 (3.162)[a]	2.761 (3.172)[a]
	1.386[b]	0[b]	1.386[b]	2.366 (2.777)[b]	2.406 (2.817)[b]	2.426 (2.837)[b]	2.446 (2.857)[b]	2.456 (2.867)[b]
DSP-V(E)	0.980[a]	0[a]	0.980[a]	1.960 (2.371)[a]	2.000 (2.411)[a]	2.020 (2.431)[a]	2.040 (2.451)[a]	2.050 (2.461)[a]
	0.980[b]	0[b]	0.980[b]	1.960 (2.371)[b]	2.000 (2.411)[b]	2.020 (2.431)[b]	2.040 (2.451)[b]	2.050 (2.461)[b]
CPP(D)	0.883[a]	0.511[a]	1.394[a]	2.374 (2.785)[a]	2.414 (2.825)[a]	2.434 (2.845)[b]	2.454 (2.865)[a]	2.464 (2.875)[a]
	0.883[b]	0[b]	0.883[b]	1.863 (2.274)[b]	1.903 (2.314)[b]	1.923 (2.334)[b]	1.943 (2.354)[b]	1.953 (2.364)[b]
CPP(E)	0.588[a]	0[a]	0.588[a]	1.568 (1.979)[a]	1.608 (2.019)[a]	1.628 (2.039)[a]	1.648 (2.059)[a]	1.658 (2.069)[a]
	0.588[b]	0[b]	0.588[b]	1.568 (1.979)[b]	1.608 (2.019)[b]	1.628 (2.039)[b]	1.648 (2.059)[b]	1.658 (2.069)[b]
CPP-V(D)	0.771[a]	0.511[a]	1.282[a]	2.262 (2.674)[a]	2.302 (2.714)[a]	2.322 (2.734)[a]	2.342 (2.754)[a]	2.352 (2.764)[a]
	0.771[b]	0[b]	0.771[b]	1.751 (2.163)[b]	1.791 (2.203)[b]	1.811 (2.223)[b]	1.831 (2.243)[b]	1.841 (2.253)[b]
CPP-V(E)	0.485[a]	0[a]	0.485[a]	1.465 (1.876)[a]	1.505 (1.916)[a]	1.525 (1.936)[a]	1.545 (1.956)[a]	1.555 (1.966)[a]
	0.485[b]	0[b]	0.485[b]	1.465 (1.876)[b]	1.505 (1.916)[b]	1.525 (1.936)[b]	1.545 (1.956)[b]	1.555 (1.966)[b]

NOTES:

[1] Total demand figures may vary from the sum of average daily and irrigation demands due to rounding.

Red shading highlights the Project scenario (DSP-V Program D) with the highest water demand, and blue shading highlights the Project scenario (CPP-V Program E) with the lowest water demand.

[a] Summer – approximately April through November (228 days)
[b] Winter – approximately December through March (137 days)

SOURCE: Brown and Caldwell, 2011 for DSP and DSP-V (see text for explanation of how CPP and CPP-V values were calculated using Brown and Caldwell data); CDM Smith, 2012 for projections

In accordance with its adopted WRP, OID is actively transferring some of its water to others outside of its district. Under its adopted WRP, OID plans to transfer up to 67,000 AFY of its water to others outside of OID by 2030. At present OID has renewed commitments to various transfers totaling 27,400 AFY, including the Brisbane transfer (OID, 2012). This is less than the approximately 41,000 AFY that OID historically transferred (as recently as 2010) and approximately 39,600 AFY less than the 67,000 AFY that OID expects to transfer out of its service area with complete implementation of the WRP.

OID's WRP accounts for changes within OID's service area over the next 20 years, including water demand decreases due to land use changes from agriculture to urban and pasture to orchards, and water supply increases resulting from infrastructure improvements reducing "leaks" in the aging canal system and reducing inefficient measurement and control of deliveries as well as new controls to reduce outflow losses,. As such, the WRP anticipates an increase in water supplies made available for transfer or annexation from 30,000 acre-feet to 50,000 acre-feet for firm water transfers, and from 11,000 acre-feet to 17,000 acre-feet for variable water transfers, resulting in a total volume (firm and variable) of available water equal to approximately 67,000 acre-feet by 2030. A "firm water transfer" is defined in the WRP as the quantity of water that would be made available in all water years irrespective of the hydrologic yield of the basin, as is reflected in the water transfer agreement between OID and the City of Brisbane.

Table 4.O-9 below shows the total water supply available to the City with the proposed OID water transfer and total SFPUC supply currently available during normal, single dry, and multiple dry water years. The table shows the same total water supply for a single dry year and the first year in a multiple dry year, and the same total water supply for the second and third years in a multiple dry year.

Table 4.O-10, below, presents the difference between the projected total water demand for Project Site development and total supply with the proposed OID water transfer and SFPUC water supplies for each water year type required by SB 610 for Water Supply Assessments. When there is a water supply shortage, the shortage amount is shown in parentheses. As shown in Table 4.O-10, in combination with buildout of the Brisbane General Plan, the DSP and DSP-V scenarios would not have sufficient water from the beginning during drought periods under Water Savings Program D, and the CPP scenario would not have sufficient water supply by about 2030 onward under the same Water Savings Program D. Further, water supplies would barely meet demand in 2035 under Water Savings Program D for the CPP-V scenario in combination with buildout of the Brisbane General Plan. All Project Site development scenarios would have sufficient water supplies for all water year types through 2035 in combination with buildout of the Brisbane General Plan with implementation of Water Savings Program E.

As shown in Table 4.O-8, water demand for at buildout of proposed Project Site development would be lowest under the CPP-V development scenario with Water Savings Program E (0.485 mgd), with highest water demand occurring under the DSP-V development scenario with Water Savings Program D (1.691 mgd).

TABLE 4.O-9
CITY OF BRISBANE'S PROJECTED WATER SUPPLY IN NORMAL, SINGLE DRY, AND MULTIPLE DRY YEARS WITH OAKDALE IRRIGATION DISTRICT TRANSFER

Year Type[1]	Normal Year		Single Dry Year		Multiple Dry Years					
					Year 1		Year 2		Year 3	
Source	**Volume (mgd)**	**%**	**Volume (mgd)**	**%**	**Volume (mgd)**	**%**	**Volume (mgd)**	**%**	**Volume (mgd)**	**%**
SFPUC	0.980	100	0.813	83	0.813	83	0.706	72	0.706	72
OID Transfer	2.143	100	2.143	100	2.143	100	2.143	100	2.143	100
Total Supply[2]	**3.12**		**2.96**		**2.96**		**2.85**		**2.85**	

NOTES: SFPUC = San Francisco Public Utilities Commission, OID = Oakdale Irrigation District, mgd= million gallons per day

1 The percent reductions for single and multiple dry years are based on the total SFPUC wholesale water allocation reductions. The actual required reductions for the Brisbane Water District (BWD) and Guadalupe Valley Municipal Improvement District (GVMID) will be based on the Tier 2 Drought Implementation Plan (DRIP) (adopted in 2011) that calculates the reduced allocation on a formula factoring in (1) both agencies' Supply Guarantee from the SFPUC, (2) both agencies' purchases from the SFPUC during the 3 years preceding adoption of the DRIP (2008-2011), and (3) the rolling average of the actual water purchased from the SFPUC over the 3 years preceding any drought.

2 Total values are rounded and may not match the sum of values above.

SOURCE: CDM Smith, 2012

TABLE 4.O-10
PROJECTED DIFFERENCE BETWEEN TOTAL BUILDOUT DEMAND AND SUPPLY FOR NORMAL, DRY, AND MULTIPLE DRY WATER YEARS[1]EXPRESSED AS SURPLUS OR (SHORTAGE) IN MILLION GALLONS PER DAY FOR BOTH WATER SAVINGS PROGRAMS D AND E

Project Scenario (Water Savings Program)	2015			2020			2025			2030			2035		
	Normal	Dry	Multi Dry	Normal	Dry	Multi Dry	Normal	Dry	Multi Dry	Normal	Dry	Multi Dry	Normal	Dry	Multi Dry
DSP(D)	0.091	(0.069)	(0.179)	0.051	(0.109)	(0.219)	0.031	(0.129)	(0.239)	0.011	(0.149)	(0.259)	0.001	(0.159)	(0.269)
DSP(E)	0.773	0.613	0.503	0.733	0.573	0.463	0.713	0.553	0.443	0.693	0.533	0.423	0.683	0.523	0.413
DSP-V(D)	0.038	(0.122)	(0.232)	(0.002)	(0.162)	(0.272)	(0.022)	(0.182)	(0.292)	(0.042)	(0.202)	(0.312)	(0.052)	(0.212)	(0.322)
DSP-V(E)	0.749	0.589	0.479	0.709	0.549	0.439	0.689	0.529	0.419	0.669	0.509	0.399	0.659	0.499	0.389
CPP(D)	0.335	0.175	0.065	0.295	0.135	0.025	0.275	0.115	0.005	0.255	0.095	(0.015)	0.245	0.085	(0.025)
CPP(E)	1.141	0.981	0.871	1.101	0.941	0.831	1.081	0.921	0.811	1.061	0.901	0.791	1.051	0.891	0.781
CPP-V(D)	0.446	0.286	0.176	0.406	0.246	0.136	0.386	0.226	0.116	0.366	0.095	0.096	0.356	0.196	0.086
CPP-V(E)	1.244	1.084	0.974	1.204	1.044	0.934	1.184	1.024	0.914	1.164	1.004	0.894	1.154	0.994	0.884

NOTES:

1 The percent reductions for single and multiple dry years are based on the total San Francisco Public Utilities Commission (SFPUC) wholesale water allocation reductions. The actual required reductions for the Brisbane Water District (BWD) and Guadalupe Valley Municipal Improvement District (GVMID) will be based on the Tier 2 Drought Implementation Plan (DRIP) (adopted in 2011) that calculates the reduced allocation on a formula factoring in (1) both agencies' Supply Guarantee from the SFPUC, (2) both agencies' purchases from the SFPUC during the 3 years preceding adoption of the DRIP (2008-2011), and (3) the rolling average of the actual water purchased from the SFPUC over the 3 years preceding any drought.

SOURCE: CDM Smith, 2012

The total future water demand for the City in 2035 with buildout of both proposed Project Site development and the Brisbane General Plan (i.e., including the additional developments at Sierra Point) would range from 1.555 mgd for the CPP-V scenario to 2.761 mgd for the DSP-V scenario, as highlighted in Table 4.O-8. The proposed OID agreement provides a water transfer of up to a maximum of 2.143 mgd (2,400 AFY) for a 50-year term. In combination with Brisbane's SFPUC supply of 0.980 mgd, the OID transfer would provide the City a total of 3.123 mgd. Thus, there would be adequate water supply to serve the City's water demand, along with buildout of any of the Project Site development scenarios, for every water year type (including single and multiple dry years) through 2035 with the Water Savings Program E and impacts would be less than significant.

Conclusion: Existing City water supply would be inadequate to meet demands for Project Site development in combination with City General Plan buildout through 2035 under all four Project scenarios. However, with implementation of the proposed OID water transfer agreement along with implementation of Water Savings Program E, sufficient firm water supply would be available for Project Site development under all four scenarios in combination with General Plan buildout and no significant water supply impact would result.

Water Storage Capacity

While there would be sufficient water supply to meet the long-term annual water demands of Project Site development if the proposed water transfer agreement is approved, the City has determined that it does not have existing facilities that could provide adequate peak day / peak hour water flow to the Project Site in the event of an emergency. Additional storage capacity within the City is needed to provide adequate fire flows and meet peak daily water demands. Local water storage capacity is critical for providing reserve for fire flow, reserve for emergency conditions, and pressure equalization during peak demands. Proposed Project Site development would require additional water storage for the purpose of maintaining fire flows within the Project Site and providing emergency supply. The City's goal is to ensure that sufficient infrastructure is in place in order to provide the ability to equalize peak demands within its own system without depending on the SFPUC's system to provide the required storage volume in the future. Mitigation Measure 4.O-1 would require that the Project Site development applicant pay its fair share costs to Brisbane to develop the necessary storage capacity for fire flow and peak day water service to the Project Site.

See further discussion of water storage facilities under Impact 4.O-3 below.

Conclusion: Existing water storage facilities would not provide adequate peak day / peak hour water flow to the Project in the event of an emergency. Additional storage capacity within the City is needed to provide adequate fire flows and meet peak daily water demands. Mitigation Measure 4.O-1a is recommended.

Mitigation

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	✓	✓
✓ = measure applies - = measure does not apply			

Mitigation Measure 4.O-1a: The City shall issue building permits for habitable structures only after it determines that sufficient water storage is available and connected to the Project Site's water delivery system. Water storage facilities shall be constructed either by the Brisbane Baylands developer or by the City, as mutually agreed. Should the City construct facilities, site-specific development projects shall reimburse the City for their fair share of costs, as determined by the City of Brisbane Public Works Department, for the development of water storage to provide fire flows and peak daily water demands to serve Project Site development. Prior to issuance of the first permit of occupancy, site-specific development projects shall verify the availability of adequate water storage capacity to provide fire flows and meet peak daily water demands to serve Project Site development. Each required specific plan for development within the Project Site shall include this mitigation measure as a requirement for future development.

Conclusion with Mitigation: With the inclusion of **Mitigation Measure 4.O-1a**, the potential for insufficient water storage would be a less-than-significant impact for all four Project Site development scenarios.

Effects of Proposed OID Water Transfer

As discussed in Subsection 4.O.2, *Environmental Setting*, above, the proposed annual surface water transfer of 2,400 AFY from OID to Brisbane represents a small part of OID's plan to sell and transfer up to 67,000 AFY of its surface water to others outside of its district. OID's water transfer plans are a key element of its Water Resources Plan (WRP) adopted in 2007. The sale and transfer of some of its water to others is an important strategy by which OID is securing the funding required to make needed improvements to its facilities to improve system and supply reliability to its customers. OID prepared a CEQA Program EIR (PEIR) on the WRP to analyze the effects of its long-term water management plans including the proposed water transfers (OID, 2007). This assessment of the effects of the OID water transfer of 2,400 AFY to Brisbane to be implemented as part of the Project tiers from OID's 2007 WRP PEIR.[11]

Effects on OID and Stanislaus River Resources. The transfer of 2,400 AFY of surface water from OID to Brisbane would not result in significant environmental effects on the Stanislaus River or its associated environmental resources. OID historically has sold and transferred approximately 41,000 AFY of surface water out of its district to others. OID's adopted Water Resources Plan calls for long-term, firm water transfers of 30,000 to 50,000 AFY and an additional 11,000 to 17,000 AFY of variable water transfers, for a total of up to 67,000 AFY of

[11] Public Resources Code Sections 21093 and 21094 and CEQA Guidelines Section 15142 provide for tiering environmental review of a later project from a prior environmental impact report prepared and certified for a program, plan, policy, or ordinance. Tiering is appropriate for a later project when it is "consistent with the program, plan, policy, or ordinance for which an environmental has been prepared and certified." When tiering is used, CEQA requires that the later environmental impact report refer to the prior environmental impact report and state where a copy of the prior environmental impact report may be examined. The OID WRP PEIR can be viewed at the City of Brisbane Community Development Department during normal working hours and is available online at http://www.oidwaterresources.org/

transfers by the year 2030. In accordance with its adopted Water Resources Plan, on top of the 41,000 AFY now available for transfer, OID will make additional water available for transfer by increasing water conservation within its district through improvements to its in-district water delivery system. In addition, pending land use changes within the district (from pasture to orchard and from agricultural to residential/urban uses) will result in some reductions in water use within the district. As a result, water that is currently and has historically been diverted from the Stanislaus River and used within the district will be available for transfer without increasing diversions from the Stanislaus River. The 2,400 AFY of water that OID would transfer to Brisbane as part of Project Site development is water that previously has been transferred to another entity outside the district; no new diversions from the Stanislaus River would occur and no impact on the river or its resources (i.e., water resources, water quality, biological resources, aesthetic resources, or recreation resources) would occur as a result of the proposed transfer.

Further, the proposed OID water transfer to Brisbane would not result in significant impacts on OID's water supply availability or ability to meet the services needs within its district. OID's 2007 Water Resources Plan establishes a long-term program to improve water supply and system reliability for OID's existing and future customers (OID, 2007[DEIR, Executive Summary p. IV]). In developing the water transfer element of its plan, OID carefully and conservatively reserved adequate water supply for long-term needs within the district for existing and future customers and also considered the future water supply needs of neighboring cities (OID, 2007 [DEIR, Chapter 2, Program Description and Alternatives, subsection 2.2.13, p. 2-93). OID's water transfer program identifies planned targets for both firm and variable water transfers; the variable transfers, which are shorter term, give OID added flexibility to maximize the continual beneficial use of its surface water rights by entering into some transfers in the near term while reserving control of adequate supply to meet evolving future local needs for additional supply. The transfer of 2,400 AFY from OID to Brisbane represents a small percentage (about 6 percent) of the 41,000 AFY has been historically diverted from the Stanislaus River and transferred out of the district and would not result in a significant impact on OID customers. Similarly, transfer of this water would not result in harm to other downstream water users. This transfer represents some of the 41,000 AFY of water that OID has previously transferred to other entities outside the district and does not involve increased diversion from the Stanislaus River that would reduce available supplies for other downstream users; in essence, no physical change to the river or water resources within and downstream of the district would result from the transfer.

Finally, transfer of the 2,400 AFY from the OID system would not require any new or expanded facilities within the OID service area. Again, this amount of water is within the 41,000 AFY has already historically transferred out of the district. For this transfer, OID would use existing facilities and interconnections to move the water to the neighboring MID system.

Effects on MID and SFPUC Supply Availability. To effect the transfer of 2,400 AFY from OID to Brisbane, this amount of water would be delivered by OID into the neighboring MID system. No new or expanded facilities are required for MID to receive this amount of transfer water from OID. MID would make use of 2,400 AFY within its service area and, in return, MID would hold a like amount in New Don Pedro Reservoir and credit this amount to the SFPUC. MID is a co-owner and

operator of New Don Pedro Reservoir (along with the Turlock Irrigation District [TID], which stores water diverted under MID and TID water rights from the Tuolumne River). Thus, MID would use the 2,400 AFY from OID instead of taking it out of New Don Pedro Reservoir. In turn, the SFPUC would retain 2,400 AFY in Hetch Hetchy Reservoir instead of releasing it downstream into the Tuolumne River for storage in New Don Pedro Reservoir. There would simply be a substituting of 2,400 AFY of OID water for an equal amount of water that otherwise would have been released by the SFPUC and diverted by MID from New Don Pedro Reservoir. Thus, the proposed water transfer would have no net effect on the amount of storage in Don Pedro Reservoir, total diversions from the Tuolumne River, or supply availability for MID or the SFPUC.

Effects on Tuolumne River Resources. As the result of the proposed water transfer agreement, there would be a change in the amount of water released from Hetch Hetchy Reservoir flowing down the segment of the Tuolumne River between Hetch Hetchy Reservoir and New Don Pedro Reservoir. As noted above, to implement the OID to Brisbane water transfer, the SFPUC would hold 2,400 acre-feet per year in Hetch Hetchy instead of releasing it down the Tuolumne River for capture by MID/TID in New Don Pedro Reservoir and redirect that 2,400 acre-feet per year to Brisbane through its regional water system. The SFPUC evaluated the effects of increasing diversions from the Tuolumne River and, in turn, reducing flow releases from Hetch Hetchy Reservoir on the Tuolumne River and its resources in the Program EIR it prepared on its Water System Improvement Program (WSIP) (San Francisco Planning Department, 2008). This Program EIR is incorporated by reference; it is available for review on the SF Planning Department website [http://www.sf-planning.org/index.aspx?page=1829] and also at the City of Brisbane Planning Department during regular business hours.

The EIR evaluated the impacts of a range of possible additional diversions from the Tuolumne River from 2 mgd to 24 mgd. The original proposal for the WSIP included provision of additional supply from the regional water system to meet customer demands through the year 2030. This included additional diversion of Tuolumne River supply under the SFPUC's existing water rights of approximately 24 mgd on an average annual basis. As described above in the setting section, the SFPUC did not adopt the full WSIP as originally proposed but instead adopted a variation of the program called the Phased WSIP Variant. The adopted WSIP provides for the water delivery needs of the regional water system customers only through the year 2018 instead of 2030. The approved program results in an increased diversion from the Tuolumne of 2 mgd, which is the result of improving the delivery reliability of the regional water system through various conveyance capacity improvements coupled with a proposed dry-year water transfer so that the SFPUC could secure a supplemental supply in drought years. The SFPUC is nearing completion on many of the infrastructure projects approved as part of the WSIP and is targeting 2019 for completion of the full system upgrade program. In 2012, the SFPUC also initiated processing of the proposed long-term 2-mgd dry year water transfer, which was to have come from MID and/or TID, but has tabled that action for the time being. At this time, the SFPUC is pursuing a one-year transfer of 2 mgd from OID for 2014 only to address anticipated drought conditions.

As described and analyzed in the WSIP PEIR (Vol. 7a, p. 13-8, Table 13.2, and Vol. 8, Appendix O-3), the adopted WSIP would result in an increase in average annual diversions of

2 mgd from the Tuolumne River over existing conditions in the area along the Tuolumne River between Hetch Hetchy and Don Pedro Reservoirs. The WSIP PEIR described and analyzed impacts on the following potentially affected resources (see PEIR Vol. 3, Section 5.3, and Vol. 7a, Sections 14.5, 14.6, and 14.7): stream flow and reservoir water levels; geomorphology; surface water quality; surface water supplies; groundwater; fisheries; terrestrial biological resources, recreational and visual resources; and energy resources. With one exception, the WSIP PEIR determined that impacts of the adopted WSIP—including the MID water transfer—on potentially affected resources in the Tuolumne River watershed and downstream water bodies would be less than significant, and no mitigation measures would be required. The one exception is that the WSIP PEIR identified potentially significant—but mitigable—impacts to terrestrial biological resources in the Tuolumne River watershed due to an increase in average annual diversions from the Tuolumne River and the associated modifications in releases from Hetch Hetchy Reservoir. These impacts were identified for the reach of the river between Hetch Hetchy Reservoir (O'Shaughnessy Dam) and Don Pedro Reservoir, with particular impacts to meadow and alluvial features in this reach, including the Poopenaut Valley, and are explained below. Because impacts on biological resources are based on changes in stream flow, the WSIP impacts on stream flow are briefly described first, followed by the description of the potentially significant impact on biological resources. Please see WSIP PEIR, Vol. 3, Section 5.3, as augmented in Vol. 7a, Sections 14.5, 14.6, and 14.7, for a description of the less-than-significant impacts on the other potentially affected resources.

The WSIP PEIR determined that the WSIP would result in slight modifications to volume, frequency and timing of releases from Hetch Hetchy Reservoir, thereby changing flow patterns in the Tuolumne River below the reservoir compared to the baseline conditions (WSIP PEIR, Vol. 3, Section 5.3; Vol. 7a, Section 14.6; and Vol. 8, Appendix O-3). Below Hetch Hetchy Reservoir, the effects of the 2 mgd increased diversion would generally consist of a few days delay in releases of water from the reservoir and a slight reduction in the total volume of releases to the river in normal, below-normal, and dry years, and a slight increase in reservoir releases in wet years. While these changes were determined to be less than significant relative to stream flow, the WSIP PEIR determined that the WSIP would result in *potentially significant* impacts on terrestrial biological resources along the Tuolumne River from O'Shaughnessy Dam to Don Pedro Reservoir, and specifically to the sensitive wetland and riparian habitat and associated plant and wildlife species in the Poopenaut Valley (WSIP PEIR Impact 5.3.7-2, Vol. 3, pp. 5.3.7-21 to 5.3.7-22, and Vol. 7a, pp. 14.6-1 to 14.6-13). The WSIP PEIR also determined that implementation of Mitigation Measure 5.3.7-2, Controlled Releases to Recharge Groundwater in Streamside Meadows and Other Alluvial Deposits (WSIP PEIR, Vol. 4, Section 6.4.2, pp. 6-49 to 6-50), would reduce the severity of this impact to a less-than-significant level. Mitigation Measure 5.3.7-2, which was adopted by the SFPUC in October 2008 (SFPUC Resolution 08-200) as part of the WSIP approval and adoption of the Mitigation Monitoring and Reporting Program, requires the SFPUC to manage releases from Hetch Hetchy Reservoir to promote recharge of groundwater in riverside meadows in the Poopenaut Valley and streamside alluvial deposits. With implementation of this measure, it is expected that meadow conditions in the Poopenaut Valley will be maintained in the pre-WSIP state or improved.

The OID-Brisbane water transfer would contribute to this potential impact on the Tuolumne River associated with changes in the SFPUC's existing reservoir release pattern from Hetch Hetchy

Reservoir that, in some years, could lead to flow changes that could adversely affect streamside meadows and other alluvial deposits. The SFPUC is implementing the following adopted WSIP PEIR mitigation in order to reduce potential impacts to the streamside meadows and other alluvial deposits along the Tuolumne River below this reservoir to less than significant. The SFPUC's mitigation action will, in effect, address this impact and remedy it such that it would not continue to be an impact issue for a transfer such as proposed between OID and Brisbane. However, in an abundance of caution, this impact is considered to be significant but mitigable for the OID-Brisbane water transfer element of the Project and the following mitigation measure 4.O-1b is recommended:

Mitigation Measure 4.O-1b: Controlled Releases to Recharge Groundwater in Streamside Meadows and Other Alluvial Deposits. As part of this measure the SFPUC will gather baseline data regarding the extent, species composition and condition of the existing meadow vegetation within the Poopenaut Valley. Some of these environmental baseline data may be available as a result of current study efforts in the Poopenaut Valley. As needed, the SFPUC will augment this information by carrying out vegetation composition surveys in the meadow before implementing the WSIP and at 5 year intervals after WSIP implementation to assess the efficacy of mitigation releases in maintaining or improving the percentage cover of meadow species as described by Ratliff (1985). The basic methodology for baseline vegetation survey and subsequent mitigation monitoring will be generally accepted quantitative vegetation sampling methods to permit statistical comparison of vegetation composition over time, as well as mapping the meadow vegetation in the Poopenaut Valley. The SFPUC will retain the services of a qualified biologist to assist in shaping the releases from Hetch Hetchy Reservoir in consideration of baseline and future meadow vegetation data. If a significant decline in the extent or diversity of native meadow vegetation occurs, releases will be modified as needed to achieve the mitigating effect of sustaining the existing meadow communities.

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	✓	✓
✓ = measure applies - = measure does not apply			

The SFPUC will manage reservoir releases for this purpose by releasing the expected available volume of water in the reservoir in a pattern that provides flows of a magnitude that inundate the meadows and streamside alluvial deposits for as long as possible. For example, rather than making releases at a constant rate each day (e.g., releasing 1,000 cfs for seven days), the SFPUC could release the same volume of water but with varying cfs rates, creating flow pulses to meet the objective. As part of this measure the SFPUC will gather baseline data regarding the extent, species composition and condition of the existing meadow vegetation within the Poopenaut Valley. Some of these environmental baseline data may be available as a result of current study efforts in the Poopenaut Valley. As needed, the SFPUC will augment this information by carrying out vegetation composition surveys in the meadow before implementing the WSIP and at 5 year intervals after WSIP implementation to assess the efficacy of mitigation releases in maintaining or improving the percentage cover of meadow species as described by Ratliff (1985).

The basic methodology for baseline vegetation survey and subsequent mitigation monitoring will be generally accepted quantitative vegetation sampling methods to permit statistical comparison of vegetation composition over time, as well as mapping the meadow vegetation in the Poopenaut Valley. The SFPUC will retain the services of a qualified biologist to assist in shaping the releases from Hetch Hetchy Reservoir in consideration of baseline and future meadow vegetation data. If a significant decline in the extent or

diversity of native meadow vegetation occurs, releases will be modified as needed to achieve the mitigating effect of sustaining the existing meadow communities.

Conclusion with Mitigation: With the inclusion of **Mitigation Measure 4.O-1b**, the potential for impacts to streamside meadows and other alluvial deposits along the Tuolumne River due to reduced flow releases in the reach of the river below Hetch Hetchy Reservoir to New Don Pedro Reservoir associated with the 2 mgd (2,400 acre-feet per year) OID-Brisbane water transfer would be a less-than-significant impact for all four Project development scenarios.

Effects on SFPUC System Capacity. To complete the water transfer, physically, from OID to Brisbane, the SFPUC would deliver 2,400 AFY from its regional water system to Brisbane. Brisbane would negotiate an agreement with the SFPUC to wheel the OID transfer water through the SFPUC's regional water system in accordance with the provisions in the California Water Code. Water Code section 1810 provides "neither the State, nor any regional or local public agency may deny a bona fide transferor of water the use of a water conveyance facility which has unused capacity, for the period of time for which that capacity is available, if fair compensation is paid for that use." Fair compensation is "the reasonable charges incurred by the owner of the conveyance system, including capital, operation, maintenance, and replacement costs, increased costs from any necessitated purchase of supplemental power, and including reasonable credit for any offsetting benefits for the use of the conveyance system." Section 1810 of the Water Code also requires that "use of a water conveyance facility be made without injuring any legal user of water and without unreasonably affecting fish, wildlife, or other instream beneficial uses and without unreasonably affecting the overall economy or the environment of the county from which the water is being transferred."

As discussed in Subsection 4.O.2, *Environmental Setting*, above, Brisbane is already one of the SFPUC's wholesale customers and there are already facilities in place that deliver SFPUC water to Brisbane. No new facilities would be required. The SFPUC regional water system has the capacity to convey 2,400 AFY of water to Brisbane without adversely affecting the SFPUC's operations or delivery capability to its customers. The average annual water delivery through the SFPUC's regional water system is 265 mgd. In October 2008, the SFPUC adopted its Water System Improvement Program (WSIP), a comprehensive program to make improvements to facilities throughout the regional water system to improve seismic reliability, water quality, supply and system reliability and, to develop adequate supplemental supplies to meet level of service objectives through the planning horizon year 2030. At the time the WSIP was developed, the 2030 total water delivery demand on the regional water system was projected to be 300 mgd (209 mgd for the Wholesale Customers, which includes Brisbane). The SFPUC adopted a variation of the originally proposed program called the Phased WSIP Variant that approved immediate implementation of all facility improvement projects to meet 2030 service goals but phased implementation of the water supply delivery element. As a result, water delivery from the regional water system was limited to 265 mgd (184 mgd for the Wholesale Customers) while facility improvements underway will give the regional water system the capacity to deliver up to 300 mgd, the projected 2030 water delivery demand. The adopted WSIP requires the SFPUC to reevaluate 2030 water delivery demands and make a decision regarding whether or not to increase deliveries from the regional water system above the 265 mgd by the end of 2018.

The proposed 2,400 AFY (2.143 mgd) water transfer represents 0.8 percent of the SFPUC's 265 mgd average annual water deliveries through the regional water system. The actual deliveries through the system vary from year to year as well as seasonally and have been as high as 300 mgd. The proposed annual water transfer volume represents a small fraction of the overall system capacity and, in combination with the SFPUC's annual deliveries, flows through the system would remain within the system capacity. Further, insofar as the SFPUC is now completing WSIP facility improvement projects that will fortify the regional water system's ability to reliably deliver up to 300 mgd, the regional water system capacity will be improved further. On an annual basis, the proposed OID to Brisbane transfer of 2,400 AFY would not have a significant impact on the SFPUC system capacity or ability to achieve the SFPUC level of service objectives for its customers.

However, there are and will be times when the SFPUC regional water system is operated at full capacity in order to refill reservoirs after the dry season or a drought period and/or to allow for maintenance shutdowns in parts of the system. As a result, the SFPUC system may not have capacity on any given day to deliver 2 mgd such that water delivery to Brisbane through the SFPUC system complies with the State's water wheeling requirements and does not unduly impinge on the SFPUC's daily or seasonal system capacity and ability to operate its system in a manner consistent with its level of service goals and customer delivery needs. However, given the relatively small volume of water that Brisbane proposes to wheel through the SFPUC regional water system it is expected that the transfer will be implemented in a manner that meets Brisbane's water supply needs (2,400 acre-feet per year and 2 mgd) and does not adversely affect SFPUC's system capacity. See **Section 6.3, Cumulative Impacts**, for a discussion of cumulative effects on the SFPUC system capacity and operations as a result of this transfer coupled with other future potential proposals to wheel water through the SFPUC regional water system.

Conclusion: The OID water transfer of 2,400 AFY to Brisbane would have no significant impacts on OID or Stanislaus River resources or on MID or SFPUC systems.

Impact 4.O-2: Would the Project result in a determination by the wastewater treatment provider which serves or may serve the project that it does not have adequate capacity to serve the Project's projected demand in addition to the provider's existing commitments?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
LTS	LTS	LTS	LTS

SU = Significant Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = No Impact

DSP, DSP-V, CPP, and CPP-V

Development of the Project Site would result in a substantial increase in the generation of wastewater within the Project Site. For planning purposes, average daily wastewater generation for Project Site development was calculated based on 95 percent of the total water demand (see **Table 4.O-11**).

TABLE 4.O-11
ESTIMATED SEWAGE GENERATION
(in million gallons per day)[1]

Scenario		Average Daily Water Demand	Average Daily Sewage Generation	Average Daily Water Demand	Average Daily Sewage Generation
		No Onsite Recycled Water Plant (with Water Savings Program D)		Onsite Recycled Water Plant (with Water Savings Program E)	
DSP	Summer	1.638	1.556	0.955	0.908
	Winter	1.333	1.267	0.955	0.908
DSP-V	Summer	1.691	1.606	0.980	0.931
	Winter	1.386	1.317	0.980	0.931
CPP	Summer	1.394	1.324	0.588	0.558
	Winter	0.883	0.839	0.588	0.558
CPP-V	Summer	1.282	1.218	0.485	0.461
	Winter	0.771	0.733	0.485	0.461

NOTES:
Summer = 228 days
Winter = 137 days

[1] Sewer demand calculated as 95 percent of water demand.

SOURCE: Brown and Caldwell, 2011 (for DSP and DSP-V) (See text for explanation of how CPP and CPP-V water demand values were calculated from using Brown and Caldwell data.)

Each of the four development scenarios includes development of an onsite recycled water plant (RWP) that would produce recycled water upon its completion, which is expected to occur by year 15 in the development buildout schedule as described under "Impact Assessment Methodology" above. Therefore, Table 4.O-11 presents two sets of wastewater demand estimates: one assuming no onsite recycled water plant and one assuming the onsite recycled water plant is constructed and operating at full capacity. Until the onsite recycled water plant is in full operation, all wastewater flows would be discharged to the existing BSD wastewater collection system and sent to the SFPUC's SEP for treatment and discharge to San Francisco Bay. This would require the BSD to notify the SFPUC and obtain its approval for the additional flows from the Project Site. The SFPUC generally approves such requests, provided that the additional flows are within the contracted capacities, as would be the case for wastewater generated within the Project Site. Because the proposed Recology expansion under the CPP-V scenario represents a modernization and consolidation of existing facilities within San Francisco, wastewater discharge to the SFPUC under this scenario would not increase significantly over the levels of discharge that Recology makes to the SFPUC wastewater system. Recology would continue to be served by direct connection to the SFPUC. The Recology site wastewater discharge would be approximately 0.053 mgd.

Prior to construction of new uses within the Project Site, a Wastewater System Master Plan would be prepared in coordination with the City, SFPUC, and BSD, including detailed system layouts, specifications, number of pump stations, pump station design criteria, recycled water plant capacity requirements and design, and phasing of the new wastewater system in relation to phasing of Project Site development. Design reports for the new recycled water plant would be coordinated with the City of Brisbane and BSD to determine specific design requirements. The

amount of raw sewage during the first increments of Project Site development would be discharged to the BSD collection system (and on to the SFPUC collection system for treatment). The amount of wastewater discharged to BSD and SFPUC would vary depending on a number of factors, including the construction phasing of the onsite recycled water plant, the initial capacity of the facility, and the demand for non-potable water. Once the recycled water plant is constructed and in operation, most of the liquid waste component of the wastewater flows from the Project Site would be diverted to the recycled water plant, while the solids and some of the liquid would continue to be discharged to the BSD and eventually the SFPUC SEP system for treatment. Any recycled water produced at the onsite recycled water plant in excess of proposed Project Site development demand also would be discharged to the proposed Project Site's wastewater system for treatment at the SEP by the SFPUC.

Sewage Generation Without Onsite Recycled Water Plant (Water Savings Program D)

Project Site development's average daily wastewater generation would range from approximately 0.733 mgd (for the CPP-V in winter) to 1.606 mgd (for the DSP-V scenario in summer) without construction of the onsite recycled water plant. Because the Baylands north of Brisbane Lagoon is within the boundaries of the BSD, the BSD is the only entity authorized to provide wastewater services for the Project Site development. Without the onsite recycled water plant, all wastewater flows would be sent to the BSD wastewater collection system and then to the SFPUC's SEP for treatment. The City has a contractual maximum dry weather wastewater flow of 6.0 mgd with the SPFUC for treatment at the SEP. The BSD average daily wastewater flows in 2011 were approximately 0.406 mgd. With Project Site development, the BSD's wastewater flows would increase to a maximum of 2.012 mgd. Because the BSD's contract with the SFPUC has no wastewater flow limits, Project Site development would not exceed wastewater flow limits. However, the BSD is required to notify the staff of the SFPUC of new development projects requiring wastewater treatment above 0.200 mgd to confirm capacity at the SEP.

As noted above, base sanitary dry weather flows projected for the City through 2020 (mainly planned developments and new office districts) are 0.45 mgd. Project Site development would generate up to 1.606 mgd of daily dry weather wastewater flows (without the onsite recycled water plant), which would result in total dry weather flows of up to 2.056 mgd, or 3.944 mgd less than the City's contractual maximum flow of 6.0 mgd to the SEP.

Sewage Generation With Onsite Recycled Water Plant (Water Savings Program E)

With construction of the onsite recycled water plant, wastewater generation from Project Site development would range from approximately 0.461 mgd (for the CPP-V in winter) to 0.931 mgd (for the DSP-V scenario in summer). At full capacity, the recycled water plant would be designed to treat most of the liquid wastewater component generated from development within the Project Site.[12] The remaining liquid waste and all of the solid waste would continue to be discharged to the BSD system and on to the SFPUC SEP for treatment and disposal.

[12] The onsite recycled water plant would be designed only for treatment of wastewater generated within the Project Site and would not accept flows from outside of the Baylands. Wastewater generated by the existing Recology facility, including the proposed Recology site expansion (CPP-V scenario), would be transported directly to the SFPUC and would not be treated at the onsite recycled water plant.

The BSD provides wastewater services to the upland portion of the Project Site. This also applies to any future wastewater treatment that provides recycled water. Because wastewater generation rates are lower under this option than the option without the onsite recycled water plant described above, wastewater flows would not exceed the BSD's existing contracted dry weather flows with the SFPUC. Similarly, if the entire Project Site were to be annexed into the City's wastewater service area, the wastewater generated by Project Site development would not exceed Brisbane's contracted dry weather flows with the SFPUC.

Conclusion: Based on existing and projected wastewater flows from the BSD and the City to the SFPUC, development of the Project Site with or without the onsite recycled water plant would not exceed either the BSD's or the City's contractual capacity for wastewater treatment by the SFPUC. Further, the Recology site wastewater discharge to the SFPUC would only increase by approximately 0.002 mgd. Therefore, adequate treatment capacity at the SFPUC would be available for wastewater generated within the Project Site, and impacts would be less than significant.

Wastewater generated by development within the Project Site is proposed to be discharged into the BSD system for treatment at the SFPUC SEP. Midway through the Project Site development buildout (about year 15), an onsite recycled water plant would be constructed to produce recycled water to meet non-potable water needs on the Project Site and reduce potable water demand. The recycled water plant would therefore reduce the liquid wastewater flows requiring offset conveyance and treatment. Adequate conveyance and treatment capacity are available in the BSD and SFPUC SEP systems under existing contract arrangements to handle wastewater flows from Project Site development. As a result, wastewater flows from Project Site development would be properly treated and disposed of through facilities that comply with SFRWQCB wastewater treatment requirements and impacts would be less than significant.

Impact 4.O-3: Would the Project result in the construction of new water, wastewater treatment, and/or stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
SU	SU	SU	SU

SU = Significant Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = No Impact

Water Storage Facilities for DSP, DSP-V, CPP, and CPP-V

As discussed above in Impact 4.O-1 under the discussion of "Water Storage Capacity," additional local storage capacity within the City to provide for fire flows and peak day demand would be needed for the City to serve development on the Project Site. Mitigation Measure 4.O-1 requires the developer to either construct facilities or reimburse the City for a fair share of the costs borne by the City should the City construct local storage and water delivery facilities. Thus, the Project would require the construction of new or expanded local water storage and conveyance infrastructure.

While the City has future plans to build a water storage tank to directly provide fire flow demand and peak demand equalization to lower pressure zones, including the Project Site, funding has not been identified, nor has a specific site or schedule for construction been developed for new water storage tanks. The location, design, and method of construction for future water storage facilities to serve Project Site development has not been determined, but it can be assumed that in order to provide for sufficient water pressure to the Project Site, a new storage tank would need to be located at an elevation higher than the Project Site, most likely in a hillside location. Construction of a new storage tank could result in environmental impacts due to (1) siting, which could affect slope stability or visual, biological, land use, and/or cultural resources; and (2) construction, which could result in noise, dust, other air pollutant emissions, soil erosion, and possible water quality effects. While it is likely that impacts of siting and constructing such a storage facility could be avoided or mitigated to less-than-significant levels through a combination of siting options and mitigation measures, at this time without site-specific information these impacts are considered to be significant unavoidable.

Conclusion: In the absence of information regarding location, design, and method of water storage facility construction, it must be assumed that constructing a new storage tank on a hillside could result in significant environmental impacts in areas such as visual resources, slope stability, erosion and water quality, and possibly biological resources. While it is likely that impacts of siting and constructing such a storage facility could be avoided or mitigated to less-than-significant levels through a combination of siting options and mitigation measures, at this time without site-specific information these impacts are considered to be significant unavoidable.

Water Treatment Facilities for DSP, DSP-V, CPP, and CPP-V

No water treatment facilities would be needed or constructed as part of development of the Project Site, and there would be no impact.

Conclusion: No impact would occur.

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
-	-	-	-

SU = Significant Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = No Impact

Recycled Water Plant for DSP, DSP-V, CPP, and CPP-V

Proposed Project Site development includes construction of a recycled water plant that would treat sewage generated within the Project Site and supply recycled water for irrigation and non-potable plumbing via a dual-piped plumbing system.[13] Impacts of the onsite recycled water plant operations in relation to applicable wastewater treatment requirements are discussed under Impact 4.O-4, below.

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
SU	SU	SU	SU

S = Significant Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = No Impact

[13] As previously noted, during the early to middle portions of Project Site development, sewage generated within the Project Site would flow to the Bayshore Sanitary District's collection system for delivery to the SFPUC and treatment at the SEP.

Impacts related to aesthetics of Project Site development, including the proposed treatment facility, are addressed in Section 4.A, *Aesthetics*. As noted in that section, since the recycled water plant would be no greater in height or bulk than other building within the Project Site, the plant would not contribute to loss of blue water views of San Francisco Bay. In addition, Mitigation Measure 4.A-3 is proposed to ensure that outdoor storage of materials and equipment would be screened from public view. Aesthetic impacts of the recycled water plant would therefore be less than significant.

Air quality impacts of the onsite recycled water plant are included in the air quality impacts evaluated in Section 4.B, *Air Quality*. While the recycled water plant would be required to meet Bay Area Air Quality District (BAAQMD) emissions standards and therefore be considered to have less-than-significant air quality impacts, the plant would contribute to the significant unavoidable air quality impacts identified in that section. To address odor impacts, the following requirements would be included in the design of the recycled water plant:

- Odor control using activated carbon canister shall be provided for all air that is vented from lift stations.
- For treatment units, all odor control systems shall be two state – biological technology, such as bulk media bio-filtration, followed by activated carbon.
- Any conventional recycled water plant shall be fully enclosed in a building and ventilated through a two-stage odor scrubbing system.

Biological resources impacts of the onsite recycled water plant are included in the evaluations set forth in Section 4.C, *Biological Resources*. As noted in that section, impacts on biological resources would occur as the result of Project Site remediation and grading. Development and operation of the recycled water plant would be required to comply with the applicable mitigation measures set forth in Section 4.C and would therefore result in less-than- significant impacts on biological resources.

Cultural resources impacts of the onsite recycled water plant are included in the evaluations set forth in Section 4.D, *Cultural Resources*. As noted in that section, impacts on cultural resources would occur as the result of Project Site remediation and grading, as well as reuse of historic structures and development adjacent to those structures. Development and operation of the recycled water plant would be required to comply with the mitigation measures set forth in Section 4.D and would therefore result in less-than-significant impacts on cultural resources.

Geologic, soils, and seismic impacts of the onsite recycled water plant are included in the evaluations set forth in Section 4.E, *Geology, Soils, and Seismicity*. As discussed in that section, geologic and seismic impacts are related to the structural design of buildings to be developed within the Project Site. Because site remediation and grading would be required to provide a stable base for Project Site development and the recycled water plant would be required to meet all applicable seismic design standards, impacts would be less than significant.

Greenhouse gas emissions are included in the evaluations set forth in Section 4.F, *Greenhouse Gas Emissions*. While the recycled water plant would be required to meet applicable emissions

standards, plant operations would contribute to the significant unavoidable greenhouse emissions impacts identified in that section for the CPP and CPP-V scenarios. Greenhouse gas impacts of the DSP and DSP-V scenarios would be less than significant.

Evaluation of hazards and hazardous materials impacts of the onsite recycled water plant is included in the evaluations set forth in Section 4.G, *Hazards and Hazardous Materials*. As discussed in that section, the primary hazards and hazardous materials impacts of Project Site development relate to the required remediation of the former railyard and landfill areas onsite. Operation of the proposed recycled water plant would involve the storage and use of hazardous materials common to the operation of treatment plants. The proposed onsite recycled water plant would be required to meet all applicable safety regulations, and impacts are therefore considered to be less than significant.

Hydrology and water quality impacts associated with the onsite recycled water plant are included in the evaluations set forth in Section 4.H, *Hydrology and Water Quality*. As discussed in Section 4.H, hydrologic impacts would result from the increase in impervious surfaces onsite in the form of buildings, parking areas, streets and sidewalks, and other hardscape areas. The impervious surfaces that would be created as the result of recycled water plant development were accounted for in the evaluation of increased runoff and flooding potential addressed in Section 4.H. Treatment plant design and operations would also be required to meet applicable wastewater discharge requirements, as well as all applicable provisions of National Pollutant Discharge Elimination System (NPDES) permits and hazardous materials storage regulations to prevent contamination of surface water runoff. Hydrology and water quality impacts of the recycled water plant would therefore be less than significant.

Energy resources impacts of the onsite recycled water plant are included in the evaluations set forth in Section 4.P, *Energy Resources*. As discussed in that section, as the result of a substantial commitment to onsite renewable energy generation, energy impacts would be less than significant. In addition, as discussed in Chapter 3, *Project Description*, energy use of the onsite recycled water plant would be reduced through co-generation facilities at the plant if they are determined to be feasible.

Conclusion: The proposed new recycled water plant included in the Project would have significant impacts in relation to aesthetic resources, air quality, biological resources, cultural resources, and other areas. Specific mitigation measures are identified below.

Mitigation: This EIR recommends the following applicable mitigation measures: Mitigation Measure 4.A-3 (screening of outdoor storage); Mitigation Measures 4.B-2a and 4.B-2b (construction emissions); Mitigation Measures 4.C-1a through 4.C-1c, Mitigation Measures 4.C-2a through 4.C-2c, and Mitigation Measures 4.C-4d and 4.C-4e (biological resources); Mitigation Measures 4.D-2 and 4.D-4 (archaeological resources and human remains); Mitigation Measures 4.G-2a and b (site

Mitigation Measure Applicability by Scenario

DSP	DSP-V	CPP	CPP-V
✓	✓	✓	✓

✓ = measure applies
- = measure does not apply

remediation); Mitigation Measure 4.G-2d (NPDES permitting), Mitigation Measure 4.G-2e (hazardous materials business plan), Mitigation Measures 4.G2f through h (soil vapor barriers), Mitigation Measure 4.G-3 (school facilities construction), Mitigation Measure 4.J-1a and Mitigation Measures 4.J-4a and 4.J-4b (construction period noise); and Mitigation Measure 4.N-12 (construction circulation patterns).

Conclusion with Mitigation: As described in each of the sections cited above, even with implementation of the mitigation measures identified in this EIR, recycled water plant operations would contribute to significant unavoidable air quality impacts, as well as to significant unavoidable greenhouse gas impacts in the CPP and CPP-V scenarios.

Stormwater Drainage Facilities for DSP, DSP-V, CPP, and CPP-V

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
SM	SM	SM	SM

SU = Significant Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = No Impact

As discussed in Section 4.H, *Hydrology and Water Quality*, new development within the Project Site would increase the amount of impervious surfaces and, as a result, would increase stormwater runoff. To address the increased stormwater runoff, Project Site development would include improvement and expansion of the existing stormwater drainage system. The improvements proposed for the Project Site include grading; removal of existing storm water infrastructure; and installation of new HDPE pipe, concrete pipe, box culverts, and storage basins. The detention capacity of the Center Drainage Channel would be increased and culverts would be installed at the railroad crossing. Two existing culverts under Tunnel Avenue and Frontage Road would also be replaced. The existing stormwater infrastructure associated with the Beatty Avenue drainage area would be removed and the catchment area would be realigned to drain into the Project Site stormwater system. Stormwater treatment would likely consist of a combination of volume- and flow-based treatments such as bioswales that would help to slow stormwater and prevent overflow offsite. Final stormwater drainage system elements have not yet been designed; therefore additional infrastructure may be required.

Several existing utility lines and other associated infrastructure are present within the Project Site. Excavation or use of heavy equipment to install new wastewater and stormwater drainage infrastructure could damage existing underground or overhead utility lines. Prior to any earth-moving or construction activities, construction contractors operating within the Project Site would be required to contact Underground Service Alert for Northern California, as required by law under Cal/OSHA, and consult with existing property owners and utility companies to locate all existing aboveground and underground utility lines and associated infrastructure, as required by law. Construction contractors would also inform construction crews of the utility locations and clearly identify all utilities on site plans, as required by law under Cal/OSHA. Also, as required by law, contractors would prepare emergency response plans with contact information and appropriate notification and response procedures in the event that any utilities are accidentally damaged during construction. Removal of existing sewer and stormwater infrastructure would be phased to prevent disruption of sewer service and prevent localized flooding.

Conclusion: Construction of the new stormwater drainage facilities would contribute to significant impacts of Project Site development in relation to hazardous materials, hydrology and water quality, geology and soils, vegetation and wildlife, air quality, traffic, and noise, as discussed in sections throughout this EIR.

> **Mitigation:** Construction impacts and, as needed, mitigation measures and other regulatory requirements are analyzed and provided in Section 4.B, *Air Quality*; Section 4.C, *Biological Resources*; Section 4.E, *Geology, Soils, and Seismicity*; Section 4.G, *Hazards and Hazardous Materials*; Section 4.H, *Hydrology and Water Quality*; Section 4.J, *Noise and Vibration*; and Section 4.N, *Traffic and Circulation*.

Conclusion with Mitigation: As described above, with implementation of the mitigation measures identified in this EIR, impacts of construction of drainage facilities would be less than significant.

Impact 4.O-4: Would the Project generate wastewater that would exceed wastewater treatment requirements of the San Francisco Regional Water Quality Control Board (SFRWQCB)?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
LTS	LTS	LTS	LTS

SU = Significant Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = No Impact

DSP, DSP-V, CPP, and CPP-V

Construction and operation of an onsite recycled water plant would require detailed engineering design, development, and approval of wastewater treatment requirements by the SFRWQCB, and further project-level environmental evaluation specific to recycled water plant construction and operation. There are two proposed options for the onsite recycled water plant to produce recycled water: either a mechanical scalping treatment plant or a natural system scalping treatment plant. Whether it uses mechanical or natural scalping treatment, the facility would be designed and engineered to produce tertiary-treated effluent that conforms to the requirements of California Code of Regulations Title 22 for unrestricted reuse of recycled water to replace the use of potable water onsite for irrigation, toilet flushing demands, and other non-potable uses. Operation of either type of plant would include the ability to modulate the amount of recycled water produced for serving the Project Site development, thereby allowing for excess raw sewage to be pumped directly to the SFPUC SEP for treatment, and thereby only treating enough raw sewage onsite for recycled water demands. The mechanical scalping plant would process the raw sewage, send screened particulates and dewatered grit to a landfill, and pump the biosolids diluted with raw sewage to the SFPUC SEP for treatment. The mechanical scalping plant would use a mechanical bioreactor and hypochlorite methods to produce recycled water that meets Title 22 standards. The natural scalping plant would essentially process solids similar to the mechanical scalping plant, then use a wetland treatment system, sand filters, microfiltration, ultra-violet light, and hypochlorite treatment to produce recycled water. In either case, the onsite recycled water plant would be required to comply with the SFPUC's SEP pre-treatment requirements and discharge

limitations and meet Title 22 standards. Depending on the recycled water demand needed for Project Site development, the recycled water plant may discharge a blend of excess produced recycled water and raw sewage to the SEP for treatment. The SEP is permitted through the U.S. EPA and SFRWQCB to meet required waste discharge criteria. The BSD would notify the SFBRWQCB before use delivering recycled water to the Project Site development. Therefore, operation of the recycled water plant would result in less-than-significant impacts in relation to wastewater discharge requirements.

Conclusion: The impact would be less than significant, and no mitigation is required.

Impact 4.O-5: Would the Project be served by a landfill with sufficient permitted capacity to accommodate the Project's solid waste disposal needs during construction?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
LTS	LTS	LTS	LTS

SU = Significant Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = No Impact

DSP, DSP-V, CPP, and CPP-V

Solid Waste Generation during Construction

Buildout of the Project Site is anticipated to occur over a 20-year period and would generate a substantial amount of solid waste such as wood, metal, concrete, bricks, drywall/gypsum/sheetrock, carpet, and dirt/fill during construction. Commercial construction was assumed to generate approximately 2.5 pounds of solid waste per square foot of building area (U.S. EPA, 2009), while residential construction (single- and multi-family) was assumed to generate approximately 4.39 pounds per square foot of building area (U.S. Green Building Council, 2007). All other land use types were assumed to generate 4.34 pounds per square foot of building area (U.S. Green Building Council, 2007).

To accommodate proposed Project Site development, each of the four Project Site development scenarios would result in removal of the existing industrial park. For evaluation purposes, the solid waste generation for demolition is assumed to be 4.39 pounds per square foot.

The existing lumberyard would be relocated under each of the scenarios. It is assumed that the existing structures would be demolished. For evaluation purposes, the solid waste generation for lumberyard demolition is also assumed to be 4.39 pounds per square foot.

Using the waste generation estimates for new construction, Project Site development construction activities are anticipated to generate 16,505 to 26,359 tons of solid waste (see **Table 4.O-12** below).

TABLE 4.O-12
SOLID WASTE GENERATION ESTIMATES FOR CONSTRUCTION

Scenario/Variant	New Development (square feet)	Total Solid Waste Generation[1] (pounds)	Total Solid Waste Generation (tons)	Solid Waste Generation (cubic yards[2])
DSP	12,096,300	52,761,646	26,381	87,928
DSP-V	12,049,400	53,078,636	26,539	88,454
CPP	7,742,600	33,010,772	16,505	55,011
CPP-V	8,072,600	33,318,912	16,659	55,524

NOTES:
1 Waste generation rates = 2.5 pounds per square foot for commercial uses (U.S. Green Building Council, 2007), 4.39 pounds per square foot for residential uses, and 4.34 pounds per square foot for all other land use types (U.S. EPA, 2009).
2 There are approximately 3.333 cubic yards of solid waste in 1 ton, based on the average compaction rate for household trash (Colorado DPHE, undated).

SOURCE: ESA 2013

Construction Solid Waste Diversion and Recycling Requirements

Chapter 15.75 of the Brisbane Municipal Code sets forth requirements for solid waste diversion and recycling. Section 15.75.030 requires that construction and demolition debris generated from every covered project[14] be diverted from going to a landfill by using recycling, reuse, and diversion programs to achieve the following diversion rates:

- Demolition: One hundred percent (100%) of inert solids, trees, stumps, and associated vegetation and fifty percent (50%) of the remaining demolition debris tonnage.
- Construction, remodeling and re-roofing projects: Fifty percent (50%) of all construction and demolition debris tonnage.

Section 15.75.040 of the Brisbane Municipal Code requires every applicant for a construction or demolition permit to submit a "Recycling and Waste Reduction Plan" to define how these required diversion rates will be met.

Thus, a minimum of 50 percent of construction waste generated within the Project Site as described in Table 4.O-12 would need to be recycled or reused. The remainder of the solid waste (approximately 27,506 to 44,227 cubic yards) would be sent to local area landfills.

Impact on Landfill Capacity

The combined remaining capacity of the local area landfills is 200,492,708 cubic yards. Solid waste disposed of during construction of Project Site development would represent 0.014 to 0.022 percent of the remaining capacity. There would be no limitation on disposal of construction

14 Chapter 15.75 defines a covered project as:
- Demolition work only, involving an area greater than two hundred (200) square feet, as determined by the building official;
- The renovation, remodel or addition to an existing structure, or the construction of a new structure where the cost of the work exceeds seventy-five thousand dollars ($75,000.00), as determined by the building official;
- Re-roofing of an existing structure involving an area in excess of five hundred (500) square feet.

waste from the Project Site as local landfills that would accept this kind of waste have an estimated closure date of 2077 or earlier.

Considering the solid waste from construction within the Project Site represents a small proportion of remaining landfill capacity, the fact that the solid waste would be generated and disposed of over a period of 30 years, and the fact that one landfill has enough remaining capacity until 2077, there is adequate existing landfill capacity to accept all Project Site construction waste and impacts would be less than significant.

Conclusion: The impact would be less than significant, and no mitigation is required.

Impact 4.O-6: Would the Project be served by a landfill with sufficient permitted capacity to accommodate the Project's solid waste disposal needs during operation?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
LTS	LTS	LTS	LTS

SU = Significant Unavoidable
SM = Significant, but Mitigable
LTS = Less than Significant
- = No Impact

DSP, DSP-V, CPP, and CPP-V

Operational Solid Waste Generation

Solid waste generation for the each of the Project Site development scenarios was estimated using CalRecycle Solid Waste Generation Rates for Commercial, Industrial, Residential, and Services Developments (CalRecycle, 2011). These rates are based on the total square feet or total number of units for each land use type. **Table 4.O-13** presents the solid waste estimates for each of the four Concept Plan scenarios, and **Table 4.O-14** shows the generation rates used to calculate the total solid waste generation.

Impact on Transfer Facility and Landfill Capacity

The South San Francisco Scavenger Company (SSFSC) currently provides solid waste collection and recycling services to the City of Brisbane, including the Project Site. The SSFSC uses the Blue Line Transfer Facility, which is designed to handle 4,300 tons of waste per day and has a permitted capacity of 2,000 tons per day (tons/day). The largest quantity of solid waste generated by the Project would be 66.2 tons/day. The Blue Line Transfer Facility currently processes 1,200 tons/day. The increase in solid waste from the Project would result in the Blue Line Transfer Facility processing up to 1,266.2 tons/day; therefore, the SSFSC Blue Line Transfer Facility would have adequate capacity to handle the waste (BKF, 2011).

After the waste is sorted at the Blue Line Transfer Facility, remaining waste would be delivered to a landfill. As described in Subsection 4.O.2, *Environmental Setting*, above, the regional landfills that currently serve Brisbane would be expected to serve Project Site development in the future. At buildout, development within the Project Site could generate up to 221 cubic yards per day and up to 80,594 cubic yards per year of solid waste under the DSP-V scenario. The remaining scenarios would generate less waste (see Table 4.O-13). The combined remaining capacity of regional landfills is approximately 200,492,708 cubic yards. With the current

TABLE 4.O-13
ESTIMATED SOLID WASTE GENERATION[1] BY SCENARIO

Scenario/Variant	Tons/Day	Cubic Yards[2]/Day	Tons/Year	Cubic Yards[2]/Year
DSP	56.9	190	20,775	69,244
DSP-V	66.2	221	24,181	80,594
CPP	54.7	182	19,948	66,486
CPP-V	52.5	175	19,158	63,855

NOTES:
1 Waste generation was calculated using rates presented in Table 4.O-14.
2 There are approximately 3.333 cubic yards in 1 ton based on the average compaction rate for household trash (Colorado DPSE, undated).

SOURCE: ESA 2013

TABLE 4.O-14
SOLID WASTE GENERATION RATES

Land Use Type	Solid Waste Generation Rate	Source
Conference	10 lbs/1,000 sq ft/day (Office Rate)	CIMWB Commercial Rates
Hotel	2 lbs/room/day	CIMWB Services Rates
Residential	10 lbs/dwelling unit/day	CIMWB Residential Rates
Commercial/Office/Retail	13 lbs/1,000 sq ft/day (Commercial Rate)	CIMWB Commercial Rates
Office/Institutional	10 lbs/1,000 sq ft/day (Office Rate)	CIMWB Commercial Rates
Research and Development	10 lbs/1,000 sq ft/day (Office Rate)	CIMWB Commercial Rates
Public/Civic/Cultural	10 lbs/1,000 sq ft/day (Office Rate)	CIMWB Commercial Rates
Arena	3.12 lbs/100 sq ft /day (Other Services Rate)	CIMWB Services Rates
Theatre	3.12 lbs/100 sq ft /day (Other Services Rate)	CIMWB Services Rates
Multiplex	3.12 lbs/100 sq ft/day (Other Services Rate)	CIMWB Services Rates
Exhibition	3.12 lbs/100 sq ft/day (Other Services Rate)	CIMWB Services Rates
Industrial/Warehousing	62.5 lbs/1,000 sq ft/day (Industrial Rate)	CIMWB Industrial Rates
Entertainment/Cultural	3.12 lbs/100 sq ft /day (Other Services Rate)	CIMWB Services Rates
Resource Recovery	None	None

NOTES:
sq ft = square feet
lbs = pounds

SOURCE: CalRecycle, 2011

recycling and diversion rates of the City and the near future implementation of CalRecycle's plan to implement AB 341, Project Site development would result in the disposal of between 25 to 30 percent of the waste generated by Project Site land uses, resulting in a total of approximately 604,455 cubic yards of waste sent to regional landfills over a 20-year period. This would represent approximately 0.3 percent of the remaining capacity of regional landfills.

The CCP-V scenario would include expansion of the existing Recology site. This facility provides recycling services to the City and County of San Francisco. Because it is a San

Francisco facility, expansion of the Recology facility under the CPP-V scenario is not expected to increase the potential for recycling or decrease the amount of solid waste generated by development of the Project Site. However, because the Recology site expansion is needed to attain San Francisco's goal of capturing 100 percent of its recyclable materials, the CPP-V scenario would facilitate a substantial increase in recycling with concurrent reduction in solid waste deposited in landfills by the City and County of San Francisco.

Solid waste from Project Site development would represent a small portion of remaining landfill capacity when taking into account implementation of programs required by Chapter 8.32 of the Brisbane Municipal Code for recycling, recovery, and participation in programs to reduce the quantity of waste sent to landfills, as described in Impact 4.O-7 below.[15] In addition, one landfill has enough remaining capacity to remain open until 2077. For these reasons, it is anticipated that existing landfills would have adequate capacity to accept all Project Site development-related waste through 2077. The existing landfills would have sufficient capacity to serve Project Site development, and impacts would be less than significant.

Conclusion: The impact would be less than significant, and no mitigation is required.

Impact 4.O-7: Would the Project comply with existing federal, state, and local statutes and regulations related to solid waste?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
LTS	LTS	LTS	LTS

SU = Significant Unavoidable SM = Significant but Mitigable
LTS = Less than Significant
- = no impact

DSP, DSP-V, CPP, and CPP-V

Project Site development would generate a substantial amount of solid waste, with a temporary waste stream generated during construction and a permanent waste stream generated from the new developed land uses after construction is complete. Disposal of Project Site development demolition and construction-generated solid waste in a landfill must comply with Section 15.75 of the Brisbane Municipal Code, while operation of uses within the Project Site would be required to participate in the City's ongoing waste diversion programs.

Requirements for Construction Waste

Applicants for demolition and building permits within the Project Site would be required to develop and implement a Recycling and Waste Reduction Plan in compliance with Chapter 15.75 of the Brisbane Municipal Code, which requires that 50 percent of construction and demolition debris be either recycled or reused. Pursuant to the requirements of the Brisbane Municipal Code, this plan would be submitted with the appropriate fee to the City of Brisbane prior to issuance of a building permit. The plan would identify the following:

[15] In 2010, Brisbane had approximately 45 different waste diversion programs in effect, including composting, recycling, and public education programs (CalRecycle, 2012e). The City's annual waste diversion rate from 2005 to 2007 ranged from 73 percent to 75 percent (CalRecycle, 2011).

- Recycling and Waste Reduction Plan Manager
- Roles and responsibilities of persons overseeing the plan
- Estimates of the types and quantities of construction wastes
- Materials to be recycled/reused (cardboard, metal, brick, acoustical tile, concrete, plastic, clean wood, glass, gypsum wallboard, metal, or carpet, insulation)
- Designated spaces or container locations for materials to be recycled/reused
- Measures for testing soils and any other materials that may require following procedures related to hazardous wastes
- Solid waste and recycling providers and waste removal schedules
- Documentation procedures
- Education Program requirements to inform all construction crews on how to separate recyclable/reusable materials and where the materials should be placed

Construction activities may also generate waste that is classified as hazardous. A substantial amount of soil would need to be removed from the Project Site prior to construction. As discussed in Section 4.G, *Hazards and Hazardous Materials*, this soil could contain contaminants from the former landfill and railyard. Other hazardous wastes that may be generated during construction include paints, solvents, and fuels. All hazardous waste would be disposed of at a landfill that is licensed to accept hazardous wastes. Licensed contractors in compliance with current hazardous waste regulations would be hired to transport hazardous waste offsite using approved hauling methods and routes. Analysis of the environmental impacts from potential contaminated soil is provided in 4.G, *Hazards and Hazardous Materials*.

Requirements for Operational Waste

All new uses developed as part of Project Site development would receive solid waste services from the SSFSC and all non-hazardous solid waste would be disposed of in a permitted landfill. In an effort to reduce the impact on landfill capacity and to comply with City General Plan goals, development within the Project Site would be required to participate in ongoing city solid waste diversion programs and implement an onsite recycling program to reduce solid waste diverted to landfills by at least 50 percent. This program would be submitted to the City for approval prior to the issuance of the building permits. This program would include:

- Composting using source-separation containers at each building for disposal of organic food and landscaping materials
- Development of an onsite composting facility, with full documentation of how any impacts such as odors and noise from such a facility would be adequately mitigated by appropriate siting and construction provisions
- Provisions for all buildings, open spaces, parking lots, and trails to be equipped with recycling containers to separate plastic, paper, aluminum, glass, cardboard, and other commercially recyclable materials
- Signage posted near recycling containers to encourage recycling

- A Public Awareness Program to encourage residents and businesses to implement recycling, composting, and waste reduction

Conclusion: Overall, incorporation of a Recycling and Waste Reduction Plan as required by the Brisbane Municipal Code for construction and development of a long-term recycling and composting program would ensure that the proposed Project would comply with existing laws, regulations, and local policies regarding solid waste. Therefore, this impact would be less than significant, and no mitigation is required.

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4.P Energy Resources

4.P.1 Introduction

This section describes existing energy use and systems at the Project Site and vicinity, including electrical and natural gas infrastructure, and gas, electricity, and fuel use. It also evaluates the impacts of each of the proposed development scenarios on energy resources and infrastructure, including impacts associated with onsite renewable energy development. Feasible mitigation measures are identified to reduce significant impacts.

4.P.2 Environmental Setting

Regional Energy Infrastructure

Electricity

Pacific Gas and Electric Company (PG&E) currently provides electricity to San Francisco and northern San Mateo County, including Brisbane. Electricity is supplied to the Project Site vicinity by transmission and submarine lines. One local power plant, the Potrero Generating Station, owned and operated by Mirant, once provided a total generating capacity of 363 megawatts (MW). However, this aging power plant was shut down on January 1, 2011. The Trans Bay Cable, owned and operated by the Steel River Transmission Company, was completed in November 2010 to replace the lost power from the Potrero Generating Station and to eliminate the need for new power plants in the San Francisco region. The Trans Bay Cable consists of a submarine cable system that runs 53 miles under San Francisco Bay and transfers up to 400 MW (approximately 40 percent of San Francisco's power demand) from the Pittsburg Substation in Pittsburg to PG&E's Potrero Substation in San Francisco. The Pittsburg Substation receives power through transmission lines from several different power plants in California and the Western United States (Trans Bay Cable, LLC, 2011; Pattern Energy Group LP, 2011).

Transmission lines along US Highway 101 between the Martin Substation[1] and the San Mateo Substation in the City of San Mateo import up to 1,230 MW of power into San Francisco and northern San Mateo County. The San Mateo Substation receives power from several power plants (Pittsburg Power Plant, Los Medanos Energy Center, and Delta Energy Center) as well as power from the 500-kilowatt (kV) Western United States power grid via the Tesla 500/230 kV Substation (CPUC, 2003).

In 2006, PG&E completed construction of the Jefferson-Martin 230kV transmission line that extends from the Martin Substation to the Jefferson Substation in Redwood City and crosses a portion of Brisbane (CPUC, ND). PG&E determined that the project was required by September 2005 to ensure that the electric system included adequate capacity to reliably serve the San Francisco and northern San Mateo County area (CPUC, 2003).

[1] Located in Brisbane and Daly City along Geneva Avenue between Bayshore Boulevard and Sherwin Avenue.

Natural Gas

Approximately 85 percent of the natural gas used in California is delivered through interstate pipelines from out-of-state basins located in the southwestern United States, the Rocky Mountains, and Canada. California sources for natural gas supplies are primarily from gas fields in the Sacramento Valley. Natural gas transmission and distribution in Brisbane are provided by PG&E, whose transmission pipelines are connected to interstate pipelines. In Northern California, PG&E has two main transmission lines, referred to as the Redwood Path, that connect to transmission lines in Malin, Oregon and convey natural gas from Western Canada, the Rocky Mountains, and California sources to customers throughout Northern California. The northern system also delivers gas to, and receives gas from, PG&E storage, Lodi Gas Storage, and Wild Goose Storage fields. PG&E owns and operates an underground natural gas storage field called Los Medanos field, near Concord (CPUC, 2010a).

Existing Infrastructure Serving the Project Site

Electricity

At the Project Site, electricity is provided through a mix of underground cables and overhead lines. Existing electrical infrastructure serving existing properties is primarily located within Tunnel Avenue. Along the eastern side of Tunnel Road in the former landfill area, PG&E overhead electrical lines serve the existing Sierra Point Lumber and Van Arsdale-Harris Lumber properties. Overhead electrical lines extend from the area between Brisbane's fire station and Icehouse Hill to Bayshore Boulevard. An existing 230-kV underground electrical transmission line runs beneath Bayshore Boulevard (BKF, 2011).

Natural Gas and Petroleum

Natural gas is conveyed to customers in Brisbane through a series of underground pipelines. PG&E owns and operates an existing 6-inch natural gas main along Tunnel Avenue and a 24-inch gas main along Bayshore Boulevard. The 6-inch gas line serves the Sierra Point Lumber and Van Arsdale-Harris Lumber properties within the Project Site, as well as several properties outside the Project Site.

Motor vehicles consume 57 percent of all petroleum. Only a small amount of both the petroleum and natural gas used in the state is produced locally, necessitating that California be a significant importer of fuels. An existing fueling station is located along Bayshore Boulevard north of MacDonald Avenue.

Project Site Energy Usage

Electricity and Natural Gas

Specific historical energy usage was not available for all existing uses on the Project Site. To provide an estimate of this usage, the Bay Area Air Quality Management District (BAAQMD) greenhouse gas model BGM (Version 1.1.9 Beta) was used to estimate annual electricity and natural gas usage based on industrial land uses at the Project Site and their square footage. Based

on this model, it is estimated that 1,784.6 megawatt hours of electricity and 10,002.5 million British Thermal Units (Btu) of natural gas are used annually on the Project Site, exclusive of Recology's operation. Recology has reported its 2010 baseline energy use as 6,300 megawatt hours of electricity and 400,000 cubic feet of natural gas (406 million Btu) annually (Arup, 2010).

Fuel Use

Existing light industrial land uses at the Project Site result in offsite vehicle use. Based on the URBEMIS model runs conducted to estimate baseline air pollutant emissions associated with the Project Site development,[2] it is assumed that 1.7 percent of baseline offsite vehicle use is diesel fuel-based and 98.3 percent is gasoline-based.

The 2010 annual baseline volume of consumed diesel and gasoline fuel was estimated by comparing the baseline-related generation of carbon dioxide (CO_2) emissions to emission factors identified by The Climate Registry (TCR, 2011). With total baseline transportation emissions of 2,084.6 metric tons per year, it is estimated the existing light industrial uses within the Project Site consume approximately 3,309 gallons of diesel fuel and approximately 222,514 gallons of gasoline each year.

4.P.3 Regulatory Setting

Development within the Project Site must comply with federal, state, regional, and local regulations. This section discusses these requirements to the extent that they may affect the way Project Site development occurs.

This section presents applicable state and local laws, regulations, and policies as they relate to energy use and conservation.

Federal Regulations

Corporate Average Fuel Efficiency Standards

In response to the *Massachusetts et al. vs. Environmental Protection Agency et al.* ruling, the Bush Administration issued an executive order on May 14, 2007, directing the United States Environmental Protection Agency (U.S. EPA) and United States Department of Transportation (US DOT) to establish regulations that reduce greenhouse gas (GHG) emissions from motor vehicles, non-road vehicles, and non-road engines by 2008. On December 19, 2007, the Energy Independence and Security Act of 2007 was signed into law, requiring an increased Corporate Average Fuel Economy (CAFE) standard of 35 miles per gallon (mpg) for the combined fleet of cars and light trucks by the 2020 model year. On October 10, 2008, the National Highway Traffic Safety Administration (NHTSA) released a final environmental impact statement analyzing proposed interim standards for model years 2011 to 2015 passenger cars and light trucks. NHTSA issued a final rule for model year 2011 on March 23, 2009 (US DOT and U.S. EPA, 2009).

[2] The baseline for the air quality upon which this analysis is based is the date of the latest air quality monitoring data presented in Table 4.B-1 (See Section 4.B, *Air Quality*), which is 2010.

On May 19, 2009, President Obama announced a national policy for fuel efficiency and emissions standards in the US auto industry. The proposed rulemaking is intended as a collaborative effort between the US DOT and U.S. EPA with the support of the United Auto Workers Union. The proposed federal standards apply to passenger cars, light-duty trucks, and medium duty passenger vehicles built in model years 2012 through 2016. If finalized, the proposed rule would surpass the 2007 CAFE standards and require an average fuel economy standard of 35.5 mpg in 2016. On May 22, 2009, the US DOT and U.S. EPA issued a notice of upcoming joint rulemaking on this issue (U.S. EPA, 2009). A Draft Environmental Impact Statement has been issued and the comment period for this ended on November 9, 2009. On June 30, 2009, the U.S. EPA granted the waiver for California for its greenhouse gas emission standards for motor vehicles; this is described in more detail below.

Energy Independence and Security Act of 2007

In addition to setting increased CAFE standards for motor vehicles, the Energy Independence and Security Act (EISA) includes the following additional provisions:

- Renewable Fuel Standard (RFS) (Section 202)
- Appliance and Lighting Efficiency Standards (Sections 301–325)
- Building Energy Efficiency (Sections 411–441)

Additional provisions of the EISA address energy savings in government and public institutions, promoting research for alternative energy, additional research in carbon capture, international energy programs, and the creation of green jobs.

State Regulations

California Green Building Standards Code, California Code of Regulations Title 24

The California Green Building Standards Code (24 California Code of Regulations [CCR] Part 11), also known as the CALGreen Code, is California's first green building standards code and became effective January 1, 2011. The purpose of the code is to improve public health and welfare through the design and construction of buildings that reduce negative impacts and encourage sustainable construction practices, including energy efficiency. The CALGreen Code applies to planning, design, operation, construction, use, and occupancy of residential buildings three stories or less, including motels, hotels, apartments, and one-and two-family dwellings; non-residential buildings including state-owned buildings, state university, and community college buildings; and privately owned buildings used for retail, office, and medical services. The CALGreen Code establishes mandatory minimum green building standards but also includes two voluntary packages of green actions, called tiers. A city and/or county may adopt the CALGreen Code's voluntary tiers consistent with adoption of local amendments for other building standards.[3]

[3] As noted below, Brisbane Municipal Code Section 15.80 specifies green building standards for new developments, including meeting a minimum Leadership in Energy and Environmental Design (LEED) "Silver" rating on the Green Building Project Checklist for all new commercial projects over 10,000 square feet and achieving a "green home" rating on the MultiFamily GreenPoint Checklist for any residential developments with 20 or more units.

Residential and non-residential buildings must meet the minimum mandatory energy efficiency standards as currently required by 24 California Code of Regulations (CCR) Part 6 (see next description below). Additionally, while not specifically required by this code, a 15-percent reduction in building energy usage compared to current mandatory energy efficiency standards is recommended by the California Energy Commission.

California Energy Efficiency Standards for Residential and Nonresidential Buildings

California's Energy Efficiency Standards for Residential and Nonresidential Buildings (24 California Code of Regulations [CCR] Part 6) contain specific energy efficiency standards that apply to all residential and non-residential buildings. Anyone obtaining a building permit from a local agency after January 1, 2010 must provide the required documentation showing compliance with these standards. Mandatory energy efficiency requirements are provided for:

- Air conditioners and condensing units, heat pumps, water heating systems and equipment;
- Natural gas system furnaces;
- Exterior walls, floors, ceilings, and doors;
- Insulation and roofing products;
- Indoor/outdoor lighting control devices and equipment;
- Ventilation;
- Pipe insulation;
- Air distribution systems; and
- Refrigerated warehouses.

Appliance Efficiency Regulations, California Code of Regulations Title 20

California's Appliance Efficiency Regulations (20 CCR Part 160-1608) contain standards for both federally regulated appliances and non-federally regulated appliances. The regulations are updated regularly to allow consideration of new energy efficiency technologies and methods. The current regulations were adopted by the California Energy Commission on November 18, 2009. The standards outlined in the regulations apply to appliances that are sold or offered for sale in California. More than 23 different categories of appliances are regulated, including refrigerators, freezers, water heaters, washing machines, dryers, air conditioners, pool equipment, and plumbing fittings.

California Occupational Safety and Health Regulations

The California Occupational Safety and Health Regulations outline specific requirements for any person planning to conduct excavation. The excavator is required to notify the Underground Service Alert at least two days prior to excavation and to delineate the area to be excavated (Underground Service Alert North, ND). Any operator of a subsurface utility in the area who receives notification must locate and field mark the approximate location of any utilities that could be affected by the excavation. Utilities in conflict with the excavation must be exposed by digging with hand tools prior to the use of any power equipment.

California Public Utilities Commission Regulations

The California Public Utilities Commission (CPUC) has constitutional authority to regulate privately owned public utilities, including electric, natural gas, telecommunications, water, railroad, rail transit, and passenger transportation companies. As part of its mission, the CPUC "…ensures the provision of safe, reliable utility service and infrastructure at reasonable rates" to their consumers including a commitment to enhancement of the environment and a "healthy California economy." The CPUC regulates utility services and promotes innovation as well as a competitive marketplace for services (CPUC, 2003).

CPUC Decision 95-08-038 contains the rules for the planning and construction of new transmission facilities, distribution facilities, and substations. Decision 95-08-038 requires permits for the construction of certain power line facilities or substations if the voltages would exceed 50 kV or the substation would require the acquisition of land or an increase in voltage rating above 50 kV. Distribution lines and substations with voltages less than 50 kV need not comply with Decision 95-08-038; however, the utility must obtain any nondiscretionary local permits required for the construction and operation of these projects. Compliance with the California Environmental Quality Act (CEQA) is required for construction of facilities constructed in accordance with Decision 95-08-038.

Executive Order S-14-08

Executive Order S-14-08, signed by then-Governor Arnold Schwarzenegger in 2008, established a Renewable Portfolio Standard (RPS) target for California that requires all retail sellers of electricity to serve 33 percent of their load with renewable energy by 2020.

Senate Bill 1078 and Senate Bill X1-2

Senate Bill (SB) 1078 established an RPS for electricity supply. The RPS requires that retail sellers of electricity provide 20 percent of their supply from renewable sources by 2017. This was amended in 2011 by SB X1-2 to increase the amount of electricity generated from eligible renewable energy resources per year, so that amount equals at least 33 percent of total retail sales of electricity in California per year by December 31, 2020, consistent with Executive Order S-14-08, above.

Senate Bill 1368

Senate Bill (SB) 1368 prohibits any retail seller of electricity in California from entering into a long-term financial commitment for base load generation if the GHG emissions are higher than those from a combined-cycle natural gas power plant. This performance standard applies to electricity generated out-of-state, as well as in-state, and to publicly owned as well as investor-owned electric utilities.

Senate Bill 1389

Senate Bill (SB) 1389, the *California Integrated Energy Policy*, was adopted in August 2002 and requires the California Energy Commission (CEC) to prepare an Integrated Energy Policy Report (IEPR) for electricity, natural gas, and transportation fuels. The IEPR contains an analysis of the

policies and actions that are necessary to ensure that the state has adequate energy resources—including a range of alternative energy resources—to meet its needs. The IEPR also includes recommendations to reduce energy demand and to improve the state's energy infrastructure.

Assembly Bill 1007

Assembly Bill 1007, (Pavley, Chapter 371, Statutes of 2005) required the CEC to prepare a state plan to increase the use of alternative fuels in California (State Alternative Fuels Plan). The CEC prepared the State Alternative Fuels Plan in partnership with the California Air Resources Board and in consultation with other state, federal, and local agencies. The final State Alternative Fuels Plan, published in December 2007, would attempt to achieve an 80-percent reduction in greenhouse gas emissions associated with personal transportation, even as California's population increases. Measures proposed that would reduce petroleum fuel use include:

1. Lowering the energy needed for personal transportation by tripling the energy efficiency of on-road vehicles by 2050 through:
    a. Conventional gas, diesel, and flexible fuel vehicles (FFVs) averaging more than 40 miles per gallon (mpg).
    b. Hybrid gas, diesel, and FFVs averaging almost 60 mpg.
    c. All electric and plug-in hybrid electric vehicles (PHEVs) averaging well over 100 mpg (on a greenhouse gas equivalents [GGE] basis) on the electricity cycle.
    d. Fuel cell vehicles (FCVs) averaging over 80 mpg (on a GGE basis).
2. Moderating growth in per capita driving, reducing today's average per capita driving miles by about 5 percent or back to 1990 levels.
3. Changing the energy sources for transportation fuels from the current 96 percent petroleum-based to approximately:
    a. 30 percent from gasoline and diesel from traditional petroleum sources or lower GHG emission fossil fuels such as natural gas.
    b. 30 percent from transportation biofuels.
    c. 40 percent from a mix of electricity and hydrogen.
4. Producing transportation biofuels, electricity, and hydrogen from renewable or very low carbon-emitting technologies that result in, on average, at least 80 percent lower life cycle GHG emissions than conventional fuels.
5. Encouraging more efficient land uses and greater use of mass transit, public transportation, and other means of moving goods and people.

Executive Order S-03-05

Executive Order S-03-05 mandates that California emit 80 percent fewer greenhouse gases in 2050 than it emitted in 1990. Energy efficiency and reduced vehicle miles traveled (VMT) would play important roles in achieving this aggressive goal.

Executive Orders S-14-08 and S-21-09

Since 2006, California has had a mandate to increase the use of renewable generation to 20 percent of retail electricity sales by 2010 (see description of SB 1078, above, and SB 107). In November 2008, Governor Schwarzenegger signed Executive Order S-14-08, which raises California's renewable energy goals to 33 percent by 2020. This enhanced target is intended to help California meet statewide greenhouse gas emission reduction targets (refer to Section III.S). This has been reiterated by California Executive Order S-21-09 which charges the California Air Resources Board (CARB), by July 31, 2010, to establish a regulation consistent with this 33 percent target by 2020. This is a further increase in RPS over SB 1078 and SB 107.

Local Regulations

Local regulations pertaining to energy use and conservation are discussed below.

Brisbane Municipal Code

Brisbane Municipal Code Section 15.80 specifies green building standards for new developments, including meeting a minimum Leadership in Energy and Environmental Design (LEED) "Silver" rating on the Green Building Project Checklist for all new commercial projects over 10,000 square feet and achieving a "green home" rating on the MultiFamily GreenPoint Checklist[4] for any residential developments with 20 or more units. To meet these requirements, a variety of energy, stormwater, and water efficiency measures can be implemented that are integrated in green building design, siting, construction, and operations.

City of Brisbane General Plan

The 1994 Brisbane General Plan Conservation Element contains the following applicable policies and programs on energy:

> ***Policy 139*:** Promote the conservation of non-renewable energy resources.
>
> ***Policy 140*:** Encourage energy-efficient building design and site planning.
>
> > *Program 140a*: Continue to administer building codes that contain State requirements for energy conservation.
> >
> > *Program 140b*: As a part of the review of land use applications for subdivisions, specific plans and new non-residential and multi-family projects, encourage the design and siting of structures and the use of landscape materials in terms of utilizing natural resources for heating and cooling.
>
> ***Policy 141*:** Encourage the installation of energy-efficient appliances.

[4] Build It Green, a nonprofit organization, has developed New Home Construction Green Building Guidelines and a MultiFamily GreenPoint Checklist, based upon the Multi-Family Green Building Guidelines established by the Alameda County Waste Management Authority. See Section 15.80.020 of the Brisbane Municipal Code for more information.

4.P.4 Impacts and Mitigation Measures

Significance Criteria

Appendix F of the CEQA Guidelines provides guidance for assessing energy impacts of projects. The appendix provides three goals:

- Decreasing overall per capita energy consumption;
- Decreasing reliance on natural gas and oil; and
- Increasing reliance on renewable energy sources.

Consistent with Appendix F goals, the significance criteria used to evaluate environmental impacts in this analysis focus on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy. Thus, the Project Site development would have a significant effect on the environment if it were to:

- Use large amounts of energy or fuel, or consume energy or fuel in a wasteful manner
  - During construction:
    - As the result of construction activities, or
    - By resulting in the construction or expansion of energy infrastructure that would cause significant environmental effects, or
  - Following construction, during project operations:
    - Use large amounts of energy or use energy in a wasteful manner within Project Site buildings or other onsite operations (stationary source consumption), or
    - Use fuel in a wasteful manner as the result of vehicle trips associated with Project Site development (mobile source consumption).

Impact Assessment Methodology

Electrical loads for the DSP and DSP-V were obtained from *Brisbane Baylands Draft Infrastructure Plan – Dry Utilities Systems* (BKF, 2011). These preliminary estimates were developed based on estimated electrical loads assigned to specific land uses and the proposed square footage of such uses. Because the types of proposed land uses under the CPP and CPP-V scenarios generally are similar to those proposed under the DSP and DSP-V scenarios (with the exception of residential uses, which are not proposed under the CPP or CPP-V scenario), electrical and gas loads for the CPP and CPP-V scenarios were estimated using the same energy generation rates as those used for the DSP and DSP-V scenarios, with the exception that energy loads for the proposed Recology expansion were based on the 2011 *Recology Master Plan – Resource Conservation, Consumption, and Generation* report (Arup, 2011). The actual electrical loads would be calculated as specific future development projects are proposed within the Project Site. The estimated future electrical loads used for this analysis are based on commonly accepted consumption factors.

Natural gas loads for the DSP and DSP-V also were projected based on proposed land uses and square footages of such uses. Title 24 standards were used to estimate the electricity and natural gas that would be used by buildings within the Project Site.

Projected vehicular fuel use associated with ongoing Project Site development operations were estimated using URBEMIS model runs conducted to estimate baseline and Project-related air pollutant emissions, with the exception that estimates of vehicular fuel use associated with the proposed Recology expansion were based on the 2011 *Recology Master Plan – Resource Conservation, Consumption, and Generation* report (Arup, 2011).

Because the precise type and mix of renewable energy generation technologies that would be installed within the Project Site are unknown at this time, projected renewable energy generation on the Project Site is based on the findings of the *Feasibility Study of Economics and Performance of Solar Photovoltaics at the Brisbane Baylands Brownfield Site in Brisbane, California*, a study conducted by the United States Environmental Protection Agency (U.S. EPA) to assess the Project Site for a possible photovoltaic (PV) system installation and estimate the cost, performance, and site impacts of different PV options. This study is summarized and discussed in greater detail under Impact 4.P-2 below, is incorporated by reference into this EIR, and is included as **Appendix N** of this EIR.

To determine whether Project Site development would use large amounts of energy or fuel, the analysis below provides a quantitative overview of the energy that would be consumed during construction and operation of Project Site development. The analysis also weighs Project Site development's energy efficiency features when considering the potential for wasteful energy consumption.

In addition to evaluation of the amount of energy that would be consumed by Project Site construction activities and ongoing operations of uses, an evaluation was undertaken to determine whether the construction of energy infrastructure proposed to be developed within the Project Site would itself result in significant impacts. This evaluation entailed reviewing construction impact evaluations contained throughout this document and determining whether energy infrastructure substantially contributed to any significant unavoidable impacts identified in this document.

Project Impacts and Mitigation Measures

Impact 4.P-1: Would Project construction result in the use of large amounts of energy, use energy in a wasteful manner during construction, or result in the construction or expansion of energy infrastructure that would cause significant environmental effects?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
SM	SM	SM	SM

SU = Significant Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = no impact

DSP, DSP-V, CPP, and CPP-V

Construction activities associated with development of the Project Site would require the following sources of energy:

- Electricity, for operation of hand tools, air compressors, mobile project offices, and security lighting
- Diesel, for grading and construction equipment, delivery trucks, and earth hauling trucks
- Gasoline, to fuel construction worker commute vehicles

Proposed Energy Infrastructure

Development of the Project Site would require installation of both onsite and offsite electrical infrastructure improvements to serve the Project Site under all four development scenarios.

Proposed onsite electrical lines would be installed in a joint trench with proposed gas and communications infrastructure, which would be designed and constructed to PG&E standards. Under all four scenarios, proposed improvements would include new utility trenches for electricity and natural gas, placement of existing overhead electrical lines underground, and construction of new transformers, switches, and primary and secondary boxes.

Proposed electrical utility onsite infrastructure would be fed with a 21-kV loop system. One end of the system loop would feed the Baylands with a 21-kV line from the PG&E Martin Substation installed underground in a combined joint trench. Based on an initial review, PG&E has indicated that there may be adequate capacity at the Martin Substation, which is located on Geneva Avenue between Bayshore Boulevard and Sherwin Avenue. The second circuit would serve the Project Site with a 21-kV feed from the existing Bayshore Boulevard primary power lines south of the Baylands installed in an underground trench running parallel to Bayshore Boulevard until it reaches the proposed Baylands connection point.

Transformers, switches, and primary and secondary boxes would be designed and installed throughout the Project Site, as required by the approved land uses. Based on the final Tunnel Road alignment and future land uses, the existing overhead line would be undergrounded or located in an underground joint trench elsewhere within the Project Site. In addition, overhead electrical service lines running through Icehouse Hill and along Bayshore Boulevard would require undergrounding pursuant to PG&E Rule 20. The final designs and composite plan would be coordinated with PG&E during the design process. This would include coordination of undergrounding with PG&E per Rule 20A.[5]

Project Site development would include construction of new offsite electrical infrastructure, including an underground 21-kV transmission line from the existing PG&E Geneva Substation to the Project Site and one to two new circuits.

New natural gas infrastructure also would include a high pressure tap to connect to the existing PG&E 24-inch gas transmission main, and a transmission system with 4- or 6-inch pipelines. To deliver the required gas load to the Project Site, a high pressure tap would be constructed to connect into the existing 24-inch gas transmission main in Bayshore Boulevard. Two subsurface regulation pits would be constructed on the Project Site near the tap and would require an

[5] PG&E places approximately 30 miles of overhead electric facilities underground within its service area each year. This work is done under provisions of the company's Rule 20A.

approximately 20-foot-long-by-45-foot-wide area for installation and access easements. The pressure regulation stations would act to reduce the pressure of the gas arriving from the high pressure main so that it operates at a pressure safe for distribution to customers within the Project Site.

During the design process, PG&E would review the potential alternative of constructing a back-tie between the existing 24-inch gas line in Bayshore Boulevard and an existing gas main south of the site along US Highway 101 (BKF, 2011). The back-tie would eliminate the need for the two proposed regulator pits near the connection to the existing 24-inch gas main in Bayshore Boulevard.

Installation of the proposed electrical and gas transmission lines would correspond with the phasing of proposed roadway and building construction. Proposed distribution lines serving the individual buildings would be constructed in a combined joint trench with electrical and communications facilities. The final design and composite plan would be coordinated with PG&E during the design process (BKF, 2011).

Relocation of existing lines and installation of new facilities also would require trenching and movement of existing facilities. Based on the final Tunnel Avenue alignment and proposed uses, the existing overhead line would be undergrounded or located in an underground joint trench elsewhere on the site.

Energy Consumption During Project Site Construction

Construction of proposed energy infrastructure and other onsite development would require the use of energy, such as the use of fuels for vehicles and electricity to run equipment. Construction activities would result in wasteful, inefficient, or unnecessary use of energy if construction equipment is old or not well maintained, if equipment is left to idle when not in use, if travel routes are not planned to minimize vehicle miles traveled, or if excess lighting or water is used during construction activities. Energy would also be used in a wasteful manner if alternative energy sources, such as solar energy, are not used where feasible, in place of more traditional sources.

Project Site construction would not be expected to result in demand for fuel greater on a per-unit-of-development basis than other development projects in the region, with the exception that remediation of hazardous materials needs to be undertaken within the Project Site. Remediation activities would result in energy consumption that would not need to be consumed on sites where remediation is unnecessary. Because Project Site remediation is, in fact, required and not optional, the energy consumed returning the Project Site to a safe and healthy condition is not considered to be wasteful. Although the extent of Project Site development is large, construction and development would occur over a 20-year period, and demand for construction-related electricity and fuels would be spread out over that time frame. In addition, **Mitigation Measures 4.B-2a and 4.B-2b** (construction air emissions) and **Mitigation Measure 4.N-12** (construction circulation patterns) would be implemented to address construction-related air emissions and would have the effect of reducing construction-related quality fuel consumption.

Impacts of Installation of Energy Infrastructure

The construction of proposed new energy infrastructure, including renewable energy generation facilities, would include the excavation, removal, or relocation/grading of onsite soils; removal of existing surface materials, such as paving; removal of existing vegetation; use of construction equipment and vehicles; and extension of aboveground power lines to connect to the existing power grid – activities that could result in significant construction impacts. Construction activities related to the installation of such infrastructure also could result in damage to existing utilities and interruption of service to existing uses within and surrounding the Project Site.

Construction activities related to installation of proposed electric, gas, and renewable energy facilities would result in significant impacts related to ground disturbance, damage to existing vegetation, and construction-related traffic, air emissions, and noise. These construction-related impacts are discussed, and specific mitigation measures are proposed, as follows, in other sections of this EIR: **Mitigation Measures 4.B-2a and 4.B-2b** (construction air emissions); **Mitigation Measures 4.C-1a through 4.C-1c**, **Mitigation Measures 4.C-2a through 4.C-2c**, and **Mitigation Measures 4.C-4d, 4.C-4e, and 4.C-4f** (biological resources); **Mitigation Measures 4.D-2 and 4.D-4** (archaeological resources and human remains); **Mitigation Measure 4.E-2a** (ground settlement); **Mitigation Measures 4.G-2a, 4.G-2b, 4.G-2d** and **4.G-2f** through **4.G-2h** (hazardous materials); **Mitigation Measures 4.J-4a and 4.J-4b** (construction period noise); and **Mitigation Measure 4.N-12** (construction circulation patterns). Implementation of these measures is recommended to reduce construction impacts related to the installation of energy infrastructure to less-than-significant levels. See Sections 4.A (*Aesthetics and Visual Resources*), 4.B (*Air Quality*), 4.C, (*Biological Resources*), and 4.F (*Greenhouse Gas Emissions*) for a discussion of operational impacts of energy generation infrastructure and facilities in relation to potential light and glare, air quality, bird strike, and greenhouse gas emissions impacts.

Conclusion: Energy use during Project Site construction would result in substantial consumption of energy, which is considered to be a significant impact under all four proposed development scenarios. To reduce this impact to a less-than-significant level, implementation of **Mitigation Measure 4.P-1** would be required under all development scenarios. Implementation of **Mitigation Measures 4.B-2a and 4.B-2b**, as recommended in Section 4.B, *Air Quality,* and **Mitigation Measure 4.N-12**, as recommended in Section 4.N, *Traffic and Circulation*, of this EIR also would help to ensure that wasteful, inefficient, or unnecessary energy use during construction would be avoided or minimized.

In addition, as noted above, energy use during Project Site construction would (with the exception of site remediation) be similar on a unit basis to other developments throughout the region. Although the extent of Project Site development is large, construction and development would occur over a 20-year period, and demand for construction-related electricity and fuels would be spread out over that time.

Impacts from installation of energy infrastructure are addressed by mitigation measures in other sections of this EIR, as indicated in the discussion above.

Mitigation

Mitigation Measure 4.P-1: During all Project Site construction activities, construction contractors shall implement the following measures to prevent the wasteful or inefficient use of energy during construction:

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	✓	✓
✓ = measure applies - = measure does not apply			

- Implement work schedules and procedures that minimize equipment idle time and double-handling of material;
- Minimize equipment idling time either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California Airborne Toxic Control Measure Title 13, Section 2485 of California Code of Regulations [CCR]);
- Switch off office equipment and lights when not in use;
- Use solar power sources for road signs and other applicable equipment that will be required at the construction site;
- Design all temporary roads to minimize travel distances; and
- Maintain and properly tune all construction equipment in accordance with manufacturer's specifications. It shall be the contractor's responsibility to ensure that all equipment has been checked by a certified mechanic and determined to be running in proper condition prior to operation.

Conclusion with Mitigation: With implementation of **Mitigation Measure 4.P-1**, along with other construction-period mitigation measures identified above, impacts related to energy use during construction would be reduced to less-than-significant levels under each of the four development scenarios.

Impact 4.P-2: Would Project buildings or other onsite operations use large amounts of energy, or use energy in a wasteful manner?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
SM	SM	SM	SM
SU = Significant Unavoidable SM = Significant but Mitigable LTS = Less than Significant - = no impact			

DSP, DSP-V, CPP, and CPP-V

Operational use of energy includes the heating, cooling, and lighting of buildings; water heating; operation of electrical systems and plug-in appliances within buildings; parking lot and outdoor lighting; the transport of electricity, natural gas, and water to the areas where they would be consumed; and operation of the proposed onsite recycled water plant. Given the substantial increase in the level of development of the Project Site that would occur under any of the four proposed development scenarios, the increase in energy use resulting from the proposed Project Site development also would be substantial.

Electrical Energy Consumption

Under all of the proposed development scenarios, Project Site operations would contribute to a substantial increase in electricity consumption. **Table 4.P-1** presents the estimated electrical demand and onsite generation for each of the proposed development scenarios.

TABLE 4.P-1
ESTIMATED ELECTRICAL DEMAND AND GENERATION FOR THE DSP, DSP-V, CPP, AND CPP-V SCENARIOS

Scenario	Electrical Demand in Megawatt Hours (MWh)	Onsite Renewable Energy Production in Megawatt Hours (MWh)	Onsite Net Energy Consumption/(Generation) in Megawatt Hours (MWh)
DSP	72,000	42,400 (58.9%)	29,600
DSP-V	74,900	42,400 (56.6%)	32,500
CPP	65,800	42,400 (64.4%)	23,400
CPP-V	63,900	51,600 (80.8%)	12,300

SOURCES: BKF, 2011; Arup, 2012; CDM Smith, 2012; ESA, 2013.

As shown in Table 4.P-1, the DSP and DSP-V scenarios would result in the greatest electrical load because they would involve the largest amount of new development (based on square feet of new space). The greatest onsite generation of electricity would occur in the CPP-V scenario as the result of energy production within the Recology site (see discussion of renewable energy production below).

As noted above, each of the four proposed development scenarios would include development of alternative energy technologies on the Project Site, producing approximately 42,000 to 45,000 megawatt hours (MWh) of energy annually. Under the DSP and DSP-V scenarios, this would include production, though solar energy generation, of approximately 42,000 to 45,000 megawatt hours (MWh) of energy annually (Salasovich et al., 2012). The CPP and CPP-V scenarios are intended to generate an equivalent amount of renewable energy through a combination of solar and small-scale wind facilities installed on rooftops and within spaces dedicated to other uses, as well as within stand-alone solar "farms." Under all four proposed development scenarios, onsite renewable energy generation would offset a significant portion of onsite energy use (see Table 4.P-1 and discussion of renewable energy production below).

The proposed Recology expansion is projected to generate 75,000,000 kWh per year of renewable energy from a combination of biogas capture and use, solar PV, and solar hot water (Arup, 2010). Small wind turbines would also be employed for renewable energy generation but are not included in the calculation of total renewable energy production. Approximately 27.6 million kWh/year of this total would be available for export from the Recology facility. (See further discussion under "Renewable Energy Generation" below.)

As previously noted, existing electrical consumption within the Project Site is 8,084.6 megawatt hours. Thus, under all Project Site development scenarios, even with proposed onsite renewable energy generation, increases in electrical consumption would be substantial.

Renewable Energy Generation

The United States Environmental Protection Agency (U.S. EPA), in accordance with the RE-Powering America's Land initiative, selected the Baylands for a feasibility study of renewable energy production. The study was conducted to assess the Project Site for a possible photovoltaic (PV) system installation and estimate the cost, performance, and site impacts of different PV options, and to recommend financing options that could assist in the implementation of a PV system at the site. The study report, *Feasibility Study of Economics and Performance of Solar Photovoltaics at the Brisbane Baylands Brownfield Site in Brisbane, California* (Salasovich et al., 2012) is included as Appendix N of this EIR, and its findings are summarized below.

DSP and DSP-V Scenarios. The U.S. EPA study looked at the feasibility of implementation of a PV system on the 684-acre area encompassed by the proposed Specific Plan for the DSP and DSP-V scenarios, which includes approximately 25 acres dedicated to renewable energy generation, as well as building-integrated and rooftop renewable energy-generating features. According to the study, the DSP and DSP-V scenarios include approximately 24.7 acres appropriate for installation of a ground-mounted PV system and 257.4 acres appropriate for installation of roof-mounted PV. This would allow for installation of a 24- to 28-MW PV system producing approximately 42,000 to 45,000 megawatt hours (MWh) of energy annually. The study also notes that in order for the site to be net-zero (i.e., to generate as much energy as it uses), an approximately 50-MW PV system would have to be installed to offset the energy use of the buildings. As shown in Table 4.P-1, proposed onsite electrical generation would supply between 56.6 percent (DSP-V scenario) and 80.8 percent (CPP-V scenario) of Project Site electrical demand. Thus, to achieve net-zero use of electricity, a combination of improved building energy efficiency (improved conservation beyond current state and local requirements) and expanded provision of onsite renewable energy generation would be needed. The additional acreage needed to be devoted to renewable energy production in each scenario would depend on the extent to which building energy efficiencies could be increased, as well as the extent to which roof-mounted solar installations could be added to buildings and other structures within the Project Site.

Typically, a minimum of 2 useable acres is recommended to site PV systems. Useable acreage is typically characterized as "flat to gently sloping" southern exposures that are free from obstructions and get full sun for at least a 6-hour period each day. For example, eligible space for PV includes under-used or unoccupied land, vacant lots, and/or unused paved area, e.g., a parking lot or industrial site space, as well as existing and future building rooftops.

As noted in the feasibility study, some grading would be necessary to accommodate a PV system. Further, removal of existing unused structures, fences, or electrical poles would increase the unshaded area to incorporate more PV panels. As with implementation of other Project Site development components, installation of remedial technologies on the Project Site would require implementation of recommended remedial actions.

In addition, as part of onsite renewable generation, a tie-in to the PG&E electrical grid would be needed. The closest electrical tie-in location to the Project Site is at the PG&E Martin Substation at

3150 Geneva Avenue. A detailed interconnection study would have to be performed through PG&E to determine the feasibility of using the Martin Substation as a tie-in point for a PV system.

CPP and CPP-V Scenarios. The Concept Plans prepared for the CPP and CPP-V scenarios assume that renewable energy production for those scenarios would be equivalent to the renewable energy production of the DSP and DSP-V scenarios. Because site grading plans for the CPP and CPP-V scenarios would be similar to the grading for the DSP and DSP-V scenarios, the findings of the EPA renewable energy feasibility study should also apply to the CPP and CPP-V scenarios. With the exception of projected energy generation under the Recology expansion component of the CPP-V, specific renewable energy facilities are not shown under the CPP or CPP-V scenario. Based on the U.S. EPA study, feasible renewable energy generation under the CPP and CPP-V is anticipated to consist of a combination of small-scale wind and solar facilities installed on rooftops and spaces dedicated to other uses, as well as within stand-alone solar "farms" on land dedicated to that use, although the placement and configuration of such facilities would differ from what is proposed under the DSP and DSP-V scenarios.

As specified in the Recology Master Plan, expanded Recology facilities would include renewable energy production, including biogas production for fleet vehicular and building heating use, installation of photovoltaics for building electrical use, solar water heating, and cogeneration system sized for larger heat demands. Overall, these facilities are projected to generate 75,000,000 kWh per year of renewable energy from a combination of biogas capture and use, solar PV, and solar hot water (Arup, 2011). These technologies are expected to generate the equivalent of approximately 27.6 million kWh of energy over and above onsite demand, which would be available for export. Small wind turbines would also be employed for renewable energy generation but are not included in the calculation of total renewable energy production.

Natural Gas Consumption

Based on the analysis conducted for Section 4.F, *Greenhouse Gas Emissions*, of this EIR, estimated natural gas loads for the DSP and DSP-V scenarios are 189,629 million Btu[6] and 183,685 million Btu, respectively. Natural gas loads required under the CPP and CPP-V scenarios (72,356 million Btu and 73,496 million Btu, respectively) would be lower than those required under the DSP and DSP-V scenarios. By comparison, existing natural gas use within the Project Site is 10,002.5 million Btu annually. Thus, Project Site development would result in a substantial increase in existing natural gas consumption. Estimates of natural gas use are based on compliance with Title 24 standards. While the Project Site development-related increase would represent a substantial increase in natural gas consumption by uses within the Project Site, on a per-square-foot basis, Project Site development would consume natural gas at a rate similar to other developments throughout the state that comply with Title 24 requirements only.

The threshold for this impact also considers whether Project Site development's energy consumption would be wasteful. To reduce natural gas consumption rates, and ensure that wasteful use of natural gas is avoided, Mitigation Measure 4.P-2a requires Project Site development to

6 A British thermal unit (symbol Btu or sometimes BTU) is a traditional unit of energy, which is approximately equivalent to the amount of energy needed to heat 1 pound (0.454 kg) of water.

exceed the Title 24 energy efficiency standards effective as of the date of certification of this EIR by at least 20 percent.

Conclusion: All four Project Site development scenarios would result in a substantial increase in the consumption of electricity and natural gas within the Project Site, as described above. While Project Site development-related electrical consumption would be largely offset by renewable energy generation, the total increase in energy consumption would nevertheless remain substantial and is therefore considered to be significant, requiring mitigation for all four development scenarios.

As previously noted, Brisbane Municipal Code Section 15.80 specifies green building standards for new developments, including meeting a minimum Leadership in Energy and Environmental Design (LEED) "Silver" rating on the Green Building Project Checklist for all new commercial projects over 10,000 square feet and achieving a "green home" rating on the MultiFamily GreenPoint Checklist[7] for any residential developments with 20 or more units. Additional mitigation measures are as follows.

Mitigation

Mitigation Measure 4.P-2a: All new buildings within the Project Site subject to the provisions of Brisbane Municipal Code Section 15.80 shall be required to achieve a LEED Gold rating, rather than the LEED Silver rating now required by the Municipal Code. In addition, all appliances installed within the Project Site as part of original building construction shall be ENERGY STAR rated or equivalent.

Mitigation Measure Applicability by Scenario			
DSP	**DSP-V**	**CPP**	**CPP-V**
✓	✓	✓	✓

✓ = measure applies
- = measure does not apply

Mitigation Measure 4.P-2b: All street and parking lot lighting within the Project Site shall be energy efficient light emitting diode (LED) based lighting.

Mitigation Measure 4.P-2c: Should the CPP scenario be selected, Project Site development shall provide for an equivalent amount of onsite renewable energy generation as the DSP scenario (42,000 to 45,000 megawatt hours). Should the CPP-V scenario be selected, Project Site development shall provide for an equivalent amount of onsite renewable energy generation as the DSP scenario (42,000 to 45,000 megawatt hours) in addition to the renewable energy generation proposed as part of the Recology expansion.

Conclusion with Mitigation: A number of Project Site development features and EIR mitigation measures will reduce the significant increase in energy consumption to a less-than-significant level. Each of the proposed development scenarios include development of alternative energy-generating technologies on the Project Site and implementation of energy-saving design and building techniques, which would offset energy use. Among these are the green building standards for new developments contained in the Brisbane Municipal Code, which include

[7] Build It Green, a nonprofit organization, has developed New Home Construction Green Building Guidelines and a MultiFamily GreenPoint Checklist, based upon the Multi-Family Green Building Guidelines established by the Alameda County Waste Management Authority. See Section 15.80.020 of the Brisbane Municipal Code for more information.

meeting a minimum (LEED) "Silver" rating on all new commercial projects over 10,000 square feet and achieving a "green home" rating on the MultiFamily GreenPoint Checklist for any residential developments with 20 or more units.

Project Site development would result in a substantial increase in electrical use within the Project Site because the site is large and is currently largely unoccupied. However, on a per-square-foot-of-building basis, development of the Project Site would result in 56.6 to 80.8 percent less electrical consumption than would comparable development projects that comply with the requirements of Title 24 but do not provide for onsite electrical energy generation.

In addition, inefficient, wasteful, and unnecessary consumption of energy would avoided or reduced with implementation of **Mitigation Measure 4.F-1** (see Section 4.F, *Greenhouse Gas Emissions*), which sets energy efficiency performance standards. In addition, **Mitigation Measures 4.P-2a through 4.P-2c** would further reduce energy use by ongoing operations of Project Site uses. For these reasons, with mitigation, Project Site development's impact with respect to fuel use would be less than significant.

Impact 4.P-3: Would vehicle trips associated with Project Site development use fuel in a wasteful manner?

Impact Significance by Scenario (before Mitigation)			
DSP	**DSP-V**	**CPP**	**CPP-V**
SM	SM	SM	SM

SU = Significant Unavoidable
SM = Significant but Mitigable
LTS = Less than Significant
- = no impact

DSP, DSP-V, CPP, and CPP-V

All of the proposed development scenarios would result in a substantial increase in fuel use associated with vehicle trips to, from, and within the Project Site. **Table 4.P-2** below shows projected fuel use under each of the development scenarios. Based on the URBEMIS model runs conducted to estimate baseline and Project Site development-related air pollutant emissions, it is assumed that 1.2 percent of the proposed offsite vehicle use would be diesel fuel-based and 98.8 percent would be gasoline-based. As shown in Table 4.P-2, the CPP scenario would result in the greatest increase in fuel use over existing conditions.

TABLE 4.P-2
ESTIMATED FUEL USE FOR THE DSP, DSP-V, CPP, AND CPP-V SCENARIOS

Development Scenario	Fuel Use (gallons per year)					
	Diesel			Gasoline		
	Existing	Proposed	Increase over Existing	Existing	Proposed	Increase over Existing
DSP	3,309	47,273	43,964	222,514	4,526,019	4,303,505
DSP-V	3,309	45,000	41,691	222,514	4,308,455	4,085,941
CPP	3,309	80,916	77,607	222,514	7,747,119	7,524,605
CPP-V	3,309	77,260	73,951	222,514	7,397,059	7,174,545

SOURCE: ESA, 2012.

The use of fuels from Project Site development-related vehicular traffic would increase substantially under each Project Site development scenario. As shown in Table 4.P-2, the CPP and CPP-V scenarios would consume substantially more fuel than the DSP and DSP-V scenarios. As discussed in Section 4.F, *Greenhouse Gas Emissions*, the CPP and CPP-V scenarios would produce between 14 and 25 percent more GHG emissions than the DSP and DSP-V scenarios and would result in significant unavoidable greenhouse gas emissions impacts, primarily as the result of generating more vehicle trips and vehicle miles traveled than the DSP and DSP-V scenarios.

To reduce fuel use, each of the four Project Site development scenarios includes a number of transit, bicycle, and pedestrian improvements that would encourage alternative modes of travel, along with implementation of a Transportation Demand Management (TDM) program to further reduce the number of vehicle trips. (See Chapter 3, *Project Description*, and Section 4.N, *Traffic and Circulation*, for a discussion of these features.) The overall result of the CPP and CPP-V scenarios would be a significant unavoidable greenhouse gas emissions impacts (see Section 4.F, *Greenhouse Gas Emissions*), largely resulting from increased vehicular fuel consumption over a substantially larger number of vehicle miles traveled than the DSP and DSP-V scenarios, which were determined to have less-than-significant greenhouse gas emissions impacts. In the CPP-V scenario, the proposed Recology expansion would produce biogas fuels as a by-product of its operations that would be used to fuel the Recology truck fleet and would also produce excess energy that could be exported for use outside the Project Site.

Conclusion: Project Site development would result in a substantial increase in fuel use for each of the four proposed development scenarios. Inefficient, wasteful, and unnecessary consumption of fuel would be avoided or reduced with implementation of the following mitigation measures to help minimize fuel use associated with Project Site development-related trips: **Mitigation Measure 4.B-4** (see Section 4.B, *Air Quality*), which imposes operational emission controls; **Mitigation Measures 4.N-1f and 4.N-13** (see Section 4.N, *Traffic and Circulation*)**,** which require preparation of a Transportation Demand Management program; **Mitigation Measure 4.N-7** (see Section 4.N, *Traffic and Circulation)***,** which requires the provision of bus service to and from proposed land uses; and **Mitigation Measure 4.N-11** (see Section 4.N, *Traffic and Circulation*), which requires the provision of bicycle parking onsite.

With these mitigation measures, Project Site development's impact with respect to fuel use would be less than significant.

Overall Conclusion

Development of the Project Site would result in a substantial increase in energy use under each of the four proposed development scenarios. However, each of the proposed development scenarios would include development of alternative energy-generating technologies on the Project Site and implementation of energy-saving design and building techniques, which would offset energy use. In addition, a number of Project Site development features and EIR mitigation measures would reduce fuel use related to ongoing operations of Project Site uses, including implementation of a Transportation Demand Management program; requirements for the provision of bus service to and from proposed land uses; and requirements for the provision of bicycle trails and parking within the Project Site.

For these reasons, Project Site development's impact with respect to energy would be less than significant.

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CHAPTER 5
Alternatives

5.1 Introduction

Section 15126.6(a) of the CEQA Guidelines indicates the scope of alternatives to a proposed project that must be evaluated:

> "An EIR shall describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives. An EIR need not consider every conceivable alternative to a project. Rather it must consider a reasonable range of potentially feasible alternatives that will foster informed decision making and public participation. An EIR is not required to consider alternatives which are infeasible. The lead agency is responsible for selection of a range of project alternatives for examination and must publicly disclose its reasoning for selecting those alternatives. There is no ironclad rule governing the nature or scope of the alternatives to be discussed other than the rule of reason."

CEQA Guidelines Section 15126.6(e) further requires that an alternative be included that describes what would reasonably be expected to occur on the property in the foreseeable future if the Project Site development were not approved, based on current plans and consistent with available infrastructure and community services. This is considered to be the "No Project Alternative."

Some of the factors that may be used to eliminate alternatives from detailed consideration in an EIR are:

1. Failure to meet most of the basic project objectives;
2. Infeasibility; or
3. Inability to avoid significant environmental impacts.

These criteria are not exhaustive, and other appropriate factors may be considered as well. (CEQA Guidelines Section 15126.6(c)).

The alternatives addressed in this EIR were selected based on the following general factors set forth in CEQA Guidelines Section 15126.6. The specific reasons for selection of these alternatives are discussed in greater detail below as part of the summary of alternatives (see

Section 5.2). In addition, a list of alternatives that were considered, but not evaluated in the EIR, is provided in Section 5.2, along with the reasons the alternatives were rejected.

- The extent to which the alternative would avoid or substantially lessen any of the identified significant environmental effects of Project Site development (see Table 6-1 for a listing of significant unavoidable impacts);
- The extent to which the alternative would accomplish most of the basic objectives of the Project (see Section 3.13.1, *Objectives Identified by the City of Brisbane*, for a listing of the Project objectives used to evaluate Project alternatives);
- The potential feasibility[1] of the alternative, taking into account site suitability, economic viability, availability of infrastructure, property control (ownership), and consistency with applicable plans and regulatory limitations;
- The extent to which the alternative contributes to a "reasonable range" of alternatives necessary to permit a reasoned choice; and
- The requirement to consider a "no project" alternative, an alternative that provides for the likely outcome should the proposed project not be approved, and to identify an environmentally superior alternative in addition to the "no project" alternative (CEQA Guidelines Section 15126.6(e)).

5.2 Summary of Alternatives

In accordance with the general alternatives selection criteria discussed in Section 5.1, *Criteria for Selecting Alternatives*, above, the following alternatives were selected for analysis in this EIR because either they are required under CEQA (the no project alternatives), or to reduce or avoid significant effects of Project Site development, while attaining most of the Project Site development objectives. **Table 5-1** summarizes the development planned for the Project Site development scenarios and for each of the alternatives described below. The alternatives are analyzed in detail in Section 5.3, *Analysis of Alternatives*.

5.2.1 No Project Alternatives

No Project-No Build Alternative

The No Project-No Build Alternative assumes that existing conditions would continue. None of the Project Site development components described in Chapter 3, Alternatives, would be approved, and there would be no further development within the Project Site, including infrastructure. Existing, continuing uses in the Baylands include Sierra Point Lumber and Van Arsdale-Harris Lumber, the Recology resource recovery facility, Brisbane Bayshore Industrial Park, Lazzari Fuel Company, Baylands Soils Processing, LLC, and the Brisbane Recycling rock crushing facility. Since no future development is contemplated by this alternative, it would not

[1] CEQA Guidelines Section 15364 defines feasible as "capable of being accomplished within a reasonable period of time, taking into account economic, environmental, legal, social and technological factors.

TABLE 5-1
COMPARISON OF PROJECT SCENARIOS AND ALTERNATIVES LAND USES

Land Uses	Proposed Project Development Scenario				No Project–No Build	Alternative			
	DSP	DSP-V	CPP	CPP-V		No Project–General Plan Buildout	Renewable Energy Generation	Reduced Intensity Non-Residential Alternative	Reduced Intensity Mixed Use
Project Area									
Upland/Lagoon (acres)	684.0	684.0	733.0	733.0	733.0	733.0	733.0	733.0	733.0
Public and Open Space									
Public Use/Open Space (acres)	196.6	196.6	330.0	330.0	196.6	196.6	330.0	330.0	196.0
Renewable Energy Generation (acres)	25.0	25.0	(a)	(a)	0	0	170.0	25.0	25.0
Wastewater Treatment (Pump Station) (acres)[b]	5.0	5.0	7.0	7.0	0	0	0	7.0	5.0
Residential (square feet / units)	5,150,400 / 4,434	5,150,400 / 4,434	0	0	0	0	0	0	2,781,216 / 2,400
Mixed Commercial/Office/Retail (square feet)	566,300	283,400	2,209,500	2,209,500	0	1,056,505	173,800	1,300,000	305,802
Office / Institutional (square feet)	2,651,100	2,252,100	992,700	992,700	0		0	80,000[c]	1,431,594[c]
Research & Development (square feet)	3,328,300	2,599,200	2,007,000	1,672,200	0		654,900	2,000,000	1,797,282
Industrial /Light Industrial/ Warehousing (square feet)[c2]	142,500	142,500	366,400	366,400	393,900	715,947	142,500	224,000	76,950
Entertainment / Cultural (square feet)			611,300	611,300					
Arena (square feet)	0	630,100			0		0		
Theater (square feet)	0	337,200			0		0		
Multiplex (square feet)	0	71,000			0		0		
Conference / Exhibition (square feet)	21,300	73,500	274,500	274,500	0		0		11,502
Hotel / Extended Stay (square feet / rooms)	239,800 / 369	513,300 / 719	1,392,300 / 1,990	1,046,100 / 1,500	0		0	520,000 / 650	129,492 / 200
Public / Civic / Cultural (square feet)[d]	28,200	28,200	188,700	188,700	0		0	180,000	15,228
Resource Recovery (square feet)[e]	0[f]	0[f]	259,000	1,011,000	259,000	259,000	1,011,000	1,011,000	259,000
Total Development (square feet)	**12,127,900**	**12,080,900**	**8,301,400**	**8,372,400**	**632,900**	**2,018,288**[g]	**1,982,200**	**5,315,000**	**6,808,066**

a The CPP and CPP-V would incorporate alternative energy generation; location, size, and type of facilities would be determined at a later date. Acreages of other proposed land uses may decrease as a result.
b The differences in the acreages of the wastewater treatment plant are due to the roadway configurations that would occur under each proposed scenario.
c Institutional uses include educational and hospital for General Plan buildout.
c1 The General Plan defines this use as "laboratory and miscellaneous related uses."
c2 The Industrial/Light Industrial/Warehousing uses include the existing lumberyards (Sierra Point Lumber and Van Arsdale-Harris Lumber), which would be included in all scenarios. The existing lumberyards would be relocated to an area within the Project Site.
d Public/Civic/Cultural land uses include the Roundhouse and the Lazzari Fuel Company buildings.
e Resource Recovery use refers to the Recology, Inc site.
f The existing Recology, Inc. site is not part of the DSP or the DSP-V.
g Assumes maximum buildout as stated in the City of Brisbane 1994 General Plan.

General Notes
The existing uses that would be removed under the Project Site development and Alternatives 3 and 4 include the Brisbane Industrial Park (231,4000 square feet) and interim uses occurring on the site (Brisbane Recycling/Rock Crushing and Baylands Soils Processing, LLC). These uses would remain with the No Project-No Build Alternative and No Project-General Plan Buildout Alternative.

SOURCE: City of Brisbane, 2012.

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include site remediation[2]. The Geneva Avenue extension would not be part of Project Site development, but could be constructed by others as a regional transportation improvement identified in the Bi-County Transportation Study independently of any action taken by the City in relation to Project Site development. Since it would not be part of Project Site development under this alternative, the Geneva Avenue extension is not analyzed as part of the No Project-No Build Alternative. This alternative is intended to meet the requirements of CEQA Guidelines Section 15126.6(e) for evaluation of a no project alternative.

No Project-General Plan Buildout Alternative

This alternative assumes that none of the proposed Concept Plans are selected, the proposed Specific Plan is not approved, and that buildout of the Project Site would occur pursuant to the existing adopted provisions of City of Brisbane 1994 General Plan. Existing uses within the Northeast Bayshore and Beatty Subareas would continue, but not be expanded, and new development would be limited to the Baylands Subarea, which is designated *Planned Development-Trade Commercial* and *Marsh/Lagoon/Bayfront.* Allowable uses under the *Planned Development-Trade Commercial* designation include retail sales, offices, bulk sales, open space, recreational facilities, statuary, public and quasi-public facilities, services and utilities, commercial services, hotels, research and development, educational institutions, and lagoon/bayfront. Incorporating various combinations of these allowable uses, the 1994 General Plan EIR describes three alternative conceptual land use scenarios for the Baylands Subarea.

As stated in Section 4.I, *Land Use*, the density/intensity of the buildout for the Baylands is described in the 1994 General Plan in terms of the maximum impact of development, particularly traffic impacts. As a result, a specific development intensity for buildout of the Baylands is not described in the General Plan, but is described in the EIR prepared for the 1994 General Plan. The General Plan EIR identifies near-term (10 years) development within the Baylands subarea to consist of a total of 650,000 square feet of new commercial development, with an increase of between one million square feet and 4.2 million square feet at ultimate buildout, depending on the mix of land uses (City of Brisbane, 1994). The General Plan EIR calculated the carrying capacity of the Baylands Subarea by defining the range of square footage of development that "could be accommodated without producing more traffic than could reasonably be mitigated to within the City's level-of-service standard (LOS D) as being in the range of between one million square feet of a high trip generating land use, such as certain types of retail, up to 4.2 million square feet of a low trip-generating land use such as warehouse. The actual trip generation and corresponding

[2] Although site remediation is a prerequisite to any future development within the Project Site, site remediation could be the only Project component described in Table 3-1 to move forward as the result of certification of this EIR. As discussed below in Section 5.2.4, *Alternatives Considered, but Rejected*, a Project alternative consisting of site remediation in the absence of future development was considered, but rejected, since it was unreasonable to assume no future development would occur within the Project Site. In addition, remediation in the absence of any future development would not meet the City's overarching objective to "create an active, vibrant place which strengthens the community of Brisbane; contributes to its sense of place; and demonstrates environmental, social, and economic considerations can be harmonized to the betterment of the natural environment, the Brisbane and regional community, and the individuals who will use the Baylands," nor would it meet the City's social equity or economic objectives. Thus, in the absence of approving any other Project component, it is reasonable to conclude that approval of only site remediation would ultimately lead to site development in accordance with the City's existing General Plan (i.e., No Project – General Plan Buildout Alternative).

allowable square footage of development would lie somewhere between the hypothetical 'high' and 'low' and would reflect a mix of land use on the Project Site, as reflected in all three of the hypothetical long-term land use alternatives."

For purposes of this EIR's analysis, a mix of currently permitted commercial and office uses with a total trip generation equivalent to the range of development described in the General Plan EIR was developed. Thus, for purposes of analysis, the theoretical commercial/industrial buildout permitted by the General Plan is estimated to be:

- ***Baylands Subarea:*** 56,505 square feet of existing retail development
  600,000 square feet of new retail development
  400,000 square feet of new office development
  189,331 square feet of existing industrial development (Lazzari fuel building and existing lumberyards being relocated)
  200,000 square feet of new laboratory and industrial development
  1,056,505 total square feet of commercial/office development
  389,331 total square feet of industrial development
  1,445,836 total square feet of total development[3]
- ***Beatty Subarea:*** Retention of the existing 259,000 square foot Recology facility
- ***Northeast Bayshore Subarea:*** Retention of existing industrial development, identified in the General Plan EIR as 326,616 square feet of industrial development

Implementation of the No Project-General Plan Buildout Alternative would require preparation of a Concept Plan and approval of one or more specific plans for the Baylands Subarea. To facilitate development pursuant to this alternative, remediation of the Project Site would be required, as would securing a firm water supply for onsite development. Thus, this alternative includes the site remediation and proposed water transfer agreement Project components described in Chapter 3, *Project Description,* of this EIR. Since Project Site development under the No Build-General Plan Amendment alternative would far less intense than proposed under any of the four Project Site development scenarios, development of an onsite recycled water plant would not occur as part of this alternative. However, because the General Plan calls for the Geneva Avenue extension, it is assumed to occur (whether as part of project development or as a regional improvement). This alternative is intended to meet the requirements of CEQA Guidelines Section 15126.6(e) for evaluation of a no project alternative and evaluate the likely outcome should the Project Site development as currently proposed not be approved.

[3] This buildout has a trip generation equivalent to the 1.0 million square feet of retail use and 4.2 million square feet of industrial use described in the General Plan EIR as the basis for determining General Plan buildout.

5.2.2 Alternatives Intended to Avoid Significant Effects of the Proposed Project

Renewable Energy Generation Alternative

The Renewable Energy Generation Alternative is based on a proposal by the Committee for Renewable Energy for the Baylands (CREBL) to develop utility-scale renewable energy generation at the Baylands. CREBL's goal for this alternative was to not only offset the energy demand for development of the entire Project Site, but also to produce additional electricity for consumption by Brisbane homes, businesses, and City-owned facilities. Land uses under the Renewable Energy Generation Alternative would include 170 acres of alternative energy uses consisting of a large photovoltaic (PV) solar farm, small vertical-axis wind turbines, wind turbines placed within development, and rooftop PV solar panels; 654,900 square feet of research and development facilities on 59 acres; and 173,800 square feet of retail/entertainment uses on 26 acres. Others uses at the Project Site would include a new water treatment plant (seven acres) and relocated industrial uses (three acres). The remainder of the Project Site would be designated open space/public uses. The Recology expansion, relocation of the existing lumberyards, Geneva Avenue extension, site remediation, and approval of the proposed water supply agreement would also occur as part of this alternative. The portion of the 2,400 acre-feet of water supply contemplated for Project Site development use in the proposed water transfer agreement would be reduced to accommodate the actual water demand associated with this alternative (approximately 300 acre feet); the 400 acre-feet of water to be used for citywide purposes would be remain in its entirety. The recycled water plant would not be developed under this alternative. Overall, this alternative would reduce or avoid significant traffic, air quality, greenhouse gas (GHG), noise, public services, and population/housing impacts, and develop a project that would be consistent with the development intensity contemplated by the General Plan and its EIR, while meeting most Project objectives.

Reduced Intensity Non-Residential Alternative

The Reduced Intensity Non-Residential Alternative incorporates a mix of non-residential land uses similar to that proposed under the CPP-V scenario, but with a reduced intensity of development. Like the CPP-V scenario, this alternative includes expansion of the Recology facility, as well as an area to be dedicated to renewable resource uses. This alternative was specifically designed to reduce the significant unavoidable GHG impact of CPP and CPP-V scenarios to be less than significant. The Reduced Intensity Non-Residential Alternative would also reduce or avoid significant aesthetics and visual resources, traffic, air quality, public services, and population/housing impacts, and would fall within the development intensity range contemplated by the General Plan and its EIR, while also meeting most of the Project Site development's environmental, social equity, and economic objectives.

Site remediation would occur as part of this alternative, as would the Geneva Avenue extension. The relocation of the existing lumberyards, Geneva Avenue extension, and proposed water supply agreement are also part of this alternative, which would allow approximately five million square feet of development and 25 acres of renewable energy generation at buildout**.** The 2,400 acre-feet of

water supply contemplated in the proposed water transfer agreement would be reduced by approximately 28 percent (to 1,440 acre-feet) to accommodate the actual water demand associated with this alternative, while retaining the full 400 acre-feet of water to be used for citywide purposes. The recycled water plant would be developed under this alternative.

Reduced Intensity Mixed Use Alternative

This alternative incorporates a mix of uses similar to the DSP scenario, but at a reduced level of residential and non-residential development from that proposed by the DSP scenario. This alternative also assumes that site remediation would be undertaken, existing lumberyards are relocated, and that the proposed water transfer agreement would be approved to support development under this alternative. The Geneva Avenue extension would be developed as part of this alternative. The 2,400 acre-feet of water supply contemplated in the proposed water transfer agreement would be reduced by approximately 46 percent (to 1,080 acre-feet) to accommodate the actual water demand associated with this alternative (680 acre-feet), while the full 400 acre-feet of water to be used for citywide purposes would be retained. The recycled water plant would be developed under this alternative. Overall, this alternative would reduce or avoid significant traffic, air quality, GHG, noise, public services, and population/housing impacts, and meet most of the Project Site development's environmental, social equity, and economic objectives.

5.2.3 Approval of Development in the Absence of Approving a Water Supply Agreement

Because any new development within the Project Site will require acquisition of a supplemental water supply, approval of the proposed water supply agreement is assumed as part of each alternative other than the No Project-No Build Alternative, although some of the alternatives would need less water and therefore the full 2,400 acre feet contemplated in the proposed agreement would not be required. However, the proposed water supply agreement that is a component of the Project Site development described in Chapter 3, *Project Description*, and could be approved or not approved regardless of any action(s) taken on other Project components. For this reason, in addition to analyzing the Project Site development alternatives, this chapter of the EIR also analyzes the impacts of: (1) selecting a Project Site development scenario or Project alternative in the absence of approving the proposed water supply agreement; and (2) approving the proposed water supply agreement in the absence of selecting any a Concept Plan development scenario or Project alternative.

5.2.4 Alternatives Considered, but Rejected

As part of community discussion regarding proposed Project Site development and during preparation of this EIR, a number of potential alternatives to the Project Site development as described in Chapter 3, *Project Description*, were identified. The Brisbane City Council directed that the CPP and CPP-V scenarios be addressed in the EIR as part of the Project Site development at an equal level of detail to the DSP and DSP-V scenarios proposed by UPC and included in the proposed Brisbane Baylands Specific Plan. In addition, the Renewable Energy Alternative, which

arose from public discussion of the proposed Project Site development, is evaluated in this chapter. Other alternatives were suggested and ultimately rejected from further analysis for the reasons cited below. Alternatives considered, but rejected from further analysis include:

- **Public Park.** In this alternative, the Project Site with the exception of the existing Recology facility and Bayshore Industrial Park would be acquired by a public agency to be retained for public open space and park use. This alternative was rejected since no funding exists or would likely exist for a public agency to acquire the Project Site, undertake needed site remediation, and provide the improvements and habitat restoration associated with long-term park and open space use of the Project Site. In addition, the park alternative was rejected since it would not meet stated Social Equity or Economic objectives for the Project Site development.

- **Rail Yard Rehabilitation.** In this alternative, the existing Bayshore Industrial Park, Recology facility, and temporary and interim uses located on the Brisbane landfill would continue. In addition, the bulk of the site would be utilized as a rail yard for storage and maintenance of high speed rail trains and engines. This alternative was rejected since it did not meet the City's overarching objective of an "active, vibrant place which strengthens the community of Brisbane; contributes to its sense of place; and demonstrates environmental, social, and economic considerations can be harmonized to the betterment of the natural environment, the Brisbane and regional community, and the individuals who will use the Baylands." This alternative was also determined to be premature and speculative, as the parameters for possible high speed rail operations (including facilities) on the San Francisco Bay Peninsula, have not yet been established.

- **Site Remediation in the Absence of Further Development within the Project Site.** In this alternative, site remediation within Operable Units 1 and 2, as well as landfill closure would be implemented, but no other Project components would be approved, and no further development within the Project Site would occur. The site remediation that is a component of the Project Site development described in Chapter 3, *Project Description*, while a prerequisite to future development within the Project Site, could be approved regardless of whether any other Project component described in Chapter 3, *Project Description*, is approved. Given that cleanup levels established by regulatory agencies are based on proposed future land uses, it is unrealistic to assume that site remediation would be undertaken absent a land use plan for the site. Site remediation in the absence of further development of the Project Site was rejected as a Project alternative since it would not meet Environmental Protection and Enhancement Objective D, nor would it meet the Brisbane's Social Equity or Economic objectives for Project Site development.

5.2.5 Project Objectives Identified by the City of Brisbane

The City's overarching objective is to create an active, vibrant place which strengthens the community of Brisbane; contributes to its sense of place; and demonstrates environmental, social, and economic considerations can be harmonized to the betterment of the natural environment, the Brisbane and surrounding regional community, and the individuals who would use the Project Site.

The Project objectives identified below have been organized around three major components of sustainability: environmental protection and enhancement, social equity, and economics.

Environmental Protection and Enhancement Objectives

A. Remediate the Baylands to a level which ensures the safety of all who use the site, and eliminates ongoing ecological damage.

B. Incorporate a "green building" approach for all future development on the Baylands, wherein buildings are sited, designed, constructed and operated to encourage resource conservation, minimize waste and pollution, maximize energy and resource efficiency, and promote healthy indoor environments.

C. Preserve, restore and enhance wetlands and natural habitat on the site and create natural linkages across the site to promote physical and visual connectivity between the San Bruno Mountains and the Bay.

D. Promote and encourage non-vehicular access and movement to and from the site (particularly from Central Brisbane) and within the site as well. Land use mix, good urban design, the provision of safe and pleasant pedestrian and bike paths, and convenient access and linkages to public transit are all necessary components.

E. Strive to achieve a balance between energy demand and generation through efficiency, conservation, and the maximum use of passive and active sources of renewable energy.

F. Minimize the net consumption of water supplies.

G. Safely and efficiently accommodate project traffic in a manner that does not adversely impact Brisbane or adjacent communities.

H. Incorporate innovative methods to reduce resource consumption and waste generation.

I. Site and design new infrastructure to minimize adverse environmental impacts.

J. Design the project sensitively to protect Brisbane's viewshed, taking into account light spillage and pollution, building height and massing, and placement of landscape features.

K. Maximize solid waste diversion with the goal of achieving zero waste.

Social Equity Objectives

L. Incorporate significant open space and related improvements which provide opportunities for a wide range of passive and active public recreational opportunities benefiting the City and region.

M. Provide employment opportunities for Brisbane residents and residents of nearby local communities, thereby improving the jobs/housing balance at regional and subregional levels.

N. Contribute to critically-needed solutions to regional transit and transportation issues which will benefit both the project and existing communities.

O. Recognize that the project is of regional significance, and provide for the well-being not only of the City of Brisbane, but also of surrounding communities.

P. Provide on-site opportunities for public art and education to contribute to public understanding of the site, including its history, ecology and the project's sustainability mission.

Economic Objectives

Q. Enhance the City's tax base and future ability to improve services within all of Brisbane.

R. Retain and accommodate the expansion of existing businesses within the Baylands that contribute to the City's fiscal health and economic vitality.

S. Establish a project which remains economically viable on a long-term basis, including excellence in architecture which can withstand the test of time.

T. Build in flexibility so the project can adapt to changing market conditions over time, without compromising the other stated project objectives.

U. Provide greater choices for Brisbane residents by providing desired goods, services, entertainment, and/or other amenities not currently available within the City.

5.2.6 Significant Impacts Resulting from the Project

CEQA requires the alternatives selected for comparison in an EIR to avoid or substantially lessen one or more significant effects of the Project. In order to identify alternatives that would avoid or substantially lessen any of the identified significant environmental effects of Project Site development, the significant impacts must be considered, although it is recognized that alternatives aimed at reducing the significant and unavoidable impacts of Project Site development would also avoid or reduce impacts that were found to already have been reduced to below a level of significance. The analysis in Chapter 4 (Sections 4.A through 4.P) of this EIR determined that Project Site development would result in the following significant unavoidable impacts:

Significant Unavoidable Aesthetic Resources Impacts

- **Impact 4.A-4:** The Project would create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area. (nighttime lighting for the DSP, DSP-V, CPP, CPP-V scenarios)

Significant Unavoidable Air Quality Impacts

- **Impact 4.B-2:** The Project would generate construction emissions that would result in a cumulatively considerable net increase of criteria pollutants and precursors for which the air basin is in nonattainment under an applicable federal or state ambient air quality standard. (DSP, DSP-V, CPP, CPP-V scenarios)

- **Impact 4.B-4:** The Project would generate operational emissions that would result in a considerable net increase of criteria pollutants and precursors for which the air basin is in nonattainment under an applicable federal or state ambient air quality standard. (DSP, DSP-V, CPP, CPP-V scenarios)

- **Impact 4.B-9:** The Project would conflict with or obstruct implementation of the applicable air quality plan. (DSP, DSP-V, CPP, CPP-V scenarios)

Significant Unavoidable Biological Resources Impacts

- **Impact 4.C-1:** Development of the Project Site would have a substantial adverse effect, either directly or indirectly, on species identified as a candidate, sensitive, or special-status

plant and wildlife species, including species which meet the definition of endangered, rare or threatened in CEQA Guidelines Section 15380, either through direct injury or mortality, harassment, or elimination of plant or wildlife communities. (CPP-V scenario)

Significant Unavoidable Greenhouse Gas Emissions Impacts

- **Impact 4.F-1:** The Project would generate greenhouse emissions, either directly or indirectly, that may have a significant impact on the environment. (CPP and CPP-V scenarios)
- **Impact 4.F-2:** The Project would conflict with an applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases. (CPP and CPP-V scenarios)

Significant Unavoidable Noise Impacts

- **Impact 4.J-4:** Project construction activities would result in substantial temporary or periodic increase in ambient noise levels in the Project Site vicinity above levels without the Project. (DSP, DSP-V scenarios)

Significant Unavoidable Population and Housing Impact

- **Impact 4.K-1:** The Project would induce substantial population growth in the area either directly or indirectly. (DSP, DSP-V, CPP, CPP-V scenarios)

Significant Unavoidable Traffic and Circulation Impacts

- **Impact 4.N-1:** The Project would result in a substantial increase in traffic under Existing plus Project conditions at intersections in the vicinity of the Project Site. (DSP, DSP-V, CPP, CPP-V scenarios)
- **Impact 4.N-2:** The Project would contribute to significant existing traffic impacts at freeway mainline segments. (DSP, DSP-V, CPP, CPP-V scenarios)
- **Impact 4.N-3:** The Project would result in a significant increase in traffic under Cumulative With Project conditions at the study intersections. (DSP, DSP-V, CPP, CPP-V scenarios)
- **Impact 4.N-4:** The Project's contribution to future cumulative traffic impacts at freeway mainline segments will be cumulatively considerable. (DSP, DSP-V, CPP, CPP-V scenarios)
- **Impact 4.N-5:** The Project would result in a substantial increase in PM peak hour traffic at study intersections and freeway mainline segments that would operate unacceptably due to weekday evening events at the arena. (DSP-V scenario)
- **Impact 4.N-7:** The Project would cause an increase in transit demand that could not be accommodated by San Francisco Muni or SamTrans transit capacity. (DSP, DSP-V, CPP, CPP-V scenarios)
- **Impact 4.N-8:** The Project would cause an increase in delays or operating costs resulting in substantial adverse effects on transit service levels (i.e., additional buses or trains could be required due to Project transit trips). (DSP, DSP-V, CPP, CPP-V scenarios)

Significant Unavoidable Utilities Impacts

- **Impact 4.O-3:** The Project would result in the construction of new water, wastewater treatment, and/or stormwater drainage facilities or expansion of existing facilities, the constructions of which could cause significant environmental effects. (DSP, DSP-V, CPP, CPP-V scenarios)

5.3 Analysis of Alternatives

Pursuant to the provisions of CEQA Guidelines Section 15126.6(d), an EIR must evaluate the comparative merits of the alternatives identified in an EIR and contain sufficient information about each alternative to permit that evaluation. The significant effects of each alternative must be discussed, but in less detail than is required for the Project Site development's effects. However, the analysis must be conducted at a sufficient level of detail to provide the public, other public agencies, and City decision-makers with adequate information to allow an informed comparison of the impacts of the Project Site development with those of the alternatives. Alternatives have been evaluated with sufficient detail to permit the City to consider approving any of the Project Site development scenarios, an alternative, or a mix of Project Site development scenario(s) and alternative(s).

Implementation of the remedial actions described in Chapter 3.0, *Project Description*, and analyzed in Section 4.G, *Hazards and Hazardous Materials*, of this EIR would be required prior to any future development of the Project Site, including development of one of the alternatives identified in this chapter. Because the specific remedial technologies and levels of clean up will vary depending on the specific arrangement of uses ultimately approved within the Project Site, "remedial actions" as analyzed in this EIR includes a range of remedial technologies and levels of clean up broad enough to encompass remediation for the various uses proposed as part of Project Site development scenarios as well as the alternatives. As a result, it is assumed that the impacts and mitigation measures associated with such remedial actions described in Chapter 3.0, *Project Description*, and analyzed in Section 4.G, *Hazards and Hazardous Materials*, would apply to all of the alternatives analyzed below. Therefore, as with proposed development of the Project Site, construction-related impacts resulting from remediation of the former landfill, Operable Unit No. 1 and Operable Unit No. 2 would be significant under all of the alternatives. These significant impacts, however, would be reduced to less-than-significant levels with implementation of the mitigation measures identified in Section 4.G, *Hazards and Hazardous Materials*, of this EIR.

5.3.1 No Project Alternatives

No Project-No Build Alternative

Description of the No Project-No Build Alternative

The No Project-No Build Alternative assumes that no Project Site development scenario is selected, existing conditions would continue, and that there would be no further development on the Project Site, including infrastructure. Existing uses within the Project Site including Sierra

Point Lumber and Van Arsdale-Harris Lumber Yard, the Recology resource recovery facility, Brisbane Bayshore Industrial Park, Lazzari Fuel Company, Brisbane Soils Processing, and the Brisbane Recycling rock crushing facility would continue in their present locations. Insofar as the Geneva Avenue extension is included in the San Francisco Bay Area Regional Transportation Plan and the San Mateo-San Francisco Bi-County Transportation Study, and also is assumed in the Candlestick Point-Hunters Point Shipyard Phase II Development Plan Project EIR, the roadway extension could still occur under a no-build scenario because it would be funded and built solely by others. However, because the roadway extension and associated interchange improvements at US Highway 101 are unlikely to occur in the absence of any development within the Project Site, it is assumed that the Geneva Avenue extension would not occur under the No Project-No Build Alternative. In addition, because no future development would occur within the Project Site, this alternative does not include Project Site remediation.

Impacts of the No Project-No Build Alternative

Aesthetics

Because no new development would occur under this alternative, no visual impacts would occur within the Project Site. This alternative would not affect scenic vistas and resources, the visual character of the Project Site, or ambient light and glare. As such, impacts of the proposed Project under any of the development scenarios would be substantially greater as compared to this alternative.

Air Quality and Greenhouse Gases

Because no new development would occur on the Project Site under this alternative, there would be no impact related to air quality or GHG emissions. As such, impacts of the proposed Project under any of the development scenarios would be substantially greater as compared to this alternative.

Biological Resources

This alternative would leave existing natural vegetation in place, and would not result in the removal of any biological resources within the Project Site. In addition, no restoration or enhancement of habitat areas would be undertaken, leaving existing conditions in place. While proposed Project Site development would result in significant but mitigable impacts on biological resources under any of the development scenarios, the No Project-No Build Alternative would not result in any impacts on biological resources. However, habitat enhancements associated with Project Site development would also not occur.

Cultural Resources

Because the No Project-No Build Alternative includes no ground disturbance associated with development, impacts on previously undiscovered archaeological resources would not occur. While no impacts on historic resources would occur under this alternative, the Roundhouse building and the Lazzari Fuel Company building would not be rehabilitated or adaptively reused, resulting in their continued deterioration.

Geology, Soils, and Seismicity

No impacts related to geology, soils, and seismicity would occur under the No Project-No Build Alternative. Whereas each of the development scenarios included in the proposed Project would result in significant but mitigable impacts related to groundshaking, seismic-induced liquefaction and lateral spreading, erosion and soil instability, ground settling, and expansive and corrosive soils, this alternative would include no new ground disturbance or construction, and therefore would not result in any impacts. However, because this alternative would not include any of the structural improvement or removal of seismically unsound structures, seismic retrofit of seismically unsound buildings (including the historic Roundhouse and the Lazzari Fuel Building) would not occur, resulting in their continued deterioration.

Hazards and Hazardous Materials

Impacts associated with the release and/or transport of hazardous materials that would occur with the proposed Project would not occur under this alternative. However, because no future development of the Project Site would occur, this alternative does not include the remedial actions that would be implemented as part of Project Site development and other alternatives, and would therefore not result in the final remediation of existing contaminated areas within the Project Site. Thus, existing contamination within the Project Site would remain under this alternative.

Hydrology and Water Quality

Project Site development's significant impacts related to water quality degradation, alteration of drainage patterns, stormwater runoff, and flooding would not occur under the No Project-No Build Alternative. Because no development would occur, this alternative would not alter drainage patterns or create new impervious surfaces that would result in increases in peak runoff generated onsite as compared to existing undeveloped conditions.

Land Use and Planning Policy

The No Project-No Build Alternative would not provide for any future development within the Project Site. As such, none of the inconsistencies with existing General Plan policy that would result from implementation of proposed Project site development scenarios would occur under this alternative. However, the No Project-No Build Alternative would be inconsistent with General Plan policies calling for site remediation and rehabilitation of historic buildings within the Project Site, as well as policies aimed at providing for the Geneva Avenue extension.

Noise

Because the No Project-No Build Alternative would result in no new development within the Project Site, no new noise impacts would occur. While the development scenarios analyzed for proposed Project Site development would each result in significant and unavoidable noise impacts related to construction and to traffic associated with urbanization of the Project Site, no new development and no associated noise impacts would occur with this alternative.

Population and Housing

Because no new development would occur within the Project Site under this alternative, no impact on population and housing conditions would occur. This would differ from the Project Site development in that, under the DSP and DSP-V scenarios, an increase in population would occur with the development of new housing and, under all four scenarios, jobs would be created by new non-residential development, which in turn could result in a population increase within the vicinity of the Project Site.

Public Services

Unlike each of the development scenarios included in the proposed Project that substantially increase the need for expanded public services, the No Project-No Build Alternative would not result in any increased demand for public services.

Recreation Resources

The No Project-No Build Alternative would have no impact on recreational resources as it would neither create demand for recreational facilities, nor affect any existing facilities, although the parks and trails proposed in Project Site development scenarios would not be available to the public. In comparison, although the DSP and DSP-V scenarios would result in the development of substantial open space areas, those scenarios would also create demands for recreational facilities in excess of the facilities they provide, as measured by the standards of the Quimby Act (three to five acres of park land per 1,000 population) and the City's Municipal Code provisions implementing the Quimby Act (4.5 acres of park land per 1,000 population). The CPP and CPP-V scenarios would provide a substantial amount of open space and passive recreational areas, but would not generate demand for active recreational facilities since residential uses are not proposed in the CPP and CPP-V scenarios.

Traffic and Circulation

Because no new development would occur under the No Project-No Build Alternative, no impacts related to traffic and circulation would occur, although as noted in Section 4.N, *Traffic and Circulation*, of this EIR new development occurring in surrounding jurisdictions would cause traffic conditions within and surrounding the Project Site to deteriorate to unacceptable levels even in the absence of Project Site development. By comparison, Project Site development would result in significant unavoidable impacts along the US Highway 101, Bayshore Boulevard, and Geneva Avenue. As described above, the Geneva Avenue extension, while unlikely could still occur in the absence of any development within the Project Site, given that the extension is indicated in the San Francisco Bay Area Regional Transportation Plan, and Bi-County Transportation Study. It is also assumed in the Candlestick Point-Hunters Point Shipyard Phase II Development Plan Project EIR. However, because the roadway extension and associated interchange improvements at US Highway 101are unlikely to occur in the absence of funding related to Project Site development, Project Site development would not make any contribution to the need for the Geneva Avenue extension. The only reason the extension would occur under this alternative is if the extension occurred as the result of actions taken by others resulting from roadway improvement needs created outside of the Project Site.

Utilities and Service Systems

The No Project-No Build Alternative would not create any new demands for utilities and services systems, and would therefore not impact those systems. As compared to the Project Site development, which result in significant but mitigable impacts related to water and wastewater treatment, water supply, stormwater drainage, solid waste disposal, and communications infrastructure requiring new infrastructure, this alternative proposes no new development. Therefore, this alternative would not result in utilities or service system impacts.

Energy Resources

While development of the Project Site would include both development that would create an increased demand for energy resources and generate renewable energy to partially offset consumption of non-renewable energy resources, the No Project-No Build Alternative would neither create demand for energy nor produce any renewable energy. Therefore, no energy impacts would occur under this alternative.

Evaluation of the No Project-No Build Alternative in Relation to Project Objectives

By eliminating proposed future development and leaving the Project Site in its existing condition, the No Project-No Build Alternative prevents achievement of the city's overarching objective, and other identified Project Objectives. While the environmental impacts that would result from Project Site development or alternatives would be avoided, existing onsite contamination would remain un-remediated, and habitat enhancements and the creation of public parks and trails associated with Project Site development scenarios and alternatives would not occur.

No Project-General Plan Buildout Alternative

Description of the No Project-General Plan Buildout Alternative

This alternative assumes that the Project Site development scenarios described in Chapter 3, *Project Description* are not approved and that buildout of the Project Site would occur pursuant to the existing adopted provisions of Brisbane General Plan. The General Plan assumes existing uses would remain in the Northeast Bayshore and Beatty Subareas, and that new development would occur only within the Baylands Subarea. The General Plan designates the Baylands Subarea as *Planned Development-Trade Commercial* and *Marsh/Lagoon/Bayfront*. Allowable uses under these designations include retail sales, offices, residential uses, bulk sales, open space, recreational facilities, statuary, public and quasi-public facilities, services and utilities, commercial services, hotels, research and development, educational institutions, and lagoon/bayfront.

While the 1994 General Plan established basic density/intensity parameters for further development, it also required that a specific plan be adopted prior to any development occurring within the Baylands Subarea. Presuming that "the realistic capacity of the land would be revealed with analysis of the specific plans required before any development could proceed," the 1994

General Plan EIR calculated the carrying capacity of the Baylands Subarea by defining the range of square footage of development that "could be accommodated without producing more traffic than could reasonably be mitigated to within the City's level-of-service standard (LOS D). The low end of the range of square footage, one million square feet, related to high trip generating land use, such as certain types of retail, and the high end, 4.2 million square feet, related to a low trip-generating land use such as warehouse-type commercial. The actual trip generation and corresponding allowable square footage of development would lie somewhere between the hypothetical 'high' and 'low' and would reflect a mix of land use on the Project Site, as reflected in all three of the hypothetical long-term land use alternatives."

As described above in Section 5.2.1, for purposes of this analysis, the No Project-General Plan Buildout Alternative consists of the following:

- ***Baylands Subarea:*** 56,505 square feet of existing retail development
  600,000 square feet of new retail development
  400,000 square feet of new office development
  189,331 square feet of existing industrial development (existing Roundhouse and Lazzari fuel buildings, as well as lumberyards to be relocated)
  200,000 square feet of new laboratory and industrial development
  1,056,505 total square feet of commercial/office development
  389,331 total square feet of industrial development
  1,445,836 total square feet of total development
- ***Beatty Subarea:*** retention of the existing Recology facility (259,000 square feet).
- ***Northeast Bayshore Subarea:*** retention of existing industrial development, identified in the General Plan EIR as 326,616 square feet of industrial development.

Thus, the No Project-General Plan Buildout Alternative assumes a total buildout of 2.02 million square feet of development throughout the Project Site including all subareas, including 1.05 million square feet of commercial/office development and 0.97 million square feet of industrial development.

Because it is included in the provisions of the General Plan, this alternative assumes that the Geneva Avenue extension, along with other infrastructure required to serve development in the Baylands, would occur. This alternative also assumes that, in accordance with General Plan policies, existing buildings of historic significance would be retained and rehabilitated for reuse where possible, including the Roundhouse and the Lazzari Fuels Company buildings. To facilitate development pursuant to this alternative, remediation of the Project Site would be required, as would securing a firm water supply for onsite development. Thus, this alternative includes the site remediation and proposed water transfer agreement Project components described in Chapter 3, *Project Description,* of this EIR. The portion of the 2,400 acre-feet of water supply intended for Project Site development would be scaled back to meet the reduced water demands of this alternative, while the entire 400 acre feet of water intended to support buildout of the City's

General Plan outside of the Project Site would be retained. Since Project Site development under the No Build-General Plan Amendment alternative would far less intense than proposed under Project Site development, development of an onsite recycled water plant would not occur as part of this alternative.

In accordance with General Plan Land Use Element Policy 11, development south of the Bayshore Basin drainage channel under this alternative would maintain a low profile, permitting low or mid-rise buildings, not to exceed six stories in height, in order to preserve the existing views of San Francisco and San Francisco Bay as seen from Central Brisbane and to maximize the amount of landscape and open space or open area in this portion of the Project Site. More specifically, the General Plan specifies maximum floor area ratios (FARs) of 0 to 2.4 south of the channel and 0 to 4.8 north of the channel. A minimum of 25 percent of the Project Site would be retained as open space/open area under this alternative as required by the General Plan.

Impacts of the No Project-General Plan Buildout Alternative

Aesthetics

Development of the Project Site under the No Project-General Plan Buildout Alternative would change the site's visual character. Development under this alternative, however, would be less dense than that which would occur under any of the four Project scenarios, and would, therefore have a lesser impact on area viewsheds. As noted above, preservation of existing views of San Francisco and San Francisco Bay would be achieved and the amount of landscape and open space would be maximized by requiring that development south of the Bayshore Basin drainage channel to maintain a low profile. More specifically, low or mid-rise buildings in this area would not exceed six stories in height, and a minimum of 25 percent of the Project Site would be retained as open space/open area.

While impacts on views of the Bay and shoreline would be less than significant under Project Site development, some portions of the Project Site could be subject to more intense development. Since the General Plan specifies maximum FARs of 0-2.4 south of the channel and 0-4.8 north of the channel, the intensity of development in some portions of the Project Site could exceed that proposed in the Project Site development. Because the No Project-General Plan Buildout Alternative would involve substantially less development square footage than Project Site development, as the development of high intensity projects within the Project Site approaching maximum allowable FARs would be offset by the provisions of more expansive open space areas and view corridors between buildings.

Development under this alternative would result in new sources of light and glare that would be visible from other areas of Brisbane, from US Highway 101, and from adjacent scenic vistas. The amount of development under this alternative would be less than Project Site development. While the sources of light and glare would be similar, the number of sources would be fewer and less intense than would result under Project Site development, and the resulting degree of light and glare impacts would be less. Because of the greatly reduced level of development under this alternative, it is reasonable to conclude that implementation of mitigation measures similar to

those set forth for Project Site development would mitigate light and glare to less-than-significant levels since sources of light and glare under this alternative would be similar, but the amount of sources would be less.

Air Quality and Greenhouse Gases

Impacts related to air quality and GHG emissions under the No Project-General Plan Buildout Alternative would be substantially reduced compared to those that would occur under Project Site development. These impacts would be less than significant, reducing the significant unavoidable air quality impacts for Project Site development, and reducing the significant unavoidable GHG impacts of the CPP and CPP-V scenarios. Because the total amount of new development under the No Project-General Plan Buildout Alternative (1,445,836 square feet) would be far less than the CPP and CPP-V scenarios (7.7 and 8.1 million square feet, respectively) and the DSP and DSP-V scenarios (12.1 and 12.0 million square feet, respectively), and new development would not encompass the entire site (e.g., the Bayshore Industrial Park and existing Recology facility would remain), air emissions from construction and operations under this alternative would be considerably less. The significant unavoidable impacts of Project Site development as described above would be eliminated under this alternative.

Biological Resources

Development under the No Project-General Plan Buildout Alternative would result in the loss of biological resources on-site. Much of the Project Site is heavily disturbed due to prior uses such as the former landfill and railyard. However, existing biological resources such as those in the vicinity of Brisbane Lagoon and Icehouse Hill would be directly or indirectly affected by construction or operation of future development. Depending on the ultimate land use plan developed under the No Project-General Plan Buildout Alternative, development would result in significant impacts on sensitive plant and wildlife species, sensitive natural communities, wetlands and other waters, wildlife movement, and trees protected by the City of Brisbane Tree Ordinance. While the potential exists for the ultimate development footprint of the No Project-General Plan Buildout Alternative to be similar to those of Project Site development and result in similar biological resources impacts, the lower intensity character of this alternative also provides greater opportunities for open space preservation and habitat restoration. As is the case for each of Project Site development, with implementation of the mitigation measures as listed in Section 4.C, *Biological Resources*, of this EIR impacts would be reduced to less-than-significant levels.

Cultural Resources

Development of the Baylands under the No Project-General Plan Buildout Alternative would result in impacts on known historic resources and previously undiscovered archaeological resources. Such impacts would occur as the result of damage to historic structures or to archaeological resources resulting from construction activities. Impacts on designated historic resources would be unlikely, however, as development under this alternative would adhere to General Plan policies calling for rehabilitation of historic structures. Further, with implementation of the mitigation measures recommended for development of the Project Site set forth in Section 4.D, *Cultural Resources*, of this EIR impacts on cultural resources would be reduced to less-than-significant level. As with development of the Project Site, no impacts on

paleontological resources would occur, as no recorded paleontological resources are located on the Project Site or in the immediate vicinity. Thus, cultural resources impacts would be similar to those of Project Site development.

Geology, Soils, and Seismicity

Impacts related to geology, soils, and seismicity would be similar to those identified for Project Site Development. Such impacts include risks to humans and damage to property related to seismic groundshaking, liquefaction and lateral spreading, slope and soil instability, erosion, and corrosive and expansive soils. Because the square footage under this alternative would be substantially less than of Project Site development, substantially fewer employees and visitors, and no onsite residents would be subject to geologic or seismic hazards. While the potential exists for the ultimate development footprint of the No Project-General Plan Buildout Alternative to be similar to that of Project Site development and result in similar geology, soils, and seismicity impacts, the lower intensity character of this alternative also provides greater opportunities for increased open space preservation and lesser geology, soils, and seismicity impacts. Implementation of the mitigation measures recommended in Section 4.E, *Geology, Soils and Seismicity*, of this EIR would reduce these impacts for this alternative to less-than-significant levels, as is the case for Project Site development.

Hazards and Hazardous Materials

As would be necessary for any future development, a series of remedial actions must be undertaken within certain portions of the Project Site, including the former landfill and railyard areas. As required by the General Plan, remedial actions would be finalized with preparation of Remedial Action Plans by the agencies with jurisdiction over these areas, the Department of Toxic Substances Control and the Regional Water Quality Control Board, and remediation of existing contamination would occur prior to future development within the Project Site. Because the remedial actions to be undertaken under the No Project-General Plan Buildout alternative would be similar to those for the CPP and CPP-V scenarios which propose a similar range of non-residential uses, implementation of remedial activities would have similar less than significant impacts and requirements. The uses permitted under the No Project-General Plan Buildout Alternative could also require the use or transport of fuels, oils, or other chemicals during construction and future operations, resulting in similar types of less than significant impacts as those for the CPP and CPP-V scenarios, which have a similar range of permitted uses. While the types of operational impacts would be similar, the extent of impacts under the No Project-General Plan Buildout Alternative would be substantially less than under the CPP and CPP-V scenarios, due to the substantially reduced development intensity. These impacts would be reduced to less-than-significant levels with implementation of the mitigation measures identified in Section 4.G, *Hazards and Hazardous Materials*, as is the case for Project Site development.

Hydrology and Water Quality

Because the intensity of development under the No Project-General Plan Buildout Alternative would be substantially less than Project Site development, depending on the final land use plan for this alternative, it would result in a smaller area of impervious surfaces compared to development of the Project Site. This would result in somewhat reduced impacts related to

flooding and stormwater runoff. Because this alternative would not include any residential development, it would result in no impacts related to the placement of housing within a 100-year floodplain. The potentially smaller impervious surface area under this alternative would also provide greater opportunities to reduce less than significant impacts related to water quality, flooding (including the potential effects of sea level rise), and stormwater runoff in comparison to Project Site development. While overall hydrology and water quality impacts would be reduced, mitigation would still be necessary. Implementation of the mitigation measures recommended in Section 4.H, *Hydrology and Water Quality*, of this EIR would reduce impacts to less-than-significant levels similar to Project Site development.

Land Use and Planning Policy

The No Project-General Plan Buildout Alternative would be, by definition, consistent with all existing provisions of the General Plan, and would therefore have fewer impacts related to land use and planning policy than Project Site development. This alternative would also not result in impacts related to the division of existing communities or conflicts with habitat conservation plans. One inconsistency with the General Plan would remain, as it would under Project Site development: traffic impacts would exceed the General Plan standard of LOS D. This significant unavoidable impact remains since even in the absence of any new development within the Project Site, future cumulative traffic conditions will deteriorate along Bayshore Boulevard and at freeway interchanges within the Project Site.

Noise

Development under the No Project-General Plan Buildout Alternative would generate noise during construction and operation. Noise generated during remediation activities would be similar to Project Site development since it would be subject to similar remediation requirements. Although this alternative would result in substantially less development square footage compared to Project Site development, construction noise would be generated by the same types of equipment and activities, resulting in similar noise levels from project construction. However, because the amount of development permitted by the No Project-General Plan Buildout Alternative is substantially less than for Project Site development, the length of time construction activities would occur under this alternative would be expected to be substantially less than for Project Site development. However, the reduction of construction and operational noise impacts under this alternative to less-than-significant levels would be ensured with implementation of the mitigation measures recommended in Section 4.J, *Noise and Vibration,* of this EIR.

Population and Housing

No resident population growth would occur on the Project Site under the No Project-General Plan Buildout Alternative, as the City's adopted General Plan does not permit residential development within the Baylands. Assuming allowable land uses under the General Plan would generate an average of 1.8 employees per 1,000 square feet of development under the current General Plan designations, this alternative would result in approximately 2,600 new jobs within the Project Site. As discussed in Section 4.K, *Population and Housing*, of this EIR, this is considerably less than the number of jobs that would be generated under the CPP or DSP scenarios (approximately 15,000 and 17,000 new jobs, respectively), and consistent with Projections 2009 growth forecast of citywide

employment growth from 2010 to 2035 (9,880 jobs). As further discussed in Section 4.K, *Population and Housing*, employment growth under the No Project-General Plan Buildout Alternative is greater than the citywide employment growth projections of the draft Plan Bay Area, exceeding the growth forecast of preferred and alternative scenarios (employment increase of 300-1,580 jobs). While the No Project-General Plan Buildout Alternative would thus be consistent with Projections 2009, it would be considered consistent with Plan Bay Area projections only if employment growth in excess of projections was drawn from surrounding communities.

As with development of the Project Site, this alternative also would generate temporary construction-related jobs, albeit far fewer than for the Project Site development. It is expected that construction workers generally would travel from other parts of the Bay Area to work, and that temporary housing on the Project Site would not be needed.

Public Services

Impacts under the No Project-General Plan Buildout Alternative would generally be less than under the Project Site development, as the result of less intense development. As with the CPP and CPP-V, this alternative would not include residential development and therefore would not result in a direct demand for school facilities. The demand for other types of public services, including police and fire protection, would increase under this alternative, as it would under Project Site development, although to a far lesser degree. The only exception is that under the No Project-General Plan Buildout alternative, impacts related to fire protection service levels provided by the NCFA would be similar to Project Site development, although the lesser development intensity permitted under this alternative would not likely contribute to the need for locating a ladder company in proximity to the Project Site. Overall, impacts on public services would be reduced assuming implementation of mitigation measures being required for Project Site development.

Recreation Resources

Buildout under the No Project-General Plan Buildout Alternative would include improvements to recreational resources in the form of passive open space and trails that would result in some construction-related impacts. Additionally, new development under this alternative would result in increased use of existing recreational resources, as new employees would be likely to use existing recreational amenities in and around the Project Site. The impact on recreational resources under this alternative would be substantially reduced as compared to the less than significant impacts under CPP and CPP-V scenarios due to the substantially fewer number of employees generated within the Project Site. As compared to the DSP and DSP-V, impacts would be reduced considerably further that the significant but mitigable impacts of those scenarios since no residential population would be introduced to the Project Site.

Traffic and Circulation

The No Project-General Plan Buildout Alternative would require extension and upgrade of roadways and public transit in order to provide circulation to and from the Project Site. This would include the Geneva Avenue extension, which is included in the San Mateo County Regional Transportation Plan, Bi-County Transportation Study, and the Brisbane General Plan.

Because the total amount of new development under the No Project-General Plan Buildout Alternative (1,445,836 square feet) would be far less than the CPP and CPP-V scenarios (7.7 and 8.1 million square feet, respectively) and the DSP and DSP-V scenarios (12.1 and 12.0 million square feet, respectively), traffic impacts under this alternative would be considerably less than under the any of those scenarios, reducing all impacts to a less than significant level, with the exception of contributing to cumulatively considerable traffic increases at area intersections. Even with the substantial reduction in development proposed under the No Project-General Plan Buildout Alternative, a number of intersections would not be able to operate at operate at LOS D or better, as called for by General Plan policy. As previously noted, cumulative background traffic alone will cause intersections along Bayshore Boulevard and at freeway interchanges within the Project Site to operate below LOS D.

Utilities and Service Systems

The No Project-General Plan Buildout Alternative would result in a substantially reduced square footage of development and generation of jobs as compared to Project Site development. Therefore, the increase in demand for water, wastewater treatment, solid waste collection and disposal, and communications infrastructure would be substantially less. As compared to the DSP and DSP-V, in particular, the less than significant impacts on utilities and service systems would be substantially reduced, given the level and type of development proposed under those scenarios. Because the No Project-General Plan Buildout Alternative does not include residential development, its impacts would be similar to, but substantially reduced from the less than significant impacts resulting from the CPP and CPP-V which both propose more than five times the square footage of development as the No Project-General Plan Buildout Alternative. Impacts on utilities and service systems would remain less than significant with implementation of the mitigation measures included in Section 4.O, *Utilities, Service Systems, and Water Supply*, of this EIR with one exception. Because new development within the Project Site would require securing a new, reliable water supply, this alternative assumes that the proposed water supply transfer agreement that is a component of the Project Site development would be approved under this alternative; however, substantially less water would be imported for Project Site development, while the water supply being imported for General Plan buildout outside of the Project Site (400 acre-feet) would remain the same as for Project Site development.

Energy Resources

The No Project-General Plan Buildout Alternative would increase the demand for energy supplies on the Project Site and result in impacts related to the installation of new energy infrastructure. Such impacts would be similar in nature to those that would occur under Project Site development; however, because the intensity of development under the No Project-General Plan Buildout Alternative would be substantially less, energy demands and related impacts would also be reduced. However, development under this alternative would not necessarily include generation of renewable energy through the development of wind and solar technologies on the Project Site, since such renewable energy generation is not required by the General Plan. Because the development of such technologies under Project Site development is intended to offset energy use within the Project Site, impacts related to energy demand associated with this alternative would not be reduced in proportion to reductions in development square footage.

Evaluation of the No Project-General Plan Buildout Alternative in Relation to Project Objectives

Overarching Objective	
Create an active, vibrant place which strengthens the community of Brisbane; contributes to its sense of place; and demonstrates environmental, social, and economic considerations can be harmonized to the betterment of the natural environment, the Brisbane and regional community, and the individuals who will use the Baylands.	Meeting this objective would largely be accomplished as part of the design of future development within the Project Site. By providing for the mix and intensity of land uses currently called for in the General Plan, the No Project-General Plan Buildout Alternative would contribute to and not prevent meeting this objective.
Environmental Protection and Enhancement Objectives	
A. Remediate the Baylands to a level which ensures the safety of all who use the site, and eliminates ongoing ecological damage.	Because site remediation is part of the No Project-General Plan Buildout Alternative and remediation will be required to provide for public safety in relation to the specific mix and location of land uses ultimately approved by the City, this objective would be met.
B. Incorporate a "green building" approach for all future development on the Baylands, wherein buildings are sited, designed, constructed and operated to encourage resource conservation, minimize waste and pollution, maximize energy and resource efficiency, and promote healthy indoor environments	Meeting this objective would largely be accomplished as part of the design of future development. The No Project-General Plan Buildout Alternative would not constrain the ability of future development to meet this objective.
C. Preserve, restore and enhance wetlands and natural habitat on the site and create natural linkages across the site to promote physical and visual connectivity between the San Bruno Mountains and the Bay.	Because these activities are reflected in the General Plan policies that would be implemented by this alternative, the No Project-General Plan Buildout Alternative would meet this objective.
D. Promote and encourage non-vehicular access and movement to and from the site (particularly from Central Brisbane) and within the site as well. Land use mix, good urban design, the provision of safe and pleasant pedestrian and bike paths, and convenient access and linkages to public transit are all necessary components.	Because this objective is reflected in the General Plan policies that would be implemented by this alternative, the No Project-General Plan Buildout Alternative would meet this objective.
E. Strive to achieve a balance between energy demand and generation through efficiency, conservation, and the maximum use of passive and active sources of renewable energy.	Because this objective is reflected in the General Plan policies that would be implemented by this alternative, the No Project-General Plan Buildout Alternative would meet this objective.
F. Minimize the net consumption of water supplies.	Because this objective is reflected in the General Plan policies that would be implemented by this alternative, the No Project-General Plan Buildout Alternative would meet this objective.
G. Safely and efficiently accommodate project traffic in a manner that does not adversely impact Brisbane or adjacent communities.	Because this objective is reflected in the General Plan policies that would be implemented by this alternative, the No Project-General Plan Buildout Alternative would meet this objective.
H. Incorporate innovative methods to reduce resource consumption and waste generation.	Meeting this objective would largely be accomplished as part of the design and operations of future development within the Project Site. By providing for the mix and intensity of land uses currently called for in the General Plan, the No Project-General Plan Buildout Alternative would contribute to and not prevent meeting this objective.

Environmental Protection and Enhancement Objectives (continued)	
I. Site and design new infrastructure to minimize adverse environmental impacts.	Meeting this objective would largely be accomplished as part of the design of future development. The No Project-General Plan Buildout Alternative would not constrain the ability to meet this objective.
J. Design the project sensitively to protect Brisbane's viewshed, taking into account light spillage and pollution, building height and massing, and placement of landscape features.	Meeting this objective would largely be accomplished as part of the design of future development. The No Project-General Plan Buildout Alternative would not constrain the ability to meet this objective.
K. Achieve a level of solid waste diversion equivalent to the zero waste goals established for San Francisco.	Meeting this objective depends on the implementation of citywide zero waste programs. The No Project-General Plan Buildout Alternative would not constrain the ability to meet this objective.
Social Equity Objectives	
L. Incorporate significant open space and related improvements which provide opportunities for a wide range of passive and active public recreational opportunities benefiting the City and region.	Meeting this objective would largely be accomplished as part of the design of future development within the Project Site. By providing for the mix and intensity of land uses currently called for in the General Plan, the No Project-General Plan Buildout Alternative would contribute to and not constrain the ability to meet this objective.
M. Provide employment opportunities for Brisbane residents and residents of nearby local communities, thereby improving the jobs/housing balance at regional and subregional levels.	The No Project-General Plan Buildout Alternative provides employment opportunities within the project Site to meet this objective.
N. Contribute to critically-needed solutions to regional transit and transportation issues which will benefit both the project and existing communities.	By substantially reducing employment within the Project Site at buildout as compare to Project Site development, the No Project-General Plan Buildout Alternative would likely fall short of creating the critical mass needed to support robust expansion of transit services needed to meet this objective.
O. Recognize that the project is of regional significance, and provide for the well-being not only of the City of Brisbane, but also of surrounding communities.	Because this objective is reflected in the General Plan policies that would be implemented by this alternative, the No Project-General Plan Buildout Alternative would meet this objective.
P. Provide on-site opportunities for public art and education to contribute to public understanding of the site, including its history, ecology and the project's sustainability mission.	Meeting this objective would largely be accomplished as part of the design of future development within the Project Site. The No Project-General Plan Buildout Alternative would not constrain the ability to meet this objective.
Economic Objectives	
Q. Enhance the City's tax base and future ability to improve services within all of Brisbane.	Development of the mix of commercial and office uses set forth in the General Plan would contribute to meeting this objective.
R. Retain and accommodate the expansion of existing businesses within the Baylands that contribute to the City's fiscal health and economic vitality.	The No Project-General Plan Buildout Alternative retains existing businesses operating within the Project Site, and provides for future development with the mix of commercial and office uses called for in the General Plan. The No Project-General Plan Buildout Alternative is therefore consistent with achieving this objective.

Economic Objectives (continued)	
S. Establish a project which remains economically viable on a long-term basis, including excellence in architecture which can withstand the test of time.	The mix of commercial and office uses described in the General Plan for the Project Site is consistent with and would contribute to meeting this objective. Achieving this objective would also depend on the design of future development. Because this alternative is designed to implement the existing General Plan, which includes policies related to excellence in design, it will result in achieving this objective.
T. Build in flexibility so the project can adapt to changing market conditions over time, without compromising the other stated project objectives.	The mix of commercial and office uses described in the General Plan for the Project Site that would be implemented in the No Project-General Plan Buildout Alternative was designed to meet this objective.
U. Provide greater choices for Brisbane residents by providing desired goods, services, entertainment, and/or other amenities not currently available within the City.	The mix of commercial and office uses described in the General Plan that would be implemented in the No Project-General Plan Buildout Alternative is consistent with meeting this objective.

5.3.2 Alternatives Intended to Reduce Significant Impacts Resulting from the Proposed Project

Renewable Energy Generation Alternative

Description of the Renewable Energy Generation Alternative

The Renewable Energy Generation Alternative is based on a proposal by the Committee for Renewable Energy for the Baylands (CREBL) to develop utility-scale renewable energy generation facilities at the Baylands. CREBL's goal for this alternative was to not only offset the energy demand that would be generated by development of the Baylands, but also to produce additional electricity for consumption by Brisbane homes, businesses, and City-owned facilities. The preliminary plan for this alternative defines the approximate acreages and locations for solar PV and wind energy facilities.

To assist in the development of the Renewable Energy Generation Alternative, the City contracted with Energy Solutions to perform an analysis regarding the technical feasibility and energy generation potential of PV and wind energy generation within the Project Site (Energy Solutions, 2010). This analysis led to a refinement of the preliminary plan as originally conceived in order to optimize energy generation potential. The Renewable Energy Generation Alternative is based on the concept proposed by CREBL as refined following the Energy Solutions study. Subsequently, the U.S. Environmental Protection Agency (U.S. EPA), in accordance with the Re-Powering America's Land initiative, selected the Brisbane Baylands site for a feasibility study of renewable energy production (U.S. EPA, 2013). The National Renewable Energy Laboratory (NREL) provided technical assistance for this project. The purpose of U.S. EPA report was to assess the site for a possible PV system installation and estimate the cost, performance, and site impacts of different PV options. The modeled scenarios in the U.S. EPA study did not include available

renewable energy incentive programs, and concluded that the economics of "all systems were favorable without these incentives, and their inclusion will only make the economics even better."

Land uses under the Renewable Energy Generation Alternative would include 170 acres of alternative energy uses consisting of a large PV solar farm, small vertical-axis wind turbines, wind turbines placed within development, and rooftop PV solar panels; 654,900 square feet of research and development facilities on 59 acres; and 173,800 square feet of retail/entertainment uses on 26 acres. Others uses at the site would include a new water treatment plant (seven acres) and relocated industrial uses (three acres). The remainder of the Project Site would be designated open space/public uses. The Recology expansion, relocation of the existing lumberyards, site remediation, and water supply agreement would occur as part of this alternative.

Because it is included in the San Francisco Bay Area Regional Transportation Plan and the San Mateo-San Francisco Bi-County Transportation Study, and also is assumed in the Candlestick Point-Hunters Point Shipyard Phase II Development Plan Project EIR, the Geneva Avenue extension would occur under this alternative as described in the Project Site development. Roadways south of the Geneva Avenue extension would mainly be used for maintenance vehicles for the alternative energy installations. The Recology expansion, relocation of the existing lumberyards, site remediation, and approval of the proposed water supply agreement would also occur as part of this alternative. The portion of the 2,400 acre-feet of water supply contemplated for Project Site development use in the proposed water transfer agreement would be reduced to accommodate the actual water demand associated with this alternative (approximately 300 acre feet); the 400 acre-feet of water to be used for citywide purposes would be remain in its entirety. The recycled water plant would not be developed under this alternative. Overall, this alternative would reduce or avoid significant traffic, air quality, GHG, noise, public services, and population/housing impacts, and develop a project that would be consistent with the development intensity contemplated by the General Plan and its EIR, while meeting most Project objectives.

Proposed Energy Facilities

Solar PV technologies installed as part of this alternative would include either a fixed-axis system or single-axis tracking system, or a combination of the two. Fixed-axis systems are stationary, whereas single-axis tracking systems rotate around one axis and follow the sun from east to west as the day progresses. In general, fixed-axis systems would maximize electricity generation per square foot of land (kilowatt hours per square foot, or kWh/SF), whereas tracking systems would maximize electricity generation per dollar invested (kWh/$ invested). PV panels have a typical height of approximately six feet (maximum height of eight feet), and are arranged in rows with center-to-center spacing ranging from 12 to 22 feet.

While no specific wind energy program is set forth in the CREBL proposal, or in the Energy Solutions or NREL reports, a number of winder energy options are outlined. Based on the options set forth in the CREBL proposal and the Energy Solutions and NREL reports, wind energy technologies that could be used at the Project Site include:

- **Vertical-axis turbines.** These turbines are generally quieter and present a smaller risk to birds and bats than horizontal-axis turbines.

- **Building mounted turbines.** Currently, it is rare to see turbines mounted on buildings in the western US, although rooftop turbines are a viable alternative to PV in windy areas.
- **Low wind-speed turbines.** Many wind turbines require average wind speeds of at least 11 miles per hour to generate electricity. Low wind-speed turbines can produce electricity with wind speeds as low as two miles per hour.
- **High turbulence optimization.** Turbines optimized for high turbulence wind are well-suited for urban settings where buildings and trees disrupt the wind flow, creating turbulence.

Based on the CREBL proposal and the Energy Solutions and NREL reports, including a review of the technologies described above, wind energy generation under the Renewable Energy Generation Alternative was assumed to involve installation of 8 to 10 small-scale turbines generating a total of 100 kW or less.

Land Use Designations

Figure 5-1 illustrates the proposed site plan for the Renewable Energy Generation Alternative. The land use and overlay designations used in this alternative were derived from those proposed for the CPP and CPP-V Concept Plan scenarios. The land use designations delineate the type and range of land uses, minimum and maximum FARs, and maximum allowable heights. These development standards are listed in **Table 5-2**. The overlay designation delineates additional uses that may be located within underlying land use designations, as well as specific limitations to site coverage and maximum allowable heights.

TABLE 5-2
RENEWABLE ENERGY GENERATION ALTERNATIVE DEVELOPMENT STANDARDS

Proposed Land Use	Minimum FAR[a]	Maximum FAR[a]	Maximum Building Height (feet)
Retail District	0.30	2.50	55
Research and Development (R&D)	0.35	1.75	80
Wind Farm	-	-	-
R&D and Wind Energy	0.35	1.75	80
Solar Farm	-	-	-
Relocated Industrial	-	1.00	35
Civic/Cultural	-	0.75	55
Public Use Envelope			
Group Area	-	0.10	25
Community Use Area	-	0.50	55
Regional Use Area	-	0.10	25

[a] The floor area ratio (FAR) is the ratio of the total floor area of buildings on a site to the site area. As a formula: FAR = (Total covered area on all floors of all buildings)/(Site area). Thus, a four-story building covering half of a site would have an FAR of 2.0.

SOURCE: Dyett and Bhatia, 2011.

Figure 5-1
Renewable Energy Alternative

Land use designations included in the Renewable Energy Generation Alternative include:

- **Retail District.** This designation encourages, supports, and enhances the multi-modal transit hub area as an active employment center. Active uses include retail shops, eating and drinking establishments, entertainment venues such as theaters, and cultural institutions such as museums or performance spaces. This district has a minimum FAR of 0.30 and maximum FAR of 2.50. Maximum building height in the area is 55 feet.
- **Research & Development (R&D).** This designation allows for research and development facilities, as well as supporting office spaces. Warehousing and distribution facilities are permitted as ancillary uses only. This land use district has a minimum FAR of 0.35 and maximum FAR of 1.75. Maximum building height is 80 feet.
- **Wind Power Area.** This designation defines the area designated for wind turbines. Development of 8 to 10 vertical axis turbines along Geneva Avenue is assumed.
- **R&D and Wind Energy.** This designation allows for research and development facilities related to wind projects, including smaller-scale wind generation and wind research, development, and demonstration projects. It is assumed that researchers would use this area to experiment with turbine efficacy and design, which would play an important role in helping to advance the market for small wind. The FARs and building height allowed in this area are the same as those in the R&D district: a minimum FAR of 0.35, a maximum FAR of 1.75, and a maximum building height of 80 feet.
- **Solar Farm.** This designation defines the area designated for solar PV facilities. These facilities would be either a fixed-axis (stationary) or a single-axis (rotating) system, or a combination of the two.
- **Civic/Cultural.** This designation is intended for civic and cultural activities within the 4-acre Roundhouse site. The uses are to be open to the public and may include reuse or preservation of historic buildings, as well as venues for public gathering, learning, or performance such as community centers, educational/learning centers, or theaters. This district has a maximum FAR of 0.75 and maximum building height of 55 feet.
- **Relocated Industrial.** This designation defines the future site of Van Arsdale-Harris Lumber and Sierra Point Lumber. This district has a maximum FAR of 1.0 and maximum building height of 35 feet.
- **Public Use Envelope.** This designation represents locations where active and recreational public uses are appropriate. Uses could include commercial recreational facilities, schools, interpretative centers, park and play areas, and gathering spaces. Three sub-districts are identified within this envelope:
  - ***Group Area*.** This sub-area allows open space and revenue-generating picnic and event facilities oriented to the Brisbane residential and employment community. The maximum FAR in this area is 0.10, with maximum building height of 25 feet.
  - ***Charter High School/Community Use Area*.** This sub-area allows open space; community-oriented recreation facilities, including gym and soccer fields; adult education in art and sustainable related jobs; and a potential charter high school. The maximum FAR in this area is 0.50, with maximum building height of 55 feet.
  - ***Regional Use Area*.** This sub-area allows open space and revenue-generating regional facilities such as bicycle training areas or a golf training facility. The maximum FAR in this area is 0.10, with maximum building height of 25 feet.

- **Public/Open Space.** This designation accommodates natural habitat, wetlands, recreation fields, and open space areas for the general community. Natural habitat and wetlands would have continuous connections through this district.

- **Recology.** As part of the proposed Recology expansion included in this alternative, a number of renewable energy production technologies would be employed, including biogas production for fleet vehicular and building heating use, installation of PVs for building electrical use, solar water heating, and cogeneration system sized for larger heat demands.

The Renewable Energy Generation Alternative also includes the following overlay designation:

- **Public Space-Oriented Overlay.** Development within this overlay designation would be integrated with open space, with connections to adjacent natural and public open space areas. This overlay requires 50 percent of the site area to be public open space. Open space would be connected to provide continuity of natural areas throughout the overlay district. Maximum building height within this overlay is 55 feet, with the exception of the Lagoon Park Concession area, where maximum height is 25 feet.

Impacts of the Renewable Energy Generation Alternative

Aesthetics

The Renewable Energy Generation Alternative proposes a combination of renewable energy generation uses and areas developed with retail, industrial, research and development, and civic uses. Parks, plazas, and open space areas are also proposed. New structures developed as part of this alternative would result in visual impacts on the Project Site in relation to scenic vistas and light and glare. However, these impacts would be substantially reduced from the less than significant scenic vistas impacts that would occur under Project Site development, as development under this alternative would amount to approximately 1.3 million square feet of building area, compared to approximately 7.7 million square feet under the CPP or CPP-V and approximately 12 million square feet under the DSP or DSP-V. Maximum building heights would be 80 feet for research and development uses. These uses would be concentrated in the northwest portion of the Project Site and would not obstruct views of scenic resources, including blue water views of San Francisco Bay.

Other new vertical elements that would affect the visual character of the Project Site include proposed wind turbines as well as potential transmission lines that would connect renewable energy systems to the electric grid operated by PG&E. The solar panels would result in a substantial reduction of new vertical elements, as they have a maximum height of eight feet and would not intrude into existing blue water views of San Francisco Bay. Additional sources of nighttime lighting for security purposes also are anticipated under this alternative; however, the substantial reduction in nighttime lighting required for this alternative as compared to Project Site development scenarios would avoid the significant and unavoidable nighttime lighting impacts of those scenarios.

The potential for daytime glare due to solar reflection off this alternative's PV system is inherently low, due to the materials of construction. By design, the PV cells capture nearly all sunlight, allowing about half the reflectance of glass used in standard residential or commercial

construction. Accordingly, the solar panels do not have a potential for reflecting the sun's rays upon any ground-plane position. The solar panels absorb more than 90 percent of incident sunlight and the southern tilt and east-west rotation (if single-axis tracking systems are employed) serve to direct residual reflection skyward. The 10 percent of sunlight that is not absorbed (i.e., residual reflection) is fugitive glare and would result in some level of impact. However, impacts related to glare associated with solar panels would be substantially reduced from the less than significant impacts of Project Site development under this alternative, due to the large surface area of proposed PV panels, since PV panels would produce far less glare than conventional glass used in building construction. Under the CPP and CPP-V scenarios, solar energy generation would be limited to rooftop panels and small areas of stand-alone solar PV. Under the DSP and DSP-V scenarios, 25 acres would be devoted to renewable energy generation uses, as compared to 125 acres under the Renewable Energy Generation Alternative.

Visual impacts related to the installation and operation of wind turbines also could occur under this alternative. However, as described above, small-scale turbines suitable for urban settings would be used, along with 8 to 10 small vertical axis wind turbines along Geneva Avenue. Given the amount of acreage devoted to renewable energy uses, this alternative would result in far less loss of views of San Francisco Bay than would Project Site development or other alternatives, with the exception of the No Project-No Build Alternative; however, depending on the amount of overhead electrical lines needed to connect renewable energy generation facilities to PG&E's existing power grid, changes in the visual character of the Project Site could be perceived as being equivalent in significance (less than significant) to those of Project Site development, although the impacts of the Renewable Energy Generation Alternative would be substantially different (e.g., blockage of Bay views vs. views of overhead electrical transmission facilities). However, given the scale of these technologies that would be used, and the ease with which they can be incorporated into the urban environment, visual impacts associated with their installation and operation would be less than significant.

Air Quality and Greenhouse Gas Emissions

Due to the level and type of development proposed, the Renewable Energy Generation Alternative would result in substantially reduced air quality impacts, reducing the significant effects of Project Site development to a less than significant level, with the exception of NOx emissions during construction and PM_{10} operational emissions that would be reduced but remain significant. Because the total amount of development under the Renewable Energy Generation Alternative (1.3 million square feet) would be far less than the CPP and CPP-V scenarios (7.7 and 8.1 million square feet, respectively) and the DSP and DSP-V scenarios (12.1 and 12.0 million square feet, respectively), air emissions from construction and operations under this alternative would be considerably less than under the any of those scenarios.

Air emissions associated with remediation activities would be similar as for Project Site development although specific remediation technologies and clean-up levels may vary, since site remediation will be required for any use within OU-1, OU-2, and the former landfill. Because human contact with ground surfaces would be limited within wind and solar generation facilities,

different remediation technologies and levels of cleanup could be employed in those areas compared to the areas of more intense urban development proposed in the Project Site development.

Construction related pollutant emissions for the Renewable Energy Generation Alternative are depicted below in **Table 5-3** and follow a similar modeling methodology as described for Project Site development.

TABLE 5-3
RENEWABLE ENERGY GENERATION ALTERNATIVE
ANNUAL AVERAGE DAILY CONSTRUCTION-RELATED POLLUTANT EMISSIONS (pounds/day)[a]

Year	ROG	NOx	Exhaust PM10[b]	Exhaust PM2.5[b]
Unmitigated Emissions				
2014	6.1	**62.3**	2.2	2.0
2015	19.3	**167.1**	6.4	5.8
2016	17.9	**151.9**	5.8	5.3
2017	**121.2**	**147.5**	6.1	5.5
2018	**105.6**	27.3	0.9	0.8
2019	**104.7**	22.6	0.5	0.5
Construction Threshold	54	54	82	54
Significant Impact?	**Yes**	**Yes**	No	No
Mitigated Emissions				
2014	6.1	53.9	1.3	1.2
2015	19.3	**162.5**	5.8	5.2
2016	17.9	**147.7**	5.3	4.8
2017	49.1	**139.9**	5.0	4.5
2018	33.2	23.9	0.3	0.3
2019	32.4	21.0	0.3	0.2
Construction Threshold	54	54	82	54
Significant Impact?	No	**Yes**	No	No

[a] Emissions include results modeled with URBEMIS2007. Emissions assume concurrent off-site transport of soil.
[b] Construction-related significance thresholds for PM_{10} and $PM_{2.5}$ apply to exhaust emissions only and not to fugitive dust.

As can be seen from the data in Table 5-3, unmitigated construction-related emissions (Impact 4.B-2) would exceed the thresholds for ROG and NOx for this alternative. The main contributors of NOx during construction are off-road diesel equipment used in demolition and excavation. Implementation of mitigation measures described for the Project Site development would reduce emissions for this alternative. However, emissions of NOx would remain significant and unavoidable with mitigation.

In regard to operations (Impact 4.B-4), the Renewable Energy Generation Alternative would result in fewer number of weekday trips than Project Site development. Operational emissions of this Alternative are presented below in **Table 5-4** and follow the same modeling methodology as described for analysis of the Project Site development.

TABLE 5-4
RENEWABLE ENERGY GENERATION ALTERNATIVE
DAILY OPERATIONAL EMISSIONS

Emissions Source	Alternative Emissions - Year 2040 (pounds/day)[a]			
	ROG	NOx	PM_{10}	$PM_{2.5}$
Unmitigated Emissions				
Area Source	32.0	7.5	<1	<1
Vehicular Source	19.4	17.2	110	85.6
Total	51.3	24.7	**110**	20.9
Operations Thresholds	54	54	82	54
Significant (Yes or No)?	No	No	**Yes**	No

[a] Emissions were generated using the URBEMIS2007 model with a default vehicle mix. Daily estimates are for summertime or wintertime conditions, which ever are greater.

SOURCE: ESA, 2012.

As indicated in Table 5-4, operational emissions of ROG, NOx, and $PM_{2.5}$ for the Renewable Energy Generation Alternative would no longer result in significant emissions as under the other Alternatives and the Project Site development. However, emissions of PM_{10} would exceed threshold by 28 pounds per day, primarily as a result of motor vehicles. Therefore, Impact 4.B-4 would remain significant and unavoidable for the Renewable Energy Alternative.

Because the Renewable Energy Generation Alternative would have a similar development footprint as Project Site development, air pollutant and GHG emissions from site grading operations would be similar to impacts of Project Site development.

While air emissions under this alternative would be reduced overall as compared to the Project Site development, implementation of this alternative would result in significant air emissions. This impact would be reduced to a less-than-significant level, however, with implementation of mitigation measures proposed in Section 4.B, *Air Quality*, of this EIR.

Operation of the proposed wind and solar energy development under this alternative also would result in decreased vehicle emissions as compared to the Project Site development. Maintenance of both PV panels and wind turbines would result in GHG emissions from increased water demand for washing of panels and sulfur hexafluoride emissions from standard leakage of electrical substations. However, such impacts would be offset by the operational benefit associated with the proposed energy produced. GHG emissions associated with construction and operation of the Renewable Energy Generation Alternative would be less than those associated with the uses proposed under the four Project scenarios. Construction of this alternative would result in GHG emissions associated with construction equipment. However, construction impacts would be temporary and would not represent an on-going contribution to the regional GHG inventory and would therefore, when analyzed over the life of the Project Site development using the same methodologies as were used to analyze Project Site development, be considered to have

a less-than-significant impact, similar to the Project Site development as discussed in Section 4.F, *Greenhouse Gas Emissions*, of this EIR.

Construction and operational emissions associated with this alternative were modeled following the same methodology as described for Project Site development. GHG emissions associated with operation of the Renewable Energy Alternative would result in a net *decrease* in GHG emissions of approximately 13,570 metric tons of CO_2e. **Table 5-5** presents a gross estimate of the alternative's unmitigated operational CO_2e emissions resulting from the increases in motor vehicle trips resulting from each scenario, grid electricity usage, solid waste, as well as from other sources (including area sources, natural gas combustion, and water/wastewater conveyance) which would be more than offset by GHG savings from renewable energy generation.

TABLE 5-5
ESTIMATED EMISSIONS OF GHG EMISSIONS
FROM THE RENEWABLE ENERGY GENERATION ALTERNATIVE OPERATIONS

Source	Emissions (metric tons CO_2e per year)
Unmitigated Emissions	
Motor Vehicle Trips	7,002
Recology Truck and Vehicle Trips	748
Electricity Demand	956
Natural Gas	202
Solid Waste	731
Other Sources (i.e., area sources, water/wastewater)	32
Existing land uses to be removed (Industrial Park)	-2,762
Renewable Energy Generation (PV+ wind turbines)	-13,570
Total Unmitigated Operational GHG Emissions	-6,661
Operational GHG Emissions per Service Population (2,684 jobs)	*-2.5*
BAAQMD Efficiency Threshold	*4.6*
Significant (Yes or No)?	*No*

[a] GHG emissions from vehicles and area sources (including natural gas combustion) associated with the alternative scenarios were calculated using the URBEMIS2007 model with the Bay Area Greenhouse Gas Model (BGM) and trip generation data from the traffic analysis. Additional data and assumptions are included in Appendix D.

[b] Mitigation Measure GHG-1 described for the Project Site development was incorporated into CalEEMod using default model reductions. Additional assumptions are included in Appendix G.

SOURCE: ESA, 2012.

Data in Table 5-5 indicates that GHG emissions that would result from this alternative would not exceed the 4.6 metric tons of CO_2e annually per service population threshold and would be less than significant. Therefore, unlike Project Site development and alternatives, which have either significant unavoidable impacts (CPP and CPP-V scenarios) or less than significant effects (all other scenarios and alternatives), the Renewable Energy Generation Alternative would have a beneficial GHG impact.

Biological Resources

Overall, the reduced intensity of development under the Renewable Energy Generation Alternative would result in reduced impacts on biological resources, as compared to the Project Site development components described in Chapter 3, *Project Description*. Construction of the retail, research and development, and resource recovery uses proposed under this alternative would result in similar, though reduced, impacts compared to those identified for the Project Site development. Significant impacts on sensitive plant and wildlife species and communities associated construction of these uses would be reduced to less-than-significant levels with implementation of the mitigation measures recommended in Section 4.C, *Biological Resources*, of this EIR.

Installation of solar panels with either a fixed-axis system or single-axis tracking system, or any combination of these technologies would result in direct impacts on wildlife or wildlife habitat. Impacts on wildlife habitat connectivity also could occur, as the Project Site is situated between two wildlife habitats: a lagoon to the south and the shoreline of San Francisco Bay to the east.

Wind energy facilities have been demonstrated to cause a variety of avian impacts including direct mortality through turbine collision. The lagoons south of the wind site and the shoreline coast to the east of the wind site are attractive habitats for birds and other animals. As discussed in Section 4.C, *Biological Resources*, contemporary strategy for reducing potential impacts of wind energy facilities on avian species is to include micrositing of individual turbines in areas or orientations that are less risky for raptors and other avian species. Nonetheless, even with low speed, low profile turbines, avian deaths are still expected to occur at the Project Site.

To reduce the potential for avian deaths, prior to siting wind turbines within the Project Site, a site-specific micrositing analysis would be undertaken as part of this alternative to design the proposed turbine layout that incorporates modeling of raptor species' flight patterns, and hovering or kiting patterns for kestrals and harrier species. The analysis would provide microsited locations for turbines to reduce avian collision. Such analysis would include adaptive management programs to be implemented during and after construction using information gathered in the pre-construction assessment to guide possible Project modifications, mitigation, or the need for and design of post-construction monitoring to test design modifications and operational activities to determine their effectiveness in avoiding or minimizing significant adverse impacts (USFWS, 2010).

Impacts would also occur to bats from wind energy facilities including disturbance of local populations and subsequent displacement or avoidance of the site and disruption to migratory or movement patterns (CEC, 2007). Existing information about bat migration and habitat use is limited in California (CBWG, 2006). However, attempts are being made to model and predict effects on bats (CBWG, 2006; CEC, 2007). To address impacts on bats, implementation of the following measures based upon the California Bat Working Group's *Guidelines for Assessing and Minimizing Impacts to Bats at Wind Energy Development Sites in California* (CBWG, 2006) would occur to mitigate the Renewable Energy Generation Alternative's effects on bats by addressing the data gaps that prevent adequate assessment of the Project Site development's effects on bats, such as what bat species are using the site and how they are using the Project area. These recommendations include

minimizing operations-related impacts on common and special-status bats by contributing to the body of knowledge on bat/turbine interactions by performing pre-construction surveys to best site proposed turbines within the Project Site, and then conducting post-construction surveys, and post-construction monitoring within the Project area to ensure safe operation.

It is also recommended that wind facilities be designed according to the California Energy Commission's "California Guidelines for Reducing Impacts to Birds and Bats for Wind Energy Development" (CEC, 2007). With appropriate design considerations included as part of this alternative and implementation of the mitigation measures recommended in Section 4.C, *Biological Resources*, of this EIR, significant impacts associated with installation and operation of proposed solar and wind technologies would be reduced to less-than-significant levels as would be the case for Project Site development. Because the overall development footprint (encompassing both non-residential and renewable energy generation uses) would be similar to Project Site development, the biological resources impacts of this alternative would be similar. Although impacts of the Renewable Energy Generation alternative would be less than significant, they would be greater than for Project Site development due to the addition of impacts related to wind turbines.

Cultural Resources

As with the Project Site development, significant cultural resources, including the existing Roundhouse, would be rehabilitated and reused under the Renewable Energy Generation Alternative. Impacts on historic resources during construction of development and/or during installation of solar and wind technologies would be similar to those of Project Site development since cultural resources impacts would result from demolition of existing structures and construction activities, rather than from the types of uses being proposed. Similar to the Project Site development components described in Chapter 3, *Project Description*, ground disturbance associated with the development of proposed structures and with installation of renewable energy technologies under this alternative could impact previously undiscovered archaeological resources. However, as is the case with Project development scenarios, such impacts would be reduced to less-than-significant levels with implementation of the mitigation measures described in Section 4.D, *Cultural Resources*, of this EIR. As with the Project Site development, no impacts on paleontological resources would result from implementation of this alternative.

Geology, Soils, and Seismicity

Impacts related to geology, soils and seismicity would be reduced as compared to the proposed Project, due to the substantially reduced intensity of development under the Renewable Energy Generation Alternative. New structures would be subject to impacts related to soil stability and seismic groundshaking. The area proposed for wind and solar use is situated on top of a former municipal waste landfill that received solid waste from San Francisco between 1933 and 1967. As discussed in Section 4.G, *Hazards and Hazardous Materials*, of this EIR although most of the ground settlement resulting from decomposition of biodegradable material has already occurred, the landfill may continue to settle over time. As with Project Site development, any future development on the former landfill would require detailed design and construction plans that would ensure the integrity of the landfill cap. As is the case for structures proposed in the Project Site development, construction of pads or foundations (in the case of the Renewable Energy Alternative, for either

solar PV or wind turbines), for instance, may require the construction of piers into underlying bedrock. Impacts of the Renewable Energy Generation Alternative in relation to potential settlement of the former landfill would be substantially less than the significant but mitigable impacts compared to those for Project Site development since structures on the former landfill would not be designed for human occupancy under the Renewable Energy Alternative.

Overall, while significant impacts associated with risks to humans and damage to property related to seismic groundshaking, liquefaction and lateral spreading, slope and soil instability, erosion, and corrosive and expansive soils would result from development and operation of this alternative, such impacts would be reduced to less-than-significant levels with implementation of the mitigation measures recommended in Section 4.E, *Geology, Soils and Seismicity*, as is also the case for Project Site development.

Hazards and Hazardous Materials

As with the Project Site development and other alternative with the exception of the No Project-No Build Alternative, use of areas requiring remediation would require cleanup prior to development in accordance with requirements set forth by the General Plan and the appropriate regulatory agency. Therefore, use of the former landfill site, or portions thereof, for renewable energy generation or any other permanent use would require full closure of the site pursuant to California Code of Regulations Title 27, subject to regulatory oversight by the Regional Water Quality Control Board and San Mateo County Environmental Health Services Agency, Environmental Health Services Division, the designated Lead Enforcement Agency (LEA). Methane from the landfill is collected through wells and piping. San Mateo County and the Regional Water Quality Control Board regulate the site. As described for the Project Site development, groundwater (leachate) and stormwater quality current are monitored on the Project Site. Within OU-1 and OU-2, the specific remedial actions to be taken would be finalized based on the specific approved uses within the Project Site with preparation of Remedial Action Plans by the agencies with jurisdiction over these areas: the Department of Toxic Substances Control and the Regional Water Quality Control Board. Implementation of remedial activities could result in impacts related to the release, transport, or disposal of hazardous materials. Remediation-related impacts of this alternative would be similar to the significant but mitigable impacts of the Project Site development and alternatives, since similar remediation would be required. Significant impacts associated with the remedial actions required as part of the Renewable Energy Generation Alternative would be reduced to less-than-significant levels with implementation of the mitigation measures identified in Section 4.G, *Hazards and Hazardous Materials*, as is the case for Project.

Hydrology and Water Quality

Due to the type and intensity of development proposed, the Renewable Energy Generation Alternative would have far less impervious surface area and substantially decreased hydrology and water quality impacts as compared to Project Site development. Similar to the Project Site development, this alternative would result in significant impacts related to water quality, flooding (including the effects of sea level rise), and stormwater runoff, although to a lesser extent. Because this alternative does not propose any residential development, it would not place housing within a 100-year floodplain and would reduce the significant but mitigable impacts of Project Site

development in relation to potential flooding of non-residential structures intended for human occupancy. Construction and operation of proposed renewable energy technologies would not result in significant hydrology and water quality impacts due to the minimal impervious surface area. While the overall significant but mitigable hydrology and water quality impacts would be reduced as compared to the Project Site development, mitigation would still be required. Implementation of the mitigation measures proposed in Section 4.H, *Hydrology and Water Quality*, of this EIR would reduce impacts to less-than-significant levels as is the case for Project Site development.

Land Use and Planning Policy

As described above and shown in Figure 5.1, the Renewable Energy Generation Alternative includes a mix of land uses including solar and wind energy generation, research and development, retail and entertainment, industrial, and open space uses. This alternative would include 170 acres of alternative energy uses including a combination of small vertical-axis wind turbines, wind turbines placed within development, and PV solar panels; 654,900 square feet of research and development facilities on 59 acres; and 173,800 square feet of retail/entertainment uses on 26 acres. Others uses at the site would include a new water treatment plant (seven acres) and relocated industrial uses (three acres). This alternative would be consistent with the provisions of the Brisbane General Plan since it proposes a level of development consistent with the General Plan and would adhere to all other applicable plans and policies. Overall, land use impacts associated with this alternative would be less than significant, avoiding the significant unavoidable impacts of Project Site development, with the exception of General Plan Transportation and Circulation Element policy calling for maintaining Level of Service D on area roadways. As discussed in Section 4.N, *Traffic and Circulation*, of this EIR, future background traffic increases from development in surrounding communities will cause area levels of service along roadways such as Bayshore Boulevard and at freeway ramps on US Highway 101 to deteriorate to unacceptable levels, even with no development occurring within the Project Site.

Noise

Given the level and type of development proposed, noise associated with construction of the Renewable Energy Generation Alternative would be less than that associated with the Project Site development due to significant reduction of traffic. As detailed in 4.J, *Noise*, a variety of significant but mitigable and less than significant impacts would result from Project Site development. Significant noise impacts would result from the use of construction equipment during construction and site remediation under this alternative, similar to Project Site development. However, such impacts would be temporary and reduced to less-than-significant levels with implementation of the mitigation measures proposed in Section 4.J, *Noise and Vibration*, as is the case for Project Site development.

Compared to the uses proposed by the Project Site development, the solar and wind energy development proposed under this alternative would result in less vehicle traffic and therefore less vehicle noise. Wind turbines do have the potential to generate noticeable noise increases, depending on both the size and the type of the turbines and the distance to sensitive land uses. From a distance of 100 feet, a small 10-kilowatt (kW) turbine typically would have the noise levels as experienced inside of a typical home (American Wind Energy Association and Canadian

Wind Energy Association, 2009; American Wind Energy Association, no date). Vibration noise associated with wind turbines has dramatically decreased in recent years due to technological advances such as more aerodynamic turbine blades and slower rotor speeds. Operational noise impacts would be assessed as specific development projects are proposed based on City noise ordinance standards and the operational specifications of the size and type of turbines proposed Solar panels are virtually silent when in operation, including any noise associated with axis tracker (if used), which would be below existing ambient noise levels at sensitive receptors.

Population and Housing

No residential population growth would occur on the Project Site under the Renewable Energy Generation Alternative, as no residential development would occur.

Assuming proposed land uses under the Renewable Energy Generation Alternative would generate an average of 1.8 employees per 1,000 square feet of development, this alternative would result in approximately 2,400 new jobs within the Project Site. Temporary construction-related jobs, as well jobs related to the maintenance of solar and wind facilities, also would be generated with this alternative. It is expected that construction and maintenance workers generally would travel from other parts of Brisbane or the greater Bay Area to work, and that temporary housing on the Project Site would not be needed.

The Renewable Energy Generation Alternative would generate substantially fewer employment opportunities than projected citywide by ABAG's Projections 2009 for Brisbane, but more than projected in the preferred and alternative scenarios being considered in the draft Plan Bay Area. Overall, the Renewable Energy Generation Alternative would have a substantially reduced impact on population and housing conditions as compared to the Project Site development, avoiding the significant unavoidable impacts.

Public Services

Due to its substantially reduced development intensity, the Renewable Energy Generation Alternative would generate less demand for public services as compared to the Project Site development. No new or expanded schools or libraries would be required, as no residential development would occur, and the number of new employees would not result in significant impacts on existing schools. New uses within the Project Site would generate increased demand for police and fire services, although to a far lesser degree than for Project Site development. As discussed in Section 4.L, *Public Services*, of this EIR, new development within the Project Site would require establishment of a second police beat, and would be required to meet applicable performance standards of the North County Fire Agency. Given the type and reduced intensity of development under the Renewable Energy Alternative, public services impacts would be reduced compared to the less than significant impacts of Project Site development.

Recreation Resources

The Renewable Energy Generation Alternative includes the same amount of public use/open space as is proposed under the CPP and CPP-V scenarios. As with the Project Site development, improvements to existing resources and development of new recreational amenities could result

in construction-related impacts. New development under this alternative also could result in increased use of existing recreational resources, as new employees could use existing recreational amenities in and around the Project Site. However the increase in demand for existing recreational resources would be reduced substantially as compared to the significant but mitigable impacts of the DSP, DSP-V, CPP, and CPP-V scenarios due to the decreased intensity of development. As compared to the DSP and DSP-V scenarios, significant but mitigable impacts would be considerably reduced, as no new residential population would be introduced to the Project Site under this alternative. Impacts on recreational resources would remain be less than significant, and no mitigation would be required.

To determine the potential worst case effects of wind turbine generators proposed located along Geneva Avenue, along with solar collector arrays between US Highway 101 and the Caltrain tracks and other development west of the Caltrain tracks on windsurfing, wind tunnel tests were performed to study the wind conditions at the windsurfing launch site in the CPSRA and in the sailing area in San Francisco Bay. As a worst case, six 100 kW wind turbine generators along Geneva Avenue were evaluated. Of the renewable energy components proposed under the Renewable Energy Alternative, only the originally proposed six 100 kW wind turbine generators (up to approximately 100 feet high) would have any measurable effect on the windsurfing area. This effect was found to consist only of a single trace of disturbed wind (a wind speed reduction between five and 10 percent and wind turbulence increase of less than five percent); this trace was less than 200 feet in width (less than the width of one wind test grid square) and reached less than 500 feet downwind from the base of the wind turbine. As such, this would have an effect on only one to two of the grid points, with an insubstantial effect on the windsurfing area. The smaller 8 to 10 kW vertical axis turbines proposed would not be expected to have any adverse impact on windsurfing, and would have a reduced impacts compared to the less than significant impacts of the Project Site development.

Traffic and Circulation

Impacts on existing roadways and transit systems would be substantially reduced under the Renewable Energy Generation Alternative, as compared to the significant unavoidable impacts of Project Site development. Like Project Site development, this alternative would require the extension and upgrade of roadways and public transit in order to provide circulation to, from, and within the Project Site. This would include the Geneva Avenue extension, which is included in the Brisbane General Plan, Bi-County Transportation Study, and the San Mateo County Regional Transportation Plan. Overall, impacts related to vehicle trip generation and roadway levels of service would be substantially reduced from what would occur under the Project Site development, due to the reduced density of development within the Project Site. However, while impacts would be substantially reduced, significant unavoidable traffic impacts along Bayshore Boulevard and at US Highway 101 interchanges would not be avoided since growth in background traffic is sufficient to cause unacceptable levels of service, even without development within the Project Site. The potential for significant impacts to result from construction activities under this alternative would be reduced to less than significant with implementation of the measures proposed in Section 4.N, *Traffic and Circulation*, of this EIR, as would be the case for Project Site development.

Utilities and Service Systems

The Renewable Energy Generation Alternative would result in a substantially reduced density of development as compared to Project Site development. Therefore, the increase in demand for water, wastewater treatment, solid waste collection and disposal, and communications infrastructure would be substantially less than the significant but mitigable impacts that would occur under the Project. Impacts would be less than significant with implementation of the mitigation measures included in Section 4.O, *Utilities, Service Systems, and Water Supply*, as is the case for Project Site development.

Included in this alternative is approval of the proposed water supply agreement, which currently provides for up to 2,400 acre-feet of supply annually, including up to 2,000 acre feet for the Project Site and 400 acre feet of water for citywide use. Because water demand under this alternative (approximately 375 acre-feet annually) would be far less than for the Project Site development, it is anticipated that the 2,000 acre-feet of water assumed for the Project Site development would be reduced to 375 acre-feet for a total water supply agreement providing for 775 acre-feet of water annually. However, should the approved water supply agreement provide more supply for the Project Site than would actually be needed, a significant growth inducing effect would result.

Energy Resources

Development under the Renewable Energy Generation Alternative would result in additional demand for energy resources on the Project Site. However, this demand would be offset by energy generated by the proposed solar (and potentially wind) technologies.

The estimated annual electricity generation from solar PV and wind systems as proposed in the Renewable Energy Generation Alternative layout is presented below in **Table 5-6**. Because the specific type of solar technology that would be used on the Project Site has yet to be determined, electricity generation is calculated separately for a fixed-axis PV system and a tracking-PV system. Electricity generation from turbines at the research and development site was not included in the analysis, because it was assumed that these turbines would not be running on a continuous basis. In addition to stand-alone renewable technologies, conjunctive use of renewable energy generation with development, such as PV systems on the roofs of new buildings, also could occur. Because micrositing studies for the proposed wind turbines within the Project Site under this alternative have not been undertaken, energy generation for wind turbines has not been estimated in Table 5-6.

Overall, impacts on existing energy resources under the Renewable Energy Generation Alternative would be beneficial, since this alternative would be expected to generate more energy than needed to serve onsite uses. Such surplus energy could be used to meet demand within the City of Brisbane as a whole.

In addition to the energy produced by solar and wind facilities under this alternative, Recology facility is expected to generate approximately 27.6 million KwH energy over and above onsite demand for export as the result of biogas production for fleet vehicular and building heating use, installation of PV for building electrical use, solar water heating, and a cogeneration system sized for larger heat demands.

TABLE 5-6
RENEWABLE ENERGY GENERATION ALTERNATIVE
ELECTRICITY GENERATION FROM SOLAR PV AND WIND SYSTEMS AT PROJECT SITE

	Solar Photovoltaic (PV) Systems	
	Fixed Axis PV System	**Single-Axis Tracking PV System**
Area	104 acres	104 acres
Capacity[a]	31.7 MW	15.7 MW
Annual Electricity Generation	45,660 MWh	29,780 MWh
Generation / Capacity	1,440kWh/kW	1,890 kWh/kW
Annual GHG Emissions Savings[b]	12,960 $MTCO_2e$	8,450 $MTCO_2e$
Number of Single-Family Homes Powered[c]	1,570 homes	1,030 homes
Equivalent Number of Passenger Vehicles Removed from Road[d]	2,480 passenger vehicles	1,616 passenger vehicles

MW = megawatts; MWh = megawatt hours; kW = kilowatts; kWh = kilowatt hours; $MTCO_2e$ = metric tons of carbon dioxide equivalents

[a] The capacities from the PV system are not additive; the site would either have (1) a fixed-axis tracking PV system, or (2) a single-axis tracking PV system. Both the PV and wind systems can be installed, so PV and wind capacities are additive.

[b] Assumes 0.288 metric ton of carbon dioxide equivalents ($MTCO_2e$) per MWh of generated power. Source: California Climate Action Registry, *PG&E's 2008 Annual Entity Emissions: Electric Power Generation/Electric Utility Sector (Actual 2007 emissions).*

[c] Assumes the average single-family home in the United States consumes 12,733 kWh per year. Source: EIA, 2005 Residential Energy Consumption Survey, 2008, Table US-3, Total Consumption by Fuels Used, 2005, Physical Units.

[d] Assumes average passenger car emits 5.23 MTCO2e per year. Source U.S. Environmental Protection Agency, *Greenhouse Gas Equivalencies Calculator*, updated March 2010.

SOURCE: Energy Solutions, Preliminary Renewable Energy Feasibility Study: City of Brisbane Analysis of the Baylands Renewable Energy Alternative, October 2010.

Evaluation of the Renewable Energy Alternative in Relation to Project Objectives

Overarching Objective	
Create an active, vibrant place which strengthens the community of Brisbane; contributes to its sense of place; and demonstrates environmental, social, and economic considerations can be harmonized to the betterment of the natural environment, the Brisbane and regional community, and the individuals who will use the Baylands.	The Renewable Energy Alternative has the ability to create an 85-acre, 0.8 million square foot cluster of urban development to serve as an active vibrant place, partially meeting this objective. By also providing for such a cluster of development, while also generating more renewable energy than would be used within the Project Site, the Renewable Energy Alternative would meet the environmental sustainability components of the City's overarching project objective.
Environmental Protection and Enhancement Objectives	
A. Remediate the Baylands to a level which ensures the safety of all who use the site, and eliminates ongoing ecological damage.	Because the Renewable Energy Alternative provides for site remediation and remediation would be required to provide for public safety in relation to the specific mix and location of land uses ultimately approved by the City, it would meet this Project objective.

Environmental Protection and Enhancement Objectives (continued)	
B. Incorporate a "green building" approach for all future development on the Baylands, wherein buildings are sited, designed, constructed and operated to encourage resource conservation, minimize waste and pollution, maximize energy and resource efficiency, and promote healthy indoor environments	Meeting this objective would largely be accomplished as part of the design of future development. The Renewable Energy Alternative would not constrain the ability of future development to meet this objective.
C. Preserve, restore and enhance wetlands and natural habitat on the site and create natural linkages across the site to promote physical and visual connectivity between the San Bruno Mountains and the Bay.	Because this objective is reflected in General Plan policies that would be required of this alternative, the Renewable Energy Alternative would meet this objective.
D. Promote and encourage non-vehicular access and movement to and from the site (particularly from Central Brisbane) and within the site as well. Land use mix, good urban design, the provision of safe and pleasant pedestrian and bike paths, and convenient access and linkages to public transit are all necessary components.	Because this objective is reflected in General Plan policies that would be required of this alternative, the Renewable Energy Alternative would meet this objective.
E. Strive to achieve a balance between energy demand and generation through efficiency, conservation, and the maximum use of passive and active sources of renewable energy.	The Renewable Energy Alternative is designed specifically with this objective in mind, providing a net surplus of renewable energy.
F. Minimize the net consumption of water supplies.	By reducing the amount of urban development onsite, and maximizing renewable energy use, the Renewable Energy Alternative would minimize the net consumption of domestic water supplies.
G. Safely and efficiently accommodate project traffic in a manner that does not adversely impact Brisbane or adjacent communities.	Because this objective is reflected in General Plan policies that would be required of this alternative, the Renewable Energy Alternative would meet this objective.
H. Incorporate innovative methods to reduce resource consumption and waste generation.	By reducing the amount of urban development below the maximum allowable by the General Plan, and providing for expansion of the Recology solid waste facility, the Renewable Energy Alternative would meet this objective.
I. Site and design new infrastructure to minimize adverse environmental impacts.	Meeting this objective would largely be accomplished as part of the design of future development. The Renewable Energy Alternative would not constrain the ability to meet this objective.
J. Design the project sensitively to protect Brisbane's viewshed, taking into account light spillage and pollution, building height and massing, and placement of landscape features.	The limited amount of urban development proposed in the Renewable Energy Alternative would provide greater opportunities for maintaining blue water views and meeting this objective than would more intensive development of the Project Site. As described in the evaluation of the Renewable Energy Alternative, mitigation measures are available and would be applied to reduce visual impacts, including light and glare to less than significant levels.
K. Achieve a level of solid waste diversion equivalent to the zero waste goals established for San Francisco.	Meeting this objective depends on the implementation of citywide zero waste programs. Urban development pursuant to this alternative would be required to comply with applicable zero waste programs. In addition, the Renewable Energy Alternative provides for expansion of the existing Recology facility. Thus, the Renewable Energy Alternative would not constrain achievement of this objective.

Social Equity Objectives	
L. Incorporate significant open space and related improvements which provide opportunities for a wide range of passive and active public recreational opportunities benefiting the City and region.	Meeting this objective would largely be accomplished as part of the design of future development within the Project Site. By limiting the amount of urban development within the Project Site and providing for open space preservation, the Renewable Energy Alternative would contribute to and not constrain the ability to meet this objective.
M. Provide employment opportunities for Brisbane residents and residents of nearby local communities, thereby improving the jobs/housing balance at regional and subregional levels.	With the exception of the No Project-No Build Alternative, the Renewable Energy Alternative would generate the fewest employment opportunities of the Project and alternatives discussed in this EIR. However, employment generation by the Renewable Energy Alternative would be in line with the range of employment projections set forth in Plan Bay Area. As a result, the Renewable Energy Alternative would not constrain achievement of this objective.
N. Contribute to critically-needed solutions to regional transit and transportation issues which will benefit both the project and existing communities.	Because the Renewable Energy Alternative proposed substantially less development than Project Site development, it would fall short of meeting this objective.
O. Recognize that the project is of regional significance, and provide for the well-being not only of the City of Brisbane, but also of surrounding communities.	By producing a net surplus of renewable energy that could be used to support other development in surrounding communities, the Renewable Energy Alternative would assist in achieving this objective.
P. Provide on-site opportunities for public art and education to contribute to public understanding of the site, including its history, ecology and the project's sustainability mission.	Meeting this objective would largely be accomplished as part of the design of future development within the Project Site. The Renewable Energy Alternative would not constrain the ability to meet this objective.
Economic Objectives	
Q. Enhance the City's tax base and future ability to improve services within all of Brisbane.	Development of the mix of commercial and office uses set forth in the Renewable Energy Alternative would contribute to meeting this objective.
R. Retain and accommodate the expansion of existing businesses within the Baylands that contribute to the City's fiscal health and economic vitality.	The Renewable Energy Alternative would retain existing businesses within the Project Site and allow for their expansion. As such, the Renewable Energy Alternative would achieve this objective
S. Establish a project which remains economically viable on a long-term basis, including excellence in architecture which can withstand the test of time.	Studies suggest that renewable energy production could be viable within the Project Site. In addition, the mix of commercial and office uses to be developed in addition to renewable energy production is consistent with and would contribute to meeting this objective. Achieving this objective would also depend on the design of future development. Because development of this alternative will be required to be consistent with the General Plan, which includes policies related to excellence in design, it will result in achieving this objective.
T. Build in flexibility so the project can adapt to changing market conditions over time, without compromising the other stated project objectives.	The mix of commercial and office uses described in the Renewable Energy Alternative is similar to that of the No Project – General Plan Buildout Alternative, and would therefore meet this objective.
U. Provide greater choices for Brisbane residents by providing desired goods, services, entertainment, and/or other amenities not currently available within the City.	The mix of commercial and office uses described in the Renewable Energy Alternative is similar to that of the No Project - General Plan Buildout Alternative, and is therefore consistent with meeting this objective.

Reduced Intensity Non-Residential Alternative

Description of the Reduced Intensity Non-Residential Alternative

The Reduced Intensity Non-Residential Alternative was specifically designed to eliminate the significant unavoidable GHG emissions impacts of the CPP and CPP-V scenarios by reducing development intensity within the Baylands and providing for 25 acres of land dedicated to renewable energy production. The Reduced Intensity Non-Residential Alternative would include the land use categories proposed under the CPP-V, but at reduced square footages. The Reduced Intensity Non-Residential Alternative provides for the expansion of the existing Recology facility within the northeast portion of the Project Site. As with the Project Site development, relocation of existing lumberyards, adaptive reuse of the Roundhouse and Lazzari Fuel Company buildings, and replacement of the existing 231,400-square-foot Brisbane Bayshore Industrial Park would occur. In addition, because any future development of the Project Site requires remediation and a firm water supply, this alternative assumes site remediation and approval of the proposed water supply agreement, as described in Chapter 3, *Project Description,* of this EIR. The 2,400 acre-feet of water supply contemplated in the proposed water transfer agreement would be reduced by approximately 28 percent (to 1,440 acre-feet) to accommodate the actual water demand associated with this alternative, while retaining the full 400 acre-feet of water to be used for citywide purposes (total of 1,840 acre feet).

As previously discussed, total proposed new development under the Reduced Intensity Non-Residential Alternative would include:

- General Retail: 500,000 square feet
- General Office: 800,000 square feet
- R&D: 2,000,000 square feet
- Industrial/Warehouse: 224,000 square feet
- Public/Civic (community center/community theater): 180,000 square feet
- Recology Expansion (total): 1,011,000 square feet
- Hotel: 520,000 square feet (650 rooms)
- Institutional (office): 80,000 square feet
- Renewable Energy Generation: 25 acres

Including existing lumberyard uses to be relocated, total square footage of development at buildout of the Reduced Intensity Non-Residential Alternative would be 5,245,300 square feet of building area.

Under this alternative, the buildout density would be greater than under buildout of the existing General Plan, but reduced from that of the Project in order to reduce or avoid impacts while meeting basic Project objectives. As noted above, this alternative was specifically designed to reduce the significant unavoidable GHG impact of CPP and CPP-V scenarios to below a level of significance. The Reduced Intensity Non-Residential Alternative reduces or avoids significant aesthetics and visual resources, traffic, air quality, public services, and population/housing impacts, and meets most of the Project's environmental, social equity, and economic objectives. An evaluation of this alternative in relation to project objectives is presented below.

The relocation of the existing lumberyards to a site within the Baylands and the expansion of the existing Recology facility would occur under this alternative. As would occur under each of the Project development scenarios, existing uses including the Brisbane Bayshore Industrial Park, Brisbane Soils Processing, and the Brisbane Recycling rock crushing facility would be removed over time and replaced with new development under this alternative.

The Reduced Intensity Non-Residential Alternative also assumes that the Geneva Avenue extension, along with implementation of the infrastructure improvements required to serve development within the Project Site, would occur. Implementation of required remedial actions as described in Chapter 3, *Project Description*, would also occur under this alternative. This alternative would include development of small-scale wind and solar energy generation technologies.

Impacts of the Reduced Intensity Non-Residential Alternative

Aesthetics

Impacts under the Reduced Intensity Non-Residential Alternative would be reduced as compared to the Project Site development, since development would be less intense. This alternative provides for a substantial reduction in development square footage, and would reduce building heights so as to reduce the less than significant scenic vistas of Project Site development. The Reduced Intensity Non-Residential Alternative would adhere to General Plan Land Use Element Policy 11, which requires that development south of the Bayshore Basin drainage channel maintain a low profile in order to preserve the existing views of San Francisco and San Francisco Bay as seen from Central Brisbane, and to maximize the amount of landscape and open space or open area in this portion of the Baylands. This would minimize impacts on scenic vistas.

The Reduced Intensity Non-Residential Alternative would preserve scenic resources within the Project Site, since new development would be designed consistent with General Plan policies requiring that development in the Baylands be complementary to existing topographic features, including Brisbane Lagoon, San Bruno Mountain, and San Francisco Bay. Other identified scenic resources such as the Roundhouse also would be preserved under this alternative.

While development under this alternative would result in new sources of light and glare that would be visible from other areas of Brisbane, from US Highway 101, and from adjacent scenic vistas, because development intensity would be less than under the Project, the impacts related to light and glare would be reduced. While the sources of light and glare would be similar to Project Site development, the number of sources would be fewer and less intense, and the resulting degree of light and glare impacts would be less. However, substantial nighttime lighting would still be required, and although impacts would be reduced, nighttime lighting impacts would remain significant and unavoidable under the Reduced Intensity Non-Residential Alternative.

Air Quality and Greenhouse Gases

The Reduced Intensity Non-Residential Alternative was specifically designed to eliminate the significant GHG emissions impact that would result from the CPP-V scenario, as shown in **Table 5-7**.

TABLE 5-7
ESTIMATED EMISSIONS OF GHG EMISSIONS
FROM THE REDUCED DENSITY ALTERNATIVE OPERATIONS

Source	Emissions (metric tons CO_2e per year)
Unmitigated Emissions	
Motor Vehicle Trips	28,721
Recology Truck and Vehicle Trips	748
Electricity	5,786
Natural Gas	3,171
Solid Waste	12,721
Other Sources (i.e., area sources, water/wastewater)	255
Existing land uses to be removed (Industrial Park)	-2,762
Renewable Energy Generation (PV)	-3,116
Total Unmitigated Operational GHG Emissions	45,524
Operational GHG Emissions per Service Population (10,306 jobs)	*4.4*
BAAQMD Efficiency Threshold	*4.6*
Significant (Yes or No)?	*No*

[a] GHG emissions from vehicles and area sources (including natural gas combustion) associated with the alternative scenarios were calculated using the URBEMIS2007 model with the Bay Area Greenhouse Gas Model (BGM) and trip generation data from the traffic analysis. Additional data and assumptions are included in Appendix G.

[b] Mitigation Measure GHG-1 described for the Project was incorporated into CalEEMod using default model reductions. Additional assumptions are included in Appendix G.

SOURCE: ESA, 2012.

Construction and operational emissions associated with this alternative were modeled following the same methodology as described for the Project components described in Chapter 3, *Project Description*. GHG emissions associated with the construction phase of the Reduced Intensity Non-Residential Alternative would result in a maximum annual generation of approximately 9,008 metric tons of CO_2e. Table 5-7 presents a gross estimate of the scenario's unmitigated operational CO_2e emissions resulting from the increases in motor vehicle trips, grid electricity usage, solid waste, as well as from other sources (including area sources, natural gas combustion, and water/wastewater conveyance).

Table 5.7 indicates that GHG emissions that would result from this alternative would not exceed the 4.6 metric tons of CO_2e annually per service population threshold and would be less than significant. Therefore, unlike the CPP and CPP-V Project scenarios, the Reduced Intensity on-Residential Alternative would have a less-than-significant emission impact, although the GHG impact of the Reduced Intensity Non-Residential Alternative would be greater than the less than significant impacts of the DSP and DSP-V scenarios.

Air quality emissions generally would be reduced under the Reduced Intensity Non-Residential Alternative as compared to the CPP and CPP-V scenarios, since the overall amount of development would be less (approximately five million square feet) than under the CPP and

CPP-V scenarios (approximately eight million square feet). However, to eliminate significant air quality impacts, would require a substantial further reduction in development within the Project site to about 2.5 million square feet.

Biological Resources

Development under the Reduced Intensity Non-Residential Alternative could result in impacts on biological resources. Much of the Project Site is heavily disturbed due to prior uses such as the former landfill and railyard. However, existing biological resources such as those in the vicinity of Brisbane Lagoon and Icehouse Hill are present and could be directly or indirectly affected by construction or operation of future development. Because the Reduced Intensity Non-Residential Alternative would have the same development footprint as the CPP and CPP-V scenarios, it would result in similar significant but mitigable impacts on sensitive plant and wildlife species, sensitive natural communities, wetlands and other waters, wildlife movement, and trees protected by the Brisbane Tree Ordinance. As with the Project, implementation of the mitigation measures recommended in Section 4.C, *Biological Resources*, of this EIR, would reduce impacts of the Reduced Intensity Non-Residential Alternative to less-than-significant levels.

Cultural Resources

Development of the Baylands under the Reduced Intensity Non-Residential Alternative could result in impacts on known historic resources and previously undiscovered archaeological resources. Such impacts would occur with damage to historic structures or to archaeological resources resulting from construction activities. Impacts on designated historic resources would be unlikely, however, as development under this alternative would adhere to General Plan policies calling for rehabilitation of historic structures; and, as under the Project, this alternative includes rehabilitation and reuse of existing historic resources. With implementation of the mitigation measures recommended for the Project in Section 4.D, *Cultural Resources*, of this EIR, impacts on cultural resources associated with this alternative would be reduced to less-than-significant levels, resulting in similar less-than-significant impacts. No impacts on paleontological resources would occur, as no recorded paleontological resources are located on the Project Site or in the immediate vicinity.

Geology, Soils, and Seismicity

Impacts related to geology, soils and seismicity would be similar to the significant but mitigable impacts identified for Project Site development. Such impacts would include potential risks to humans and damage to property related to seismic groundshaking, liquefaction and lateral spreading, slope and soil instability, erosion, and corrosive and expansive soils. Because the square footage of development under the Reduced Intensity Non-Residential Alternative is reduced compared to the CPP, CPP-V, DSP, and DSP-V scenarios, geology, soils, and seismicity impacts would be reduced by placing fewer people within the Project Site on a daily basis. However, mitigation measures would still be necessary to minimize these impacts. Implementation of the mitigation measures recommended in Section 4.E, *Geology, Soils and Seismicity*, of this EIR would reduce these potential impacts to less-than-significant levels.

Hazards and Hazardous Materials

As with Project Site development and alternatives, a series of remedial actions would need to be undertaken prior to future development within certain portions of the Project Site, including the former landfill and railyard areas. The specific remedial actions to be taken would be finalized based on the specific approved uses within the Project Site with preparation of Remedial Action Plans by the agencies with jurisdiction over these areas: the Department of Toxic Substances Control and the Regional Water Quality Control Board. Implementation of remedial activities could result in impacts related to the release, transport, or disposal of hazardous materials. Remediation-related impacts of this alternative would be similar to the significant but mitigable impacts of the Project and alternatives, since similar remediation would be required. Significant impacts under the Reduced Intensity Non-Residential Alternative could also occur with the use or transport of fuels, oils, or other chemicals during construction, or as a result of hazardous emissions or handling of hazardous or acutely hazardous materials, substances or waste within 0.25 mile of an existing or proposed schools. These impacts would be reduced to less-than-significant levels with implementation of the mitigation measures identified in Section 4.G, *Hazards and Hazardous Materials,* of this EIR.

Hydrology and Water Quality

The Reduced Intensity Non-Residential Alternative would result in significant but mitigable impacts related to water quality, flooding (including the potential effects of sea level rise), and stormwater runoff. Because the density of development of his alternative would be less than under any of the Project scenarios, this alternative would result in less new coverage of the Project Site by impervious surfaces than the Project, and therefore would somewhat reduce significant but mitigable impacts of Project Site development related to flooding and stormwater runoff. Because this alternative does not propose any residential development, it would result in no impacts related to the placement of housing within a 100-year floodplain. While overall hydrology and water quality impacts would be reduced as compared to the Project, mitigation would still be necessary. Implementation of the mitigation measures recommended in Section 4.H, *Hydrology and Water Quality*, of this EIR would reduce impacts to less-than-significant levels.

Land Use and Planning Policy

The Reduced Intensity Non-Residential Alternative does not include residential development and is therefore consistent with the General Plan's prohibition on residential development within the Baylands. The overall land use intensity of this alternative is, however, greater than that currently contemplated by the General Plan as detailed in the General Plan EIR. Further reducing development intensity by approximately 50 percent to eliminate significant air quality impacts, would also bring this alternative into conformance with the maximum buildout anticipated by the General Plan. The Reduced Intensity Non-Residential Alternative would result in no impacts related to the division of existing communities or conflicts with habitat conservation plans. Overall, land use impacts associated with this alternative would be less than significant, avoiding the significant unavoidable impacts of Project Site development, with the exception of an inconsistency with General Plan Transportation and Circulation Element policy calling for maintaining Level of Service D on area roadways. As discussed in Section 4.N, *Traffic and Circulation*, future background traffic increases from development in surrounding communities

will cause area levels of service along roadways such as Bayshore Boulevard and at freeway ramps on US Highway 101 to deteriorate to unacceptable levels, even with no development occurring within the Project Site.

Noise

The Reduced Intensity Non-Residential Alternative would generate substantial noise from both project construction and operation. Although this alternative would result in less development than Project Site development, it would still result in similar significant impacts related to construction noise and to an overall increase in ambient noise over existing conditions. However, noise impacts under this alternative could be reduced to less-than-significant levels with implementation of the mitigation measures recommended in Section 4.J, *Noise and Vibration*, of this EIR.

Population and Housing

Because it does not propose residential development, no residential population growth would occur on the Project Site under the Reduced Intensity Non-Residential Alternative. Assuming allowable land uses under the General Plan would generate an average of 1.8 employees per 1,000 square feet of development, the Reduced Intensity Non-Residential Alternative would result in approximately 10,800 new jobs within the Project Site. This estimate is less than the number of jobs that would be generated under the CPP, CPP-V, DSP, or DSP-V scenario (approximately 15,000 and 17,000 new jobs, respectively), but substantially more than projected for the City in ABAG's Projections 2009 or in the SCS scenarios for the draft Plan Bay Area.

Development of the Project Site under this alternative also would generate temporary construction-related jobs. It is expected that construction workers generally would travel from other parts of the Bay Area to work, and that temporary housing on the Project Site would not be needed.

Public Services

Impacts under the Reduced Intensity Non-Residential Alternative would generally be less than under Project Site development. Like the CPP and CPP-V scenarios, this alternative does not include residential uses and therefore would not directly result in an increased demand for schools. The demand for other types of public services, including police and fire protection, would increase under this alternative, as it would under the Project, but to a lesser degree. As compared to the Project Site development, however, the less than significant impacts of Project Site development related to the provision of these services would be reduced under this alternative and would be less than significant.

Recreation Resources

The Reduced Intensity Non-Residential Alternative includes the same amount of public use/open space as is proposed under the CPP and CPP-V. As with Project Site development, improvements to existing resources and development of new recreational amenities could result in construction-related impacts. While the Reduced Intensity Non-Residential Alternative does not include residential uses, new development under this alternative also could result in increased use of

existing recreational resources, as new employees could use existing recreational amenities in and around the Project Site. However the overall demand for resources would be reduced as compared to the DSP, DSP-V, CPP, and CPP-V scenarios due to the decreased intensity of development. As compared to the DSP and DSP-V scenarios, impacts would be considerably reduced, as no new residential population would be introduced to the Project Site. Impacts on recreational resources would be less than significant, and no mitigation would be required.

Traffic and Circulation

The Reduced Intensity Non-Residential Alternative would require the extension and upgrade of roadways and public transit in order to provide circulation to, from, and within the Project Site. This would include the Geneva Avenue extension, which is included in the Brisbane General Plan, Bi-County Transportation Study, and San Mateo County Regional Transportation Plan. Overall, impacts related to vehicle trip generation and level of service would be reduced from what would occur under Project Site development, due to the reduce density of development. However, significant unavoidable impacts would still result from implementation of this alternative.

Utilities and Service Systems

The Reduced Intensity Non-Residential Alternative would result in a reduced intensity of development as compared to the Project scenarios. Therefore, the increase in demand for water, wastewater treatment, solid waste collection and disposal, and communications infrastructure would be less than under Project Site development. As compared to the DSP and DSP-V scenarios, in particular, less than significant impacts on utilities and service systems would be substantially reduced, given the larger amount of development proposed under those scenarios. Because the Reduced Intensity Non-Residential Alternative does not include residential development, its impacts would be similar to, but less than those resulting from the CPP and CPP-V scenarios since the Reduced Intensity Non-Residential Alternative proposes approximately 1.7 million square feet less of building area. Significant impacts to utilities and service systems could occur under this alternative. However, such impacts would be less than significant with implementation of the mitigation measures recommended in Section 4.O, *Utilities, Service Systems, and Water Supply*, of this EIR.

Included in this alternative is approval of the water supply agreement, which provides for up to 2,400 acre-feet of supply annually, including up to 2,000 acre feet for the Baylands and 400 acre-feet of water for citywide use. Because water demand under this alternative would be far less than for any of the Project scenarios, requiring approximately 72 percent of the supply in the proposed water supply agreement, because development of an onsite recycled water plant and availability of recycled water for onsite irrigation purposes in included as part of this alternative. Thus, approval of the proposed water supply agreement under the Reduced Intensity Non-Residential Alternative would include approximately 1,440 acre feet of water, reflecting actual water supply requirements, along with an additional 400 acre-feet of water supply for buildout of the General Plan outside of the Project Site (total of 1,840 acre-feet). Approval of the proposed water supply agreement with more than 1,840 acre feet of water supply, up 2,400 acre feet would provide more supply than would actually be needed and would have a growth-inducing effect.

Energy Resources

Buildout of the Project Site under the Reduced Intensity Non-Residential Alternative would increase the demand for energy supplies and result in impacts related to the installation of new energy infrastructure. Such impacts would be similar to what would occur under the Project, although, the increase in demand for energy resources and the intensity of impacts related to the development of energy infrastructure required to serve the Project Site would be reduced due to decreased development intensity. This alternative would include the generation of renewable energy through 25 acres of renewable energy generation within the Project Site. Renewable energy generation development of such technologies would partially offset energy use on the Project Site, thereby reducing impacts related to increases in energy demand. While the potential for renewable energy generation under this alternative would be similar to that under Project Site development, impacts under this alternative would be reduced as compared to the Project, due to the overall level and type of development proposed.

Evaluation of the Reduced Intensity Non-Residential Alternative in Relation to Project Objectives

Overarching Objective	
Create an active, vibrant place which strengthens the community of Brisbane; contributes to its sense of place; and demonstrates environmental, social, and economic considerations can be harmonized to the betterment of the natural environment, the Brisbane and regional community, and the individuals who will use the Baylands.	Meeting this objective would largely be accomplished as part of the design of future development within the Project Site. By providing for a similar mix of commercial and office uses as the CPP-V scenario, the Reduced Intensity Non-Residential Alternative would contribute to and not prevent meeting this objective.
Environmental Protection and Enhancement Objectives	
A. Remediate the Baylands to a level which ensures the safety of all who use the site, and eliminates ongoing ecological damage.	Because site remediation is part of the Reduced Intensity Non-Residential Alternative and remediation would be required to provide for public safety in relation to the specific mix and location of land uses ultimately approved by the City, this objective would be met.
B. Incorporate a “green building” approach for all future development on the Baylands, wherein buildings are sited, designed, constructed and operated to encourage resource conservation, minimize waste and pollution, maximize energy and resource efficiency, and promote healthy indoor environments	Meeting this objective would largely be accomplished as part of the design of future development. The Reduced Intensity Non-Residential Alternative would not constrain the ability of future development to meet this objective.
C. Preserve, restore and enhance wetlands and natural habitat on the site and create natural linkages across the site to promote physical and visual connectivity between the San Bruno Mountains and the Bay.	Because these activities are reflected in the General Plan policies and would therefore be required to be implemented by this alternative, the Reduced Intensity Non-Residential Alternative would meet this objective.
D. Promote and encourage non-vehicular access and movement to and from the site (particularly from Central Brisbane) and within the site as well. Land use mix, good urban design, the provision of safe and pleasant pedestrian and bike paths, and convenient access and linkages to public transit are all necessary components.	Because this objective is reflected in the General Plan policies and would therefore be required to be implemented by this alternative, the Reduced Intensity Non-Residential Alternative would meet this objective.

Environmental Protection and Enhancement Objectives (continued)	
E. Strive to achieve a balance between energy demand and generation through efficiency, conservation, and the maximum use of passive and active sources of renewable energy.	The Reduced Intensity Non-Residential Alternative provides for renewable energy generation at a similar rate as for proposed Project scenarios, along with reduced energy demands resulting from reduced development intensity. As a result, the Reduced Intensity Non-Residential Alternative would meet this objective.
F. Minimize the net consumption of water supplies.	Because this objective is reflected in the General Plan policies and would therefore be required to be implemented by this alternative, the Reduced Intensity Non-Residential Alternative would meet this objective.
G. Safely and efficiently accommodate project traffic in a manner that does not adversely impact Brisbane or adjacent communities.	Because this objective is reflected in the General Plan policies and would therefore be required to be implemented by this alternative, the Reduced Intensity Non-Residential Alternative would meet this objective.
H. Incorporate innovative methods to reduce resource consumption and waste generation.	Meeting this objective would largely be accomplished as part of the design and operations of future development within the Project Site. By providing for a similar mix and intensity of land uses as set forth in the CPP-V scenario (including expansion of the Recology facility), the Reduced Intensity Non-Residential Alternative would contribute to and not prevent meeting this objective.
I. Site and design new infrastructure to minimize adverse environmental impacts.	Because this objective is reflected in the General Plan policies and would therefore be required to be implemented by this alternative, the Reduced Intensity Non-Residential Alternative would meet this objective.
J. Design the project sensitively to protect Brisbane's viewshed, taking into account light spillage and pollution, building height and massing, and placement of landscape features.	Because this objective is reflected in the General Plan policies and would therefore be required to be implemented by this alternative, the Reduced Intensity Non-Residential Alternative would meet this objective.
K. Achieve a level of solid waste diversion equivalent to the zero waste goals established for San Francisco.	Meeting this objective depends on the implementation of citywide zero waste programs. Urban development pursuant to this alternative would be required to comply with applicable zero waste programs. In addition, the Reduced Intensity Non-Residential Alternative provides for expansion of the existing Recology facility. Thus, the Reduced Intensity Non-Residential Alternative would not constrain achievement of this objective.
Social Equity Objectives	
L. Incorporate significant open space and related improvements which provide opportunities for a wide range of passive and active public recreational opportunities benefiting the City and region.	The Reduced Intensity Non-Residential Alternative would provide similar open space and related improvements as would the CPP-V scenario, including a range of passive and active public recreational opportunities consistent with the employment-generating, non-residential character of future development under this alternative. As a result, the Reduced Intensity Non-Residential Alternative would achieve this objective.
M. Provide employment opportunities for Brisbane residents and residents of nearby local communities, thereby improving the jobs/housing balance at regional and subregional levels.	The Reduced Intensity Non-Residential Alternative would generate 10,800 jobs, less than would be generated under the CPP, CPP-V, DSP, or DSP-V scenario (approximately 15,000 and 17,000 new jobs), but substantially more than projected for the City in ABAG's Projections 2009 or in the SCS scenarios for draft Plan Bay Area. The Reduced Intensity Non-Residential Alternative would achieve the

Social Equity Objectives (continued)	
	portion of this objective related to creating employment opportunities; however, unless the portion of Project Site employment in excess of regional growth projections was drawn from surrounding communities or elsewhere in the Bay Area, the addition of onsite employment in excess of regional projections could impact rather than improve the jobs/housing balance at regional and subregional levels.
N. Contribute to critically-needed solutions to regional transit and transportation issues which will benefit both the project and existing communities.	By providing for substantial office commercial and office development within the Project Site in proximity to existing and proposed future transit, the Reduced Intensity Non-Residential Alternative is consistent with meeting this objective.
O. Recognize that the project is of regional significance, and provide for the well-being not only of the City of Brisbane, but also of surrounding communities.	Because this objective is reflected in the General Plan policies that would be required to be implemented by this alternative, the Reduced Intensity Non-Residential Alternative would meet this objective.
P. Provide on-site opportunities for public art and education to contribute to public understanding of the site, including its history, ecology and the project's sustainability mission.	Meeting this objective would largely be accomplished as part of the design of future development within the Project Site. The Reduced Intensity Non-Residential Alternative would not constrain the ability to meet this objective.
Economic Objectives	
Q. Enhance the City's tax base and future ability to improve services within all of Brisbane.	Development of the mix of commercial and office uses set forth in the Reduced Intensity Non-Residential Alternative would contribute to meeting this objective.
R. Retain and accommodate the expansion of existing businesses within the Baylands that contribute to the City's fiscal health and economic vitality.	The Reduced Intensity Non-Residential Alternative retains existing businesses operating within the Project site, and provides for future development with the mix of commercial and office uses. The Reduced Intensity Non-Residential Alternative is therefore consistent with achieving this objective.
S. Establish a project which remains economically viable on a long-term basis, including excellence in architecture which can withstand the test of time.	The mix of commercial and office uses described in the CPP-V scenario for the Project Site and proposed at a lesser intensity in this alternative is consistent with and would contribute to meeting this objective. Achieving this objective would also depend on the design of future development. Because this alternative is designed to implement the existing General Plan, which includes policies related to excellence in design, the Reduced Intensity Non-Residential Alternative would achieve this objective.
T. Build in flexibility so the project can adapt to changing market conditions over time, without compromising the other stated project objectives.	The mix of commercial and office uses described in the Reduced Intensity Non-Residential Alternative for the Project Site with sufficient flexibility to react to changing market conditions over time in a manner consistent with meeting other project objectives.
U. Provide greater choices for Brisbane residents by providing desired goods, services, entertainment, and/or other amenities not currently available within the City.	The mix of commercial and office uses that would be implemented in the Reduced Intensity Non-Residential Alternative creates the opportunity to provide desired goods, services, entertainment, and/or other amenities not currently available within the City, and is therefore consistent with meeting this objective.

Reduced Intensity Mixed Use Alternative

Description of the Reduced Intensity Mixed Use Alternative

The Reduced Intensity Mixed Use Alternative is intended to substantially reduce the significant unavoidable traffic impacts of the DSP and DSP-V scenarios, and also reduce significant unavoidable air quality and noise impacts resulting from project-generated traffic. By reducing the overall development intensity of the DSP scenario (including reductions in both residential and non-residential development intensity), the Reduced Intensity Mixed Use Alternative would also reduce the aesthetics impacts of the project.

The Reduced Intensity Mixed Use Alternative proposes the same mix of residential and non-residential uses as does the DSP project development scenario. As with Project Site development, relocation of existing lumberyards, adaptive reuse of the Roundhouse and Lazzari Fuel Company buildings, and replacement of the existing 231,400-square-foot Brisbane Bayshore Industrial Park would occur.

The Reduced Intensity Mixed Use Alternative provides for development of 2,400 dwelling units and 3,750,780 square feet of new non-residential development. This represents approximately 54 percent of the proposed buildout of the DSP scenario. The Reduced Intensity Mixed Use Alternative assumes that the existing Recology facility remains, but is not expanded.

Under this alternative, the buildout density would be greater than under buildout of the existing General Plan, but reduced from that of Project Site development in order to reduce or avoid impacts while meeting basic Project objectives. This alternative would substantially reduce the DSP scenario's significant air quality, population and housing, and transportation impacts.

As would occur under each of the Project development scenarios, existing uses including the Brisbane Bayshore Industrial Park, Brisbane Soils Processing, and the Brisbane Recycling rock crushing facility would be removed over time and replaced with new development under this alternative.

The Reduced Intensity Mixed Use Alternative also assumes that the Geneva Avenue extension, along with implementation of the infrastructure improvements required to serve development on the Project Site, would occur. Implementation of required remedial actions also would occur under this alternative. This alternative would include development of the 25-acre solar farm and deployment of small-scale wind and rooftop solar energy generation technologies throughout the site that would generate a similar amount of renewable energy to the DSP scenario.

Impacts of the Reduced Intensity Mixed Use Alternative

Aesthetics

Impacts under the Reduced Intensity Mixed Use Alternative would be reduced as compared to the less than significant impacts of proposed Project scenarios, since development would be less intense. The Reduced Intensity Mixed Use Alternative would adhere to General Plan Policy 11,

which requires that development south of the Bayshore Basin drainage channel maintain a low profile in order to preserve the existing views of San Francisco and San Francisco Bay as seen from Central Brisbane, and to maximize the amount of landscape and open space or open area in this portion of the Baylands. This would minimize impacts on scenic vistas.

The Reduced Intensity Mixed Use Alternative would preserve scenic resources within the Project Site, since new development would be designed consistent with General Plan policies requiring that development in the Baylands be complementary to existing topographic features, including Brisbane Lagoon, San Bruno Mountain, and San Francisco Bay. Other identified scenic resources such as the Roundhouse also would be preserved under this alternative.

While development under this alternative would result in new sources of light and glare that would be visible from other areas of Brisbane, from US Highway 101, and from adjacent scenic vistas, because development intensity would be less than under the Project, the impacts related to light and glare would be reduced. While the sources of light and glare would be similar to Project Site development, the number of sources would be fewer and less intense under this alternative, and the resulting degree of light and glare impacts would be less than under the Project. However, substantial nighttime lighting would still be required. Although impacts would be reduced, nighttime lighting impacts would remain significant and unavoidable under the Reduced Intensity Mixed Use Alternative.

Air Quality and Greenhouse Gases

The Reduced Intensity Mixed Use Alternative would result in an approximately 46 percent reduction in development intensity with a similar reduction in traffic generation, air pollutant emissions, and total GHG emissions. Even with a 46 percent reduction in air pollutant emissions, mobile and stationary source air pollutant emissions will remain significant after the implementation of feasible mitigation measures. Construction source air pollutant emissions would be similar to those of the DSP scenario since the development footprint of the Reduced Intensity Mixed Use Alternative would be similar to that the DSP scenario, and remediation and grading activities would also be similar. The Reduced Intensity Mixed Use Alternative would have somewhat reduced air quality impacts related to actual building construction.

Biological Resources

Development under the Reduced Intensity Mixed Use Alternative would result in impacts on biological resources. Much of the Project Site is heavily disturbed due to prior uses such as the former landfill and railyard. However, existing biological resources such as those in the vicinity of Brisbane Lagoon and Icehouse Hill would be directly or indirectly affected by construction or operation of future development. Because the Reduced Intensity Mixed Use Alternative would have the same development footprint as the DSP and DSP-V scenarios, it would result in similar significant but mitigable impacts on sensitive plant and wildlife species, sensitive natural communities, wetlands and other waters, wildlife movement, and trees protected by the Brisbane Tree Ordinance. As with the Project, implementation of the mitigation measures recommended in Section 4.C, *Biological Resources*, would reduce impacts of the Reduced Intensity Mixed Use Alternative to less-than-significant levels.

Cultural Resources

Development of the Baylands under the Reduced Intensity Mixed Use Alternative would result in impacts on known historic resources and previously undiscovered archaeological resources. Such impacts would occur with damage to historic structures or to archaeological resources resulting from construction activities. Impacts on designated historic resources would be unlikely as development under this alternative would adhere to General Plan policies calling for rehabilitation of historic structures; and, as under the Project, this alternative includes rehabilitation and reuse of existing historic resources. With implementation of the mitigation measures recommended for the Project in Section 4.D, *Cultural Resources*, of this EIR, impacts on cultural resources associated with this alternative would be reduced to less-than-significant levels, similar to the DSP development scenario. No impacts on paleontological resources would occur, as no recorded paleontological resources are located on the Project Site or in the immediate vicinity.

Geology, Soils, and Seismicity

Impacts related to geology, soils and seismicity would be similar to the significant but mitigable impacts identified for the Project Site development scenarios. Such impacts would include potential risks to humans and damage to property related to seismic groundshaking, liquefaction and lateral spreading, slope and soil instability, erosion, and corrosive and expansive soils. Because the square footage of development under the Reduced Intensity Mixed Use Alternative is reduced compared to the CPP, CPP-V, DSP, and DSP-V scenarios, geology, soils, and seismicity impacts would be reduced by placing fewer people within the Project Site on a daily basis. However, mitigation measures would still be necessary to minimize these impacts. Implementation of the mitigation measures recommended in Section 4.E, *Geology, Soils and Seismicity*, of this EIR would reduce these impacts to less-than-significant levels.

Hazards and Hazardous Materials

As with all Project scenarios and alternatives, a series of remedial actions would need to be undertaken prior to future development within certain portions of the Project Site, including the former landfill and railyard areas. The specific remedial actions to be taken would be finalized based on the specific approved uses within the Project Site with preparation of Remedial Action Plans by the agencies with jurisdiction over these areas: the Department of Toxic Substances Control and the Regional Water Quality Control Board. Implementation of remedial activities would result in impacts related to the release, transport, or disposal of hazardous materials. Remediation-related impacts of this alternative would be similar to the significant but mitigable impacts of Project Site development and alternatives, since similar remediation would be required. Significant impacts under the Reduced Intensity Mixed Use Alternative could also occur with the use or transport of fuels, oils, or other chemicals during construction, or as a result of hazardous emissions or handling of hazardous or acutely hazardous materials, substances or waste within 0.25 mile of an existing or proposed schools. These impacts would be reduced to less-than-significant levels with implementation of the mitigation measures identified in Section 4.G, *Hazards and Hazardous Materials*, of this EIR.

Hydrology and Water Quality

The Reduced Intensity Mixed Use Alternative would result in significant but mitigable impacts related to water quality, flooding (including the potential effects of sea level rise), and stormwater runoff. Because the density of development of this alternative would be less than under the Project, this alternative would result in less new coverage of the Project Site by impervious surfaces, and would therefore somewhat reduce the significant but mitigable impacts of the Project related to flooding and stormwater runoff. Although this alternative proposes residential development, such development is not proposed within a 100-year floodplain, and no impacts related to the placement of housing within a 100-year floodplain would result. While overall hydrology and water quality impacts would be reduced as compared to the Project, mitigation would still be necessary. Implementation of the mitigation measures recommended in Section 4.H, *Hydrology and Water Quality*, of this EIR would reduce impacts to less-than-significant levels.

Land Use and Planning Policy

The Reduced Intensity Mixed Use Alternative includes residential development and is therefore inconsistent with the General Plan's prohibition on residential development within the Baylands. The overall land use intensity of this alternative is also greater than that currently contemplated by the General Plan as detailed in the General Plan EIR. Further reducing the non-residential development intensity of this alternative to reduce significant air quality impacts to a less than significant level would not avoid significant land use impacts since the Reduced Intensity Mixed Use Alternative proposes residential development which is inconsistent with the General Plan. Another inconsistency with the General Plan would remain, as it would under the Project Site development: traffic impacts would exceed the General Plan standard of Level of Service D. This significant unavoidable impact remains since even in the absence of any new development within the Project Site, future cumulative traffic conditions would deteriorate along Bayshore Boulevard and at freeway interchanges within the Project Site. The Reduced Intensity Mixed Use Alternative would result in no impacts related to the division of existing communities or conflicts with habitat conservation plans.

Noise

The Reduced Intensity Mixed Use Alternative would generate substantial noise from both project construction and operation. Although this alternative would result in less development than Project Site development, it would result in similar significant impacts related to construction noise and to an overall increase in ambient noise over existing conditions. However, noise impacts under this alternative would be reduced to less-than-significant levels with implementation of the mitigation measures recommended in Section 4.J, *Noise and Vibration*, of this EIR.

Population and Housing

The Reduced Intensity Mixed Use Alternative provides for the development of 2,400 residential dwelling units, which would result in approximately 5,350 residents within the Baylands as compared to 9,888 residents within the Baylands under the DSP and DSP-V scenarios. While the Reduced Intensity Mixed Use Alternative would result in substantially fewer residents within the Project site, the proposed residential development under this alternative exceeds population

growth projections for the City contained in ABAG's Projections 2009, as well as in the Sustainable Communities Strategy contained in Plan Bay Area.

Assuming the proposed land uses would generate an average of 1.8 employees per 1,000 square feet of development, the Reduced Intensity Non-Residential Alternative would result in approximately 9,475 new jobs within the Project Site. This estimate is less than the number of jobs that would be generated under the CPP or DSP (approximately 15,000 and 17,000 new jobs, respectively), but substantially greater than the employment growth projections for the City contained in ABAG's Projections 2009, as well as in the preferred and alternative scenarios prepared for the SCS contained in draft Plan Bay Area.

Development of the Project Site under this alternative also would generate temporary construction-related jobs. It is expected that construction workers generally would travel from other parts of the Bay Area to work, and that temporary housing on the Project Site would not be needed.

Public Services

The number of dwelling units and square footage of non-residential development under the Reduced Intensity Mixed Use Alternative would be approximately 46 percent less than under the DSP scenario with a corresponding reduction in demands for public services within the Project Site. This alternative would substantially reduce the number of residential uses within the Project Site compared to the DSP scenario, and therefore would result in substantially reduced demand for schools (approximately 192 students). The demand for other types of public services, including police and fire protection, would increase under this alternative, but would be substantially reduced as compared to Project Site development. As compared to the Project, significant but mitigable impacts would be further reduced and would remain less than significant after the implementation of the mitigation measures set forth in Section, 4.L, *Public Services*, of this EIR.

Recreation Resources

The Reduced Intensity Mixed Use Alternative includes the same amount of public use/open space as is proposed under the DSP and DSP-V. As with Project Site development, improvements to existing resources and development of new recreational amenities could result in construction-related impacts. New development under this alternative also would result in increased use of existing recreational resources, as new residents and employees could use existing recreational amenities in and around the Project Site. However the overall demand for resources would be reduced as compared to the DSP scenario due to the decreased intensity of development and would be less than significant.

Traffic and Circulation

The Reduced Intensity Mixed Use Alternative would require the extension and upgrade of roadways and public transit in order to provide circulation to, from, and within the Project Site. This would include the Geneva Avenue extension, which is included in the Brisbane General Plan, Bi-County Transportation Study, and the San Mateo County Regional Transportation Plan.

Overall, impacts related to vehicle trip generation and level of service would be substantially reduced by approximately 46 percent from the significant unavoidable traffic impacts that would occur under Project Site development scenarios, due to the reduced density of development. However, significant unavoidable impacts would remain from implementation of this alternative.

Utilities and Service Systems

The Reduced Intensity Mixed Use Alternative would result in a reduced intensity of development as compared to the Project scenarios. Therefore, the increase in demand for water, wastewater treatment, solid waste collection and disposal, and communications infrastructure would be less than under Project scenarios. As compared to the DSP and DSP-V scenarios, significant but mitigable impacts on utilities and service systems would be substantially reduced by approximately 46 percent, given the larger amount of development proposed under those scenarios. Significant impacts to utilities and service systems could occur under this alternative and would be reduced to less than significant with implementation of the mitigation measures recommended in Section 4.O, *Utilities, Service Systems, and Water Supply*, of this EIR.

Included in this alternative is approval of the proposed water supply agreement, which provides for up to 2,400 acre-feet of supply annually, including up to 2,000 acre feet for the Project Site and 400 acre-feet of water for citywide use. Because water demand under this alternative would be far less than for the Project, it is anticipated that approval of the water supply agreement under the Reduced Intensity Mixed Use Alternative would reflect a substantially reduced water supply from the maximum of 2,000 acre feet for the Project Site, reflecting actual water supply requirements. With a 46 percent reduction in domestic water demand and development of an onsite recycled water plant providing recycled water for irrigation purposes, the Reduced Intensity Mixed Use Alternative would require approximately 1,080 acre-feet of imported water supply. A total of 400 acre-feet for General Plan buildout would still be imported, for a total of 1,480 acre-feet of imported water supply. Approval of the proposed water supply agreement for more than 1,480 acre feet of supply (1,080 for Project Site development and 400 acre feet for General Plan buildout outside of the Project Site) up to the full 2,400 acre feet would have a growth-inducing effect.

Energy Resources

Buildout of the Project Site under the Reduced Intensity Mixed Use Alternative would increase the demand for energy supplies and result in impacts related to the installation of new energy infrastructure. Such impacts would be similar to what would occur under the Project. As compared to the Project, the increase in demand for energy resources and the intensity of impacts related to the development of energy infrastructure required to serve the Project Site would be reduced due to decreased development intensity. This alternative would include the generation of renewable energy through 25 acres of renewable energy generation within the Project Site. Renewable energy generation development of such technologies would partially offset energy use on the Project Site, thereby reducing impacts related to increases in energy demand. While the potential for renewable energy generation under this alternative would be similar to that under Project Site development, impacts under this alternative would be reduced.

Evaluation of the Reduced Intensity Mixed Use Alternative in Relation to Project Objectives

Overarching Objective	
Create an active, vibrant place which strengthens the community of Brisbane; contributes to its sense of place; and demonstrates environmental, social, and economic considerations can be harmonized to the betterment of the natural environment, the Brisbane and regional community, and the individuals who will use the Baylands.	Meeting this objective would largely be accomplished as part of the design of future development within the Project Site. By providing for a similar mix of commercial and office uses as the DSP scenario, the Reduced Intensity Mixed Use Alternative would contribute to and not prevent meeting this objective.
Environmental Protection and Enhancement Objectives	
A. Remediate the Baylands to a level which ensures the safety of all who use the site, and eliminates ongoing ecological damage.	Because site remediation is part of the Reduced Intensity Mixed Use Alternative and remediation would be required to provide for public safety in relation to the specific mix and location of land uses ultimately approved by the City, this objective would be achieved.
B. Incorporate a "green building" approach for all future development on the Baylands, wherein buildings are sited, designed, constructed and operated to encourage resource conservation, minimize waste and pollution, maximize energy and resource efficiency, and promote healthy indoor environments	Meeting this objective would largely be accomplished as part of the design of future development. The Reduced Intensity Mixed Use Alternative would not constrain the ability of future development to meet this objective.
C. Preserve, restore and enhance wetlands and natural habitat on the site and create natural linkages across the site to promote physical and visual connectivity between the San Bruno Mountains and the Bay.	Because these activities are reflected in the General Plan policies and would therefore be required to be implemented by this alternative, the Reduced Intensity Mixed Use Alternative would meet this objective.
D. Promote and encourage non-vehicular access and movement to and from the site (particularly from Central Brisbane) and within the site as well. Land use mix, good urban design, the provision of safe and pleasant pedestrian and bike paths, and convenient access and linkages to public transit are all necessary components.	Because this objective is reflected in the General Plan policies and would therefore be required to be implemented by this alternative, the Reduced Intensity Mixed Use Alternative would meet this objective.
E. Strive to achieve a balance between energy demand and generation through efficiency, conservation, and the maximum use of passive and active sources of renewable energy.	The Reduced Intensity Mixed Use Alternative provides for renewable energy generation at a similar rate as for proposed Project scenarios, along with reduced energy demands resulting from reduced development intensity. As a result, the Reduced Intensity Mixed Use Alternative would meet this objective.
F. Minimize the net consumption of water supplies.	Because this objective is reflected in General Plan policies and would therefore be required to be implemented by this alternative, the Reduced Intensity Mixed Use Alternative would meet this objective.
G. Safely and efficiently accommodate project traffic in a manner that does not adversely impact Brisbane or adjacent communities.	Because this objective is reflected in the General Plan policies and would therefore be required to be implemented by this alternative, the Reduced Intensity Mixed Use Alternative would meet this objective.
H. Incorporate innovative methods to reduce resource consumption and waste generation.	Meeting this objective would largely be accomplished as part of the design and operations of future development within the Project Site. By providing for a similar mix and intensity of land uses as set forth in the DSPV scenario, the Reduced Intensity Mixed Use Alternative would contribute to and not prevent meeting this objective.

Environmental Protection and Enhancement Objectives (continued)	
I. Site and design new infrastructure to minimize adverse environmental impacts.	Because this objective is reflected in the General Plan policies and would therefore be required to be implemented by this alternative, the Reduced Intensity Mixed Use Alternative would meet this objective.
J. Design the project sensitively to protect Brisbane's viewshed, taking into account light spillage and pollution, building height and massing, and placement of landscape features.	Because this objective is reflected in the General Plan policies and would therefore be required to be implemented by this alternative, the Reduced Intensity Mixed Use Alternative would meet this objective.
K. Achieve a level of solid waste diversion equivalent to the zero waste goals established for San Francisco.	Meeting this objective depends on the implementation of citywide zero waste programs. Urban development pursuant to this alternative would be required to comply with applicable zero waste programs. Thus, the Reduced Intensity Mixed Use Alternative would not constrain achievement of this objective.
Social Equity Objectives	
L. Incorporate significant open space and related improvements which provide opportunities for a wide range of passive and active public recreational opportunities benefiting the City and region.	The Reduced Intensity Mixed Use Alternative would provide similar open space and related improvements as would the DSP scenario, including a range of passive and active public recreational opportunities consistent with the employment-generating, non-residential character of future development under this alternative. As a result, the Reduced Intensity Mixed Use Alternative would achieve this objective.
M. Provide employment opportunities for Brisbane residents and residents of nearby local communities, thereby improving the jobs/housing balance at regional and subregional levels.	The Reduced Intensity Mixed Use Alternative would generate 9,475 jobs, less than would be generated under the CPP, CPP-V, DSP, or DSP-V scenario (approximately 15,000 and 17,000 new jobs), but substantially more than projected for the City in ABAG's Projections 2009 or in the SCS for Plan Bay Area. Housing proposed in this alternative would also exceed regional projections. The Reduced Intensity Mixed Use Alternative would achieve the portion of this objective related to creating employment opportunities. As noted in Section 4.K, *Population and Housing*, of this EIR, unless the portion of Project Site employment and housing in excess of regional growth projections was drawn from surrounding communities or elsewhere in the Bay Area, the addition of onsite employment and housing in excess of regional projections would result in a growth inducing impact. Depending on the extent that employment and housing would each draw growth now planned outside of Brisbane, this alternative could impact rather than improve the jobs/housing balance at regional and subregional levels.
N. Contribute to critically-needed solutions to regional transit and transportation issues which will benefit both the project and existing communities.	By providing for substantial office commercial and housing development within the Project Site in proximity to existing and proposed future transit, the Reduced Intensity Mixed Use Alternative is consistent with meeting this objective.
O. Recognize that the project is of regional significance, and provide for the well-being not only of the City of Brisbane, but also of surrounding communities.	Because this objective is reflected in the General Plan policies that would be required to be implemented by this alternative, the Reduced Intensity Mixed Use Alternative would meet this objective.

Social Equity Objectives (continued)	
P. Provide on-site opportunities for public art and education to contribute to public understanding of the site, including its history, ecology and the project's sustainability mission.	Meeting this objective would largely be accomplished as part of the design of future development within the Project Site. The Reduced Intensity Mixed Use Alternative would not constrain the ability to meet this objective.
Economic Objectives	
Q. Enhance the City's tax base and future ability to improve services within all of Brisbane.	Development of the mix of commercial and office uses set forth in the Reduced Intensity Mixed Use Alternative would contribute to meeting this objective.
R. Retain and accommodate the expansion of existing businesses within the Baylands that contribute to the City's fiscal health and economic vitality.	The Reduced Intensity Mixed Use Alternative retains existing businesses (with the exception of the Recology expansion) operating within the Project site, and provides for future development with the mix of commercial and office uses. The Reduced Intensity Mixed Use Alternative is therefore only partially consistent with achieving this objective.
S. Establish a project which remains economically viable on a long-term basis, including excellence in architecture which can withstand the test of time.	The mix of commercial, office and housing uses described in the DSP scenario for the Project Site and proposed at a lesser intensity in this alternative is consistent with and would contribute to meeting this objective. Achieving this objective would also depend on the design of future development. Because this alternative is designed to implement the existing General Plan, which includes policies related to excellence in design, the Reduced Intensity Mixed Use Alternative would achieve this objective.
T. Build in flexibility so the project can adapt to changing market conditions over time, without compromising the other stated project objectives.	The mix of commercial, office and housing uses described in the Reduced Intensity Mixed Use Alternative for the Project Site with sufficient flexibility to react to changing market conditions over time in a manner consistent with meeting other project objectives.
U. Provide greater choices for Brisbane residents by providing desired goods, services, entertainment, and/or other amenities not currently available within the City.	The mix of commercial, office and housing uses that would be implemented in the Reduced Intensity Mixed Use Alternative creates the opportunity to provide desired goods, services, entertainment, and/or other amenities not currently available within the City, and is therefore consistent with meeting this objective.

5.3.3 Approval of Development in the Absence of Approving a Water Supply Agreement

As noted above, approval of the water supply agreement is assumed as part of each alternative other than the No Project Alternative-No Build Alternative, although it is assumed that the water supply agreement would provide only for the amount of water actually needed to support development of the Project site, while the full 400 acre-feet of citywide water supply now included in the proposed agreement would remain. However, the water supply agreement that is part of the proposed Project as described in Chapter 3, *Project Description*, could be approved or not approved regardless of any action(s) taken on other Project components. For this reason, in addition to analyzing the Project alternatives, this Section also analyzes the impacts of

(1) approving a Concept Plan development scenario or Project alternative in the absence of approving the water supply agreement, and (2) approving the water supply agreement in the absence of any approval of a Concept Plan development scenario or Project alternative.

Selection of a Concept Plan Development Scenario without Approval of the Water Supply Agreement

This alternative assumes that one of the Concept Plan development scenarios or Project alternatives is selected, but that no water supply agreement is approved. In this case, a significant and unavoidable utilities and water supply impact would result since the City would have approved development of the site in the absence of a reliable water supply. All other impacts of the approved Project Site development or Project alternative would remain the same. Approving development of the Project Site in the absence of a water supply able to actually support site development would not meet any Project Objectives, since development of the Project Site would not be able to occur without a firm water supply.

Approval of the Water Supply Agreement without Selection of a Concept Plan Development Scenario

This alternative assumes that none of the Concept Plan development scenarios or Project alternatives is selected, but that the proposed water supply agreement is nevertheless approved. In this case, if the agreement were to be approved only for the 400 acre-feet of citywide water supply, the result would be the same as for the No Project-General Plan Buildout Alternative, except that the significant and unavoidable utilities and water supply impact would be eliminated since a reliable water supply would be available to support future buildout of the General Plan. Should the water supply agreement be approved for the entire 2,400 acre-feet or any amount larger than the 400 acre-feet of citywide need in the absence of any approval for development of the Project Site, the result would be a significant growth inducing impact since a major constraint to future development would be eliminated which would serve as a strong inducement to future development to occur wherever that water supply would be delivered to. Approving the water supply agreement in the absence of an approval for development of the Project Site would not meet any Project Objectives since achievement of the objectives is dependent on appropriate development and environmental enhancements of the Project Site.

5.4 Environmentally Superior Alternative

CEQA requires that an EIR identify an environmentally superior alternative. If the No Project Alternative is identified as the environmentally superior alternative, the EIR must also identify an environmentally superior alternative from among the other alternatives (CEQA Guidelines Section 15126.6(e)(2).) In the case of the Baylands, the No Project-No Build Alternative would not be environmentally superior since it allows existing site contamination to remain without remediation. The No Project-General Plan Buildout would be environmentally superior since it provides for future development of the site as envisioned in the General Plan, reduces or avoids

many of the significant effects of Project Site development, provides for remediation of Project Site contamination, provides a firm water supply to support Project Site development as well as 400 acre-feet of firm supply to facilitate citywide buildout of the General Plan, and meets most of the basic Project objectives, as described in Section 5.3.2, *No Project-General Plan Buildout Alternative*.

Of the other alternatives evaluated in this EIR, the Renewable Energy Generation Alternative would be the environmentally superior alternative since it is consistent with the Brisbane General Plan, involves minimal impacts compared to other alternatives, avoids the significant air quality, GHG (CPP and CPP-V scenarios only), population and housing, and public services effects of Project development scenarios and meets key project objectives as described in Section 5.3.3, *Renewable Energy Alternative*.

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CHAPTER 6
Significant Unavoidable Impacts, Growth Inducement, Cumulative Impacts, and Other CEQA Considerations

6.1 Significant and Unavoidable Environmental Impacts

Section 15126.2(b) of the CEQA Guidelines requires an EIR to describe "any significant impacts, including those which can be mitigated but not reduced to a level of insignificance." Chapter 2, Project Summary, summarizes the impacts, mitigation measures and levels of significance before and after mitigation for each impact statement evaluated in this EIR. While implementation of the mitigation measures would reduce the levels of impacts, the impacts identified in **Table 6-1** cannot be reduced to a level of insignificance without imposing an alternative design or use, such as those described in Chapter 5, Alternatives.

TABLE 6-1
SIGNIFICANT UNAVOIDABLE (SU) IMPACTS BY PROJECT DEVELOPMENT SCENARIO

SU Impacts / Significance Criteria	DSP	DSP-V	CPP	CPP-V
A. Aesthetics and Visual Resources				
Impact 4.A-4: Would the Project create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?	SU	SU	SU	SU
B. Air Quality				
Impact 4.B-2: Would the Project generate construction emissions that would result in a cumulatively considerable net increase of criteria pollutants and precursors for which the air basin is in nonattainment under an applicable federal or state ambient air quality standard?	SU	SU	SU	SU
Impact 4.B-4: Would the Project generate operational emissions that would result in a considerable net increase of criteria pollutants and precursors for which the air basin is in nonattainment under an applicable federal or state ambient air quality standard?	SU	SU	SU	SU
Impact 4.B-9: Would the Project conflict with or obstruct implementation of the applicable air quality plan?	SU	SU	SU	SU
C. Biological Resources				
Impact 4.C-1: Would the Project have a substantial adverse effect, either directly or indirectly, on any species identified as a candidate, sensitive, or special-status plant and wildlife species, including species which meet the definition of endangered, rare or threatened in CEQA Guidelines Section 15380, either through direct injury or mortality, harassment, or elimination of plant or wildlife communities?	-	-	-	SU
D. Cultural Resources – None				

TABLE 6-1 (Continued)
SIGNIFICANT UNAVOIDABLE (SU) IMPACTS BY PROJECT DEVELOPMENT SCENARIO

SU Impacts / Significance Criteria	DSP	DSP-V	CPP	CPP-V
E. Geology, Soils, and Seismicity – None				
F. Greenhouse Gas Emissions				
Impact 4.F-1: Would the Project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	-	-	SU	SU
Impact 4.F-2: Would the Project conflict with an applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?	-	-	SU	SU
G. Hazards and Hazardous Materials – None				
H. Surface Water Hydrology and Water Quality – None				
I. Land Use and Planning Policy – None				
J. Noise and Vibration				
Impact 4.J-4: Would the Project result in a substantial temporary or periodic increase in ambient noise levels in the vicinity of the project above levels existing without the Project?	SU	SU	-	-
K. Population and Housing				
Impact 4.K-1: Would the Project induce substantial population growth in the area either directly or indirectly?	SU	SU	SU	SU
L. Public Services – None				
M. Recreational Resources – None				
N. Traffic and Circulation				
Impact 4.N-1: Would the Project result in a substantial increase in traffic under Existing plus Project conditions at intersections in the vicinity of the Project Site?	SU	SU	SU	SU
Impact 4.N-2: Would implementation of the Project contribute to significant existing traffic delays at freeway mainline segments?	SU	SU	SU	SU
Impact 4.N-3: Would the Project result in a substantial increase in traffic under Cumulative With Project conditions at the study intersections?	SU	SU	SU	SU
Impact 4.N-4: Would the Project's contribution to future cumulative traffic impacts at freeway mainline segments be significant?	SU	SU	SU	SU
Impact 4.N-5: Would the Project (DSP-V scenario) result in a substantial increase in PM peak hour traffic at study intersections and freeway mainline segments that would operate unacceptably due to weekday evening events at the arena?	-	SU	-	-
Impact 4.N-7: Would the Project cause an increase in transit demand that could not be accommodated by San Francisco Muni or SamTrans transit capacity?	SU	SU	SU	SU
Impact 4.N-8: Would the Project cause an increase in delays or operating costs resulting in substantial adverse effects on transit service levels (i.e., additional buses or trains could be required due to Project transit trips)?	SU	SU	SU	SU
O. Utilities, Service Systems, and Water Supply				
Impact 4.O-3: Would the Project result in the construction of new water, wastewater treatment, and/or stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	SU	SU	SU	SU
P. Energy Resources – None				

6.2 Growth-Inducing Impacts

6.2.1 Background

This section analyzes the growth inducement potential of Project Site development and the associated secondary effects of growth, as required by CEQA Guidelines Section 15126.2(d). CEQA Guidelines Section 15126.2(d) requires an EIR to evaluate the growth-inducing impacts of a proposed project, stating that an EIR must:

> "Discuss the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects which would remove obstacles to population growth (a major expansion of a recycled water plant might, for example, allow for more construction in service areas). Increases in the population may tax existing community service facilities, requiring construction of new facilities that could cause significant environmental effects. Also discuss the characteristic of some projects which may encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively. It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment."

A project can have a direct effect on population growth if it would involve construction of substantial new housing. A project can have indirect growth-inducement potential if it would (1) establish substantial new permanent employment opportunities (e.g., commercial, industrial, governmental, or other employment-generating enterprises) or otherwise stimulate economic activity; or (2) remove an obstacle to additional growth and development, such as removing a constraint to or increasing the capacity of a required public service. For example, an increase in the capacity of utility or road infrastructure could allow either new or additional development in the surrounding area. Thus, the discussion of growth inducement draws largely on the housing and employment evaluations set forth in Section 4.K, *Population and Housing*, of this EIR.

6.2.2 Potential for Project to Induce Growth

The following discussion reviews the potential for various components of the Project Site development to induce growth.

To assess the growth-inducement potential of Project Site development, the following questions must be addressed:

- Would the Project Site development as described in Chapter 3, *Project Description*, remove obstacles to population growth?
- Would the Project Site development as described in Chapter 3, *Project Description*, directly or indirectly support economic or population growth or residential construction?

To address these questions, the discussion below reviews the growth-inducement potential of (1) proposed infrastructure improvements that could remove obstacles to population growth, (2) the proposed water transfer agreement included in the Project Site development, and (3) the housing and jobs that would result from the Project Site development.

Infrastructure Improvements that Could Remove Obstacles to Population Growth

As noted above, Project Site development would require a number of infrastructure improvements. These include replacement or upgrade of water, wastewater, sanitary sewage, and storm drainage facilities, including an onsite recycled water plant to provide recycled water supply to the Project Site for irrigation purposes; roadway and streetscape improvements, including the Geneva Avenue Extension and access improvements for the Candlestick Point interchange at Harney Way/Alana Way and the Sierra Point interchange at Sierra Point Parkway/Lagoon Way; an upgraded communications network; renewable energy generation, electrical and natural gas facilities; and parks, trails, and habitat enhancements.

Conclusion: The water, wastewater, sanitary sewage, storm drain, communications, and utilities facilities improvements that would be constructed to support Project Site development would be designed and sized for use only by Project Site development. In addition, while the parks, trails, and habitat enhancements proposed as part of Project Site development would be available to the general public, these improvements would not remove any constraint to development other than development of the Project Site itself. With the exception of major roadway improvements designed to serve regional development in the Bi-County San Francisco/Daly City/Brisbane area (Geneva Avenue extension and access improvements for the Candlestick Point interchange at Harney Way/Alana Way and the Sierra Point interchange at Sierra Point Parkway/Lagoon Way), infrastructure improvements associated with Baylands development would only serve development on the Project Site, and would not result in a growth-inducing impact. However, by improving access to US Highway 101, the major roadway improvements designed to serve regional development in the Bi-County San Francisco/Daly City/Brisbane area identified above would remove a major obstacle to development and facilitate population growth in Daly City, as well as development of the San Francisco/San Mateo Bi-County and Bayview/Hunters Point/Candlestick Point PDAs described in Plan Bay Area, including cumulative projects addressed in Section 6.3, *Cumulative Impacts*, below. While these major roadway improvements are not part of the Baylands Project components described in Chapter 3, *Project Description*, of this EIR they are nonetheless required to support Project Site development. Because major roadway improvements would remove obstacles to development of the Project Site and surrounding areas, they would result in a growth inducing impact.

Proposed Water Transfer Agreement

The proposed Project Site development as described in Chapter 3, *Project Description*, includes approval of a water transfer agreement to ensure a reliable source of water to serve the proposed development on the Project Site. Under the proposed water supply agreement, the City would acquire a supplemental water supply of up to 2,400 acre-feet per year (AFY) via a water transfer agreement with the Oakdale Irrigation District. The 2,400 AFY would include up to 2,000 AFY to serve the Baylands and 400 AFY to accommodate planned growth within Brisbane as a whole (see Chapter 3, *Project Description*, and Section 4.O, *Utilities, Service Systems, and Water Supply*, in Chapter 4, for detailed description of the proposed water transfer agreement).

As mentioned above, growth can be induced in a number of ways, including through the elimination of obstacles to growth. Up to 2,000 AFY of the new water supply would serve Project Site development; therefore, none of that portion of the water would induce growth other than that envisioned for Project Site development. Up to 400 AFY of the new supply would accommodate planned growth within Brisbane as a whole. This is growth that was already contemplated by the Brisbane General Plan and for which a reliable water supply would be needed. While the maximum water supply that would become available if the proposed water transfer agreement is approved would serve proposed Project Site development and development already contemplated by the Brisbane General Plan, the lack of an assured water supply to support such development represents an obstacle (e.g., lack of reliable water supply) that would be removed as the result of approving the proposed water supply agreement.

Conclusion: Approval of the proposed water transfer agreement to serve the Project Site and planned growth within Brisbane would result in a substantial growth-inducing effect since it includes 400 acre-feet of supply for future development outside of the Project Site that would remove an existing obstacle to development proposed in the Brisbane General Plan.

Housing and Jobs

Section 4.K, *Population and Housing*, in Chapter 4 of this EIR presents a detailed analysis of the potential for the Project Site development to induce substantial increases in population not previously contemplated by regional growth projections. Association of Bay Area Governments (ABAG) growth forecasts for the cities of Brisbane, Daly City, San Francisco, and South San Francisco, as well as growth forecasts for the San Francisco/San Mateo Bi-County and Bayview/Hunters Point/Candlestick Point Priority Development Areas or PDAs provide the context for evaluating the projected population, housing, and employment impacts of Project Site development. As noted in Section 4.K, *Population and Housing*, the projections used in analyzing the extent to which development of the Project Site would induce population growth are based on both ABAG's Projections 2009 and the growth forecasts prepared for the Bay Area Sustainable Communities Strategy, draft Plan Bay Area, being evaluated in the EIR for Plan Bay Area. This same regional approach is used to assess the potential for Project Site development to induce substantial, unanticipated growth.

DSP and DSP-V Scenarios

The DSP and DSP-V scenarios would result in a substantial number of new housing units and jobs (through the provision of new employment-generating land uses) on the Project Site. As detailed in Section 4.K, *Population and Housing*, the growth in employment and households resulting from the DSP and DSP-V scenarios would accommodate a substantial portion of the housing and employment needs projected by ABAG for Brisbane and surrounding cities, but would greatly exceed ABAG projections for Brisbane. Therefore, the DSP and DSP-V scenarios each would generate housing and jobs at levels greater than what has been forecasted and planned for, representing a greater portion of growth in the regional context than projected by ABAG. Overall, the DSP and DSP-V scenarios would directly induce substantial household and employment growth, and the growth-inducing effect would be significant.

CPP and CPP-V Scenarios

The CPP and CPP-V scenarios would result in a substantial number of new jobs (through the provision of new employment-generating land uses) on the Project Site. As detailed in Section 4.K, *Population and Housing*, of this EIR, the growth in employment resulting from the CPP and CPP-V scenarios would accommodate a substantial portion of the employment needs projected by ABAG for Brisbane and surrounding cities, but would greatly exceed ABAG projections for the City of Brisbane. No new housing is proposed as part of the CPP and CPP-V scenarios, but the new jobs resulting from the proposed development of the Project Site, as discussed in Section 4.K, *Population and Housing*, of this EIR, would create increased demand for worker households that could be accommodated by projected household growth in Brisbane and the surrounding cities of San Francisco, Daly City, and South San Francisco. Therefore, the CPP and CPP-V scenarios each would generate jobs in excess of ABAG projections (Projections 2009, as well as the Sustainable Communities Strategy, draft Plan Bay Area, being evaluated in the EIR for Plan Bay Area) for the City, although associated household growth could be met elsewhere in the cities surrounding Brisbane at levels consistent with regional forecasts.

Conclusion: As described in Section 4.K, *Population and Housing*, of this EIR, development of the Project Site would induce substantial growth by constructing new housing (DSP and DSP-V scenarios) and/or creating new jobs (DSP, DSP-V, CPP, CPP-V scenarios) on the Project Site in excess of ABAG growth projections for the City of Brisbane. Because the employment growth represented by Project Site development is in excess of jobs growth projections for Brisbane and the San Francisco/San Mateo Bi-County and Bayview/Hunters Point/Candlestick Point PDAs, employment growth resulting from Project Site development would be consistent with ABAG forecasts of job growth only if it would draw jobs now projected by ABAG to be created within San Francisco, Daly City, South San Francisco, or elsewhere in the Bay Area to the Baylands. Otherwise, development of the Project Site under each Project Site development scenario would add new jobs to Brisbane and the San Francisco/San Mateo Bi-County PDA beyond that projected by ABAG in Projections 2009 or Plan Bay Area, resulting in a significant growth inducing impact.

The housing proposed in the DSP and DSP-V scenarios is substantially more than the household increases described in Projections 2009 for Brisbane between 2010 and 2035 and also more than those projected for Brisbane between 2010 and 2040 in the Plan Bay Area Sustainable Communities Strategy. Because the household growth that would result from development of the DSP and DSP-V scenarios exceeds projections for the City of Brisbane as a whole, the new housing proposed as part of the DSP and DSP-V scenarios would be consistent with forecasted increase in households only if residential development was drawn from housing now projected to be constructed in other portions of San Francisco, Daly City, South San Francisco, or elsewhere in the Bay Area to the Baylands. Otherwise, the new housing would result in a significant growth inducing impact.

6.3 Cumulative Impacts

CEQA Guidelines Section 15130 requires that an EIR evaluate the cumulative impacts of the project. CEQA defines cumulative impacts as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts" (CEQA Guidelines Section 15355). If the effects of the proposed project, in combination with the effects of past, present, and reasonably foreseeable future related projects, will be significant, the project's incremental effects must be analyzed to determine if the project's contribution to the cumulative impact is cumulatively considerable. "Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past, current, and reasonably foreseeable future projects (CEQA Guidelines Section 15065(a)(3)).

6.3.1 Approach to Cumulative Impact Analysis

In accordance with CEQA Guidelines Section 15130(b), "the discussion of cumulative impacts shall reflect the severity of the impacts and their likelihood of occurrence, the discussion need not provide as great [a level of] detail as is provided for the effects attributable to the project alone." The discussion should be guided by standards of practicality and reasonableness, and it should focus on the cumulative impact to which the identified other projects contribute rather than the attributes of other projects which do not contribute to the cumulative impact.

Pursuant to CEQA Guidelines Section 15130(a)(1), an EIR should not discuss impacts which do not result at least in part from the project being evaluated in the EIR. The currently developed portions of ongoing phased development projects as they existed in the 2010 baseline year are incorporated in the environmental setting/baseline described in the individual resource sections. The portions of ongoing phased development projects that are yet to be built are included as part of the analysis of cumulative impacts.

The CEQA Guidelines provide two approaches to analyzing cumulative impacts (CEQA Guidelines Section 15130(b)(1)). The first is the "list approach," which requires a listing of past, present, and reasonably foreseeable future projects producing related or cumulative impacts, including, if necessary, projects outside the control of the lead agency. The second approach relies upon projections contained in an adopted local, regional, or statewide plan or related planning document as the basis of the cumulative analysis. A reasonable combination of the two approaches may also be used.

The cumulative analysis in this EIR uses both the list of projects approach and the projections approach, depending upon the resource area being analyzed.

The cumulative analysis for air quality, greenhouse gas emissions, and traffic relies on projections contained in adopted local, regional, or statewide plan or related planning documents, such as the San Mateo County Transportation Plan and relevant regional plans developed by the City/County Association of Governments (C/CAG) of San Mateo County. The analysis of cumulative transportation impacts (and transportation-related traffic and air quality) also relies on

SF-CHAMP model travel demand estimates, which was also used to evaluate the impacts of proposed Project Site development. Also used were ABAG land use and socio-economic database and growth forecasts, including *Projections 2009* and *draft Plan Bay Area,* which provide forecasts of employment and population growth for the nine county San Francisco Bay Area. All other resource areas use the list of projects approach. The list of reasonably foreseeable future projects within the geographic scope of the impact analyses is based upon information provided by the City of Brisbane, as well as major project lists provided by San Mateo County, San Francisco, and Daly City.

Major projects that could result in cumulative impacts in conjunction with proposed Project Site development are shown in **Table 6-2**. Locations of the cumulative projects in relation to the Project Site are shown in **Figures 6.1A** and **6.1B**.

6.3.2 Geographic Scope of Cumulative Impact Analysis

Different types of cumulative impacts occur over different geographic areas. For example, the geographic scope of the cumulative air quality analysis, where cumulative impacts occur over a large area, is different from the geographic scope considered for cumulative analysis of aesthetic resources, for which cumulative impacts are limited to specific viewsheds. Thus, in assessing aesthetic resources impacts, only development within the vicinity of the Project Site would contribute to a cumulative visual effect, whereas cumulative air quality impacts are based upon all development within the air basin. Because the geographic scope and other parameters of each cumulative analysis discussion can vary, the cumulative geographic scope, and the cumulative projects included in the geographic scope (when the list of projects approach is used), are described for each resource area.

TABLE 6-2
CUMULATIVE PROJECTS

Map ID	Project Name	Jurisdiction	Distance from Project Site	Residential Units	Non-Residential Square Footage	Other	Description
Local Projects							
1	Sierra Point Biotech Campus	Brisbane	< 0.25 mile southeast	0	540,000 (R&D) 15,000 (Retail)	0	The 22-acre site is located southeast of Sierra Point Parkway and east of Shoreline Court.
2	Sierra Point Opus Office Buildings (3000-3500 Marina Boulevard)	Brisbane	< 0.25 mile southeast	0	448,000	0	Two office buildings at the northwestern corner of Sierra Point.
3	Northeast Ridge Residential Development	Brisbane	0.5 mile west	71 units	0	0	Residential; 16.67 acres.
4	3710-3760 Bayshore Boulevard Residential Condominium Project	Brisbane	< 0.25 mile southwest	30 units	0	0	Residential condominium complex on 2.9 acres.
5	9000 Marina Boulevard	Brisbane	< 0.25 mile southeast	0	0	700 hotel rooms	Hotel on eastern portion of Sierra Point.
6	1 Quarry Road	Brisbane	1.0 mile west	0	0	144 acres	Former quarry facility; General Plan designations are *Planned Unit Development-Trade Commercial* and *Open Space*.
7	Hunter's Point Shipyard (Phase 2)	San Francisco	1.5 miles northeast	2,650 units	5.2 million	0	Residential, research and development, commercial, and community uses.
8	Candlestick Point	San Francisco	1.0 mile northeast	7,600 units	1.2 million	0	Residential, office, commercial, community, and hotel uses.
9	Executive Park	San Francisco	0.5 mile northeast	1,600 units	-230,000	0	Demolition of three office buildings and conversion to residential units.
10	Visitacion Valley Redevelopment Mixed Use Project (Schlage Lock site)	San Francisco	Adjacent to Project Site on northwest portion (between Caltrain Station and Bayshore Boulevard)	1,585 units	120,000	0	Residential and commercial, community uses.

TABLE 6-2 (Continued)
CUMULATIVE PROJECTS

Map ID	Project Name	Jurisdiction	Distance from Project Site	Residential Units	Non-Residential Square Footage	Other	Description
Local Projects (cont.)							
11	Sunnydale Housing Redevelopment	San Francisco	1.0 mile west	1,700 units	0	0	Residential (will replace existing Sunnydale Public Housing Project).
12	East Daly City-Cow Palace (Bayshore Redevelopment Project Area Plan)	Daly City	1.0 mile west	1,700 units	300,000	0	Mixed use residential, retail, office, commercial.
13	Geneva Avenue Extension	Brisbane	through Project Site	0	0	0	Extend Geneva Avenue from Bayshore Boulevard to US Highway 101southbound ramps at Beatty Avenue/Alan Way.
14	Sierra Point Interchange Improvements	Brisbane	East of Sierra Point Parkway, immediately north and south of Brisbane Lagoon	0	0	0	Reconstruct the Sierra Point southbound ramps to reconfigure Lagoon Way /Sierra Point Parkway/Sierra Point Parkway Intersection.
15	Candlestick Point Interchange Improvements	Brisbane	West of US Highway 101 at Beatty Road and east of US Highway 101 at Harney Way	0	0	0	Extend Executive Park Boulevard south as a two land road to Harney Way, and widen Harney to accommodate turn lanes for traffic entering and exiting US Highway 101.
Subtotal Local Projects:				*16,936 units*	*7,593,000 square feet*	*700 hotel rooms*	
Regional Projects							
16	Mission Bay Development	San Francisco	5.0 miles north	6,000 units	7.55 million	500 hotel rooms; 49 acres open space	303-acre project site that includes residential units, office/life science/ biotechnology commercial space, UCSF research campus containing UCSF hospital complex, and city- and neighborhood-serving retail space.
17	Treasure Island Development	San Francisco	11.0 miles north	8,000 units	551,000	500 hotel rooms; 300 acres open space	Residential units; commercial and retail space; office space; adaptive reuse for commercial, retail, and/or flex space uses in the historic buildings on Treasure Island.

TABLE 6-2 (Continued)
CUMULATIVE PROJECTS

Map ID	Project Name	Jurisdiction	Distance from Project Site	Residential Units	Non-Residential Square Footage	Other	Description
Regional Projects (cont.)							
18	Oyster Point Specific Plan	South San Francisco	1 mile south from southern tip of Brisbane Lagoon	0	2.3 million	350 hotel rooms	Office/research and development (R&D) development.
19	Caltrain Modernization Program	Caltrain	Caltrain corridor through Project Site	0	0		Electrification of the existing Caltrain corridor between San Francisco and San Jose; installation of a Communications Based Overlay Signal System Positive Train Control, which is an advanced signal system that includes federally-mandated safety improvements; and the replacement of Caltrain's diesel trains with high-performance electric trains called Electric Multiple Units.
20	Park Merced	San Francisco	5.5 miles from southern tip of Brisbane Lagoon	8,900	0	68 acres open space	152-acre site (including streets, 116-acre excluding streets) currently developed with 3,221 housing units; would be, re-developed and expanded over the course of three decades,
21	High Speed Rail	High Speed Rail Authority	Caltrain corridor through project site	0	0		Planned 800-mile high-speed rail system connecting San Francisco, the Central Valley, and Southern California. 50 mile segment runs through project site from San Francisco to San Jose and would require four tracks in the Caltrain corridor, either side by side or in a stacked configuration. The Bayshore Caltrain Station will not be a stop for high-speed rail; however, in the current supplemental alternatives analysis report, Brisbane/Bayshore is the recommended site for one 100 acre high-speed train maintenance and storage facility.
22	Runway Safety Area SFO North-South Runways 1L-19R and 1R-19L (2014)	SFO	Approximately 5 miles south of project site	0	0		Airfield lighting and paving; Relocate aircraft navigational aids and antennas; Relocate runway end thresholds to make space for Engineered Materials Arrestor System (EMAS) installations and realignment of associated taxiways.
Subtotal Regional Projects:				*22,900 units*	*10,401,000 square feet*	*1,350 hotel rooms*	
Total Local and Regional Projects:				***39,836 units***	***17,994,000 square feet***	***2,050 hotel rooms***	

SOURCE: City of Brisbane, 2013.

Figure 6.1A
Cumulative Projects-Local
Brisbane Baylands EIR

Figure 6.1B
Cumulative Projects-Regional
Brisbane Baylands EIR

6.3.3 Cumulative Analysis

Where a list of projects approach is used, the cumulative impact analysis analyzes the impacts of past, present and reasonably foreseeable future development within the vicinity of the Project Site, including Brisbane, Daly City, and the southeast portion of San Francisco, in combination with Project Site development. This analysis includes the cumulative projects, as represented in Table 6-2 within the geographic areas described for each impact. As noted above, the cumulative analysis for air quality, greenhouse gas emissions, and traffic relies on projections contained in adopted local, regional, or statewide plan or related planning documents.

Aesthetics

Would the Project, in conjunction with past, present and reasonably foreseeable future projects, contribute to cumulative impacts on aesthetic resources?

Cumulative Impact Significance/ Project Scenario Contribution			
DSP	**DSP-V**	**CPP**	**CPP-V**
CS/CC	CS/CC	CS/CC	CS/CC

CS = Significant Cumulative Impact
LCS = Less than Significant Cumulative Impact
CC = Cumulatively Considerable Project Contribution
LCC = Less than Cumulatively Considerable Project Contribution
- = Not Applicable

Scenic Vistas

Cumulative Impacts

To assess cumulative impacts on scenic vistas, the analysis included cumulative projects within the viewshed of the Project Site, as well as within views from parcels surrounding the Project Site and from surrounding ridgelines. Projects considered in this analysis included eight of the projects listed in Table 6-2. Numbers corresponding to Table 6-2 are included in parentheses. Included projects encompassed three new residential developments adjacent to existing residential neighborhoods west of Bayshore Boulevard (Cumulative Projects 3, 4, and 5); a biotech campus, hotel, and two office buildings to be added to the existing office complex at Sierra Point (southeast of the Project Site) (Cumulative Projects 1, 2, and 6); a residential project located at Executive Park (northeast of the Project Site) (Cumulative Project 10); and a mixed-use residential and commercial project at the current Schlage Lock site immediately adjacent to the Project Site's northwestern boundary (Cumulative Project 11).

Given the height limits, and likely building locations and building orientations proposed by Project Site development, the Project Site development in combination with Cumulative Projects that are within the viewshed of the Project Site, as well as within views from parcels surrounding the Project Site and from surrounding ridgelines (Cumulative Projects 1-6, 10, 11), would alter the scenic vista to San Bruno Mountain by placing a substantial amount of urban development in the foreground of views to the mountain and partially block existing views of natural hillside areas. In addition, by placing substantial new urban development near the Bay shoreline, views of the shoreline and the Bay as seen from surrounding areas including Visitacion Valley and John McLaren Park, and northbound US Highway101 may be blocked.

Contribution of the DSP and DSP-V Scenarios to Cumulative Impacts

The project-specific analysis concluded that the DSP and DSP-V scenarios would result in a substantial adverse effect on scenic vistas; therefore, the contribution of the DSP and DSP-V scenarios to the significant cumulative impact to scenic vistas would be cumulatively considerable.

Contribution of the CPP and CPP-V Scenarios to Cumulative Impacts

The analysis set forth in Section 4.A concluded that the CPP and CPP-V scenarios would result in less-than-significant impacts on scenic vistas. While neither the CPP nor the CPP-V scenario standing alone would result in a significant adverse affect on scenic vistas by placing a substantial amount of new development near the Bay shoreline in the foreground of views of the Bay, the contribution of the CPP and CPP-V scenarios to the significant cumulative impact described above would be cumulatively considerable.

Conclusion: All Project Site development, in combination with the cumulative development analyzed above, would result in a significant cumulative impact with respect to scenic vistas. **Mitigation Measures 4.A-1a-b** (included in Section 4.A, *Aesthetics*), recommended decreasing maximum building heights and thereby reducing significant impacts on scenic views from and across the Project Site. While the impact of Project Site development itself would be reduced to a less-than-significant level by these mitigation measures, the large mass of urban development placed in the foreground of views of San Bruno Mountain and the San Francisco Bay would remain cumulatively significant, even if specific views of the mountain and bay were not blocked. Given the Project Site's location near the Bay shoreline, the large amount of urban development each development scenario would place in the foreground of Bay views would result in cumulatively considerable contribution to cumulative impacts related to scenic vistas.

Scenic Resources

Cumulative Impacts

As discussed in Section 4.A, *Aesthetics*, Project Site development would not substantially damage scenic resources. Because scenic resources would be preserved and not altered, Project Site development in combination with past, present, and reasonably foreseeable future projects that are nearby the Project Site (including Cumulative Projects 1-6, 10, and 11 shown on Figure 6.1A) would not substantially damage scenic resources. Because there would be no substantial damage to the area's scenic resources themselves (even though scenic views of those resources would be affected), cumulative impacts on scenic resources would be less than significant.

Visual Character

Cumulative Impacts

Project Site development under each scenario, in combination with the cumulative projects (residential development, a biotech campus, hotel, office buildings, and mixed-use developments identified as Cumulative Projects 1-6, 10, and 11 on Figure 6.1A) would substantially change the existing visual character of the Project Site, Central Brisbane, and surrounding areas by introducing a large number of development that is substantially more intensive than existing development.

While Project Site development and cumulative projects would be subject to existing requirements for design permits and findings, without *project-specific* design standards applied and cohesive standards amongst the agencies approving development, cumulative development would also substantially degrade the existing visual character of the area. Thus, the Project Site development, combined with other cumulative development (Cumulative Projects 1-6, 10, and 11 on Figure 6.1A) in the Project Site's viewshed would result in a significant cumulative impact.

Contribution of the DSP, DSP-V, CPP and CPP-V Scenarios to Cumulative Impacts

As discussed in Section 4.A, *Aesthetics*, without mitigation, buildout of the Project Site under each development scenario would result in disjointed and inconsistent development across the Project Site resulting in a poorly designed area with an overall adverse effect on the existing visual character. As such, Project Site development would substantially degrade the existing visual character of the site and its surroundings. **Mitigation Measure 4.A-3** (included in Section 4.A, *Aesthetics*) would require specific design standards that, when applied to the Project Site as a whole, would ensure development of a cohesive urban aesthetic across the site and support a well-designed urban environment and positive visual character.

Conclusion: While each cumulative development project would each be analyzed for their individual impacts on visual character, the large mass of high density development proposed within the viewshed of the Project Site would result in substantially greater development intensities that existing adjacent development, and a significant cumulative impact would result. The high density character of proposed Project Site development in relation to existing surrounding uses would a cumulatively considerable contribution to the significant cumulative impact described above.

Nighttime Lighting and Daytime Glare

Cumulative Impacts

Cumulative projects 1 through 13, identified above in Table 6-2, would result in new sources of light and glare in the Project Site vicinity. While two of these projects would replace existing structures (Cumulative Projects 10 and 12) and thus not necessarily create substantial new sources of light and glare, the remainder of the projects range from small condominium projects (30 units) to larger developments of several million square feet. These cumulative projects in combination with Project Site development under each scenario would result in a substantial increase in nighttime lighting and daytime glare conditions.

The large amount of development represented by Project Site development in combination with Cumulative Projects 1-13 as shown on Table 6-2 would create a substantial amount of building and structural surfaces that would cause a new source of daytime glare. With typical mitigation consisting of non-glare building surfaces applied to each project, buildings and structures would be designed to avoid significant daytime glare impacts under both project and cumulative conditions. However, even with which mitigation measures, some reflective surfaces would be developed, which, over the large amount of cumulative development proposed for the Project Site and Cumulative Projects 1-13 would, in combination, result in a cumulative significant impact.

Nighttime lighting impacts from the Project Site in combination with Cumulative Projects 1-13 would be cumulatively significant even with mitigation.

Contributions of DSP, DSP-V, CPP, and CPP-V Scenarios to Cumulative Impacts

Implementation of specific lighting-related design guidelines as required by **Mitigation Measure 4.A-4a** would reduce the project-specific impact, but not to a less-than-significant level. Therefore, given the substantial change that would occur from existing minimal existing nighttime lighting conditions within the Project Site, the Project Site development's contribution to nighttime lighting impacts would be cumulatively considerable.

Conclusion: Each Project Site development scenario, combined with past, present, and other foreseeable development in the area, would not result in a cumulatively considerable impact related to daytime glare. However, even with mitigation measures applied to each cumulative project to reduce site-specific impacts to less than significant levels, increases in nighttime lighting over the large area encompassed by Project Site development and Cumulative Projects 1-13 would be cumulatively significant. The large size of the Project Site and amount of development would represent a cumulatively considerable contribution to a significant cumulative impact of nighttime lighting, even with implementation of **Mitigation Measures 4.A- and 4b**.

Air Quality

Would the Project, together with anticipated cumulative development in the Bay Area Air Basin, result in significant impacts to air quality?

Cumulative Impact Significance/ Project Scenario Contribution			
DSP	**DSP-V**	**CPP**	**CPP-V**
CS/CC	CS/CC	CS/CC	CS/CC

CS = Significant Cumulative Impact
LCS = Less than Significant Cumulative Impact
CC = Cumulatively Considerable Project Contribution
LCC = Less than Cumulatively Considerable Project Contribution
- = Not Applicable

The cumulative impact analysis for air quality relies on projections contained in an adopted local, regional, or statewide plan or related planning document, in particular, the San Mateo County Transportation Plan and relevant regional plans developed by C/CAG. The analysis of cumulative air quality impacts (mobile or transportation-related air quality) also relies on SF-CHAMP model travel demand estimates. These estimates incorporate Association of Bay Area Governments land use and socio-economic database and growth forecasts for the year 2035 (*Projections 2009*), which provide forecasts of economic and population growth for San Francisco and the other eight Bay Area counties. Employment and housing projections from Plan Bay Area were also reviewed, as was the EIR for the Candlestick Point-Hunters Point Shipyard Development Project, which is the nearest proposed large-scale development to the Project Site.

Criteria Air Pollutants

Cumulative Impacts

According to the Bay Area Air Quality Management District (BAAQMD), no single project is sufficient in size, by itself, to result in nonattainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulatively significant adverse air quality impacts. There are many projects throughout the San Francisco Bay area that have been identified as having significant and unavoidable operational and construction-related regional pollutant impacts, such as the Candlestick Point/Hunters Point Development Project, which is located approximately 1 mile northeast of the Project Site. Consequently, for assessment of cumulative regional pollutant impacts, BAAQMD has developed a methodology of assessing whether a project would have a cumulatively considerable contribution. According to the BAAQMD *Justification Report*, if a project exceeds the identified significance thresholds, its emissions would be cumulatively considerable, resulting in significant adverse air quality impacts to the region's existing air quality conditions (BAAQMD, 2009). Alternatively, if a project does not exceed the identified significance thresholds, then the project would result in less-than-significant air quality impacts and would not be considered cumulatively considerable.

As described in Section 4.B, *Air Quality*, Impacts 4.B-2 and 4.B-4, Project Site development emissions from construction and operations, respectively, would exceed the BAAQMD thresholds after implementation of mitigation for each Project Site development scenario. Impacts would therefore be significant. In addition, the Candlestick Point/Hunters Point Development Project EIR concludes that that proposed project would exceed BAAQMD significance thresholds for criteria pollutant emissions from mobile and area sources and contribute substantially to an air quality violation at that project's full build-out in the year 2029. Since it is known that construction and operational emissions from Project Site emissions would be significant and unavoidable, combining Project Site development emissions with emissions from other projects, including at least one other nearby development project that would contribute to an air quality violation result would result in cumulatively significant air quality construction and operational impacts.

Conclusion: Project Site development in combination with other developments in the San Francisco Bay Area Air Basin would result in cumulatively significant construction and operational emissions of criteria air pollutants.

Contributions of DSP, DSP-V, CPP, and CPP-V Scenarios to Cumulative Impacts

As described in Section 4.B, *Air Quality*, of this EIR, Project Site development emissions from construction and operations would exceed the BAAQMD thresholds after implementation of mitigation for each scenario. Even with implementation of feasible mitigation measures, impacts would remain significant.

Conclusion: Because Project Site development would result in significant and unavoidable construction and operational emissions of criteria air pollutants, its contribution to cumulative impacts would be cumulatively considerable.

Toxic Air Contaminants

Cumulative Impacts

Unlike ozone and other regional pollutants, toxic air contaminants are a localized pollution problem. Toxic air contaminants produced at distant locations do not readily combine to create concentrations of toxic air contaminants at any single location what would cause health risks. Thus, the BAAQMD *CEQA Air Quality Guidelines* include standards and methods for determining the significance of cumulative health risk impacts for new projects. The BAAQMD method for determining health risk requires the review of health risk from permitted sources and major roadways in the vicinity of a project (i.e., within a 1,000-foot radius of the source), then adding the project operational impacts to determine whether the cumulative health risk thresholds are exceeded. Unlike for a project level assessment, for the cumulative assessment, the risks from all sources are summed and compared to a cumulative significance threshold. A summary of the cumulative existing plus project health impacts for existing emissions sources is found in **Table 6-3**.

As demonstrated in Section 4.B, *Air Quality*, Impact 4.B-6, health impacts from the Project Site development (both construction and operations) plus other existing sources (permitted sources and roadways) in the area would have a cumulative impact below the BAAQMD threshold of 100 per million and would be less than significant. The cumulative health impact would be 0.20, well below the BAAQMD threshold of 10.

Because toxic air contaminant impacts dissipate with increasing distance from an emissions source, only cumulative projects that are in close proximity to the Project Site (within 1,000 feet) would contribute to a cumulative toxic air contaminant impacts. This would include the following projects shown in Figure 6.1A:

- Cumulative Project 1: Sierra Point Biotech Campus (540,000 square feet of R&D and 15,000 square feet of retail) less than 0.25 mile southeast of the Project Site;
- Cumulative Project 2: Sierra Point Opus Office Buildings (448,000 square feet of office space) less than 0.25 mile southeast of the Project Site;
- Cumulative Project 4: 3710 Bayshore Boulevard Condominiums (30 dwelling units) less than 0.25 mile southwest of the Project Site; and
- Cumulative Project 5: 9000 Marina Boulevard (700 hotel rooms) less than 0.25 mile southeast of the Project Site.

Because these projects combined represent far less development than is proposed for the Project Site under each scenario, adding emissions of toxic air contaminants from these projects to the existing plus Project Site development emissions shown in Table 6-3 would not exceed applicable thresholds. Therefore, no cumulatively significant impacts related to toxic air contaminants would result.

Conclusion: All four proposed development scenarios would result in a less-than-significant cumulative impact for toxic air contaminants.

TABLE 6-3
EXISTING PLUS PROJECT CUMULATIVE HEALTH IMPACTS[a]

Site #	Facility Type	Address	Cancer Risk (persons per million)	Chronic Hazard Impact	PM2.5 Concentration (µg/m3)
2902	View Rite	455 Allan Street	0	0.001	0
G10024	Bayshore Chevron	2690 Bayshore Blvd	4.07	0.0067	0
17835	PG&E – Martin	3150 Geneva Avenue	0	0	0
G2818	Seven Eleven	2700 Bayshore Blvd	7.32	0.0121	0
4021	SFPP	950 Tunnel Avenue	0.17	0.011	0.0005
3520	Leland Cleaners	151 Leland Avenue	6.38	0.10	0
18394	InterMune	3260 Bayshore Blvd	1.88	0.001	0.001
4173	Recology Sunset	501 Tunnel Avenue	0.99	0.017	0.003
4173	Recology Sunset	501 Tunnel Avenue	14.1	0	0.044
		Permitted Sources Total	34.9	0.15	0.05
		Roadway Sources			
		Geneva Avenue	2.74	0.02	0.09
		Bayshore Boulevard	3.17	0.02	0.16
		Roadway Total	5.91	0.04	0.25
		Caltrain	<0.10	<0.01	<0.01
		Project (adult/child)	5.18/2.84	<0.01	0.02
		Grand Total	47.0/43.7	0.20	0.32
		BAAQMD Cumulative Significance Criteria	100	10	0.8
		Significant Cumulative Impact?	No	No	No

[a] Detailed assumptions and methodology of the HRA are included in Appendix D.

SOURCE: KBE, 2012 (provided in Appendix D).

Biological Resources

Would the Project, in conjunction with past, present, and reasonably foreseeable future projects, result in significant cumulative impacts on biological resources?

Cumulative Impact Significance/ Project Scenario Contribution			
DSP	**DSP-V**	**CPP**	**CPP-V**
LCS/ -	LCS/ -	LCS/ -	LCS/ -

CS = Significant Cumulative Impact
LCS = Less than Significant Cumulative Impact
CC = Cumulatively Considerable Project Contribution
LCC = Less than Cumulatively Considerable Project Contribution
- = Not Applicable

The geographic context for analysis of cumulative impacts on biological resources encompasses the area within the Brisbane city limits and surrounding neighborhoods, areas that are biologically linked (by, for example, birds, bats, fish or terrestrial wildlife) to the Baylands, and ecologically similar areas throughout the San Francisco Peninsula and within a five-mile radius of the Project Site (in relation to migratory species). Projects within the geographic scope of analysis include a variety of proposed urban land uses as listed in Table 6-2, above, and include Cumulative Projects 1-16 and 18-22.

Upland Habitat / Special-Status Species

Cumulative Impacts

The cumulative projects cited above could involve removal and/or modification of areas that have the potential to contain special-status species and sensitive natural communities (wetlands are discussed in a separate impacts statement below). As development in and around the Project Site continues, natural habitats and sensitive wildlife species, including those species listed under federal and state ESAs and those individuals identified by state and federal resources agencies as species of concern, fully protected, or sensitive, would be continue to be adversely affected through conversion of habitat to urbanized environment.

Although more mobile species might be able to survive continuing habitat loss by moving to new areas, movement corridors are limited, and less mobile species could simply be lost with remaining habitats limited to preservation areas such as San Bruno Mountain. As a result, the availability and accessibility of remaining natural habitats would dwindle and smaller remaining natural areas, such as disjunct habitat areas preserved within development sites may not able to support additional plant or animal populations at their current carrying capacities. Thus, the cumulative conversion of plant and wildlife habitat would result in a significant cumulative impact on special-status species and their habitats.

Project Site development, in combination with Cumulative Projects 1-16 and 18-22, would result in a significant cumulative impact to avian species, special status birds, migrating through the cumulative project area as the result of an increased number of mid-rise buildings and associated lighting along the Pacific Flyway. Migrating birds such as songbirds can be affected by human-built structures because of their propensity to migrate at night, their low flight altitudes, and their tendency to be disoriented by artificial light, making them vulnerable to collision with obstructions. A majority of bird strikes occur when birds do not recognize windows on buildings. Thus, tall residential and non-residential buildings would pose collision hazards to migratory birds since effects associated with the lighting of the towers can alter the flight patterns of migratory birds and substantially increase bird strike collisions with the structures. As discussed in Section 4.C, *Biological Resources*, of this EIR, due to the potential for bird strikes at tall buildings associated with construction of dense urban development with many windows adjacent to the Bay and within the Pacific Flyway. Thus, cumulative project development would result in an increase in bird strikes, and result in a significant cumulative impact.

Conclusion: The continuing loss of upland habitat that would occur as part of Project Site development, in combination with other past, present, and reasonably foreseeable projects would result in a significant cumulative impact.

Contributions of DSP, DSP-V, CPP, and CPP-V Scenarios to Cumulative Impacts

Sensitive upland habitat and special status plant and butterfly species occur within the Project Site only on Icehouse Hill, which is being preserved in open space. In addition, specific mitigation is proposed for bird strike impacts to increase nighttime visibility of buildings. Thus, Project Site development would not make a cumulative considerable contribution to the significant cumulative impact described above.

Conclusion: Because Project Site development would not result in loss of sensitive upland habitat areas or impact special status species, it would not make a cumulatively considerable contribution to the significant cumulative impact described above.

Wetland and Waters

Cumulative Impacts

More than 90 percent of historic tidal wetlands in the Bay Area have been lost to diking, draining, and filling. In spite of the highly urbanized surrounding areas and the dramatic alteration of the Bay itself for shipping, salt production, and urban development, the Peninsula bayshore supports some of the most important habitat remaining in the Bay Area for a number of wildlife species. Wetland and jurisdictional waters restoration projects within the Bay area extensive, with approximately 40,000 acres of wetlands are either in progress or planned. Although these restoration projects are attempting to reduce the cumulative loss of these habitats, the large historical loss of these areas due to past projects, including construction of US Highway 101 has resulted in a cumulatively significant loss of wetlands and jurisdictional waters.

Cumulative projects include projects proposed or under construction along the shoreline of the San Francisco Bay that could affect federally protected wetlands or jurisdictional waters, either adversely (i.e., development projects) or beneficially (i.e., restoration as part of development). Permanent impacts are those that would remove wetlands or jurisdictional waters and not replace them in the exact same location.

Conclusion: Continuing permanent loss of wetlands or jurisdictional waters, such as would result from development of Cumulative Projects 1-16 and 18-22, would constitute a significant cumulative impact.

Contributions of DSP, DSP-V, CPP, and CPP-V Scenarios to Cumulative Impacts

As discussed in Section 4.C, *Biological Resources*, although Project Site development grading, remediation, and construction activities would impact onsite wetlands, mitigation requirements for replacement and restoration of habitats would result in a net positive benefit. Thus, impacts of Project Site development would make a cumulatively considerable contribution to the significant cumulative impacts described above.

Conclusion: Project Site development would not make a cumulatively considerable contribution to cumulative impacts on wetlands and jurisdictional waters.

Wildlife Corridors

Cumulative Impacts

As discussed in Section 4.C, *Biological Resources*, open space areas in the vicinity of the Project Site that support wildlife populations and attract wildlife movement include the San Bruno Mountain area to the west of the Project Site, and wetland and aquatic habitats in San Francisco Bay located to the east of the site. Currently, suitable wildlife habitat within the Project Site is limited to Icehouse Hill, which could attract butterfly species present in the San Bruno Mountain

area, and aquatic habitat in the lagoon which may attract fish species present in San Francisco Bay. None of the cumulative projects cited in Table 6-2 are in a location such that their biological resource impacts could interact with Project Site development impacts to result in a cumulative impact.

Conclusion: Because cumulative projects are not in locations where biological resources impacts could interact with those of Project Site development, significant cumulative impacts would not result.

Cultural Resources

Would the Project, in conjunction with past, present, and reasonably foreseeable future projects, result in significant cumulative impacts on cultural resources?

Cumulative Impact Significance/ Project Scenario Contribution			
DSP	**DSP-V**	**CPP**	**CPP-V**
LCS/ -	LCS/ -	LCS/ -	LCS/ -

CS = Significant Cumulative Impact
LCS = Less than Significant Cumulative Impact
CC = Cumulatively Considerable Project Contribution
LCC = Less than Cumulatively Considerable Project Contribution
- = Not Applicable

Cumulative effects involving cultural resources occur as the result of multiple project affecting cultural resources involving a resource type or theme, such as historic ethnic sites or an industry (e.g., railroads), that occur within a larger geographic context than a single project site. Thus, this analysis considers cumulative development projects that are located immediately adjacent to the Project Site and elsewhere in Brisbane and adjacent communities, as well as major regional projects, particularly those along and within the Bay. These include each of the cumulative projects depicted in Table 6-2 and Figures 6.1A and 6.1B in addition to all past projects in this area, which are evident in the existing physical setting.

Cumulative Impacts

As discussed in Section 4.D, *Cultural Resources*, in addition to the historic Roundhouse within the Project Site, other historic resources in the surrounding area include the 7 Mile House Sports Bar and Grill, the former Schlage Lock Building A (Old Office Building), and the Bayshore/Crocker Tunnel. The significance of these resources is site-specific, since they do not involve a common involving a resource type or theme, and no thematic historical resources are recognized to exist among the collective cumulative projects identified in Table 6-2.

Past developments that involved the recent demolition of numerous industrial buildings at the Schlage Lock site immediately north of the Project Site were determined to have significant and unavoidable impacts to historic resources because demolition cannot be mitigated to a less-than-significant level, even with incorporation of mitigation measures such as photo-documentation and public interpretation (San Francisco Redevelopment Agency, 2008). These past impacts at the Schlage Lock site would not combine with impacts of the Proposed Project to form a significant cumulative impact to historic resources because the type and severity of impacts at the Project Site and Schlage Lock site are entirely different (demolition of historic resources on the Schlage Lock site vs. potential incompatible adaptive reuse and potential incompatible new construction adjacent

to historic resources on the Project Site; the latter of which can be mitigated to a less-than-significant level by the application of the *Secretary of the Interior's Standards for Rehabilitation*, while the former cannot). In addition, there is no shared building type or historical theme between the historic industrial buildings at the Schlage Lock site and the former SPRR Roundhouse and Machinery and Equipment Building on the Project Site.

In addition, the distance between the Project Site and these offsite historic resources, as well as the distance between the cumulative project identified in Table 6-2 and historic resources within the Project Site is relatively large and separated by major highways and roads (such as US Highway 101 and Bayshore Boulevard). The lack of a common resource type or theme, combined with the distances between historic resources, and cumulative project sites, precludes the occurrence of cumulative impacts on historic resources.

Similarly, because of distances between cumulative project sites, the cumulative projects described in Table 6-2 would not result in significant effects on archaeological or paleontological resources or human remains through accidental discovery and damage, and that are located close enough to combine with the effects of the Project Site development to create a significant cumulative impact.

Conclusion: Project Site development, combined with other cumulative development, would not result in a significant cumulative impact on cultural resources.

Geology, Soils, and Seismicity

Would the Project, in conjunction with past, present, and reasonably foreseeable future projects, result in significant cumulative impacts with respect to geology, soils or seismicity?

Cumulative Impact Significance/ Project Scenario Contribution			
DSP	**DSP-V**	**CPP**	**CPP-V**
LCS/ -	LCS/ -	LCS/ -	LCS/ -

CS = Significant Cumulative Impact
LCS = Less than Significant Cumulative Impact
CC = Cumulatively Considerable Project Contribution
LCC = Less than Cumulatively Considerable Project Contribution
- = Not Applicable

The San Francisco Bay Area is within a seismically active region with a wide range of geologic and soil conditions. Due to widely varying conditions and the types of local impacts that result from seismic and soils hazards, the geographic scope for considering cumulative impacts includes the Project Site and adjacent areas. Thus, each of the local projects listed in Table 6-2 (Cumulative Projects 1-15), along with Oyster Point Specific Plan (Cumulative Project 18) and the portions of the Caltrain Modernization (Cumulative Project 19), and High Speed Rail (Cumulative Project 21) projects running through the Project Site constitute the list of cumulative projects for Geology, Soils, and Seismicity.

Cumulative Impacts

Project Site development, combined with the above referenced cumulative development, would result in increased population in an area subject to seismic risks and hazards. However, any new

project[1], including proposed Project Site development, would be required to meet building code requirements that address the various seismic and geologic hazards present in the Bay Area region, which would reduce cumulative impacts related to geology, soils and seismicity. Development projects are required to meet the most recent geologic and seismic standards, which are generally more stringent that older codes and practices, making new structures likely to perform better than older structures in the event of a significant seismic event. Generally, compliance with applicable building and other codes, as would be required for all present and future cumulative projects, would reduce cumulative impacts to a less than significant level.

Conclusion: Project Site development, combined with past, present, and other foreseeable development in the area, would adhere to current building code and other regulatory requirements and would not therefore result in a cumulatively significant impact related to exposing people or structures to risk related to geologic hazards, soils and/or seismic conditions.

Greenhouse Gas Emissions

Would the Project generate greenhouse gas emissions, either directly or indirectly, that may have a significant cumulative impact on the environment?

Cumulative Impact Significance/ Project Scenario Contribution			
DSP	**DSP-V**	**CPP**	**CPP-V**
CS/LCC	CS/LCC	CS/CC	CS/CC

CS = Significant Cumulative Impact
LCS = Less than Significant Cumulative Impact
CC = Cumulatively Considerable Project Contribution
LCC = Less than Cumulatively Considerable Project Contribution
- = Not Applicable

Greenhouse gas (GHG) emissions impacts are assessed in a cumulative context, since no single project can cause a discernible change to climate. Climate change impacts are the result of incremental contributions from natural processes, and past and present anthropogenic activities. Therefore, the area in which a proposed project in combination with other past, present, or future projects, could contribute to a significant cumulative climate change impact would not be defined by a geographical boundary such as a project site or combination of sites, city or air basin. GHG emissions have high atmospheric lifetimes and can travel across the globe over a period of 50 to 100 years or more. Even though the emissions of GHGs cannot be defined by a geographic boundary and are effectively part of the global issue of climate change, CEQA places a boundary for the analysis of impacts at the state's borders. Thus, the geographic area for analysis of cumulative GHG emissions impacts is the State of California.

Assembly Bill 32 (AB 32), the California Global Warming Solutions Act of 2006 (Nunez), recognizes that California is the source of substantial amounts of GHG emissions. The statute begins with several legislative findings and declarations of intent, including the following:

[1] The portions of past and current projects that were constructed as of the 2010 baseline year may have been constructed under earlier codes than now exist, and therefore not perform as well in response to geologic, seismic, or other soil conditions as would structures built to current (2010) code standards. As a result older construction could result in significant geologic, soil, or seismic impacts as the result of subjecting more people to those hazards. However, since the portions of past and current projects that were constructed as of the 2010 baseline year are treated as part of baseline (existing conditions), no cumulative impacts would result from such older construction.

> Global warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California. The potential adverse impacts of global warming include the exacerbation of air quality problems, a reduction in the quality and supply of water to the state from the Sierra snowpack, a rise in sea levels resulting in the displacement of thousands of coastal businesses and residences, damage to marine ecosystems and the natural environment, and an increase in the incidences of infectious diseases, asthma, and other human health-related problems" (California Health and Safety Code, Section 38501(a)).

Thus, AB 32 recognizes the significance of the statewide cumulative impact of greenhouse gas emissions from sources throughout the state, and sets a performance standard for mitigation of that cumulative impact: reducing GHG emissions to 1990 levels by the year 2020 (a reduction of approximately 25 percent from forecast emission levels) with further reductions to follow.

Thus, the analysis of greenhouse gas emission impacts under CEQA effectively constitutes an analysis of a project's contribution to the significant statewide cumulative impact of GHG emissions.

Conclusion: As evidenced by the findings of AB 32 (California Health and Safety Code, Section 38501(a)), a significant cumulative greenhouse gas emission impact would result.

Contributions of DSP, DSP-V, CPP, and CPP-V Scenarios to Cumulative Impacts

As described in Section 4.F, *Greenhouse Gas Emissions*, GHG emissions from the DSP and DSP-V scenarios would be below BAAQMD's "efficiency threshold" of 4.6 metric tons of CO_2e per service population per year. This would represent a cumulatively less-than-significant GHG impact for these two scenarios. Section 4.F also notes that, even with implementation of **Mitigation Measure 4.F-1** (see Section 4.F, *Greenhouse Gas Emissions*, of this EIR**)**, the CPP and CPP-V scenarios would result in significant and unavoidable environmental effects on greenhouse gas reduction efforts.

Conclusion: Because GHG emissions would be below the BAAQMD's "efficiency threshold," DSP and DSP-V scenarios would not make a substantial contribution to cumulative GHG impacts. However, because the GHG emissions would exceed the BAAQMD's "efficiency threshold," the CPP and CPP-V scenarios would make a substantial contribution to cumulative GHG impacts.

Hazards and Hazardous Materials

Would the Project, in conjunction with past, present, and reasonably foreseeable future projects, result in significant cumulative impacts with respect to hazards and hazardous materials?

Hazards and hazardous materials impacts are generally localized and site-specific, with the exception of those resulting from transportation of hazardous materials. As a result, the cumulative context for this analysis varies, depending on the threshold being analyzed. For example, cumulative impacts

Cumulative Impact Significance/ Project Scenario Contribution			
DSP	**DSP-V**	**CPP**	**CPP-V**
CS/CC	CS/CC	CS/CC	CS/CC

CS = Significant Cumulative Impact
LCS = Less than Significant Cumulative Impact
CC = Cumulatively Considerable Project Contribution
LCC = Less than Cumulatively Considerable Project Contribution
- = Not Applicable

associated with the transportation of hazardous materials would be analyzed for projects along the transportation route, while the context for the use of hazardous materials would be limited to the area immediately surrounding the Project Site. Cumulative impacts associated with the accidental release of hazardous materials into the environment would also be limited to the Project site and the immediately surrounding properties. Cumulative impacts associated with emergency response would be limited to development in the vicinity of emergency access routes. Air emissions also represent a potential source of hazards; impacts related to air emissions resulting from the Project Site development are addressed in Section 4.B, *Air Quality*, of this EIR. The cumulative effects related to hazards are discussed below.

Transport, Use, and Disposal of Hazardous Materials

Cumulative Impacts

Several development projects within the vicinity of the Project Site (Cumulative Projects 1, 2, 3, 4, 5, 10, 13, 14, and 15 as shown on Figure 6.1A) could involve the routine need for use and disposal of hazardous materials. While there would be a substantial cumulative increase in the use and disposal of hazardous materials, the resulting cumulative impact would be less than significant.

The proposed commercial development within the Project Site and cumulative projects would use hazardous chemicals common in other commercial/retail and support settings. These common consumer products would be used for the same purposes as in any commercial/retail or support setting. Small quantities of hazardous materials are also associated with residential land uses, including cleaning products, fuels, oils, pesticides, and lubricants. Because general commercial/retail and household hazardous materials are typically handled and transported in small quantities, and because the health effects associated with them are generally not as serious as industrial uses, adverse cumulative effects on the environment with respect to the routine transport, use, or disposal of general office and household hazardous materials would not result.

The industrial uses proposed within the Project Site, in combination with the R&D uses proposed for the Sierra Point Biotech Campus (Cumulative Project 1) and the former Schlage Lock site (Cumulative Project 10) could include the storage, handling, transport, and disposal of relatively larger quantities of hazardous materials that would be subject to regulatory requirements that are designed to minimize the potential for adverse effects due to exposure.

Proposed industrial uses within the Project Site, Sierra Point Biotech Campus, and former Schlage Lock site would be expected to include laboratory-based activities, including both “dry” laboratories (or operations), where relatively small or negligible quantities of hazardous materials would be used and the types of hazardous materials would be limited to such items as cleaning and maintenance materials, and office products, as well as “wet” lab functions that could involve a broad spectrum of activities involving hazardous materials used in controlled indoor environments. These industrial and R&D uses would be subject to more intense regulation and oversight than typical commercial/office businesses. Employees performing wet laboratory work would be required (by law) to receive specific training in the use and handling of hazardous materials, which is intended to protect the workplace and also to minimize the potential for spills

or inadvertent releases that could adversely affect the environment through air emissions or releases to sewers, storm drains, or land. Medical-related establishments would involve use, transport, and storage of small amounts of laboratory-type chemicals, compressed gases, pharmaceuticals, and radiological materials would be used and stored. Medical, biohazardous, and low-level radioactive wastes would also be produced from these activities.

Generally, the health and safety procedures required for the routine transport, use, and disposal of hazardous materials protect workers and other individuals in the immediate vicinity of those materials and also protect the adjacent community and environment. Because the use, transport, and disposal of hazardous materials is highly regulated, activities in compliance with those regulations would result in less than significant cumulative impacts, except in the case of accidents, which is discussed below.

Hazardous materials would be routinely transported to, from, and within the Project Site and cumulative project sites, as well as along area roadways, such as and small amounts of hazardous waste would be removed and transported off site to licensed disposal facilities. Quantifying the specific types and amounts of hazardous materials transported to or from cumulative project sites cannot be definitively accomplished. Development of the Project Site and cumulative projects would include uses that involve hazardous materials use, as well as simultaneous use of the same roads (e.g., Bayshore Boulevard, Tunnel Road, US Highway 101) for transportation of hazardous materials. Project Site development under any of the development scenarios would, when combined with the cumulative projects enumerated above, result in a substantial cumulative increase in the amount of hazardous material transported in the area. However, the cumulative impact of the transport of hazardous materials would be less-than-significant. Such transportation would be provided by vendors licensed for such transport, and appropriate documentation for all hazardous materials and wastes would be required for compliance with the existing hazardous materials regulations. Adherence to existing state and federal regulations related to hazardous materials would thus reduce the probability of such releases to below a significant level.

Conclusion: Project Site development, under each scenario, combined with past, present, and other foreseeable development in the area, would be required to adhere to current regulatory requirements and would not result in a significant cumulative impacts related to related to the routine use, transport, and disposal of hazardous materials.

Release of Hazardous Materials

Cumulative Impacts

Implementation of remedial actions is proposed for the Project Site, as well as for the former Schlage Lock site (Cumulative Project 10). As described in Section 4.G, *Hazards and Hazardous Materials*, of this EIR, Project Site remediation would occur under the regulatory oversight of California Department of Toxic Substances Control and Regional Water Quality Control Board. Remediation of the former Schlage Lock site would be also subject to regulatory oversight. Other cumulative projects that might excavate soils (Cumulative Projects 1, 2, 3, 4, 5, 13, 14, and 15 as shown on Figure 6.1A) would also be required to adhere to applicable regulatory requirements.

Adherence to regulatory requirements would reduce cumulative impacts related to the release of hazardous materials to a less-than-significant level.

Conclusion: Project Site development, combined with past, present, and other foreseeable development in the area, would be required to adhere to current regulatory requirements and would therefore not result in a significant cumulative impacts related to the release of hazardous materials.

Impair Implementation of Adopted Emergency Response Plan

Cumulative Impacts

The geographic context for emergency response is the City of Brisbane, including the Project Site and cumulative projects within the City (Cumulative Projects 1-6). The City has an emergency response plan that was developed to ensure allocation of and coordination of resources in the event of an emergency. Future development within Brisbane would result in a cumulative increase in the demand for hazardous materials emergency response capabilities.

Any development involving increased hazardous materials use has the potential to increase the demand for emergency response capabilities in the area. Because the combination of Project Site and cumulative development would more than double Brisbane's population (DSP and DSP-V scenarios only) and commercial/industrial development inventory, current first response capabilities and hazardous materials emergency response capabilities would not be sufficient for buildout of the cumulative projects. Furthermore, while substantive hazardous materials accidents are typically rare based on the implementation of existing regulatory requirements, when such incidents, they typically require substantial response. Unless existing emergency service capabilities were to be expanded commensurate with future development of the Project Site and cumulative projects, a significant cumulative impact would occur. While additional hazardous materials response services could be available through other jurisdictions, and private hazardous materials emergency response agencies could be used, the reliability of such sources in lieu of expanding existing emergency service capabilities available to Brisbane would be speculative, and significant cumulative impacts would remain.

Conclusion: Based on the need to expand emergency response capabilities commensurate with the development of cumulative projects, a significant cumulative impact would result.

Contributions of DSP, DSP-V, CPP, and CPP-V Scenarios to Cumulative Impacts

As discussed in Section 4.L, *Public Services*, of this EIR, Project Site development under each scenario would require expansion of emergency response services under each development scenario. In the absence of such expansion of emergency response services, Project Site development would provide a cumulatively considerable contribution to cumulative impacts related to implementation of emergency response plans.

Conclusion: Based on the need to expand emergency response capabilities commensurate with Project Site development as discussed in Section 4.L, *Public Services*, of this EIR, Project Site development would make a cumulatively considerable contribution to a significant cumulative impact.

Hydrology and Water Quality

Would the Project, in conjunction with past, present, and reasonably foreseeable future projects, degrade water quality or increase flooding?

Cumulative Impact Significance/ Project Scenario Contribution			
DSP	**DSP-V**	**CPP**	**CPP-V**
LCS/ -	LCS/ -	LCS/ -	LCS/ -

CS = Significant Cumulative Impact
LCS = Less than Significant Cumulative Impact
CC = Cumulatively Considerable Project Contribution
LCC = Less than Cumulatively Considerable Project Contribution
- = Not Applicable

The geographic context for the analysis of hydrology cumulative impacts is often site-specific because each project site has physical considerations. The following hydrology impacts are site-specific and would not combine with other past, present, and reasonably foreseeable projects to form cumulative impacts: placement of housing in a 100-year flood hazard area, flooding in areas adjacent to the Bay, and exposure of people or structures to inundation by seiche, tsunami, mudflow, or dam failure.

Water quality, on the other hand, does have the potential for compounding of impacts from individual development to create cumulative impacts. Even if the pollutants and sediments generated by individual projects are minor, the cumulative effect of multiple development projects in a watershed could have an adverse effect on receiving waters. The geographic context of cumulative analysis of water quality is the San Francisco Bay Area Hydrologic Region, and includes each of the cumulative projects described in Table 6-2. Cumulative water quality impacts could occur both locally within the Brisbane watershed, and regionally within the San Francisco Bay Area. Stormwater runoff entering storm sewers and groundwater flows within the immediate Project Site vicinity eventually discharge to San Francisco Bay.

Cumulative Impacts

Project Site development, in combination with each of the cumulative projects identified in Table 6-2 would result in a substantial increase in amount of impervious surfaces in the form of new paved areas, building rooftops, parking lots, etc. This increase in the amount of impervious surface would generate additional stormwater pollution in runoff during storm events, including petroleum hydrocarbons, lubricants, sediments, and metals (generated by the wear of automobile parts.) Increased landscaped areas within the Project Site and cumulative projects sites would also result in increased use of herbicides and pesticides. These typical urban pollutants would be transported in runoff, washed by rainwater from rooftops and landscaped areas into onsite and local drainage networks, and potentially adversely affecting the quality of receiving surface waters or groundwater. Pollutant concentrations in runoff depend on numerous factors, including:

- Land use conditions;
- Implementation of best management practices;
- Site drainage conditions;
- Intensity and duration of rainfall; and
- Climatic conditions preceding a rainfall event.

In addition, expanded roadways, increased transit service, and subsequent maintenance and rehabilitation projects would increase the amount of impervious surface in the region and result in increased stormwater runoff, with the typical urban pollutants identified above.

Development of the Project Site and cumulative project sites would be required to adhere to the most current National Pollutant Discharge Elimination System (NPDES) permit conditions (including both construction phase and post-construction phase), which are designed to minimize hydrology and water quality impacts, taking into account the requirements needed to be placed on individual projects to protect the quality of receiving waters from the cumulative impacts of these individual projects on a regional basis.

Water quality standards incorporated into permit requirements are periodically updated and guided by regional water quality issues such that future development must adhere to standards that would minimize potential impacts through ensuring that stormwater runoff is given appropriate treatment, if necessary, prior to offsite discharge as a means of protecting the quality of receiving waters. Treatment controls are generally designed to treat stormwater runoff to the maximum extent practical and have made vast improvements over practices that were in effect for older past projects.

The Municipal Regional Stormwater NPDES Permit (MRP) adopted by the Regional Water Quality Control Board-San Francisco Bay Region in November 2011 includes prescriptive requirements for incorporating post-construction stormwater control/Low Impact Design measures into new development and redevelopment projects. These measures are more prescriptive than those included in the previous countywide stormwater permit. Because Project Site development and each of the projects identified in Table 6-2 would be required to adhere to these stringent stormwater requirements, these projects would not result in a significant cumulative impact relative to hydrology and water quality.

Conclusion: Because Project Site development, as well as development of cumulative projects would be required to comply with applicable water quality regulations, significant cumulative impacts would not result.

Land Use and Planning Policy

Would the Project, in conjunction with past, present, and reasonably foreseeable future projects, result in cumulatively considerable land use impacts?

Cumulative Impact Significance/ Project Scenario Contribution			
DSP	**DSP-V**	**CPP**	**CPP-V**
LCS/ -	LCS/ -	LCS/ -	LCS/ -

CS = Significant Cumulative Impact
LCS = Less than Significant Cumulative Impact
CC = Cumulatively Considerable Project Contribution
LCC = Less than Cumulatively Considerable Project Contribution
- = Not Applicable

The geographic context for evaluation of cumulative impacts associated with land use changes is the adjacent area to the north of the Project Site encompassing the San Francisco portion of the San Francisco/San Mateo Bi-County Priority Development Area (former Schlage Lock site identified in Table 6-2 and Cumulative Project 10), as well as Cumulative Projects 1 and 2 to the south of the Project Site within the Sierra Point area. These projects, in combination with Project

Site development and existing development within Sierra Point, constitute a single cluster of development along the east side of Bayshore Boulevard facing central Brisbane. Past and present development in these areas is described in Section 4.I, *Land Use and Planning*, representing the baseline conditions for evaluation of cumulative impacts to land use.

Future cumulative development would result in substantial changes to the existing land use pattern through conversion of vacant land to developed uses, as well as through the conversion of existing land uses to substantially higher development intensities. Development of cumulative projects would also be subject to environmental and planning review that would address compatibility with adjacent land uses. It is anticipated that each cumulative project, as adopted, would be consistent with the adopted goals, policies, and objectives of the Brisbane General Plan (or San Francisco General Plan for development within that jurisdiction). The cumulative projects as a whole would result in a substantially different built environment than currently exists. However, because each community's General Plan sets forth policies to protect the character of existing development, it is anticipated that cumulative projects adopted in a manner consistent with those General Plans would not cumulatively degrade the existing character of area land uses.

Based on policies contained in the Brisbane and San Francisco General Plans, as well as the mitigation measures set forth in Sections 4.A, *Aesthetics*, and 4.I, *Land Use and Planning*, of this EIR, it is anticipated that the projects ultimately approved would provide for development of new uses that would be compatible with the existing community to the west of Bayshore Boulevard. While cumulative development would increase development intensities and introduce residential development densities at the Project Site (DSP and DSP-V scenarios only), it is anticipated that requirements for General Plan consistency would result in development patterns that include transitions from low-density to higher density uses, and thereby not result in a substantial adverse change in the existing land use character. As a result, there would be no significant cumulative impact to which Project Site development could contribute.

Conclusion: As noted above, cumulative projects, including Project Site development, would be subject to General Plan consistency determinations and environmental assessment, including mitigation measures as necessary to address policy conflicts that may result in physical environmental impacts. Consistency with General Plan policies aimed at ensuring land use compatibility would result in a less-than-significant cumulative impact.

Noise and Vibration

Would the Project, in conjunction with past, present, and reasonably foreseeable future projects, expose people to or generate excessive ambient noise levels or groundborne vibration or groundborne vibration noise?

Cumulative Impact Significance/ Project Scenario Contribution			
DSP	**DSP-V**	**CPP**	**CPP-V**
CS/LCC	CS/LCC	CS/LCC	CS/LCC-

CS = Significant Cumulative Impact
LCS = Less than Significant Cumulative Impact
CC = Cumulatively Considerable Project Contribution
LCC = Less than Cumulatively Considerable Project Contribution
- = Not Applicable

Ambient Noise Levels

The geographic area considered for cumulative traffic noise analysis, consistent with Section 4.N, *Traffic and*

Circulation, of this EIR, includes roadways examined in the transportation analysis. The cumulative development program assumed in the traffic forecasts used in the noise modeling effort includes large projects such as the Candlestick Point-Hunters Point Shipyard Development Project (over 10,000 housing units, 2.5 million square feet of Research & Development, and almost one million square feet of local and regional serving retail), Executive Park, Schlage Lock site, India Basin Shoreline, and Visitacion Valley. These projects represent at least 20 years of development in the vicinity of the Project Site.

Roadside Noise Levels

Cumulative Impacts

Cumulative traffic-related noise level projections were made using traffic data from Fehr & Peers and the Federal Highway Administration Noise Prediction Model for those road segments that would experience the greatest increase in traffic volume and/or that would pass through residential or other noise-sensitive areas. The results of the modeling effort are shown in **Table 6-4** for existing conditions and cumulative plus Project conditions.

The data in Table 6-4 indicate that all roadway segments except for San Bruno Avenue and Sunnydale Avenue would experience significant cumulative increases in traffic-related noise.

Contributions of DSP, DSP-V, CPP, and CPP-V Scenarios to Cumulative Impacts

For the purposes of this analysis, whereas a *cumulative* impact less than 5.0 dB is not considered to be significant, Project Site development's *contribution* to that cumulative noise impact is not considered cumulatively considerable if it would be less than 1.5 dBA. Increases of less than 1.0 dBA are too small to be detected by the human ear in a laboratory environment (Caltrans, 2009). Based on this criterion, the DSP, DSP-V, CPP, and CPP-V would make a cumulatively considerable contribution to the cumulative noise increases along both segments of Geneva Avenue, Guadalupe Canyon Parkway, Old County Road, and Tunnel Avenue.

Noise Levels All Sources

Cumulative Impacts

Cumulative noise impacts would occur if construction activities associated with cumulative projects were to overlap with Project Site construction, or if operation of the Project Site development in combination with other projects in the vicinity would generate or result in exposure to excessive noise or vibration. These cumulative impacts would be more localized than traffic noise impacts and considered cumulative and existing development within 1,000 feet of the Project Site. Thus, cumulative noise impacts could occur if construction activities occurred simultaneously within the Project Site and either Cumulative Projects 1 (Sierra Point Biotech Campus), 2 (Sierra Point Opus Office Buildings), 4 (3710 Bayshore Boulevard Condominiums), 5 (9000 Marina Boulevard hotel), 13 (Geneva Avenue extension), 14, (Sierra Point interchange improvements), 15, (Candlestick Point interchange improvements), 19 (portions of Caltrain modernization project within 1,000 feet of the Project Site), or 21 (portions of high speed rail project within 1,000 feet of the Project Site).

TABLE 6-4
CUMULATIVE TRAFFIC NOISE INCREASES ALONG ROADS IN THE PROJECT SITE VICINITY

Road Segment	Modeled Noise Levels, dBA, DNL								
	Existing Traffic Noise	Cumulative Plus DSP	Cumulative Change with DSP	Cumulative Plus DSP-V	Cumulative Change with DSP-V	Cumulative Plus CPP	Cumulative Change with CPP	Cumulative Plus PP-V	Cumulative Change with CPP-V
1. Geneva Avenue (between Bayshore Boulevard and Schwerin Street)[e]	67.1	71.9	**+4.8**	72.0	**+4.9**	72.0	**+4.9**	72.1	**+5.0**
2. Guadalupe Canyon Parkway (between Bayshore Boulevard and Carter street)[e]	62.5	67.3	**+4.8**	68.7	**+6.2**	67.4	**+4.9**	67.5	**+5.0**
3 Old County Road (between Bayshore Boulevard and San Bruno Avenue)	61.2	65.3	**+4.1**	65.4	**+4.2**	65.6	**+4.4**	65.7	**+4.5**
4. Bayshore Boulevard (between Old County Road and San Bruno Avenue)	67.2	68.9	**+1.7**	68.8	**+1.6**	68.7	**+1.5**	68.7	**+1.5**
5. San Bruno Avenue (between Old County Road and Bayshore Boulevard)	51.9	54.0	+2.1	54.0	+2.1	54.0	+2.1	54.0	+2.1
6. Harney Way (East of Thomas Mellon Circle)[f]	55.7	66.2	**+10.5**	66.2	**+10.5**	66.2	**+10.5**	66.3	**+10.6**
7. Tunnel Avenue (between Beatty Road and Blanken Road)[f]	59.1	64.2	**+5.1**	64.3	**+5.2**	64.3	**+5.2**	64.3	**+5.2**
8. Blanken Avenue (between Bayshore Boulevard and Tunnel Avenue)	56.7	61.9	**+5.2**	61.9	**+5.2**	61.9	**+5.2**	61.9	**+5.2**
9. Sunnydale Avenue (between Desmond Street and Bayshore Boulevard)	56.9	60.9	+4.0	61.0	+4.2	61.1	+4.2	61.1	+4.2
10. Geneva Avenue (between Carter Street and Mission Street)	67.6	73.1	**+5.5**	73.2	**+5.6**	73.2	**+5.6**	73.3	**+5.7**

NOTES:
Bold indicates values that represent a significant impact, based on measures listed in Table 4.J-4.
dBA = A-weighted decibels. DNL = day-night noise level.

SOURCE: ESA, 2013.

Cumulative noise impacts could also include pile driving. Due to the substantial noise levels associated with pile driving and the proximity to residential receptors developed under the DSP and DSP-V scenarios, temporary construction-related noise is identified as a significant and unavoidable impact for these scenarios in Impact 4.J-4. The adjacent Visitacion Valley project would have the potential to result in a cumulative noise impact with Project Site development. Because the Visitacion Valley project proposes building heights as high as eight stories, pile driving could be required for on that cumulative development site. Because Project Site development itself would have a significant and unavoidable construction noise impact from pile driving, addition of pile driving noise from the Visitacion Valley project would further exacerbate this impact should it occur simultaneously with the proposed project, resulting in a cumulatively significant impact.

The impact of all cumulative project operational sources, stationary and mobile, would combine with existing noise sources such as Bayshore Boulevard and US Highway 101, as well as rail traffic and the existing Recology facility to increase ambient noise levels. Cumulative development projects would include those indicated in Table 6-2 within a quarter mile of the site and identified above. These cumulative sources would affect not only the nearest sensitive receptors along roadways or near the sources but also result in an overall cumulative noise impact on the elevated portions of Brisbane.

These nearby cumulative projects, including Sierra Point Biotech Campus and Sierra Point Opus Office buildings, 9000 Marina Boulevard and the Bayshore Boulevard residential project, would generate traffic noise that was analyzed above, but would not generate other substantial sources other than rooftop heat, ventilation and air conditioning equipment that would be required to meet the restrictions of the City Noise Ordinance for stationary equipment.

Development of the Visitacion Valley project adjacent to the Project Site would result in additional daytime delivery noise at retail uses typically in the range of 70 to 72 dBA at 25 feet as was estimated for the Project Site development in Impact 4.J-3 and a significant impact identified. Consequently, the potential exists for delivery noise from future retail development at Visitacion Valley project to combine significantly with proposed Project Site development. Because the proposed project cannot impose mitigation on the future development of the Visitacion Valley project, this impact would be cumulatively significant.

Cumulative impacts such as the cumulative impact from loading activities can be further exacerbated by the presence of San Bruno Mountain which has the potential to heighten acoustical propagation under certain meteorological conditions, although the effect would be intermittent and not quantifiable. Given the cumulatively significant roadway and retail loading impacts described above, and the predicted significant noise impacts of the High Speed Rail project, cumulative noise impacts would affect the community at large, although the magnitude of this overall increase would be different for different portions of the community and be influenced by changing meteorology. Consequently the cumulative noise impact would be significant.

Conclusion: Cumulatively significant noise impacts would result from concurrent pile driving activities and from retail delivery trucks on the Project Site and the Visitacion Valley project.

Contributions of DSP, DSP-V, CPP, and CPP-V Scenarios to Cumulative Impacts

Because no feasible mitigation measures have been identified that would reduce Project Site development's contribution (in the form of both traffic noise, pile driving noise, as well as location of new receptors in cumulatively impacted areas) to a less than cumulatively considerable level, Project Site development's contribution to cumulative noise increase impacts would be cumulatively considerable.

Conclusion: Due to the existence of significant unavoidable Project Site development noise impacts, its contribution to cumulative impacts would be cumulatively considerable.

Groundborne Vibration

Cumulative Impacts

Cumulative vibration impacts principally occur from two conditions. First, a project, together with other past, present, and reasonably foreseeable development projects that include vibration-generating operational sources, could combine to expose receptors to cumulative operational vibration impacts. Additionally, cumulative vibration impacts could occur from vibration-related construction activity, predominantly from pile driving required for project elements and for future development projects.

Project Site development would require pile driving for some building elements which would create significant but mitigable vibration impacts (Impact 4.J-2). Generally, vibration impacts occur if pile driving occurs within 300 feet of a sensitive receptor (nuisance) or within 85 feet of a historic structure (building damage). Of the cumulative projects identified in Table 6-2, only the adjacent Visitacion Valley project is close enough to combine with Project Site development to create a cumulative vibration impact. As noted above, building heights for the Visitacion Valley could be as high as eight stories and require pile driving. The Visitacion Valley site is as close as 50 feet from sensitive receptors that could also be affected by vibration from Project Site development.

The closest sensitive receptors to on-site pile driving of the proposed project would be residential development proposed in the DSP and DSP-V scenarios, which are approximately 400 feet away. Project Site development-related pile-driving vibration would be of 0.01 in/sec and barely perceptible at that location. Thus, Project Site development would not create a level of impacts at a sensitive receptor site that would also be affected by vibration from Visitacion Valley development. Cumulative impacts would therefore not be significant.

Conclusion: Project Site development would not result in a significant cumulative impact from groundborne vibration.

Population and Housing

Would the Project, in conjunction with past, present, and reasonably foreseeable future projects, have a significant cumulative population-inducing impact?

Cumulative Impact Significance/ Project Scenario Contribution			
DSP	**DSP-V**	**CPP**	**CPP-V**
CS/CC	CS/CC	CS/CC	CS/CC

CS = Significant Cumulative Impact
LCS = Less than Significant Cumulative Impact
CC = Cumulatively Considerable Project Contribution
LCC = Less than Cumulatively Considerable Project Contribution
- = Not Applicable

Evaluation of cumulative population and housing impacts was based on an evaluation of ABAG growth projections. Each of the cumulative projects identified in Table 6-2 were determined to be consistent with projections for the cities in which they are located.

Cumulative Impacts

As described in Section 4.K, *Population and Housing*, Project Site development would induce substantial growth by constructing new housing (DSP and DSP-V scenarios) and/or creating new jobs (DSP, DSP-V, CPP, CPP-V scenarios) on the Project Site in excess of ABAG growth projections for the City of Brisbane. Because the employment growth represented by each of the Project Site development scenarios is in excess of jobs growth projections for Brisbane, employment growth resulting from Project Site development would be consistent with ABAG forecasts of job growth only if it would draw jobs now projected by ABAG to be created within San Francisco, Daly City, South San Francisco, or elsewhere in the Bay Area to the Baylands. Otherwise, ABAG projections would be exceeded, and a significant growth inducing impact would result.

Similarly, the housing proposed in the DSP and DSP-V scenarios is substantially more than the household increases described in Projections 2009 for Brisbane between 2010 and 2035 and also more than those projected for Brisbane between 2010 and 2040 in the Plan Bay Area Sustainable Communities Strategy. Because the household growth that would result from development of the DSP and DSP-V scenarios exceeds projections for the City of Brisbane as a whole, the new housing proposed as part of the DSP and DSP-V scenarios would be consistent with forecasted increase in households only if residential development was drawn from housing now projected to be constructed in other portions of San Francisco, Daly City, South San Francisco, or elsewhere in the Bay Area to the Baylands. Otherwise, the new housing would result in a significant cumulative impact since ABAG housing projections would be exceeded.

Conclusion: Unless Project Site development in excess of ABAG projections drew employment growth (in all scenarios) and housing growth (DSP and DSP-V scenarios) from growth now projected to occur in other portions of San Francisco, Daly City, South San Francisco, or elsewhere in the Bay Area to the Baylands, the cumulative impact of Project Site development, together with cumulative projects, would be significant.

Contributions of DSP, DSP-V, CPP, and CPP-V Scenarios to Cumulative Impacts

As noted above, while the cumulative projects included in Table 6-2 were determined to be consistent with ABAG projections, Project Site development would result in employment and housing (DSP- and DSP-V scenarios) in excess of ABAG projections.

Conclusion: Because Project Site development would exceed ABAG projections, its contribution to cumulative impacts would be cumulatively considerable.

Public Services

Would the Project, in conjunction with past, present, and reasonably foreseeable future projects, result in substantial adverse physical impacts associated with the provision of new or physically altered public service facilities, need for new or physically altered public facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives?

Cumulative Impact Significance/ Project Scenario Contribution			
DSP	**DSP-V**	**CPP**	**CPP-V**
LCC/ -	LCC/ -	LCC/ -	LCC/ -

CS = Significant Cumulative Impact
LCS = Less than Significant Cumulative Impact
CC = Cumulatively Considerable Project Contribution
LCC = Less than Cumulatively Considerable Project Contribution
- = Not Applicable

Cumulative impacts on public services, including police, fire protection, schools, and libraries, would result when past, present, and reasonably foreseeable future projects combine with the Project Site development to increase demand on public services facilities such that additional facilities must be constructed to maintain acceptable levels of service, and the construction of such facilities would result in a physical impact on the environment.

Police

Cumulative Impacts

As noted under Impact 4.L-1, Project Site development-related resident and employee population increases would result in a need for one or more additional beats to be created to serve development within the Project Site, including additional personnel and equipment, along with the need for new police substation(s) within the Project Site.

The geographic scope for the analysis of cumulative impacts associated with police service is the service area of the Brisbane Police Department, which is the area within the Brisbane city limits. Cumulative projects are described in Table 6-2, and for analysis of police impacts, include each of the cumulative projects within Brisbane. The cumulative analysis encompasses other past, present, and reasonably foreseeable future plans and projects within the city that could contribute to cumulative impacts related to the construction of new or expanded police facilities.

Along with Project Site development, cumulative development projects east of Bayshore Boulevard (Cumulative Projects 1, 2, and 5) would add to the need for additional beat(s) to serve development in that area, while other cumulative projects in Brisbane would also add to the overall workload of the Brisbane Police Department. As noted in Section 4.L, the need for an additional 24/7 police shift(s) is caused by the large amount of development and distances involved in responding to calls east of Bayshore Boulevard. Increases in traffic on US Highway 101 would increase the number of calls to the Brisbane Police Department, as would cumulative development within Brisbane west of Bayshore Boulevard, all providing to a significant

cumulative impact on police services and the need for construction of a satellite police facility within the Project Site.

The construction of a police service facility within the Project Site has been anticipated as a part of all Project Site development scenarios and the potential cumulative impacts of their construction is analyzed in of the following EIR sections: 4.B, *Air Quality;* 4.C, *Biological Resources;* 4.E, *Geology, Soils, and Seismicity*; 4.G, *Hazards and Hazardous Materials*; 4.H, *Hydrology and Water Quality*; 4.J, *Noise and Vibration*; and 4.N *Traffic and Circulation*.

Conclusion: Project Site development and Cumulative Projects 1, 2, and 5 would combine to create the need for additional police beat(s), while Cumulative Projects 3, 4, 6, 13, 14, and 15, along with the portions of Cumulative Projects 19 and 21 constructed in Brisbane would contribute to increases in calls for service west of Bayshore Boulevard. However, no significant impacts would result from the construction of those facilities to house the additional officers. Therefore, no significant cumulative impacts would result.

Fire Protection

Cumulative Impacts

The geographic scope for the analysis of cumulative impacts associated with fire protection includes the cities of Brisbane and Daly City, which are served by the North County Fire Authority (NCFA) and resources within these cities are commonly shared. The cumulative analysis encompasses other past, present, and reasonably foreseeable future projects within these cities that could contribute to cumulative impacts related to the construction of new fire protection facilities. Cumulative projects are described in Table 6-2, and include Cumulative Projects 1-6 and 12-15, as well as the portions of Cumulative Projects 19 and 21 that are the NCFA service area.

As noted under Impact 4.L-3, the Project Site development-related employee and resident (DSP and DSP-V scenarios) population increases would require increased fire protection services, which would, in turn, require a new and/or expanded fire facility. Other past, present, and reasonably foreseeable future projects within the cities of Brisbane and Daly City (Cumulative Projects 1, 2, 3, 4, 5, 6 and 12), including hotel rooms, residential units, and commercial space that would receive service from NCFA Fire Station No. 81, located at 3445 Bayshore Boulevard in Brisbane, would combine with Project site development to create a increase in demands for NCFA services, resulting in the need for a new and/or expanded fire facility. However, the construction of such fire protection facilities has been anticipated as a part of all Project Site development scenarios and the impacts of their construction is analyzed in of the following EIR sections: 4.B, *Air Quality;* 4.C, *Biological Resources;* 4.E, *Geology, Soils, and Seismicity*; 4.G, *Hazards and Hazardous Materials*; 4.H, *Hydrology and Water Quality*; 4.J, *Noise and Vibration*; and 4.N *Traffic and Circulation*. As discussed in Section 4.L, construction of needed fire facilities would not result in significant impacts.

Conclusion: Project Site development and Cumulative Projects 1, 2, 3, 4, 5, 6 and 12 would combine to create the need for expanded or new fire protection facilities, but no significant impacts

would result from the construction of those facilities. Therefore, no significant cumulative impacts would result.

Public Schools

Cumulative Impacts

The geographic scope for the analysis of cumulative impacts associated with public schools is the service areas of the Brisbane Elementary School District, Bayshore Elementary School District, and Jefferson Union High School District. The cumulative analysis encompasses other past, present, and reasonably foreseeable future plans and projects within the service areas that could contribute to cumulative impacts related to the construction of new school facilities. Cumulative projects are described in Table 6-2, and include Cumulative Projects 1, 2, 3, 4, 5, 6 and 12. Although student generation is primarily the result of residential development, current state law permits parents to register their children for school based on their place of employment, as well as their place of residence. Thus, Cumulative Projects 1, 2, 3, 4, 5, 6 and 12 would each generate new students, even though they do not all contain residential development. These projects, in combination with Project Site development would combine to create the need for new or expanded school facilities.

Payment of school facilities impact fees mandated under SB 50 is the exclusive method of considering and mitigating the direct impacts on school facilities. However, the indirect impacts of Project Site development in combination with Cumulative Projects 1, 2, 3, 4, 5, 6 and 12, such as the environmental effects of school construction and use, must be considered.

The analysis of impacts related to school construction includes a discussion of impacts related to the appropriateness of the siting of schools as part of Project Site development with respect to the presence and potential for disturbance of hazards and hazardous materials (see Impact 4.G-3 in Section 4.G, *Hazards and Hazardous Materials)*. Implementation of mitigation measures identified herein, as needed, along with subsequent environmental review for proposed offsite projects, would reduce cumulative impacts related to the construction of school facilities to a less-than-significant level.

Further, during the CEQA review process for individual facilities, all entities with responsibility for construction of new public service facilities or the expansion of existing facilities, including those of police and fire protection services, libraries, and schools, can and should apply necessary mitigation measures to avoid or reduce significant environmental impacts associated with the construction or expansion of such facilities. The environmental impacts associated with such construction or expansion should be avoided or reduced through the imposition of conditions required to be followed by those directly involved in the construction or expansion activities. Such conditions should include those necessary to avoid or reduce impacts associated with air quality, noise, traffic, biological resources, cultural resources, GHG emissions, hydrology and water quality, and other impacts that apply to specific construction or expansion of new public or expanded public service facilities.

Project Site development under the DSP and DSP-V scenarios includes provision of an elementary school and a charter high school, which could be expanded to accommodate the small number of students that would be generated by Cumulative Projects 1, 2, 3, 4, 5, 6 and 12. Thus, if needed schools were provided within the Project Site, cumulative impacts would be no greater than those of proposed Project Site development, and a significant cumulative impact would not result. Should needed school facilities be provided offsite, impacts resulting from such development would typically include air quality, GHG, traffic, and noise impacts during construction, with ongoing traffic impacts and public services and utilities impacts resulting from school operations. The indirect impacts of any schools that would be needed, such as traffic, noise, air quality, cultural and biological resources, geologic and other hazards and hazardous materials, flooding, utilities, and public services would occur as part of the overall impacts of developing Cumulative Projects 1, 2, 3, 4, 5, 6 and 12, and are therefore addressed in the cumulative impact analysis set forth in this Chapter.

Conclusion: Because payment of school fees provides mitigation in full for direct school impacts, those impacts would be less-than-significant since school fees would be collected. Cumulative indirect school impacts, as well as Project Site development's contribution to those impacts for traffic, noise, air quality, cultural and biological resources, geologic and other hazards and hazardous materials, flooding, utilities, and public services would occur as part of the overall impacts of developing Cumulative Projects 1, 2, 3, 4, 5, 6 and 12, and are therefore addressed in the cumulative impact analysis set forth in this Chapter.

Public Libraries

Would the Project, in conjunction with past, present, and reasonably foreseeable future projects, result in substantial adverse physical impacts associated with the provision of new or physically altered library facilities, need for new or physically altered facilities, the construction of which could cause significant environmental impacts, in order to provide adequate library services?

Cumulative Impacts

Project Site development, in conjunction with past, present, and reasonably foreseeable future projects, would not result in a significant cumulative effect on library services.

The geographic scope for the analysis of cumulative impacts associated with library services is the City of Brisbane. The cumulative analysis encompasses other past, present, and reasonably foreseeable future projects that could contribute to cumulative impacts related to the construction of new library facilities. Cumulative projects are described in Table 6-2 and would include Cumulative Projects 1-6.

Cumulative development would increase residential population and generate new employment, which would increase the demand on library services. However, given the increased availability of electronic materials and materials through inter-library loans, and an associated reduced reliance on large stored collections, an increased demand for library services can be met without requiring new or physically altered library facilities. As noted above, adequate provision of

library services cannot be evaluated by measuring the collection size within a specific branch against the number of registered borrowers or per capita. It is therefore concluded that the Project Site development, in conjunction with past, present, and reasonably foreseeable future projects, would not result in a significant cumulative effect.

Conclusion: The impacts of Project Site development combined with past, present, and reasonably foreseeable projects would not be cumulatively significant.

Recreational Resources

Would the Project, in conjunction with past, present, and reasonably foreseeable future projects, result in cumulative impacts regarding the degradation of recreational facilities or the construction of new recreational facilities?

Cumulative Impact Significance/ Project Scenario Contribution			
DSP	**DSP-V**	**CPP**	**CPP-V**
LCS/ -	LCS/ -	LCS/ -	LCS/ -

CS = Significant Cumulative Impact
LCS = Less than Significant Cumulative Impact
CC = Cumulatively Considerable Project Contribution
LCC = Less than Cumulatively Considerable Project Contribution
- = Not Applicable

Recreational Facilities

Cumulative Impacts

The geographic context for cumulative recreational use impacts includes the City of Brisbane (Cumulative Projects 1-5). As noted in Section 4.M, *Recreational Resources*, of this EIR, non-residential development does not typically generate the need for additional recreational facilities. Thus, only Cumulative Projects 3 and 4, totaling 101 dwelling units, would combine with the residential development proposed in the DSP and DSP-V development scenarios to form a cumulative impact, increasing the number of new dwelling units that would need recreational facilities from 4,434 to 4,535 dwelling units. It should be noted that Project #3 is part of the Northeast Ridge development, which provided adequate park land, along with ball fields at the Mission Blue Community Center.

Based on the provision of Sections 16.24.010-16.24.070 of the Municipal Code that authorized the City to require Quimby Act dedications to "provide for adequate and appropriate recreational facilities" at a standard of 4.50 acres per 1,000 residents, cumulative development would require provision of 45.5 acres of new park facilities to meet demands. As noted in Section 4.M, *Recreational Resources*, of this EIR, the DSP and DSP-V development scenarios propose a total of 138.1 acres of park and recreational land, exclusive of habitat preservation and enhancement areas that would not qualify as park or recreational land. In addition, as noted above, adequate park land is provided as part of the Northeast Ridge development.

Project Site development under the CPP and CPP-V scenarios would not include residential use, and would therefore not generate a need for park facilities that could, in combination with past, present, and reasonably foreseeable future projects, form a cumulative impact.

Conclusion: Because the DSP and DSP-V scenarios provide more park land than the cumulative demand for park facilities, and cumulative projects are also providing adequate park land, there would be no significant cumulative impact to recreation.

Windsurfing Resources

Cumulative Development

With respect to cumulative impacts on windsurfing, the geographic context includes the area of effect – a portion of San Francisco Bay and its shoreline, extending from Candlestick Point to the southern border of Brisbane – and the development area, an area within several thousand feet upwind of the shoreline that has the physical potential to cause a cumulative impact on the wind.

The cumulative effects of past, present and reasonably foreseeable future development on the wind resources are captured in wind testing by the measurement of wind speed and turbulence. Given the physical mechanisms that must operate to result in impact, projects whose wind effects could possibly combine with wind effects of Project Site development, include large developments that (1) include multi-acre areas of buildings of more than several stories in height, (2) are located upwind or cross-wind of the Project Site development, and (3) are located close enough to the Bay to have a measureable wind effect there. Very few developments meet those restrictive criteria. Of the developments listed in Table 6-2, only the following meet these initial criteria: Hunters Point Shipyard (Cumulative Project 7), Candlestick Point (Cumulative Project 8), Executive Park (Cumulative Project 9), and the Visitacion Valley Redevelopment Mixed Use Project (Cumulative Project 10).

As a part of the environmental review for the Executive Park project, wind testing was performed to assess the individual effects of the Executive Park developments and their cumulative effects together with the Candlestick Point/Hunters Point development on the Candlestick Point State Recreational Area (CSPRA) windsurfing resource. For the Executive Park project, direct wind impacts, including wind speed reductions of as much as 20 percent would occur over small areas near the shore at the CSPRA windsurf launch site; however, the EIR for Executive Park determined that these direct impacts would be less than significant. Furthermore, the EIR also determined that the Executive Park project did not contribute to substantial cumulative degradation of the value of the windsurfing resource near the CSPRA windsurf launch site; these contributions of the Executive Park project to any cumulative wind impacts were judged to be less than significant. This lack of cumulative effect results primarily because the Executive Park project lies west of the existing and planned future Candlestick Point developments and also lie west of the CSPRA launch site. Thus, only winds from the west-northwest could have any cumulative interaction and then only at locations close to the CSPRA launch site shoreline.

For proposed Project Site development, the wind testing performed for all scenarios considered the cumulative effects of these in conjunction other large, nearby existing, past, and future projects in addition to existing plus project conditions. Wind data were gathered for those test locations where Project Site development and cumulative development were oriented in a manner that, given prevailing wind direction their effects could combine to form a cumulative wind effect[2]. Wind speed data were not gathered for test locations that cumulative projects clearly

[2] As noted in Section 4.M, Recreational resources, Project Site development would be large enough to cause an adverse wind speed reduction downwind in the CPSRA windsurfing area only for winds blowing from the northwest, west-northwest, west and west-southwest directions. Winds from other directions would not be affected by the Project. Thus, cumulative impacts would only occur when winds from these directions would pass through not only Project Site development, but also a cumulative project site.

could not have an interaction with the wind effects of one of the Project Site development scenarios. Measurable cumulative wind effects involving past, present, and reasonably foreseeable future projects were found to occur only for the west wind under the DSP and CPP scenarios. These effects were found only in the northern part of the north grid, generally within less than 1,000 feet of the CSPRA shoreline. Within that limited area, the cumulative influence of the DSP and the past, present, and reasonably foreseeable future projects would result in wind speed ratios that range from 0.56 to 0.59, with reductions in wind speed that were one to four percent more than the DSP reductions alone. Within that same limited area, the cumulative influence of the CPP and future projects would result in wind speed ratios that range from 0.57 to 0.62, with reductions in wind speed that were one to five percent more than the CPP reductions alone.

Although these cumulative effects would manifest in decreased wind speeds in the northernmost part of the grid for the DSP scenario, the average combined reduction would be less than six percent, with the largest decrease being approximately nine percent, while for the CPP scenario the average combined reduction would be less than four percent and the largest decrease would be approximately seven percent. Considering each of the qualitative concerns stated by the San Francisco Boardsailing Association and discussed in Section 4.M, *Recreational Resources*, of this EIR, under the impact significance criterion, none of these combined or cumulative reductions would represent a significant impact with respect to the windsurfing resource. Project Site development, together with the other past, present, and reasonably foreseeable future projects would cause only small changes in wind speed over the northernmost part of the study area for the West wind direction only, resulting in a less than significant cumulative impact.

Conclusion: Project Site development, in combination with other cumulative projects, would result in a less-than-significant cumulative impact on wind speed and turbulence.

Traffic and Circulation

Would the Project, in combination with past, present, and reasonably foreseeable future projects cause roadway level of service standards to be exceeded or result in an increase in transit demand that could not be accommodated by transit capacity?

Cumulative Impact Significance/ Project Scenario Contribution			
DSP	**DSP-V**	**CPP**	**CPP-V**
CS/CC	CS/CC	CS/CC	CS/CC

CS = Significant Cumulative Impact
LCS = Less than Significant Cumulative Impact
CC = Cumulatively Considerable Project Contribution
LCC = Less than Cumulatively Considerable Project Contribution
- = Not Applicable

Roadway Level of Service

Cumulative Impacts

Impacts of Project Site development in relation to roadway levels of service, in combination with past, present, and reasonably foreseeable future development was evaluated in Section 4.N, *Traffic and Circulation*, Impact 4.N-3, which concluded that cumulative development would exceed roadway levels of service standards even with the implementation of feasible mitigation measures. A similar cumulative analysis was undertaken for impacts on the freeway mainline in Section 4.N, *Traffic and Circulation*, as part of

Impact 4.N-4, which found that cumulative development would result in significant impacts even with the implementation of feasible mitigation measures.

Conclusion: Project site development, in combination with the past, present, and reasonably foreseeable projects included in the traffic model analysis reported in Impacts 4.N-3 and 4.N-4 would result in significant cumulative impacts.

Contributions of DSP, DSP-V, CPP, and CPP-V Scenarios to Cumulative Impacts

As discussed in Section 4.N, *Traffic and Transportation*, of this EIR, roadway level of service standards would be exceeded, and significant cumulative impacts would result under Cumulative without Project conditions. The addition of project site development-related traffic is cumulatively considerable due to the large amount of traffic that would be generated by each Project site development scenario, as demonstrated in Section 4.N.

Transit Use

Cumulative Impacts

Impacts related to transit use are evaluated in Section 4.N, *Traffic and Circulation*, as part of Impacts 4.N-6 and 4.N-7. The evaluation undertaken for Impact 4.N-6 concluded that cumulative increases in transit demand that could be accommodated by train transit capacity (BART and Caltrain). The Impact 4.N-7 analysis concluded that there would be a substantial increase in overall Muni transit ridership at San Francisco transit screenline locations along with significant cumulative impacts on San Francisco Muni transit service along the Geneva Avenue corridor. The analysis in Impact 4.N-7 also noted that Muni had mitigation programs in place to which Project Site development would contribute that would reduce cumulative impacts on Muni to a less than significant level.

Conclusion: Project Site development, along with cumulative development analyzed in Section 4.N, *Traffic and Transportation*, would not result in a significant cumulative impact on transit.

Utilities, Service Systems, and Water Supply

Would the Project result in a cumulatively considerable contribution, in conjunction with past, present, and reasonably foreseeable future projects, to significant cumulative effects associated with increased demands for utilities and service systems?

Cumulative Impact Significance/ Project Scenario Contribution			
DSP	**DSP-V**	**CPP**	**CPP-V**
LCS/ -	LCS/ -	LCS/ -	LCS/ -

CS = Significant Cumulative Impact
LCS = Less than Significant Cumulative Impact
CC = Cumulatively Considerable Project Contribution
LCC = Less than Cumulatively Considerable Project Contribution
- = Not Applicable

Wastewater Generation

Cumulative Impacts

The geographic area for evaluation of cumulative wastewater generation impacts is the boundaries of the Bayshore Sanitary District. Determination of the significance of cumulative

wastewater generation impacts is based on projected district-wide increases in wastewater generation, rather than a cumulative projects approach.

As noted in Section 4.O, *Utilities, Service Systems, and Water Supply*, of this EIR, the Bayshore Sanitary District (BSD) has an existing agreement with San

Francisco Public Utilities Commission (SFPUC) for dry weather flows of up to five million gallons per day. The BSD average daily wastewater flows in 2011 were 405,951 gallons per day. The BSD 2006/2011 Capital Improvements Plan (BSD, 2006) estimates that future developments in the BSD service area through 2044 would add an additional 301,200 gpd. With the Project and future development, BSD's wastewater flows would increase to a maximum of 2,313, 212 gpd by 2044. This would not exceed BSD's maximum permitted dry weather flow of to SFPUC. Therefore no significant cumulative effects are expected associated with increases in wastewater demand in the BSD service area.

Conclusion: Because projected district-wide wastewater generation, including Project Site development, would not exceed the maximum amount of flow per the BSD's existing agreement with SFPUC for dry weather flows, cumulative impacts would not be significant.

Water Supply

Cumulative Impacts

Supply Availability. The geographic area for evaluation of cumulative wastewater generation impacts is the City of Brisbane. Determination of the significance of cumulative water supply impacts is based on projected 20-year demand for water supplies as analyzed in the Water Supply Assessment prepared for Project Site development, rather than a cumulative projects approach.

As discussed in Section 4.O, *Utilities, Service Systems, and Water Supply*, of this EIR, the proposed water transfer agreement between OID and Brisbane would provide sufficient water supply (2,400 acre feet) to satisfy the needs of Project Site development and projected new development throughout the City.

Tuolumne River Resources. As discussion in Impact 4.O-1 in Section 4.O, *Utilities, Service Systems, and Water Supply*, of this EIR, the OID-Brisbane water transfer would contribute to potential effects on streamside meadow and other alluvial deposits along the Tuolumne River between Hetch Hetchy Reservoir and New Don Pedro Reservoir. Other transfers or increased water diversions from the Tuolumne River in the future would contribute to cumulative effects on Tuolumne River resources in this reach of the river. The SFPUC also proposed to implement a 2 mgd dry-year water transfer as part of its adopted WSIP that would affect this stretch of the river, though to date the SFPUC has not executed an agreement for this 2 mgd transfer. The SFPUC is in discussion with OID for a one-year water transfer for 2014 to address anticipated drought conditions. In addition, the Bay Area Water Supply and Conservation Agency (BAWSCA), which represents the Wholesale Customers of the SFPUC regional water system, has recently completed the initial phases of a long-term reliable water strategy plan that recommends BAWSCA and/or its member agencies also pursue water transfers. While there are

no specific transfer proposals at this time, if these transfer make use of the SFPUC regional water system to delivery water, they could also contribute to flow effects on the Tuolumne River. Finally, as part of its 2008 approval of the Phased WSIP Variant, the SFPUC committed to reviewing the future water delivery needs of its customers, beyond 2018. During that review process the SFPUC will evaluate whether to pursue increasing its waters supply diversions from the Tuolumne River system under its existing water rights. The SFPUC has not made any specific proposals to do so at this time, but doing so would also contribute to this impact on the Tuolumne River resources.

The SFPUC's WSIP PEIR Mitigation Measure 5.3.7-2 and **Mitigation Measure 4.O-1b** in this EIR (see section 4.O, *Utilities, Service Systems, and Water Supply*) – Controlled Releases to Recharge Groundwater in Streamside Meadows and Alluvial Deposits, which is a performance-based measure aimed at supporting the natural streamline meadow and alluvial deposit resources along the river, would address the Project Site development's contribution to cumulative effects and would, in concept, address the overall cumulative effects of increasing diversions or otherwise modifying reservoir releases from Hetch Hetchy Reservoir affecting the downstream reach of the Tuolumne River. With implementation of this measure the Project Site development contribution to cumulative effects would be less than cumulatively considerable. However, each specific future proposal affecting this reach of the river would need to be evaluated for its contribution to cumulative effects and additional mitigation may be required to address significant cumulative effects.

Water Supply Conveyance. SFPUC regional water system conveyance capacity could be affected by the Project Site development plus future proposals to wheel water through the SFPUC system. While there is no other specific proposal to wheel water through the SFPUC system at this time, BAWSCA has identified wheeling water transfers through the SFPUC as a potential future action to secure additional water supply. The SFPUC is beginning an assessment of its system capacity to evaluate its ability to wheel other third-party transfer water through its system without adversely affecting its operations or ability to meet its customer level of service objectives and delivery obligations. The wheeling agreement between Brisbane and the SFPUC will establish conditions on the timing of water wheeling operations, if needed, to ensure that wheeling operations use SFPUC system capacity when it is available and do not significantly impact SFPUC customer service. As a result, the Project Site development would not make a cumulatively considerable contribution to this potential cumulative effect.

Conclusion: Supply Availability. Because the proposed water transfer agreement and development of an onsite recycled water plant, which are both part of Project Site development, would result in sufficient water supply (2,400 acre feet) to satisfy the needs of Project Site development and projected new development throughout the City, the cumulative impacts on water supply, Tuolumne River resources and SFPUC system conveyance capacity would be less than significant.

Construction of Water, Stormwater and Wastewater Infrastructure

Cumulative Impacts

As discussed in Section 4.O, *Utilities, Service Systems, and Water Supply*, of this EIR, although Project Site development would require construction of new water, stormwater, and wastewater infrastructure, this infrastructure would be designed to serve only the Project Site. There would be no interaction between Project Site development and cumulative projects that could form a cumulative impact. While Project Site-generated wastewater would be transported to the SFPUC for treatment prior to construction of the proposed onsite recycled water facility, as discussed above and in Section 4.O, adequate capacity is available, and therefore no infrastructure improvements would be required that could combine with past, present, or reasonably future projects to form a cumulative impact. As discussed in Section 4.O, the one Project Site development-related infrastructure need that could combine with infrastructure needs of cumulative projects is the need for construction of a water storage tank to serve Project Site development and future development throughout the City. The evaluation of impacts related to construction of a new water storage facility concluded that since (1) the facility would likely need to be constructed in a hillside location, (2) the location of that facility has not yet been determined, and (3) because the location is not known, it cannot be determined that construction of the needed water storage facility would be less than significant, a significant and unavoidable impact would result. Because the water storage facility is needed for both Project Site development and cumulative development throughout the City, the significant impact cited in Section 4.O would also be considered to be a significant cumulative impact.

Conclusion: A significant cumulative impact would result from the construction of water storage facilities to serve Project Site and cumulative citywide development.

Contributions of DSP, DSP-V, CPP, and CPP-V Scenarios to Cumulative Impacts

Because Project Site development is the primary contributor to the need for construction of a new water storage facility, Project Site development's contribution to the significant cumulative impact resulting from that construction of water storage facilities would be cumulatively considerable.

Landfill Capacity

Cumulative Impacts

The geographic scope of cumulative analysis for landfill capacity is the service areas for the landfill serving the Project Site. Rather than a project list approach, projections of future landfill capacity based on the entire projected waste stream going to these landfills is used for cumulative impact analysis. As presented in Table 4.O-7 the current landfills serving the Project Site would reach full capacity by 2025 or earlier, with the exception of one landfill, which is projected to reach capacity at 2077. All other landfills would likely be closed by 2025.

Conclusion: Because landfill capacity would be available through 2077, the cumulative effect of Project Site development, in combination with the projected waste stream going to these landfills serving the Project Site would be less than significant.

Energy Resources

Would the Project, in conjunction with past, present and reasonably foreseeable future projects, use energy in a wasteful manner?

Cumulative Impact Significance/ Project Scenario Contribution			
DSP	**DSP-V**	**CPP**	**CPP-V**
LCC/ -	LCC/ -	LCC/ -	LC/ -

CS = Significant Cumulative Impact
LCS = Less than Significant Cumulative Impact
CC = Cumulatively Considerable Project Contribution
LCC = Less than Cumulatively Considerable Project Contribution
- = Not Applicable

Cumulative Impacts

All development anticipated under the cumulative scenario, including Project Site development and development of the Cumulative Projects identified in Table 6-2, would be required to comply with the energy efficiency standards in Title 24, and, for those projects exceeding certain size thresholds, the additional energy conservation requirements adopted by ordinance in Brisbane and San Francisco. In accordance with these requirements, all proposed developments would use site and building design strategies similar to those employed by Project Site development to avoid wasteful energy consumption. While it is not certain that other developments would commit to the reductions in energy consumption represented by LEED silver energy efficiency ratings proposed for Project Site development and required by Brisbane ordinance, the cumulative demand for electricity and natural gas would be reduced through implementation of Title 24 requirements and Building Codes of Brisbane and San Francisco. As a result, cumulative electricity and natural gas consumption would not be wasteful, and the cumulative impact would be less than significant.

Petroleum consumption associated with the new development identified above would be primarily attributable to transportation, especially private automobile use. However, the cumulative projects identified in Table 6-2 are within an urban area, and therefore have a range of alternative transportation options. As cumulative development occurs consistent with the Sustainable Communities Strategy for the Bay Area, development patterns would provide for greater use of transit and alternative modes of transportation. Increased population density and mixed-use development would allow residents to work, shop, and live within a small area, reducing average trip lengths, which would in turn result in lower consumption of fuels. These considerations would reduce wasteful petroleum consumption associated with unnecessary automobile trips and long commutes. State fuel efficiency standards and alternative fuels policies contained in the State Alternatives Fuels Plan (see Section 4.P, Regulatory Framework) would also contribute to a reduction in fuel use. For these reasons, the cumulative impact with regard to the consumption of energy resources would be less than significant.

Project site development, along with past, present and reasonably foreseeable future projects shown in Table 6-2 would increase demand for energy resources. Such demand would be reduced with adherence to regulatory requirements related to energy conservation, as well as mitigation recommended for the Project Site development and other cumulative projects in order to minimize the wasteful, inefficient, or unnecessary consumption of energy. For instance, the State of California has implemented a variety of energy conservation and efficiency laws and

regulations, as described in Subsection 4.P.3, *Regulatory Setting*, above. Project Site development and the cumulative projects cited in Table 6-2 would be required to comply with these regulations in order to improve energy efficiency in new residential and non-residential developments.

On the utility side, the State of California has Renewable Portfolio Standard goals that seek to increase the amount of renewable energy resources used by certain utilities. The Renewable Portfolio Standard goal for California is to have 33 percent of an electricity seller's load served with renewable power by 2020 (Executive Order S-14-08 and SB X1 2). In 2010, Pacific Gas & Electric (PG&E) served 20.1 percent of its retail electricity sales with renewable power (CPUC, 2012). In working toward meeting the Renewable Portfolio Standard goals, the use of renewable energy resources should increase to 33 percent by 2020, reducing the use of nonrenewable resources.

Conclusion: Based on the implementation of required energy conservation measures, Project site development, in combination with the cumulative project cited in Table 6-2, would not result in wasteful use of energy, and cumulative impacts would therefore be less than significant.

6.4 Significant Irreversible Environmental Effects

An EIR for a project that involves adoption, amendment, or enactment of a plan, policy, or ordinance of a public agency, such as the Project Site development as described in Chapter 3, *Project Description*, of this EIR, must identify any significant irreversible environmental changes that could result from implementation of a proposed project. These may include current or future uses of non-renewable resources, and secondary or growth-inducing impacts that commit future generations to similar uses. CEQA dictates that irretrievable commitments of resources should be evaluated to assure that such current consumption is justified (CEQA Guidelines Section 15126.2(c)).

The Project Site is located within an urban area, and does not contain any state-designated agricultural lands that would be converted to non-agricultural uses. The Project Site does not contain known mineral resources and does not serve as a mining reserve.

Construction of the Project Site development as described in Chapter 3, *Project Description*, would require the use of energy, including energy produced from non-renewable resources. Energy consumption would also occur during Project operation due to the use of automobiles, lighting, heating and cooling systems, appliances, and the like. However, the Project Site development would incorporate energy-conserving features, including those required by the Uniform Building Code, California Energy Code Title 24, and the City of Brisbane Municipal Code Section 15.80, which specifies green building standards for new developments. The Project Site development also would incorporate sustainable construction policies and features, resulting in a more energy-efficient development and reduced consumption using local materials and labor. Project characteristics and mitigation measures related to energy consumption are summarized in Chapter 7, *Sustainability*, and in Section 4.P, *Energy Resources*, in Chapter 4 of this EIR.

6.5 Effects Found Not To Be Significant

As part of this EIR process, an Initial Study Checklist was prepared as part of the original 2006 Notice of Preparation (NOP) (2006). The 2006 NOP determined that impacts in relation to Agricultural and Forestry Resources and Mineral Resources would be less than significant, and therefore would not be addressed in the EIR prepared for Baylands development. That conclusion was carried forward in the updated NOPs in 2010 and 2012. The discussion below addresses Agricultural and Forestry Resources, Mineral Resources, and other environmental topics for which Project site development effects have been found not to be significant. All other environmental topics in the CEQA environmental checklist have been fully analyzed in this document (Chapter 4).

6.5.1 Agricultural and Forestry Resources

The Project Site is sparsely developed, containing mainly disturbed dirt areas that were formerly part of the Brisbane Landfill (east of the rail corridor) and the Southern Pacific Railroad yard (west of the rail corridor). Since the landfill's closure in 1967, the eastern portion of the Project Site has been used as a repository and recycling area for materials from construction sites in the region such as sand, dirt, and gravel. Within this eastern portion of the Project Site, two lumberyards and the Recology facility continue to operate. The former railyard is vacant except for several remaining buildings from the railroad era. The Project Site does not contain lands zoned or used for agriculture, does not contain any state-designated farmland and does not site contain or abut forest resources. Therefore, the Project Site development would have no impact on agricultural or forestry resources.

6.5.2 Mineral Resources

The Project Site is located in a developed urban area that has no known existing mineral resources. The California Geological Survey has classified lands within the San Francisco Bay Region into Mineral Resource Zones (MRZs) based on guidelines adopted by the California State Mining and Geology Board, as mandated by the Surface Mining and Reclamation Act of 1974 (Stinson et al., 1982). The Project Site, the majority of which consists of land fill, is mapped by the California Department of Mines and Geology as MRZ-1, an area where adequate information indicates a low likelihood of significant mineral resources (Stinson, et al., 1982). The intent of designating significant deposits is to identify areas where mineral extraction could occur prior to development. Therefore, implementation of proposed Project Site development would not result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state, and would not result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan. Implementation of the Project Site development would have no impact on mineral resources.

6.5.3 Cultural Resources – Paleontological

None of the Project Site development scenarios (DSP, DSP-V, CPP, and CPP-V), including the relocation of the lumberyard components, would have impacts on known or recorded

paleontological resources or unique geologic features. As discussed in Section 4.D, *Cultural Resources* (in Subsection 4.D.2, *Environmental Setting*), no known paleontological resources or unique geologic features are located on the Project Site, nor is the Project Site geology sensitive for paleontological resources. Even with the magnitude (substantial depth, extent, and volume) of proposed earthwork and cuts that would occur under each of the Project Site development scenarios, including deep-driven piles into older bay muds, it is unlikely that construction crews would encounter unique paleontological resources or sites or unique geologic features.

6.5.4 Geology and Soils – Septic Systems

Project Site development would include the construction of an integrated sewer system across the Project Site. Therefore, as noted in Section 4.E, *Geology, Soils, and Seismicity*, Project Site development would have no impacts related to soils being incapable of supporting septic systems or other alternative wastewater disposal systems.

6.5.5 Hazards and Hazardous Materials – Airports

The Project Site is located more than two miles from the nearest public airport, the San Francisco International Airport and more than two miles from the nearest airstrip, and is not located within an airport land use plan. Development under any of the Project Site development scenarios (DSP, DSP-V, CPP, and CPP-V) would not conflict with an airport land use plan nor present any other impact related to a public airport use or private airstrip, as described in Section 4.G, *Hazards and Hazardous Materials*.

6.5.6 Hazards and Hazardous Materials – Wildland Fire

The Project Site is located in an urban setting that is not considered wildlands and does not adjoin any wildlands that are at risk for wildfires. As concluded in Section 4.G, *Hazards and Hazardous Materials*, Project Site development would therefore have no impact in relation to wildland fire. Fire protection services are provided to the City of Brisbane by the NCFA, which delivers emergency and non-emergency fire response services. Brisbane is served from Fire Station No. 81 located at 3445 Bayshore Boulevard, just southwest of the Project Site. Development of the Project Site under any of the scenarios would be required to adhere to the Uniform Fire Code, which provides minimum fire safety measures that would be incorporated into all building designs.

6.5.7 Traffic and Circulation – Air Traffic Patterns

As described in Section 4.N, *Traffic and* Circulation, the Project Site is located more than 2 miles from the nearest public airport, the San Francisco International Airport, or airstrip. Development under any of the proposed scenarios would not conflict with an airport land use plan nor present any other impact related to a public airport use or private airstrip.

6.6 References

Bay Area Air Quality Management District (BAAQMD), Revised Draft Options and Justification Report for California Environmental Quality Act Thresholds of Significance, 2009.

BSD. 2006. Draft 2006/2011 Bayshore Sanitary District Capital Improvements Plan (CIP), 2006. Prepared by Kennedy/Jenks Consultants

California Department of Transportation (Caltrans), *Technical Noise Supplement*, prepared by ICF Jones and Stokes, November 2009.

California Public Utilities Commission (CPUC), *Renewables Portfolio Standard Quarterly Report: 1st and 2nd Quarter 2012*, 2012.

KB Environmental (KBE), Brisbane Baylands Health Risk Assessment, prepared for Environmental Science Associates, March 29, 2012 (provided in Appendix D).

San Francisco Redevelopment Agency, Visitation Valley Redevelopment Program, Draft EIR, May 29, 2008.

Stinson, M. C., M. W. Manson, J. J. Plappert, and others, Mineral Land Classification: Aggregate Materials in the San Francisco-Monterey Bay Area, Part II, Classification of Aggregate Resource Areas South San Francisco Bay Production-Consumption Region, California Division of Mines and Geology Special Report 146, 1982.

CHAPTER 7
Sustainability

7.1 Introduction

The information contained in this chapter is not required under CEQA, and therefore is included for informational purposes only. The chapter provides background information on sustainability, and identifies (1) measures that would be provided by Project Site development and (2) mitigation measures set forth in the EIR that further the principles of sustainability described in this chapter, thereby demonstrating the proposed Project's relationship to sustainability.

Although there is no universally accepted definition of sustainable development, a well-known and oft-quoted definition comes from a 1987 report by the United Nations (UN) World Commission on Environment and Development (also known as the Brundtland Commission), entitled *Our Common Future* (United Nations, 1987), which defined sustainable development as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs." The Brundtland Commission report laid the groundwork for the 1992 Earth Summit and many related UN programs, by recognizing the importance of social equity, economic development, and broad societal participation in solving the many environmental crises facing the planet.

The American Planning Association (APA) has built on the UN definition, identifying sustainability as being able "to meet the needs of a growing human population that has rising aspirations for consumption and quality of life, while maintaining the rich diversity of the natural environmental or biosphere" (APA, 2000). APA identifies the following key contributions to an unsustainable future:

- Overconsumption;
- Rapid population growth;
- Dependence on non-renewable resources;
- Accumulation of toxic and harmful substances in the biosphere;
- Disregard for complex natural systems in pursuing human development;
- Social inequities in resource distribution;
- Limited public participation in political and economic decision-making.

In essence, both the Brundtland Commission and the APA identify the primary threat to long-term well-being as the exploitation of natural resources at a rate beyond which nature can replenish them. This threat stems from a fundamental failure, at the societal level, to develop and live within the earth's capacity to absorb human-induced impacts to its natural systems.

7.2 Principles of Sustainable Community Development

The principles of sustainable development are predicated on a long-term vision and ethic of environmental stewardship that incorporates environmental, societal and economic needs. Sustainability is concerned with inter-related systems (human and societal, economic, and ecological) and actions to foster positive outcomes by enhancing connections between those systems. Sustainable development principles focus on an envisioned future more than preservation of an existing present, and can be applied effectively in the Project Sire development design phase to maximize positive outcomes.

Ideas such as "Smart Growth" and "New Urbanism" promote the use of urban design to reverse decades of conventional sprawling development patterns, and provide a focus on higher intensity communities, mixed use development, and orientation toward transit use rather than automobile travel. An integrated design process, involving multiple stakeholders who collaborate toward achieving social and environmental goals, is advocated by leading sustainable development groups including the APA, the U.S. Green Building Council (through its Leadership in Energy & Environmental Design (LEED) standards), the United States Environmental Protection Agency (U.S. EPA) (through its Smart Growth Network) the Portland Sustainability Institute (through its EcoDistricts Initiative), and many other organizations and local governments throughout the U.S. and beyond.

The City of Brisbane has drafted sustainability goals for development on Brisbane Baylands organized around the One Planet Living concept developed by Bioregional. The underlying concept is to establish a balance whereby people enjoy a high quality of life within the productive capacity of the planet, whereby humanity's ecological demands does not exceed nature's capacity to sustain life and replenish natural resources. The One Planet Living concept is organized around the following 10 principles as described below:

1. **Zero Carbon Buildings.** Making buildings more energy efficient and delivering all energy with renewable technologies.
2. **Zero Waste.** Reducing waste, reusing where possible, and ultimately sending zero waste to landfills.
3. **Sustainable Transportation.** Using low carbon modes of transport to reduce emissions and reducing the need to travel with good planning.
4. **Local and Sustainable Materials.** Using sustainable healthy products, with low embodied energy, sourced locally, made from renewable or waste resources.
5. **Local and Sustainable Food.** Choosing low impact, local, seasonal and organic diets and reducing food waste.

6. **Sustainable Water.** Using water more efficiently in buildings and in the products we buy, and addressing local flooding, wetland and stormwater pollution.

7. **Open Space and Habitat.** Protecting and restoring biodiversity and natural habitats through appropriate land use and integration into the built environment.

8. **Culture and Heritage.** Reviving local identity and wisdom; supporting and participating in the arts.

9. **Economic Vitality with Equity and Ecology.** Creating ecologically-based economies that support equity and inclusive communities.

10. **Health, Safety and Happiness.** Encouraging active, safe, meaningful lives to promote good health and well-being.[1]

7.3 How Sustainability Relates to CEQA

CEQA focuses on identifying changes to the physical environment that will occur as the result of discretionary actions taken by public agencies, and avoiding or mitigating the anticipated adverse effects of those actions. In doing so, CEQA addresses a broad spectrum of environmental topics, including many, but not all, of the issues inherent in the sustainability principles introduced above. Sustainability measures are often integrated into a project or recommended in CEQA documents as mitigation measures to avoid or reduce potential short-term and long-term environmental impacts. Many of the global environmental indicators of unsustainable development, including global warming, soil degradation, resource depletion, deforestation, declining fisheries, and species extinction, are addressed directly or indirectly by CEQA; however, some sustainability principles such as economic vitality, social equity, and promoting meaningful lives and well-being are not addressed in CEQA. In a traditional (and simplified) view of "sustainability" as consisting of environmental quality, economic vitality, and social equity, CEQA addresses only environmental quality. Thus, many sustainability issues become part of a project's *planning* process, rather than its *environmental* review.

Typically, it is the long-term mitigation measures (e.g., operational rather than construction related) that are the significant contributors to project sustainability. For example, mitigation related to biological resources may include measures to protect and enhance on-site wetlands or habitat that supports sensitive biological species, provide a buffer against storm surge damage, protect a recreational resource, or filter contaminants and protect local fresh water supplies. Such measures demonstrate sustainability's integrated systems approach that considers the needs of both human development and natural ecosystems. Mitigation measures are often consistent with the notion of meeting present human needs without compromising the ability of future generations to meet their own needs, by preserving natural systems (natural capital) that we depend on for economic, recreational, and societal value, and using but not depleting limited resources such as water, air, land, and energy.

[1] In addition to the definition, "Sustainability Goals for the Baylands" (April 2013) describes this principle as achieving a "place where it is easy attractive and affordable for people to live happy, safe, and healthful lives within a fair share of the earth's resources."

While sustainability is not itself a resource area required to be analyzed under CEQA, many CEQA topic areas address sustainability principles directly (e.g., biological resources analysis is expressly concerned with the impacts of a project on the conservation and protection of habitats and natural systems). Some CEQA topic areas address sustainability principles either partially or indirectly (e.g., transportation and traffic analyses examine the Project Site development's impact on traffic, congestion, and related hazards, while others have a very weak link to sustainability (e.g. aesthetics analysis is linked to sustainability only indirectly by the visual impacts that a project might have on community vitality through the CEQA criteria related to degradation of existing visual character).

Examples of strong overlap between CEQA and sustainable development include energy conservation, conserving and protecting habitats and natural systems, conserving and protecting fresh water supplies, and protecting human and environmental health. Examples of weak overlap include supporting the local economy and enhancing community vitality and resilience. Overlap with the rest of the sustainability principles fall somewhere in between.

CEQA has notable shortcomings as a tool to further a community's sustainability. The intent of CEQA is to reduce or mitigate the adverse impacts of a project with the extent of mitigation proportional to the extent of the Project Site development's impacts, while many sustainability goals reflect community aspirations and are proactive in nature, exceeding CEQA's ability to mitigate adverse impacts. CEQA analyses generally address impacts associated with the life of a "project" that typically spans 50 to 70 years, while sustainability is concerned with a much longer time frame that continues for the foreseeable future over multiple generations. Thus, while CEQA is a valuable tool to evaluate and mitigate the adverse effects of a project, the planning review process and implementation of a community's General Plan provide a broader set of actions that can be used to promote community sustainability.

7.4 The Baylands Project's Relationship to Principles of Sustainability

The discussion of proposed Project Site development and its relationship to principles of sustainability follows in **Table 7-1**. The Table identifies the ten organizing principles of sustainability for Project Site development described above,and identifies project components which specifically address these principles. The table further identifies CEQA/EIR topic areas which are relevant to each sustainability principle and any related project mitigation measures that would enhance the sustainability of Project Site development as it pertains to any given principle.

TABLE 7-1
PRINCIPLES OF SUSTAINABILITY AS RELATED TO CEQA AND EIR ANALYSES

Sustainability Principle	Project Component	CEQA Topics and Related Mitigation Measures Recommended in Addition to Project Components		
		Relevant CEQA Topics	**Related Mitigation Measures**	**Scenario Applicability**
Zero Carbon Buildings	State required compliance with Title 24 energy standards. Brisbane Municipal Code requirement for buildings to meet LEED Silver rating. Renewable energy production via rooftop solar PV and solar PV fields, as well as small-scale wind turbines. Carbon sequestration via plantings in meadows, wetlands, and other open space areas.	**Air Quality**	**Mitigation Measure 4.B-4:** The following measures identified in the 2012 BAAQMD *CEQA Guidelines* shall be implemented for site-specific development projects within the Project Site and shall be included, as applicable, into commercial leases, as well as Covenants, Codes, and Restrictions (CC&Rs) within the Project Site: • Provide free transit passes (e.g., Clipper Card for use on Caltrain, San Francisco Municipal Railway [Muni], and SAMTrans) to employees (for employers of 100 or more employees); • Provide and maintain secure bike parking for commercial and industrial uses (at least one space per 20 vehicle spaces) as a condition of occupancy permit/tenancy contract; • Provide and maintain showers and changing facilities for employees as a condition of final building permit; • Provide information on transportation alternatives to employees as a condition of occupancy permit/tenancy contract; • Establish a dedicated employee transportation coordinator for each site-specific development as a condition of occupancy permit/tenancy contract; • Provide and maintain preferential carpool and vanpool parking for non-residential uses; • Increase building energy efficiency by 20 percent beyond Title 24 (reduces NOx related to natural gas combustion); • Require use of electrically powered landscape equipment through CC&Rs; • Require only natural gas hearths in residential units as a condition of final building permit; • Use low VOC architectural coatings in maintaining buildings through CC&Rs; • Require smart meters and programmable thermostats; • Meet Green Building Code standards in all new construction (reduces NOx related to natural gas combustion); and • Install solar water heaters for all uses as feasible.	**DSP, DSP-V, CPP, CPP-V**
		Greenhouse Gas Emissions	**Mitigation Measure 4.F-1**:All new development within the Project Site shall be required to develop and implement a Greenhouse Gases Emissions Reduction Plan (GHG Plan) containing strategies to increase energy efficiency and reduce GHG emissions to the greatest extent feasible with a minimum performance standard of five percent (as reflected in Table 4.F-3). The GHG Plan shall be submitted to the City for approval as part of the initial application process for building permits so that the measures will be verified as present in building specifications. The GHG Plan, as implemented, shall include strategies that exceed those already identified in the project description or required by law. The GHG Plan shall include strategies designed to reduce emissions generated by motor vehicles, as well as strategies to reduce stationary source emissions from energy consumption. Strategies shall include, but not be limited to, the following types of GHG reduction measures: • **Motor Vehicle Emissions** - Provide free transit passes to employees and onsite residences; - Provide secure bike parking (at least one space per 20 vehicle spaces); - Provide showers and changing facilities for employees; - Provide information on transportation alternatives to employees; - Establish a dedicated employee transportation coordinator; and - Include preferential carpool and vanpool parking. • **Stationary Source Emissions** - Provide stand-alone or rooftop solar, wind, or other renewable energy generation facilities (e.g., co-generation) to accommodate at least 3,600 MT per year of GHG offset within the Project Site;	**CPP, CPP-V**

TABLE 7-1 (Continued)
PRINCIPLES OF SUSTAINABILITY AS RELATED TO CEQA TOPICS FOR BOTH DSP AND CPP

Sustainability Principle	Project Component	CEQA Topics and Related Mitigation Measures Recommended in Addition to Project Components		
		Relevant CEQA Topics	**Related Mitigation Measures**	**Scenario Applicability**
Zero Carbon Buildings (cont.)			- Upgrade buildings within the Project Site to achieve a LEED Gold rating, rather than the LEED Silver rating now required by the Brisbane Municipal Code; - Increase solid waste diversion from landfills by 10 percent beyond state and local diversion requirements; - Employ "cool roof" technology for buildings; and - Use electrically powered landscape equipment.	
		Energy	**Mitigation Measure 4.P-2a:** All new buildings within the Project Site subject to the provisions of Brisbane Municipal Code Section 15.80 shall be required to achieve a LEED Gold rating, rather than the LEED Silver rating now required by the Municipal Code. In addition, all appliances installed within the Project Site as part of original building construction shall be ENERGY STAR rated or equivalent.	**DSP, DSP-V, CPP, CPP-V**
			Mitigation Measure 4.P-2b: All street and parking lot lighting within the Project Site shall be energy efficient light emitting diode (LED) based lighting.	**DSP, DSP-V, CPP, CPP-V**
			Mitigation Measure 4.P-2c: Should the CPP scenario be selected, Project Site development shall provide for an equivalent amount of onsite renewable energy generation as the DSP scenario (42,000 to 45,000 megawatt hours). Should the CPP-V scenario be selected, Project Site development shall provide for an equivalent amount of onsite renewable energy generation as the DSP scenario (42,000 to 45,000 megawatt hours) in addition to the renewable energy generation proposed as part of the Recology expansion.	**DSP, DSP-V, CPP, CPP-V**
Zero Waste	Per Municipal Code requirements, a minimum of 50 percent of construction and demolition debris will be either recycled or reused to reduce landfill disposal. Deconstruction of onsite buildings and recycling of such may result in reuse of minerals (copper, etc.). Use of recycled concrete on the site would reduce need for quarried materials and truck hauling, thus reducing emissions. New development will be required to participate in ongoing solid waste diversion programs that are currently achieving 73 to 75 percent diversion of solid waste from landfills.	**Utilities, Service Systems, and Water Supply**	Compliance with applicable City requirements was determined to result in less than significant impacts in relation to applicable CEQA thresholds, and therefore no mitigation measures were proposed.	
	Proposed expansion of the existing Recology facility under the CPP-V scenario would facilitate San Francisco's ability to increase its solid waste diversion and achieve a zero waste program. It would also provide an opportunity to achieve a similar rate of waste diversion within the Project Site. (CPP-V scenario only)			
Sustainable Transportation	Connectivity to transit system to reduce private auto dependency via bicycle and pedestrian facilities. Extension of Geneva Avenue to include bus rapid transit (BRT) facilities. Higher densities near core of development. Proposed mix of residential and non-residential land uses to reduce need for automobile travel and reduce vehicle miles travelled (DSP and DSP-V scenarios only). Residential uses close to work centers and transit hubs (DSP and DSP-V scenarios only).	**Air Quality; Greenhouse Gas Emissions**	See **Mitigation Measure 4.B-4** and **Mitigation Measure 4.F-1** above.	**DSP, DSP-V, CPP, CPP-V**

TABLE 7-1 (Continued)
PRINCIPLES OF SUSTAINABILITY AS RELATED TO CEQA TOPICS FOR BOTH DSP AND CPP

Sustainability Principle	Project Component	CEQA Topics and Related Mitigation Measures Recommended in Addition to Project Components		
		Relevant CEQA Topics	**Related Mitigation Measures**	**Scenario Applicability**
Sustainable Transportation (cont.)		**Traffic and Circulation**	**Mitigation Measure 4.N-1f**: Prior to issuance of the building occupancy permit for an arena within the Project Site, the arena operator shall develop a Transportation Management Plan (TMP) for coordination with the San Francisco Municipal Transportation Agency (SFMTA), the San Francisco Police Department, and the City of Brisbane, developing incentives to increase transit ridership to the arena, and deploying traffic control officers at the unsignalized intersection of Blanken Avenue and Tunnel Avenue to approximate traffic control with traffic signals of LOS C. The final arena TMP shall be approved by the City of Brisbane and developed in cooperation with SFMTA. Preparation of the TMP shall be fully funded by the arena operator and shall be completed in time for implementation on opening night of the arena. **Mitigation Measure 4.N-5**: Prior to issuance of building occupancy permits for the arena, the operator shall develop and submit to the City a Transportation Management Plan for deploying traffic control officers in the Project Site vicinity to increase efficiency of pre- and post-event traffic, and for developing incentives to increase transit ridership to the arena, such as parking pricing policies, customer information strategies, and/or ticket/other related discounts with proof of payment for transit. Implementation of this plan shall be designed to speed vehicle entrance to and exit from the arena site, as well as maintain orderly traffic operations and prevent turning movements that would intrude onto minor routes to and from the arena. Traffic control officers shall be provided on event dates to, at a minimum, facilitate traffic flow at the intersection of Valley Drive & Bayshore Boulevard, which would otherwise operate at LOS E conditions without manual traffic control by officers at the intersection with a sold-out arena event. Preparation and implementation of the plan shall be fully funded by the arena operator and shall be completed to the satisfaction of the City prior to opening day of the arena.	**DSP-V**
			Mitigation Measure 4.N-7: Prior to issuance of the first building occupancy permit for new development other than improvement of relocation of an existing use within the Project Site, the developer(s) of Project Site land uses shall work with the San Francisco Municipal Transportation Agency (SFMTA) to provide a fair-share contribution to capital costs for providing additional transit service to accommodate Project Site development-related ridership demand on San Francisco Muni transit corridors. In addition, provision shall be made for implementation of shuttle service between the Project Site and the Balboa Park BART Station in the Geneva Avenue corridor.	**DSP, DSP-V, CPP, CPP-V**
			Mitigation Measure 4.N-9: Prior to issuance of the first building occupancy permit for any new development other than improvement or relocation of an existing use within the Project Site, a shuttle bus service plan shall be developed and approved by the City that provides convenient transit service between Project Site land uses located more than one-third mile from the Bayshore Caltrain Station or Sunnydale Muni Station to those stations. Shuttle service shall be implemented as described in the plan prior to occupancy of any qualifying Project Site land use other than improvement or relocation of an existing use within the Project Site. This requirement shall also be included in any specific plan approved for development within the Project Site.	**DSP, DSP-V, CPP, CPP-V**
			Mitigation Measure 4.N-10: Prior to issuance of the first building occupancy permit for new development other than improvement or relocation of an existing use within the Project Site, at a minimum, the following measures shall be implemented to improve pedestrian accessibility: • The Bay Trail in the northern portion of the Project Site shall be realigned to provide a more direct route to the east side of US 101, following Geneva Avenue through the US 101 interchange. • Sidewalks or equivalent pedestrian paths shall be provided to safely permit pedestrian access to all uses within the Project Site intended for human occupancy and use, including provision of through pedestrian routes to minimize pedestrian travel distances between uses. • Specific provisions shall be made for safe pedestrian movement within and through parking areas to access buildings. • Sidewalks shall be provided along the Project Site frontage on Bayshore Boulevard between Sunnydale Avenue and Tunnel Avenue.	**DSP, DSP-V, CPP, CPP-V**

TABLE 7-1 (Continued)
PRINCIPLES OF SUSTAINABILITY AS RELATED TO CEQA TOPICS FOR BOTH DSP AND CPP

Sustainability Principle	Project Component	CEQA Topics and Related Mitigation Measures Recommended in Addition to Project Components		
		Relevant CEQA Topics	**Related Mitigation Measures**	**Scenario Applicability**
Sustainable Transportation (cont.)			**Mitigation Measure 4.N-11:** Prior to issuance of the first building occupancy permit for new development other than improvement or relocation of an existing use within the Project Site, roadways and trails shall provide for safe accessibility for bicycles to buildings and recreational areas throughout the Project Site, including connections to offsite bicycle routes and trails. In addition, Project Site land uses shall provide bicycle parking in appropriate areas (i.e., where they will get the most use, where security is maximized, and where pedestrian circulation is minimally affected by their presence). The minimum standards contained in this mitigation measure, along with the equivalent bicycle access as that shown in Table 4.N-7, shall be included in any specific plan approved for development within the Project Site. In addition, details of Project Site development-provided bicycle parking spaces (number and location) shall be determined at the time when site-specific development projects are proposed pursuant to the adopted Specific Plan, and shall adhere to the following guidelines which shall also be included in any specific plan adopted for development within the Project Site: • Bicycle parking shall be placed within 50 feet of building and facility entrances, where it can be well-lit, clearly visible, and out of **the** primary travel path of pedestrians. Retail shopping centers and supermarkets shall include one Class I rack (covered bicycle locker for long-term parking) per 30 employees, and one Class II rack (able to secure both the frame and at least one wheel of a bicycle for short-term parking) per 6,000 square feet of retail space. • Parks and recreational fields normally shall include one Class I rack per 30 employees and one Class II rack per 9 users (during peak daylight times of peak season). • Transit centers normally shall include individual parking spaces equal to 2 percent of daily boardings (75 percent Class I and 25 percent Class II).	**DSP, DSP-V, CPP, CPP-V**
			Mitigation Measure 4.N-13: Prior to issuance of the first building occupancy permit for new development other than improvement or relocation of an existing use within the Project Site, the developer(s) and/or tenants of Project Site land uses shall prepare, submit to the City/County Association of Governments of San Mateo County (C/CAG) for approval, and establish a Transportation Demand Management (TDM) program to mitigate the C/CAG project impact of generating more than 100 net new vehicle trips during the peak traffic hours. Implementation of TDM programs shall be made a condition of approval for all new development within the Project Site that generates 100 or more net new trips during the AM or PM peak hour.	
Local and Sustainable Materials	Per Municipal Code requirements, a minimum of 50 percent of construction and demolition debris will be either recycled or reused to reduce landfill disposal. Deconstruction of onsite buildings and recycling of such provides an opportunity for reuse of materials, (e.g., reuse of copper wiring, crushing of concrete to use for road base, etc.).	**Utilities, Service Systems, and Water Supply**	Compliance with applicable City requirements was determined to result in less than significant impacts in relation to applicable CEQA thresholds, and therefore no mitigation measures were proposed.	**DSP, DSP-V, CPP, CPP-V**
Local and Sustainable Food	Opportunity for urban gardens to be integrated within Project Site open space. No prime soils identified onsite per State's Farmland Mapping and Monitoring Program; therefore, no loss of agricultural land.	Local and sustainable food is not a required topic under CEQA except in terms of conversion of agricultural land to non-agricultural use, impacts to agricultural lands, or in cases where agricultural practices that could create environmental impacts are part of the proposed project, none of which are relevant to Project Site development.	None proposed.	

TABLE 7-1 (Continued)
PRINCIPLES OF SUSTAINABILITY AS RELATED TO CEQA TOPICS FOR BOTH DSP AND CPP

Sustainability Principle	Project Component	CEQA Topics and Related Mitigation Measures Recommended in Addition to Project Components		
		Relevant CEQA Topics	**Related Mitigation Measures**	**Scenario Applicability**
Sustainable Water	Implementation of the following water savings measures: • **Water budgets** that ensure the appropriate level of development in relation to limits on water supplies in the future, • **Public outreach information** to promote watershed stewardship and prevent contaminants from entering stormwater, conserve water supplies, and fund environmental education initiatives, • **Landscape requirements for new systems** including irrigation water management, preventing runoff from faulty irrigation systems, and enforcement of non-watering days, • **Wateraudits for commercial and users and hotels-motels** that offer expert evaluation of indoor and outdoor water use to improve water efficiency of plumbing fixtures and landscape irrigation, • **Multi-family unit sub-metering** to more accurately bill individual households for water use and provide residents with incentives to use water more efficiently, • Multi-family efficient **clothes washer rebate**, • **Water Alliances for Voluntary Efficiency (WAVE) Program (U.S. EPA) for Hotels** that provides hotels with tools to increase water use efficiency and decrease water costs, • **Dedicated landscape meters** for outdoor irrigation use, • **Native plant landscaping** incorporating plants with low to no water demands, • **Subsurface irrigation for turf** to decrease water loss, • **Hardscape** design to decrease irrigation demand, • **High efficiency toilets** in new commercial, industrial, and institutional buildings, • **Automatic faucets with on/off valves** that prevent wasted water, • **Waterless urinals**, and • **Onsite recycled water plant** to produce recycled water supply for onsite irrigation use. Proposed stormwater system focuses on natural methods, to filter runoff, including bioswales and an open drainage system combined with wetlands and riparian habitat to improve quality of stormwater runoff before it flows into the Bay.	**Biological Resources** **Hydrology** **Utilities, Service Systems, and Water Supply**	**Mitigation Measure 4.C-1g:** Construction and operation of proposed recreational and open space areas along Visitation Creek or adjacent to the northern lagoon edge shall include implementation of erosion control and water pollution control measures consistent with Storm Water Pollution Prevention Program (SWPPP) requirements, and implementation of an on-going maintenance plan to ensure no reduction in water and environmental quality as a result of recreational uses adjacent to the Creek and lagoon. Project applicants shall provide the City with proof that appropriate stormwater permits have been obtained pursuant to the City of Brisbane's NPDES stormwater discharge permit, the San Francisco Regional MS4 Permit. This shall include construction site inspection and control programs at all construction sites, with follow-up and enforcement consistent with each Permittee's respective Enforcement Response Plan, to prevent construction site discharges of pollutants and impacts on beneficial uses of receiving waters. The goal of Provision C.3 of the MS4 Permit is for the Permittee, such as the City of Brisbane, to use their planning authorities to include appropriate source control, site design, and stormwater treatment measures in new development and redevelopment projects to address both soluble and insoluble stormwater runoff pollutant discharges and prevent increases in runoff flows from new development and redevelopment projects. This goal is to be accomplished primarily through the implementation of low impact development techniques. Project applicants shall comply with local municipal requirements and the local storm water program as mandated under the Municipal Stormwater Permit, including, at minimum, the following measures: • Plan the development to fit the topography, soils, drainage pattern and natural vegetation of the Project Site • Delineate clearing limits, easements, setbacks, sensitive or critical areas, trees, drainage courses, and buffer zones to prevent excessive or unnecessary disturbances and exposure. • Phase grading operations to reduce disturbed areas and time of exposure. • Avoid excavation and grading during wet weather. • Limit on-site construction routes and stabilize construction entrance(s) and exit(s). • Any increase in impervious surface area shall include establishment of vegetated swales, permeable pavement materials, preserve vegetation, re-plant with native vegetation and appropriate measures should be evaluated and implemented where appropriate. • Whenever practicable, native vegetation buffer areas shall be provided as part of a project to control pollutants from entering the Bay, and vegetation shall be substituted for rock riprap, concrete, or other hard surface shoreline and bank erosion control methods where appropriate and practicable. • Construct diversion dikes and drainage swales to channel runoff around the site and away from bodies of water. • Use berms and drainage ditches to divert runoff around exposed areas. • Place diversion ditches across the top of cut slopes. • No use of fertilizers or pesticides. Applicants shall prepare a maintenance program for approval by the City that includes maintenance of water quality pollution-control features such as swales, sediment traps or other passive applications of pollution-prevention measures required as part of NPDES permitting. The maintenance program shall address the management of open space adjacent to the Brisbane lagoon and Visitation Creek and, at minimum, shall include the following requirements, to be performed to the satisfaction of the City. • Identify the entity responsible for ongoing maintenance of the lagoon perimeter and recreational facilities within the perimeter area (e.g., property owners' association, landscape maintenance district), along with provisions permitting the City to enforce maintenance requirements and recoup costs for such enforcement. • Provide trash receptacles at appropriate locations and regular litter removal. • Maintain all improvements within the lagoon perimeter in a safe and working condition. • Identify a funding mechanism to ensure site maintenance and implementation of environmental quality monitoring at the creek and lagoon as part of the open space interpretive center. Monitoring parameters may include but would not be limited to water quality monitoring, vegetation monitoring, and passive observation and recording of fish species present.	

TABLE 7-1 (Continued)
PRINCIPLES OF SUSTAINABILITY AS RELATED TO CEQA TOPICS FOR BOTH DSP AND CPP

Sustainability Principle	Project Component	CEQA Topics and Related Mitigation Measures Recommended in Addition to Project Components		
		Relevant CEQA Topics	**Related Mitigation Measures**	**Scenario Applicability**
Sustainable Water (cont.)	Discharge from the onsite recycled water facility would comply with water quality standards. Any discharge from the onsite water recycling plant would meet applicable water quality standards to protect human health and natural resources. Habitat enhancement along the perimeter of the lagoon to act as a natural filter.		**Mitigation Measure 4.C-2a:** The applicant shall avoid or minimize adverse effects on sensitive natural communities and restored wetland mitigation areas created to comply with remediation permit requirements or any restored habitat that may have been created as part of site clean-up actions. After Project Site remediation has concluded, measures shall be implemented to avoid impacts to sensitive natural communities or restored habitat areas, including the installation of silt fencing, straw wattles, or other appropriate erosion and sediment control methods or devices to prevent runoff and construction debris from entering these areas. Such measures shall also be employed where pre-construction grading and post-remediation development may require work adjacent to sensitive natural communities, either prior to or after restoration of those areas occurs. Where construction activities occur in the vicinity of sensitive natural communities onsite, the following shall be implemented to ensure no loss of restored mitigation sites: • Fencing shall be erected adjacent to the areas where construction is occurring to avoid unintended impacts to sensitive natural area that occur just outside the construction area. Construction workers will be educated about local resources and instructed to avoid sensitive habitats during construction including limiting any human intrusion into natural areas. • If work in the vicinity of natural communities cannot be avoided, work within these areas shall be conducted during the dry season, typically between May 1 and October 15, and shall occur under permit authority of CDFW, Corps and RWQCB pursuant to the CWA Section 404 requirements for avoidance, mitigation and monitoring. **Mitigation Measures 4.2-2b** and **4.C-2c** shall also apply if work cannot be avoided in or directly adjacent to sensitive natural areas or restored habitats created as part of site cleanup actions. **Mitigation Measure 4.C-2b:** The measures described below shall be employed to avoid degradation of natural communities or sensitive natural communities by maintaining water quality and controlling erosion and sedimentation during construction as required by compliance with the National Pollutant Discharge Elimination System (NPDES) General Permit for Construction Activities and as established by **Mitigation Measures 4.H-1a** and **4.H-1b** (see Section 4.H, *Hydrology and Water Quality*, of this EIR) to address impacts on water quality. In addition, measures shall include, but not be limited to, the following: • Installing silt fencing between aquatic sensitive natural communities and Project-related activities; • Locating fueling stations away from potentially jurisdictional areas and features; and • Otherwise isolating construction work areas from any identified jurisdictional features.	
Open Space and Habitat	Multi-functional open space system, including preservation/enhancement of: • Icehouse Hill; • Freshwater wetlands west of Tunnel Road; • Tidal saltwater marsh wetlands associated with the lagoon; • Riparian habitat and tidal saltwater marsh wetlands associated with the Visitacion Creek channel; Habitat enhancement along the perimeter of lagoon. Daylighting of Visitacion Creek. Re-vegetation of parkland areas with native species.	Biological Resources	**Mitigation Measure 4.C-1a:** Prior to construction, or any other Project Site development-related ground disturbance activities on Icehouse Hill, the applicant shall conduct pre-construction presence/absence surveys for special-status plants. Initial surveys at Icehouse Hill shall be carried out in conjunction with surveys for endangered butterfly host plants as described in **Mitigation Measure 4.C-1c**. Surveys would be implemented to determine if a special-status plant species has colonized the site in the interim between the determination of baseline conditions for this EIR, and project initiation, as well as to provide site-specific direction for final trail routing and design to avoid sensitive plant species (see **Mitigation Measures 4.C-1b** and **4.C-1c**). Surveys shall be conducted in accordance with CNPS and CDFW rare plant survey guidelines and shall be conducted during the flowering period when each species is most readily identifiable. In order to capture variability of special-status plant species distribution, three special-status plant surveys shall be conducted at two-week intervals during the appropriate flowering period (April to June), before commencement of any development activities on Icehouse Hill. Any special-status plant populations shall be mapped in the field (see **Mitigation Measure 4.C-1b**). If the presence of any special-status plant species is confirmed, a copy of the survey results shall be forwarded to CDFW, and **Mitigation Measure 4.C-1b** shall be implemented. In the event that special-status plants are not identified within development areas, including areas used for construction, the additional mitigation identified in **Mitigation Measure 4.C-1b** is not required.	**DSP, DSP-V, CPP, CPP-V**

TABLE 7-1 (Continued)
PRINCIPLES OF SUSTAINABILITY AS RELATED TO CEQA TOPICS FOR BOTH DSP AND CPP

Sustainability Principle	Project Component	CEQA Topics and Related Mitigation Measures Recommended in Addition to Project Components		
		Relevant CEQA Topics	**Related Mitigation Measures**	**Scenario Applicability**
Open Space and Habitat (cont.)			**Mitigation Measure 4.C-1b:** Documented plant occurrences on Icehouse Hill shall be avoided by establishing a buffer zone of no less than 25 feet prior to Project trail construction, or other ground-disturbing activities having the potential to disturb or result in mortality of special-status plant populations. This buffer zone shall be demarcated using flagging, orange fencing, or any other visual barrier between plant populations and the active disturbance footprint. Buffer distances may be increased if hydrology features would be altered as a result of train construction. If the City determines that disturbance or mortality is unavoidable, special-status plants shall be restored onsite in either the annual grassland or coastal scrub habitat located on Ice House Hill. Restoration would be at a 1:1 ratio consistent with typical CDFW requirements in areas that are to remain as post-development open space, as is Icehouse Hill. The 1:1 replacement ratio shall be met at the end of five years, and may therefore require initial plantings at a greater than 1:1 ratio, as determined by a qualified botantist. If feasible, special-status plants and/or seeds shall be salvaged from on-site plants and used for any replacement plantings. To reduce impacts from off-trail use, and increased horse use, trail head signage shall be required to educate the public regarding sensitive resources and restoration that would be affected by off-trail use. Mitigation areas shall be fenced or marked for three years. Trail use rules shall be developed prior to construction, and in addition to limiting use to identified trails, may include other requirements to limit the possibility that sensitive species would be impacted. To avoid indirect impacts to special status plant species that could occur if slope drainage or surface hydrology is modified as a result of trail construction **Mitigation Measure 4.C1-g** shall also be applied. Prior to issuance of project approvals, and in coordination with state and federal permitting requirements, a five-year restoration mitigation and monitoring program shall be developed and implemented for any planting areas established to mitigate impacts to special-status species plants. Restoration success criteria shall include: 1) Establishment of mitigation site(s) at or near the location of impacts where plant restoration will occur. 2) A qualified botanist shall identify an appropriate plant palette and restoration methodology compatible with the specific impacted special status species. Mitigation sites could include existing annual grassland or coastal scrub habitat areas on Icehouse Hill, depending on site conditions and locations of special status plants found. 3) No loss in total number of individual plants in a special status plant population found on Project Site shall be verified at the end of the five-year monitoring period established in coordination with state and federal agencies with jurisdiction over these resources.	**DSP, DSP-V, CPP, CPP-V**
			Mitigation Measure 4.C-1c: Prior to any trail-related construction, vegetation management, development, or any other ground disturbing activities taking place on Icehouse Hill, pre-construction surveys for butterfly larval host plants (*Viola pedunculata*, *Lupinus albifrons*, *L. formosus*, and *L. versicolor*) shall be conducted by a qualified invertebrate biologist with demonstrated experience working with the species to ensure avoidance of such host plants. Required surveys may be conducted in conjunction with the rare plant surveys required under **Mitigation Measure 4.C-1a**. The timing for these preconstruction surveys is further specified, below. All populations of butterfly host plants located on Icehouse Hill shall be mapped and trails shall be designed to avoid them, whether or not they are being used by butterflies at the time of the initial surveys. All populations of butterfly host plants located on Icehouse Hill shall be inspected by a qualified invertebrate biologist, at an appropriate time of year, to determine whether or not they are being used by endangered butterflies for reproduction. If it is determined that they are being used for reproductive purposes by endangered butterflies, the specific project applicant shall contact USFWS to identify the appropriate consultation process prior to proceeding further with any activities on Icehouse Hill. Consultation may indicate that an Incidental Take Permit is required pursuant to the FESA. If populations of callippe silverspot or Mission blue butterflies are determined to be reproducing on Icehouse Hill, the property owner shall prepare and implement a Butterfly Protection Plan in coordination with the USFWS and the habitat managers for the SBMHCP prior to any ground-disturbing activities on or adjacent to Icehouse Hill. The plan shall include, but not be limited to, the following elements: • Pre-construction surveys shall be conducted during the period of identification for larval host plants and butterfly larvae in the flowering and/or breeding season immediately prior to trail construction or any other work scheduled to occur on Icehouse Hill. • Trail construction on Icehouse Hill shall avoid populations of larval host plants.	**DSP, DSP-V, CPP, CPP-V**

TABLE 7-1 (Continued)
PRINCIPLES OF SUSTAINABILITY AS RELATED TO CEQA TOPICS FOR BOTH DSP AND CPP

Sustainability Principle	Project Component	CEQA Topics and Related Mitigation Measures Recommended in Addition to Project Components		
		Relevant CEQA Topics	**Related Mitigation Measures**	**Scenario Applicability**
Open Space and Habitat (cont.)			• All trails, or alternately, sensitive habitats, shall be fenced to minimize the establishment of "informal" trails through habitats supporting special-status plants. • Dogs shall be allowed on Icehouse Hill trails on leash only. • Interpretative signage shall be posted at trailheads explaining the presence of endangered butterflies and/or their habitat and the importance of preserving Icehouse Hill as habitat for endangered species. • Grassland habitat on Icehouse Hill shall be restored and enhanced to maintain and expand healthy populations of butterfly host plants. This shall include regular and ongoing management of non-native invasive species, such as French broom and fennel, as well as revegetation with native grassland species and establishment of new populations of butterfly host plants for callippe silverspot and Mission blue butterfly species, particularly lupine host species and Veolia species. These efforts shall be planned in coordination with similar SBMHCP efforts and according to the butterfly habitat restoration and vegetation management guidelines that have been established for the SBMHCP (San Mateo County, 2007). The criteria for successful implementation of habitat restoration shall be no loss of butterfly habitat and at least 50 percent cover (includes at least two of the lupine species used by butterflies) in restored areas after five years.	
			Mitigation Measure 4.C-1d: The following steps shall be taken to avoid direct losses of nests, eggs, and nestlings and indirect impacts to special status avian species. Vegetation removal including removal of trees and shrubs as part of site development shall be confined to the non-breeding season, except as provided for below. Grading or ground disturbance activities associated with site development including site remediation activities shall occur after pre-construction protocol burrowing owl surveys are conducted as described below and in the 2012 CDFW Staff Report on Burrowing Owls. • If removal of trees and shrubs or disturbance to trees and shrubs (i.e., tree removal, tree trimming) is proposed to occur between January 1 and September 15, a qualified avian biologist shall survey any trees proposed to be removed or trimmed during the nesting season (i.e., January 1 through September 15) to determine if active nests are present. Surveys shall occur not more than 14 days prior to tree removal or trimming. If active nests are found, tree removal and/or tree trimming shall be conducted only after the young have left the nest and the nest is no longer in use. Confirmation that the nest is no longer in use shall be provided by a qualified biologist familiar with the species. If the qualified avian biologist identifies active nests, a no disturbance buffer of 150 feet shall be established and monitored by a qualified avian biologist, with authority to stop work in the event construction activities encroach within the disturbance buffer thus ensuring that impacts to nesting birds would not occur. Survey and monitoring reports shall be submitted to City staff for review: preconstruction survey reports shall be submitted prior to initiating construction activities; monitoring reports shall be submitted weekly until activities associated with nest habitat removal or disturbance activities are completed. • Prior to initiating ***grading or ground disturbance activities*** associated with remediation activities required prior to site development, the following shall occur: - Not less than 45 days prior to site grading, a qualified biologist shall survey the site to determine the presence of active burrowing owl nests. If active nests are found passive relocation of the individuals would be accomplished according to the CDFW standards in effect at the time of the survey including the 2012 CDFW Staff Report on Burrowing Owls. - Results of the burrowing owl survey will be forwarded to CDFW. - Should the results of the survey include positive finding for occupied burrows, the location and condition of the burrows shall be reported to the CDFW and an on-site mitigation plan shall be prepared for review and approval by the CDFW. Onsite mitigation shall include construction of artificial burrows at a ratio of not less than 1:1 with the burrows located away from areas permitted for use by dogs and hikers. Following construction of the artificial burrows, the existing owls shall be passively removed from their burrows using one-way trap doors. The artificial burrows shall be monitored for a period of five years to confirm occupation by the species. Monitoring reports shall be forwarded to the CDFW to document compliance with this mitigation measure.	**DSP, DSP-V, CPP, CPP-V**

TABLE 7-1 (Continued)
PRINCIPLES OF SUSTAINABILITY AS RELATED TO CEQA TOPICS FOR BOTH DSP AND CPP

Sustainability Principle	Project Component	CEQA Topics and Related Mitigation Measures Recommended in Addition to Project Components		
		Relevant CEQA Topics	**Related Mitigation Measures**	**Scenario Applicability**
Open Space and Habitat (cont.)			**Mitigation Measure 4.C-1e:** Prior to construction of any wind turbines within the Project Site, the applicant for such wind turbines shall prepare a site-specific micrositing report in designing the proposed turbine layout that incorporates modeling of raptor species' flight patterns, hovering or kiting patterns, bat roosting habitat areas and foraging areas. The report shall provide micrositing recommendations to reduce avian collision and impacts to bat species that shall be implemented in the final design and placement of wind turbines. Utilization data; digital elevation modeling; slope attributes; techniques to identify saddles, notches, and benches; and associations between bird utilization and topography may be included, for example. The report shall include adaptive management during and after Project Site construction using information gathered in the pre-construction assessment to guide possible Project modifications, mitigation, or the need for and design of post-construction studies; post-construction studies can test design modifications and operational activities to determine their effectiveness in avoiding or minimizing significant adverse impacts (USFWS, 2010b). The design of wind turbines shall minimize the use of above ground electrical cabling; be designed with solid surfaces that are not conducive to perching; not run when visibility is poor, such as at night and during periods of heavy fog; and be designed with low rotor speeds (20 rpm maximum).	**DSP, DSP-V, CPP, CPP-V**
			Mitigation Measure 4.C-1f: Prior to construction or operation of wind turbines within the Project Site, the applicant shall implement the following mitigation measure, which is based upon the California Bat Working Group *Guidelines for Assessing and Minimizing Impacts to Bats at Wind Energy Development Sites in California* (CBWG, 2006). These measures will help to mitigate the Project's effects on bats by addressing the data gaps that prevent adequate assessment of the Project's effects on bats, such as what bat species are using the site and how they are using the Project area. • The applicant shall contribute to the body of knowledge on bat/turbine interactions by performing pre-construction and post-construction surveys, and post-construction monitoring within the Project area at each discrete location of a wind turbine or solar facility.	**DSP, DSP-V, CPP, CPP-V**
			Mitigation Measure 4.C-1g: Erosion control and water pollution control measures, along with litter control adjacent to the lagoon. See above in *Sustainable Water* for full text.	**DSP, DSP-V, CPP, CPP-V**
			Mitigation Measure 4.C-2a: The applicant shall avoid or minimize adverse effects on sensitive natural communities and restored wetland mitigation areas created to comply with remediation permit requirements or any restored habitat that may have been created as part of site clean-up actions. After Project Site remediation has concluded, measures shall be implemented to avoid impacts to sensitive natural communities or restored habitat areas, including the installation of silt fencing, straw wattles, or other appropriate erosion and sediment control methods or devices to prevent runoff and construction debris from entering these areas. Such measures shall also be employed where pre-construction grading and post-remediation development may require work adjacent to sensitive natural communities, either prior to or after restoration of those areas occurs. Where construction activities occur in the vicinity of sensitive natural communities onsite, the following shall be implemented to ensure no loss of restored mitigation sites: • Fencing shall be erected adjacent to the areas where construction is occurring to avoid unintended impacts to sensitive natural area that occur just outside the construction area. Construction workers will be educated about local resources and instructed to avoid sensitive habitats during construction including limiting any human intrusion into natural areas. If work in the vicinity of natural communities cannot be avoided, work within these areas shall be conducted during the dry season, typically between May 1 and October 15, and shall occur under permit authority of CDFW, Corps and RWQCB pursuant to the CWA Section 404 requirements for avoidance, mitigation and monitoring. **Mitigation Measures 4.2-2b** and **4.C-2c** shall also apply if work cannot be avoided in or directly adjacent to sensitive natural areas or restored habitats created as part of site cleanup actions.	**DSP, DSP-V, CPP, CPP-V**
			Mitigation Measure 4.C-2b: The measures described below shall be employed to avoid degradation of natural communities or sensitive natural communities by maintaining water quality and controlling erosion and sedimentation during construction as required by compliance with the National Pollutant Discharge Elimination System (NPDES) General Permit for Construction Activities and as established by **Mitigation Measures 4.H-1a** and **4.H-1b** (see Section 4.H, *Hydrology and Water Quality*, of this EIR) to address impacts on water quality. In addition, measures shall include, but not be limited to, the following: • Installing silt fencing between aquatic sensitive natural communities and Project-related activities; • Locating fueling stations away from potentially jurisdictional areas and features; and • Otherwise isolating construction work areas from any identified jurisdictional features.	**DSP, DSP-V, CPP, CPP-V**

TABLE 7-1 (Continued)
PRINCIPLES OF SUSTAINABILITY AS RELATED TO CEQA TOPICS FOR BOTH DSP AND CPP

Sustainability Principle	Project Component	CEQA Topics and Related Mitigation Measures Recommended in Addition to Project Components		
		Relevant CEQA Topics	**Related Mitigation Measures**	**Scenario Applicability**
Open Space and Habitat (cont.)			**Mitigation Measure 4.C-2c:** Where disturbance to sensitive natural communities cannot be avoided, compensation shall be provided for temporary impacts and permanent loss to ensure that there is no overall loss of sensitive natural communities as a result of Project Site development. Onsite, in kind replacement of sensitive natural communities including coastal scrub, willow scrub, tidal marsh, freshwater emergent wetlands, and lined manmade drainages that have developed bed and bank characteristics shall be a condition of development. Compensation shall be detailed on an impact-specific basis and shall include development of an onsite wetland mitigation and monitoring plan, which shall be developed prior to Project Site development or in coordination with permit applications and/or conditions. Alternately, offsite mitigation may be pursued through an approved mitigation bank, although this option may result in a higher ratio for compensation. At a minimum, such plans shall include: • Baseline information, including a summary of findings for the most recent wetland delineation conducted at the Project Site; • Anticipated habitat enhancements to be achieved through compensatory actions, including mitigation site location (onsite enhancement or offsite habitat creation) and hydrology; • Performance and success criteria for wetland creation or enhancement including, but not limited to, the following: - At least 70 percent survival of installed plants for each of the first three years following planting. - Performance criteria for vegetation percent cover in Years 1-4 as follows: at least 10 percent cover of installed plants in Year 1; at least 20 percent cover in Year 2; at least 30 percent cover in Year 3; at least 40 percent cover in Year 4. - Performance criteria for hydrology in Years 1-5 as follows: 14 or more consecutive days of flooding, ponding, or a water table 12 inches or less below the soil surface during the growing season at a minimum frequency of three of the five monitoring years; OR establishment of a prevalence of wetland obligate plant species. - Invasive plant species that threaten the success of created or enhanced wetlands should not contribute <u>relative</u> cover greater than 35 percent in Year 1, 20 percent in Years 2 and 3, 15 percent in Year 4, and 10 percent in Year 5. - If necessary, supplemental water shall be provided by a water truck for the first two years following installation. Any supplemental water must be removed or turned off for a minimum of two consecutive years prior to the end of the monitoring period, and the wetland must meet all other criteria during this period. At the end of the five-year monitoring period, the wetland must be self-sufficient and capable of persistence without supplemental water. - At least 75 percent cover by hydrophytic vegetation at the end of the five-year monitoring period. In addition, wetland hydrology and hydric soils must be present and defined as follows: ▪ *Hydrophytic vegetation* – A plant community occurring in areas where the frequency and duration of inundation or soil saturation produce permanently or periodically saturated soils of sufficient duration to exert a controlling influence on the plant species present. ▪ *Wetland hydrology* – Identified by indicators such as sediment deposits, water stains on vegetation, and oxidized rhizospheres along living roots in the upper 12 inches of the soil, or satisfaction of the hydrology performance criteria listed above. ▪ *Hydric soils* – Soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions, which are often characterized by features such as redox concentrations, which form by the reduction, translocation, and/or oxidation of iron and manganese oxides. Hydric soils may lack hydric indicators for a number of reasons. In such cases, the same standard used to determine wetland hydrology when indicators are lacking can be used. - Five years after any wetland creation, a wetland delineation shall be performed to determine whether created wetlands are developing according to the success criteria outlined in the project permits. If they are not, remedial measures such as re-planting and or re-design and construction of the created wetland shall be taken to ensure that the Project's mitigation obligations are met. • Monitoring and reporting requirements. If permanent and temporary impacts on jurisdictional waters cannot be compensated onsite through the restoration or enhancement of wetland features incorporated within proposed open space areas, the specific project applicant shall provide additional compensatory mitigation for these habitat losses. Potential options include the creation of additional wetland acreage onsite or the purchase of offsite mitigation. Offsite compensatory mitigation would be required to fulfill the performance standards described above.	**DSP, DSP-V, CPP, CPP-V**

TABLE 7-1 (Continued)
PRINCIPLES OF SUSTAINABILITY AS RELATED TO CEQA TOPICS FOR BOTH DSP AND CPP

Sustainability Principle	Project Component	CEQA Topics and Related Mitigation Measures Recommended in Addition to Project Components		
		Relevant CEQA Topics	**Related Mitigation Measures**	**Scenario Applicability**
Open Space and Habitat (cont.)			**Mitigation Measure 4.C-4a:** Development in the Baylands shall be subject to a requirement for a Project wide Open Space Plan to be prepared by a landscape architect in coordination with a qualified habitat restoration biologist and included as a component of the Specific Plan. The Plan shall incorporate designs to provide for wildlife movement corridors and to enhance habitat for native wildlife species. Specific requirements shall include the following: • Landscaped areas shall contain a mosaic of native habitat types that support fauna of the surrounding area, including coastal scrub, grassland, and willow scrub habitats. Tree plantings shall be limited to native species whenever possible, as these species could create more nesting and roosting habitat for native birds and bats. • Landscape plans shall incorporate both east-west and north-south open space areas, to promote both linkages between upland habitats and San Francisco Bay and linkages between upland habitats along the Bay shoreline. • Removed trees shall be replaced at a minimum ratio of 1:1 (native trees shall be substituted for non-native trees whenever possible). The minimum ratio of 1:1 shall be met five years after planting; initial plantings may require greater than 1:1 ratio to achieve this standard. • Nest boxes for bats and cavity-nesting bird species shall be installed in passive recreational areas.	**DSP, DSP-V, CPP, CPP-V**
			Mitigation Measure 4.C-4b: Development in the Baylands shall be subject to a requirement for a Marsh Wildlife and Habitat Protection Plan for the Project to be prepared as part of the specific plan process prior to approval of any development projects. The Habitat Protection Plan shall be prepared by a qualified biologist and subject to approval by the Brisbane Community Development Department. The Plan shall include (but not be limited to), the following components: • To minimize the effect of night lighting on wetland habitats adjacent to Project Site development, the following shall apply in the vicinity of wetlands located north of the lagoon, development north and south of the Visitacion Creek channel, and any development adjacent to freshwater wetlands in the western portion of the Project Site: - Street lighting shall be provided only at intersections. - Low-intensity street lamps and low elevation lighting poles shall be provided. - Internal silvering of the globe or external opaque reflectors shall be provided to direct light away from preserved wetland or open water habitats. - In addition, private sources of illumination around homes (**for DSP and DSP-V only**) shall also be directed and/or shaded to minimize glare into these habitats. • Residential and commercial leases within the Project Site shall prohibit building occupants from creating outdoor feeding stations for feral cats to prevent feral cat colonies from establishing and to prevent the attraction of other predatory wildlife such as red fox, raccoon, or opossums. Such restrictions shall be monitored by a property owners association which shall have the right to impose fines for violation of this requirement. • If a buffer cannot be accommodated between development and habitat areas, cyclone fencing with vinyl slats (or an equivalent screening barrier) at a minimum height of three feet for screening shall be installed outside of wetland habitat and between any preserved wetland or open water habitat and all residential or commercial development. Appropriate native vegetation shall be planted both inside and outside of the fence to provide further screening. This fencing would provide a barrier to exclude cats, dogs, and other household pets, which are not effectively deterred by buffers. • An education program for residents shall be developed including posted interpretive signs and informational materials regarding the sensitivity of preserved habitats, the dangers of unleashed domestic animals in this area. Such restrictions shall be monitored by a property owners association which shall have the right to impose fines for violation of the pet policy. Such information shall be provided in the vicinity of onsite marshes where public access is provided.	**DSP, DSP-V, CPP, CPP-V**
			Mitigation Measure 4.C-4c: All development on the Baylands that includes a residential component shall include a pet policy that requires residents to adhere to the measures of this policy to prevent impacts on wildlife from domestic animals. The policy shall become a part of the Covenants, Conditions, and Restrictions (CC&Rs) attached to each property deed for for-sale residential properties and enforced through the homeowners association or other entity specified in the CC&Rs, and made part of leases for residential rental properties and commercial leases within the Project Site. The pet	**DSP, DSP-V**

TABLE 7-1 (Continued)
PRINCIPLES OF SUSTAINABILITY AS RELATED TO CEQA TOPICS FOR BOTH DSP AND CPP

Sustainability Principle	Project Component	CEQA Topics and Related Mitigation Measures Recommended in Addition to Project Components		
		Relevant CEQA Topics	Related Mitigation Measures	Scenario Applicability
Open Space and Habitat (cont.)			policy shall limit the number of animals per residence and require adult cats, dogs, and rabbits to be spayed or neutered. Cats and dogs shall be required to be kept inside the residences and allowed outside residences only if on a leash and under the tenant's control and supervision, except within areas specifically designed as dog parks. To provide effective predator control, feral animal trapping may be necessary.	
			Mitigation Measure 4.C-4d: During design of any building greater than 100 feet tall, the applicant and architect shall consult with a qualified biologist experienced building/lighting design issues (as approved by the City of Brisbane Planning Department) to identify lighting related measures to minimize the effects of the building's lighting on birds. Such measures, which may include the following and/or other measures, shall be incorporated into the building's design and operation. • Use strobe or flashing lights in place of continuously burning lights for obstruction lighting. Use flashing white lights rather than continuous light, red light, or rotating beams. • Install shields onto light sources not necessary for air traffic to direct light towards the ground. • Extinguish all exterior lighting (i.e., rooftop floods, perimeter spots) not required for public safety. • When interior or exterior lights must be left on at night, the operator of the buildings shall examine and adopt alternatives to bright, all-night, floor-wide lighting, which may include: - Installing motion-sensitive lighting. - Using desk lamps and task lighting. - Reprogramming timers. - Use of lower-intensity lighting. • Windows or window treatments that reduce transmission of light out of the building will be implemented to the extent feasible. • Educational materials will be provided to building occupants encouraging them to minimize light transmission from windows, especially during peak spring and fall migratory periods, by turning off unnecessary lighting and/or closing drapes and blinds at night. • A report of the lighting alternatives considered and adopted shall be provided to the City of Brisbane Planning Department for review and approval prior to construction. The City of Brisbane Planning Department shall ensure that lighting-related measures to reduce the risk of bird collisions have been incorporated into the design of such buildings to the extent practicable.	**DSP, DSP-V, CPP, CPP-V**
			Mitigation Measure 4.C-4e: During design of any building greater than 100 feet tall, the applicant and architect shall consult with a qualified biologist experienced with urban building bird strikes design issues (as approved by the City of Brisbane Planning Department) to identify measures related to the external appearance of the building to minimize the risk of bird strikes. Such measures, which may include the following and/or other measures, shall be incorporated into the building's design: • Use non-reflective tinted glass. • Use window films to make windows visible to birds from the outside. • Use external surfaces/designs that break up reflective surfaces. • Place bird attractants, such as bird feeders and baths, at least three feet and preferably 30 feet or more from windows in order to reduce collision mortality. • A report of the design measures considered and adopted shall be provided to the City of Brisbane Planning Department for review and approval prior to construction. The City of Brisbane Planning Department shall ensure that building design related measures to reduce the risk of bird collisions have been incorporated to the extent practicable.	**DSP, DSP-V, CPP, CPP-V**

TABLE 7-1 (Continued)
PRINCIPLES OF SUSTAINABILITY AS RELATED TO CEQA TOPICS FOR BOTH DSP AND CPP

Sustainability Principle	Project Component	CEQA Topics and Related Mitigation Measures Recommended in Addition to Project Components		
		Relevant CEQA Topics	**Related Mitigation Measures**	**Scenario Applicability**
Open Space and Habitat (cont.)			**Mitigation Measure 4.C-4f:** Prior to tree removal, trimming of trees or shrubs or soil disturbance for site grading, a survey of suitable nesting habitat shall be conducted by a avian biologist familiar with Bay Area species and habitats to map the location of vegetation that could support avian species. If ground-disturbing activities or vegetation removal are proposed during the breeding bird season (January 1 through September 15), to avoid direct losses of nests, eggs, and nestlings and indirect impacts on avian breeding success, a qualified avian biologist shall survey active sites for nesting raptors and passerine birds not more than 14 days prior to the ground-disturbing activity or vegetation removal. Surveys shall include all trees in line-of-sight and within 500 feet of construction for raptors, and all vegetation (including bare ground within 250 feet) for all other species. If active nests are found, tree removal or tree trimming and construction activities, including soil disturbance, construction noise, increased human presence, would be halted and the nest would be monitored by a qualified biologist who shall verify when the nestlings have fledged and left the nest.	**DSP, DSP-V, CPP, CPP-V**
			Mitigation Measure 4.C-4g: Applicants for site specific development projects pursuant to an approved specific plan within the Project Site shall take the following measures to avoid direct mortality of roosting special-status bats and disturbance of maternity roosts or winter hibernacula: • A bat biologist familiar with Bay Area species shall conduct surveys of all potential bat habitat, including areas suitable for maternity roosts and/or winter hibernacula within a site proposed for development prior to initiation of construction activities, including initial grading. Surveys shall be conducted within one year prior to construction to capture current bat habitats at the site, as presence of bats could vary yearly and survey results several years before impacts occur could be inaccurate. Potentially suitable habitat shall be located visually. Bat emergence counts shall be made at dusk as the bats depart from any suitable habitat. In addition, an acoustic detector shall be used to determine any areas of bat activity. At least four nighttime emergence counts shall be undertaken on nights that are warm enough for bats to be active. The bat biologist shall determine the type of each active roost (i.e., maternity, winter hibernacula, day or night). • Removal or trimming of trees or demolition of buildings showing evidence of bat activity shall occur during the period least likely to affect the bats as determined by a qualified bat biologist (generally between February 15 and October 15 for winter hibernacula and between August 15 and April 15 for maternity roosts). If active day or night (non-maternity) roosts are found, the bat biologist shall take action to allow individual bats to depart prior to tree removal or building demolition. • During construction, a no-disturbance buffer shall be created around active bat roosts being used for maternity or hibernation purposes at a distance to be determined in consultation with CDFW. Bat roosts initiated during construction are presumed to be unaffected, and no buffer is necessary	**DSP, DSP-V, CPP, CPP-V**
Culture and Heritage	Adaptive reuse of historic Roundhouse and Lazzarri Fuel buildings	**Cultural Resources**	**Mitigation Measure 4.D-1a:** Within 90 days of Specific Plan adoption or prior to the issuance of the first grading or building permit within the Project Site (whichever occurs first), the property owner shall prepare and implement a stabilization plan subject to review and approval by the Brisbane Planning Department to protect and stabilize the Roundhouse from further deterioration and future vandalism. Such a plan may include, but is not limited to, additional protective fencing, signage, installation of temporary roof coverings to protect the interior from rainwater intrusion, and covering of all window and door openings with plywood. In preparation of the stabilization plan, the property owner shall use the National Park Service's *Preservation Brief #31, Mothballing Historic Buildings.* Within 90 days of the issuance of any planning or development approval (e.g., site remediation, grading, site development plan, building permit) encompassing the area of the historic Roundhouse, the property owner shall also submit a rehabilitation plan for the historic Roundhouse to the City for review and approval by the Brisbane Planning Commission. Implementation of the rehabilitation plan shall be completed prior to the first occupancy permit for the area subject to the planning or development permit approved encompassing the area of the historic Roundhouse. The rehabilitation plan shall be consistent with the performance standards contained in the following documents: • The Secretary of the Interior's Standards for Rehabilitation. Such standards call for the retention of significant, character-defining features of the building while finding a new use for the structure that is compatible with its historic character; • The National Park Service's *Preservation Brief #17, Identifying the Visual Aspects of Historic Buildings as an Aid to Preserving Their Architectural Character*; and	**DSP, DSP-V, CPP, CPP-V**

TABLE 7-1 (Continued)
PRINCIPLES OF SUSTAINABILITY AS RELATED TO CEQA TOPICS FOR BOTH DSP AND CPP

Sustainability Principle	Project Component	CEQA Topics and Related Mitigation Measures Recommended in Addition to Project Components		
		Relevant CEQA Topics	**Related Mitigation Measures**	**Scenario Applicability**
Culture and Heritage (cont.)			• The National Park Service's *Preservation Brief #18, Rehabilitating Interiors in Historic Buildings - Identifying and Preserving Character-Defining Elements*. To ensure compliance with the Secretary of the Interior's Standards for Rehabilitation, rehabilitation plans shall also be reviewed by a qualified consulting architectural historian who meets the Secretary of the Interior's Standards for Architectural History prior to action by the Planning Commission. The rehabilitation plans shall meet a minimum of 7 out of 10 of the standards. The Secretary of the Interior's Standard #6, specifically, requires that replacement of missing features will be substantiated by documentary and physical evidence. As nearly 50 percent of the building is missing due to fires and vandalism, such evidence is key to its successful rehabilitation. Original plans and early photographs of the Roundhouse are available at the Library and Collections Department of the California State Railroad Museum in Sacramento. These original plans and early photographs shall be used when preparing the rehabilitation plan for this building to ensure that rehabilitation efforts will adequately preserve the historic architectural and structural integrity of the building. **Mitigation Measure 4.D-1b:** All Project Site development within 50 feet of the Roundhouse or the Machinery & Equipment building be designed to ensure their architectural compatibility with the historic Roundhouse, and to ensure that new buildings do not overwhelm or unnecessarily contrast with these historic buildings. To this end, all development projects shall incorporate a minimum 50-foot structural setback and appropriate heights, volumes, and materials for any proposed new buildings in the immediate vicinity to ensure compatibility with the Roundhouse and the Machinery & Equipment building. Appropriate heights of new construction adjacent to the Roundhouse would be the same as (about 25 feet), or slightly greater than (i.e., up to 15 feet greater than), the existing height of the building. Appropriate heights of new construction adjacent to the Machinery & Equipment building would be the same as (about 40 feet) or slightly greater than (up to 10 feet greater than), the existing height of the building. Appropriate materials for new construction in the immediate vicinity of either building would be brick cladding and/or cementitious materials painted a similar dark red color, as well as Spanish tile roof cladding. Appropriate volumes for new development that would face the Roundhouse should mirror the curve of the existing structure. Appropriate volumes for new development in the vicinity of the Machinery & Equipment building would be rectilinear in massing. All development projects within 50 feet of the Roundhouse or the Machinery & Equipment building shall be subject to City design permit review and approval prior to development	
Economic Vitality with Equity and Ecology		Economic issues are not typically addressed under CEQA. Fiscal impacts and economic issues are relevant under CEQA only where fiscal impacts lead to physical changes in the environment. These can include both positive economic benefits of a project leading to growth inducement, or adverse economic impacts leading to physical deterioration of existing development and urban decay. The EIR Land Use section, however, addresses consistency of proposed Project Site development with applicable General Plan policies, some of which deal with issues relevant to this sustainability principle.	Project consistency with applicable General Plan policies would be required prior to project approval as part of the planning review process. No mitigation measures are proposed.	

TABLE 7-1 (Continued)
PRINCIPLES OF SUSTAINABILITY AS RELATED TO CEQA TOPICS FOR BOTH DSP AND CPP

Sustainability Principle	Project Component	CEQA Topics and Related Mitigation Measures Recommended in Addition to Project Components		
		Relevant CEQA Topics	**Related Mitigation Measures**	**Scenario Applicability**
Health, Safety and Happiness	Remediation of contaminated soils to occur; capping of contaminated soils proposed vs. off-haul of soils to reduce transportation fuel requirements and need for offsite waste disposal. Remediation to be subject to the oversight and approval of the California Department of Toxic Substances Control (Operating Unit No. 1) and the Master grading plans to address risk of differential settlement and earthquake damage, provide for preservation of historic buildings, account for capping of contaminated areas, and minimize haul trips and associated emissions. Reuse of "brownfields" site close to urban development. Remediation of contaminated soils/water. Preparation of Risk Management Plan (RMP) to address final remedial actions and engineering controls. Provision of recreational park lands in compliance with Municipal Code requirements.	**Hazards and Hazardous Materials**	**Mitigation Measure 4.G-2a (Confirm Achievement of Remediation Goals):** Prior to approval of a specific plan for any parcel within the Project Site, the project applicant shall provide confirmation to the City that the Department of Toxic Substances Control (DTSC), Regional Water Quality Control Board (RWQCB), and/or the San Mateo County Environmental Health Division as the Local Enforcement Agency, as applicable, have reviewed and are prepared to approve a Remedial Action Plan or final closure and post-closure maintenance plans upon certification of appropriate environmental documentation for that action. Prior to issuance of a building or grading permit (other than for grading needed for remediation activities) for any parcel within the Project Site, the applicant shall provide the City with evidence that the Department of Toxic Substances Control (DTSC), Regional Water Quality Control Board (RWQCB), and/or the San Mateo County Environmental Health Division as the Local Enforcement Agency in relation to the landfill have approved applicable Remedial Action Plan(s) or final closure and post-closure maintenance plans. Prior to commencement of building construction or site grading for any parcel within the Project Site, the project applicant shall obtain regulatory approval from the Department of Toxic Substances Control (DTSC), Regional Water Quality Control Board (RWQCB), and/or the San Mateo County Environmental Health Division as the Local Enforcement Agency in relation to the landfill for the proposed land use, in the form of a Remediation Action Completion Report or equivalent closure letter stating that remediation goals have been achieved for proposed land uses. **Mitigation Measure 4.G-2b (Soil and Groundwater Management Plan):** Prior to issuance of a building or grading permit for any parcel within the Project Site a Soil and Groundwater Management Plan (SGMP) shall be prepared by a qualified environmental consulting firm, reviewed and approved by DTSC and the RWQCB and implemented by the project applicant. The Soil and Groundwater Management Plan shall also include a requirement for development and implementation of site-specific safety plans to be prepared prior to commencement of construction consistent with Occupational Safety and Health Administration (OSHA) Safety and Health Standards 29 CFR 1910.120 as well as management of groundwater produced through temporary dewatering activities. Such site-specific safety plans shall include necessary training, operating and emergency response procedures, and reporting requirements to regulate all activities that bring workers in contact with potentially contaminated soil or groundwater, landfill gas, or leachate to ensure worker safety and avoid impacts to the environment. Further, the Soil and Groundwater Management Plan shall include protocols for any areas of the site that require excavation and relocation of refuse material (e.g., building foundations and utility infrastructure) in accordance with the Title 27 of the California Code of Regulations to ensure that the integrity of the low-hydraulic-conductivity layer (LHCL) requirements are maintained. **Mitigation Measure 4.G-2c (Master Deconstruction and Demolition Plan):** Prior to issuance of a demolition permit for any parcel within the Project Site, a Master Deconstruction and Demolition Plan shall be submitted by the project applicant to the City Building Official. The plan shall be reviewed and approved by the Building Official prior to issuance of the requested demolition permit. This plan shall include documentation of hazardous materials determinations (surveys) and demolition or deconstruction recommendations in accordance with local and state requirements. If the surveys conducted by licensed professionals prior to issuance of a demolition permit per the requirements above hazardous building materials2, demolition or deconstruction shall proceed in accordance with applicable BAAQMD, OSHA, and CalOSHA requirements, which may include air permits or agency notifications, worker awareness training, exposure monitoring, medical examinations and a written respiratory protection program.	**DSP, DSP-V, CPP, CPP-V**

1 Priority Development Areas (PDAs) are locally-identified, infill development opportunity areas within existing communities. They are generally areas of at least 100 acres where there is local commitment to developing more housing along with amenities and services to meet the day-to-day needs of residents in a pedestrian-friendly environment served by transit. To be eligible to become a PDA, an area had to be within an existing community, near existing or planned fixed transit or served by comparable bus service, and planned for more housing.

2 Typical hazardous building materials include lead-based paint; asbestos-containing materials, such as insulation, paint, or fiberboards; PCBs in lighting ballasts or wiring; and mercury in thermostat switches. BAAQMD oversees the public health and environmental aspects of removal and disposal of asbestos-containing materials and other hazardous building materials. CalOSHA oversees worker protection and contractor licensing with respect to hazardous building materials.

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7.5 References

American Planning Association, *Policy Guide on Planning for Sustainability*, www.planning.org/policy/guides/adopted/sustainability.htm, 2000.

City of Brisbane Open Space and Ecology Committee, *Sustainability for the Baylands, Draft for Discussion,* April 2013.

United Nations (UN) World Commission on Environment and Development, Our Common Future, www.un-documents.net/wced-ocf.htm, 1987.

CHAPTER 8
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