PUBLIC REVIEW DRAFT

SIERRA POINT BIOTECH PROJECT ENVIRONMENTAL IMPACT REPORT

STATE CLEARINGHOUSE #2006012024

LSA

November 2006

PUBLIC REVIEW DRAFT

SIERRA POINT BIOTECH PROJECT ENVIRONMENTAL IMPACT REPORT

STATE CLEARINGHOUSE #2006012024

Submitted to:

City of Brisbane
50 Park Place
Brisbane, CA 94005-1310

Prepared by:

LSA Associates, Inc.
2215 Fifth Street
Berkeley, CA 94710
510.540.7331

LSA

November 2006

TABLE OF CONTENTS

APPENDICES

FIGURES

TABLES

I. INTRODUCTION

A. PURPOSE OF THE EIR

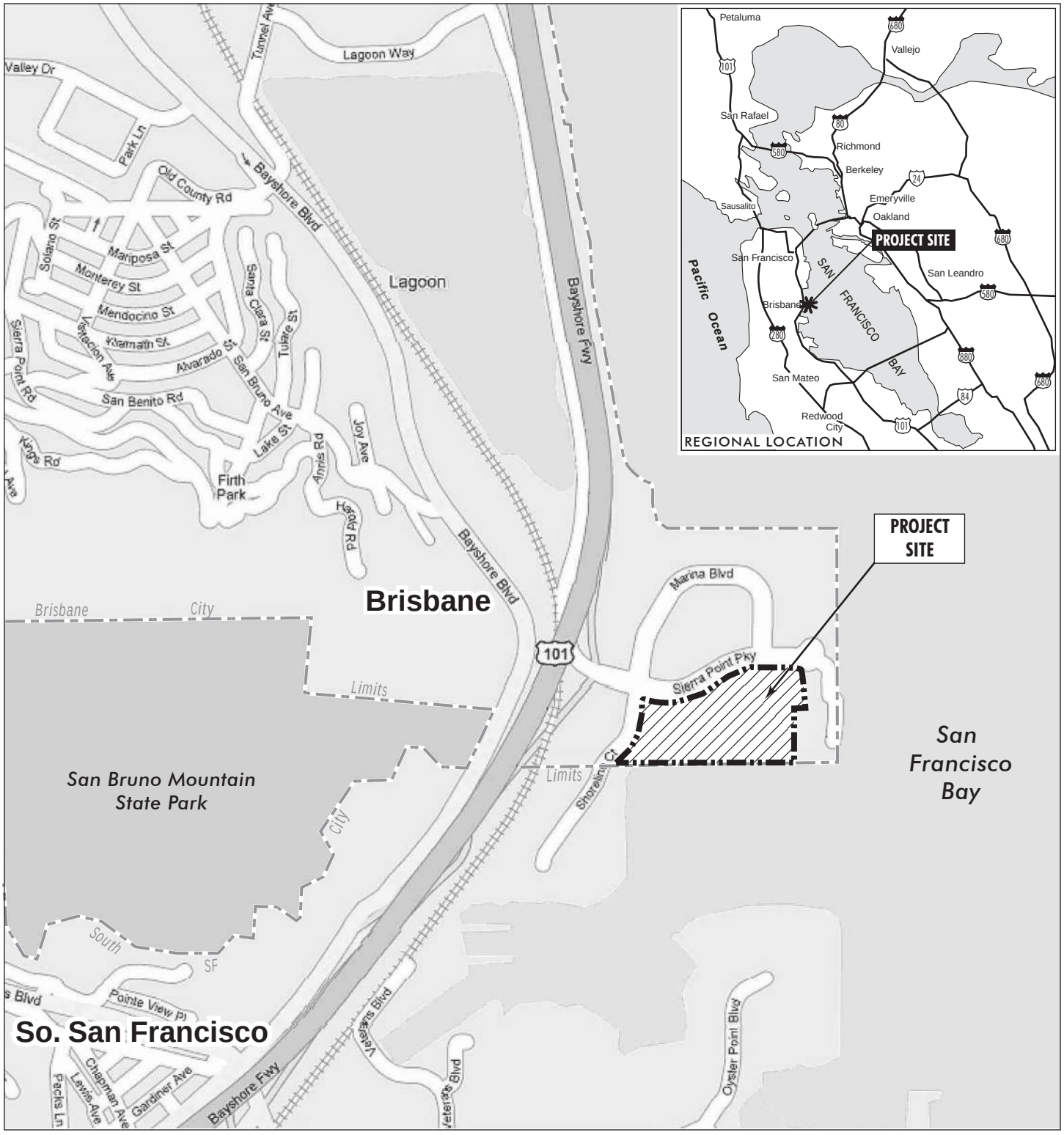
In compliance with the California Environmental Quality Act (CEQA), this report describes the environmental consequences of the Sierra Point Biotech Project proposed for three parcels located on Sierra Point peninsula in the City of Brisbane, in San Mateo County. The City of Brisbane is the lead agency for environmental review of the proposed project. For the purposes of this EIR, the project "applicant" is considered to be Slough Estates International (the applicant of record) and Sierra Point L.L.C. (the landowner). This Environmental Impact Report (EIR) is designed to provide information about the proposed project and will be used by the City of Brisbane decision-makers, responsible agencies, trustee agencies, and the public in their review of the proposed project and the various approvals required for the project as described in Chapter III of this document. This EIR also examines various alternatives to the proposed project, and recommends a set of mitigation measures to reduce or avoid potentially significant impacts.

B. PROPOSED PROJECT

The regional project location and vicinity are shown in Figure I-1. The project applicant proposes to construct five office/research and development (R&D) buildings and one parking structure, for a total of 540,185 square feet of office/R&D space, 2,500 square feet of retail space and 1,799 parking stalls in surface and garage parking. The project would be designed as a campus facility with space for multiple tenants, and would accommodate approximately 1,800 employees.

The project site is located on the western side of the San Francisco Bay, on the Sierra Point peninsula in the City of Brisbane. The site is bounded by: Sierra Point Parkway and Shoreline Court to the north and west, respectively; the City limits and the Bay to the south; and the Brisbane Marina and Sierra Point Yacht Club and Harbor to the east. Regional vehicular access to the project site from Highway 101 northbound is via the Sierra Point Parkway off-ramps and access from Highway 101 southbound is via the Sierra Point Parkway and Lagoon Way off-ramp north of the project site.

The project site includes land under the jurisdiction of the Bay Conservation and Development Commission (BCDC), a State agency that regulates development and modification of natural features within the Bay and along the shoreline. BCDC regulates that portion of land that is 100 feet inland from the shoreline. The project site also contains a portion of the regional San Francisco Bay Trail, which runs along the southern portion of the site.



LSA

FIGURE I-1

N

0 660 1320

FEET

PROJECT SITE

CITY LIMITS

Sierra Point Biotech Project EIR

Project Vicinity and Regional Location

SOURCE: GOOGLE MAPS, 2006.

I:\BRI0601 sierra point\figures\Fig_I1.ai (08/24/06)

C. EIR SCOPE

The City of Brisbane circulated a Notice of Preparation (NOP) for this EIR on January 4, 2006 that included a list of potential environmental effects that could result from the proposed project. The NOP was mailed to public agencies and organizations considered likely to be interested in the potential impacts of the project. Comments received by the City on the NOP were taken into account during preparation of this EIR. The NOP and written comment letters are provided in Appendix A of this EIR.

The following environmental topics are addressed as separate sections in this EIR:

- Land Use and Planning Policy
- Population, Employment and Housing
- Transportation, Circulation and Parking
- Air Quality
- Noise
- Geology, Soils and Seismicity
- Hydrology and Water Quality
- Biological Resources
- Hazards and Hazardous Materials
- Public Services and Recreation
- Utilities and Infrastructure
- Visual Resources

D. REPORT ORGANIZATION

This EIR is organized into the following chapters:

- *Chapter I – Introduction:* Discusses the overall EIR purpose; provides a summary of the proposed action and EIR topics; and summarizes the organization of the EIR.
- *Chapter II – Summary:* Provides a summary of the impacts that would result from implementation of the proposed project, and describes mitigation measures recommended to reduce or avoid significant impacts. A discussion of alternatives to the proposed project is also provided.
- *Chapter III – Project Description:* Provides a description of the project site, site development history, project objectives, required approval process, and details of the project itself.
- *Chapter IV – Setting, Impacts and Mitigation Measures:* Describes the following for each environmental technical topic: existing conditions (setting); potential environmental impacts and their level of significance; and mitigation measures recommended to mitigate identified impacts. Potential adverse impacts are identified by levels of significance, as follows: less-than-significant impact (LTS), significant impact (S), and significant and unavoidable impact (SU). The signifi-

cance of each impact is categorized before and after implementation of any recommended mitigation measure(s).

- *Chapter V – Alternatives:* Provides an evaluation of two alternatives to the proposed project including the No Project Alternative and the Revised Site Plan Alternative.
- *Chapter VI – CEQA Required Assessment Conclusions:* Provides additional specifically-required analyses of the proposed project's growth-inducing effects, cumulative impacts, significant unavoidable impacts, and effects found not to be significant.
- *Chapter VII – Report Preparation:* Identifies preparers of the EIR, references used and persons and organizations contacted.

II. SUMMARY

A. PROJECT UNDER REVIEW

This EIR has been prepared to evaluate the environmental impacts of the proposed Sierra Point Biotech Project (project), an office/research and development project in the City of Brisbane. A more detailed description of the proposed project is provided in Chapter III, Project Description.

B. SUMMARY OF IMPACTS AND MITIGATION MEASURES

This summary provides an overview of the analysis contained in Chapter IV, Setting, Impacts and Mitigation Measures. CEQA requires a summary to include discussion of: 1) potential areas of controversy; 2) significant impacts; 3) recommended mitigation measures; and 4) alternatives to the project.

1. Potential Areas of Controversy

The potential areas of controversy that surround the project and are evaluated in Chapter IV of this EIR include: land use; transportation, circulation and parking; air quality; noise; hydrology and water quality; hazards and hazardous materials; utilities and infrastructure; and visual resources.

2. Significant Impacts

Under CEQA, a significant impact on the environment is defined 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."

Development of the proposed project has the potential to generate environmental impacts in a number of areas. Impacts in the areas listed below, which are specifically addressed in Chapter IV of this EIR, would be potentially significant for the project. Each of the impacts identified in these areas would be reduced to a less-than-significant level if the mitigation measures noted in this EIR are implemented.

- Air Quality
- Noise
- Geology, Soils and Seismicity
- Hydrology and Water Quality
- Biological Resources
- Hazards and Hazardous Materials
- Utilities and Infrastructure

3. Significant Unavoidable Impacts

As discussed in Chapters IV and VI of this EIR, all significant impacts could be mitigated to less-than-significant levels with the implementation of the recommended mitigation measures, except in the following areas:

- *Transportation*: The proposed project would contribute to an existing significant impact at the intersection of Sierra Point Parkway and the US 101 northbound ramp under Cumulative Plus Project Conditions (year 2030).
- *Transportation*: The proposed project would contribute to a significant level of service cumulative impact on the following three freeway segments: US 101 southbound between Harney Way and Sierra Point Parkway in the AM Peak hour, US 101 southbound between Sierra Point Parkway and Oyster Point Boulevard in the PM Peak hour, and US 101 northbound between Oyster Point Boulevard and Sierra Point Parkway in the AM Peak hour.
- *Visual:* Construction of the proposed parking garage at the northeast corner of Sierra Point Parkway would degrade existing public views and the visual quality of the site.

4. Alternatives to the Project

The following alternatives to the project are considered in this EIR:

- The **No Project alternative**, which assumes the development of a 630,000 square feet office park on the project site as currently approved under the Sierra Point Master Plan.[1] This alternative would not require General Plan or Zoning Ordinance amendments and was conceptually approved by the City in the 1984 Development Agreement.[2]
- The **Revised Site Plan alternative**, assumes that there would be two parking garages, one 412-space garage at the northeast corner of the site, which would be two levels lower in height than the proposed garage and set back an additional 63 feet from Sierra Point Parkway, and the other 678-space garage would be located in the southwest corner of the site adjacent to Shoreline Court.

The Revised Site Plan alternative is identified as the environmentally superior alternative. Each of the alternatives is discussed in detail in Chapter V of this EIR.

C. SUMMARY TABLE

Table II-1 identifies the impacts and mitigation measures for the project. The information in the tables is organized to correspond with environmental issues discussed in Chapter IV. The tables are arranged in four columns: 1) impacts; 2) level of significance prior to mitigation measures; 3) mitigation measures; and 4) level of significance after mitigation. For a complete description of potential impacts and recommended mitigation measures, please refer to the specific discussions in Chapter IV and Chapter VI.

[1] OPUS West Corporation, 2001. Combined Site and Architectural Design Guidelines, Sierra Point. March 12.

[2] The City Council adopted Ordinance No. 299 approving the 1984 Development Agreement on March 26, 1984

Table II-1: Summary of Impacts and Mitigation Measures

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
A. LAND USE			
There are no significant Land Use and Planning Policy impacts.			
B. POPULATION, EMPLOYMENT AND HOUSING			
There are no significant Population, Employment and Housing impacts.			
C. TRANSPORTATION, CIRCULATION AND PARKING			
TRANS-1: In the Background Plus Project Conditions, the proposed project would have a significant impact on the unsignalized intersection (#9) of Sierra Point Parkway and the US 101 northbound ramp.	S	TRANS-1: The applicant shall be responsible for installing a signal, to the satisfaction of the City Engineer in regards to design and the timing of the improvement, at the intersection of Sierra Point Parkway and US 101 northbound ramp. This mitigation measure would allow the intersection to operate at LOS C during the AM peak hour and LOS A during the PM peak hour.	LTS
TRANS-2: In the Background Plus Project Conditions, the proposed project would have a significant impact on the unsignalized intersection (#8) of Sierra Point Parkway and Lagoon Way.	S	TRANS-2: Based on the Second Amendment document, the applicant shall be responsible for modifying the intersection of Sierra Point Parkway and Lagoon Way, to the satisfaction of the City Engineer in regards to design and the timing of the improvement, so that the intersection is signalized and a second northbound through lane is added. This mitigation measure would allow the intersection to operate at LOS B during the AM peak hour and LOS B during the PM peak hour.	LTS
TRANS-3: In the Background Plus Project Conditions, the proposed project would have a significant impact on the unsignalized intersection (#10) of Sierra Point Parkway and Shoreline Court.	S	TRANS-3: Based on the Second Amendment document, the applicant shall be responsible for signalizing the intersection of Sierra Point Parkway and Shoreline Court and adding a second northbound left-turn lane, a second southbound right-turn lane, and a second eastbound left-turn lane, to the satisfaction of the City Engineer in regards to design and the timing of the improvement. This mitigation measure would allow the intersection to operate at LOS B during the AM peak hour and LOS C during the PM peak hour.	LTS

Table II-1 *Continued*

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
TRANS-4: Implementation of the proposed project would contribute to a significant cumulative impact at the intersection (#9) of Sierra Point Parkway and the US 101 northbound ramp.	S	TRANS-4: Implement Mitigation Measure TRANS-1. This mitigation measure would allow the intersection of Sierra Point Parkway and the US 101 northbound ramp to operate at LOS C during the cumulative PM peak hour and LOS F during the AM peak hour with a decrease in the average delay compared to Cumulative Conditions without the project. While implementation of this mitigation measure would reduce the impact, it would not reduce it to a less-than-significant level in the cumulative AM peak hour condition and this impact would remain significant and unavoidable.	SU
TRANS-5: Implementation of the proposed project would contribute to a significant cumulative impact at the intersection (#8) of Sierra Point Parkway and Lagoon Way.	S	TRANS-5: Implement Mitigation Measure TRANS-2. This mitigation measure would allow the intersection of Sierra Point Parkway and Lagoon Way to operate at LOS C during the AM peak hour and LOS B during the PM peak hour, with a decrease in the average delay compared to Cumulative Conditions without the project.	LTS
TRANS-6: Implementation of the proposed project would contribute to a significant cumulative impact at the intersection (#10) of Sierra Point Parkway and Shoreline Court.	S	TRANS-6: Implement Mitigation Measure TRANS-3. This mitigation measure would allow the intersection of Sierra Point Parkway and Shoreline Court to operate at LOS B during the AM peak hour and LOS D during the PM peak hour, with a decrease in the average delay compared to the cumulative condition without the project.	LTS
TRANS-7: Implementation of the proposed project would contribute to a significant cumulative impact at the intersection (#6) of Bayshore Boulevard and Old County Road.	S	TRANS-7: The project applicant shall implement up to two of the following measures (per the requirements of the City Engineer in regards to design and the timing of the improvement), to reduce the project's contribution to the impact to the intersection of Bayshore Boulevard and Old County Road:	LTS

Table II-1 *Continued*

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
TRANS-7 *Continued*		• Install an additional second eastbound left-turn lane and convert the existing shared-through-left to a through lane at the intersection of Bayshore Boulevard/Old County Road. This improvement would change the existing eastbound geometry from one left-turn, one shared-through-left, and one right-turn to two left-turns, one through lane, and one right-turn lane. This mitigation measure would allow the intersection to operate at LOS C during both the AM and PM peak hours. Implementation of this mitigation may require the need for additional right-of-way to be obtained from nearby property owners. • Install a westbound through lane at the intersection of Bayshore Boulevard/Old County Road to change the existing westbound geometry from one shared-through-left and one right-turn to one shared-through-left, one through lane, and one right-turn lane. This mitigation measure would allow the intersection to operate at LOS C during both the AM and PM peak hours. This mitigation may require the need for additional right-of-way to be obtained from the nearby property owners. • Adjust the signal timing of the intersection which would improve the LOS to an acceptable level.	

Table II-1 *Continued*

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
TRANS-8: Implementation of the proposed project would contribute to a significant level of service cumulative impact on the following three freeway segments: • US 101 southbound between Harney Way and Sierra Point Parkway in the AM Peak hour. • US 101 southbound between Sierra Point Parkway and Oyster Point Boulevard in the PM Peak hour. • US 101 northbound between Oyster Point Boulevard and Sierra Point Parkway in the AM Peak hour.	S	TRANS-8: In accordance with CMP requirements, the project applicant shall ensure that Travel Demand Management (TDM) measures to reduce project impacts are implemented by the project applicant or tenants, per the approval of the City Engineer regarding the specific measures and the implementation timing. A list of TDM measures are provided in the San Mateo County Final Congestion Management Program. In coordination with the City and prior to issuance of a building permit, the applicant shall prepare and provide the City with a Traffic Reduction Plan that identifies specific TDM measures to be implemented. Specific measures that could be included in the Plan are listed below: • Adjust the signal timing of the intersection which would improve the LOS to an acceptable level. • Provide for the existing shuttle service to serve the Sierra Point Biotech project buildings and provide for increased frequencies of the shuttle during the peak periods to access the CalTrain and/or BART rail stations. Coordinate with the shuttle and transit operators with respect to the location of transit stops and the provision of related shuttle-user amenities (e.g., dedicated shuttle stops, seating areas, crosswalks); • Provide secure bicycle parking; • Provide and operate an on-site commute assistance center to allow for one stop shopping for transit and commute alternatives information, preferably staffed with a live person to assist building tenants with trip planning; • Provide subsidized transit passes; • Charge for parking and offer employees a parking cash-out program; and • Implement an alternate hours workweek program, also known as flextime. While implementation of this mitigation measure would reduce the impact, mitigation measures, involving implementation of TDM measures are typically designed to achieve a 10 to 20 percent traffic reduction. Even if these reductions could be achieved, the freeway segments could continue to operate above the CMP threshold for significant impacts. The measure would not reduce impacts to a less-than-significant level in the cumulative condition and this impact would remain significant and unavoidable.	SU

Table II-1 *Continued*

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
TRANS-9: Construction traffic associated with employees, grading and development of the project site could impact surrounding roadways by interrupting traffic flow.	S	TRANS-9: Prior to the approval of a grading permit, the applicant shall prepare a Construction Traffic Control Plan for review and approval by the City. The plan should identify locations for temporary signals; construction signage; striping; construction vehicle travel routes and site ingress and egress; staging areas; and timing of construction activities which appropriately limits hours during which large construction equipment may be brought on or off the site.	LTS
TRANS-10: The proposed design for the reconstruction of the Bay Trail would be unsafe and would conflict with pedestrian and bicycle mobility.	S	TRANS-10: Prior to the approval of the grading permit for the project, the site plan shall be revised so that the Bay Trail does not pass through the public parking area. The reconstruction of the Bay Trail shall be subject to San Francisco Bay Conservation and Development Commission (BCDC) and City of Brisbane review and approval to ensure that the reconstructed trail does not impact pedestrian and bicycle mobility and that the Bay Trail design includes amenities such as benches, lighting and landscaping.	LTS
TRANS-11: The proposed driveway curb radii for the project access driveways may be inadequate and could create a hazardous circulation condition.	S	TRANS-11: The project site plan shall be revised to include a minimum 20-foot turning radius at the western driveway on Sierra Point Parkway and the driveway at Shoreline Court; and a minimum 15-foot radius at the eastern driveway on Sierra Point Parkway. The revised site plan shall be reviewed and approved by the City Engineer to ensure that adequate driveway curb radii are provided.	LTS
TRANS-12: The proposed project could result in inadequate sight distance at project driveways leading to a hazardous circulation condition.	S	TRANS-12: Prior to issuance of a grading permit, the applicant shall provide the City with a revised site plan and parking plan that maintains some of the existing on-street parking prohibitions along the site frontages in the vicinity of the driveways in order to ensure that there would be sufficient sight distance at the project driveways. Prior to approval of a final site plan, the City Engineer shall ensure that any landscaping, parking or signage allows for unobstructed views for vehicles leaving the site.	LTS
TRANS-13: The alignment of the proposed project driveway at the western end of Sierra Point Parkway could conflict with the alignment of the opposing driveways.	S	TRANS-13: The project applicant shall provide the City Engineer with an alignment analysis to confirm that the proposed project access driveways are designed to not conflict with the existing alignment of opposing driveways or the traffic signal and related improvement plans at the Sierra Point Parkway and Shoreline Court intersection.	LTS

Table II-1 *Continued*

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
TRANS-14: The existing site plan includes one dead-end aisle within the proposed parking lot at the southwest end of the project site.	S	TRANS-14: Prior to issuance of a grading permit, the applicant shall provide to the City a revised site plan and parking plan that eliminates the dead-end parking aisles or shows that parking in the dead end aisle is designated for specific individuals. The plan shall also show that there is adequate turnaround space at the end of each drive aisle.	LTS
D. AIR QUALITY			
AIR 1: Construction period activities could generate significant dust, exhaust, and organic emissions.	S	AIR-1: Consistent with guidance from the BAAQMD, the following actions shall be required of construction contracts and specifications for the project. *Construction.* The following controls shall be implemented at all construction sites: • Water all active construction areas at least twice daily and more often during windy periods; active areas adjacent to existing land uses shall be kept damp at all times, or shall be treated with non-toxic stabilizers to control dust; • Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least 2 feet of freeboard; • Pave, apply water three times daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas, and staging areas at construction sites; • Sweep daily (with water sweepers) all paved access roads, parking areas, and staging areas at construction sites; water sweepers shall vacuum up excess water to avoid runoff-related impacts to water quality; • Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets; • Apply non-toxic soil stabilizers to inactive construction areas;	LTS

Table II-1 *Continued*

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
AIR-1 *Continued*		• Enclose, cover, water twice daily, or apply non-toxic soil binders to exposed stockpiles (dirt, sand, etc.); • Limit traffic speeds on unpaved roads to 15 mph; • Install sandbags or other erosion control measures to prevent silt runoff to public roadways; • Replant vegetation in disturbed areas as quickly as possible. • Install base rock at entryways for all exiting trucks, and wash off the tires or tracks of all trucks and equipment in designated areas before leaving the site; and • Suspend excavation and grading activity when sustained wind speeds exceed 25 mph. Implementation of this mitigation measure would reduce construction period air quality impacts to a less-than-significant level.	
E. NOISE			
NOISE-1: Existing aircraft noise levels exceed the land use compatibility standard for office building and commercial noise environments.	S	NOISE-1: Mechanical ventilation, such as air conditioning systems, shall be included in the design for Building D and Building E in order to meet the California Land Use Compatibility Guidelines for office uses.	LTS
NOISE-2: On-site construction activities could result in short-term noise impacts on adjacent hotel, office and commercial uses.	S	NOISE-2: The project shall comply with the following noise reduction measures: • General construction activities shall be allowed only between the hours of 7:00 a.m. to 7:00 p.m. on weekdays and 9:00 a.m. and 7:00 p.m. on weekends and holidays. Construction outside of these hours may be approved through an exception permit issued by the Planning Director. The exception permit shall include appropriate conditions to minimize noise disturbance of affected hotel, office and commercial uses. • All heavy construction equipment used on the project site shall be maintained in good operating condition, with all internal combustion, engine-driven equipment fitted with intake and exhaust mufflers that are in good condition. • All stationary noise-generating equipment shall be located as far away as possible from neighboring property lines. • Post signs prohibiting unnecessary idling of internal combustion engines.	LTS

Table II-1 *Continued*

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
NOISE-2 *Continued*		• The construction manager shall identify and designate a "noise disturbance coordinator" who would be responsible for responding to any local complaints about construction noise. The disturbance coordinator would determine the cause of the noise complaints and institute reasonable measures warranted to correct the problem. The noise disturbance coordinator shall report all complaints and resolution thereof to the City via monthly reports. A telephone number for the disturbance coordinator shall be conspicuously posted at the construction site. • Utilize air compressors that are designated as "quiet" and other "quiet" construction equipment sources where such technology exists.	
F. GEOLOGY, SOILS AND SEISMICITY			
GEO-1: Ground shaking at the project site could result in risks to humans and damage to property.	S	GEO-1a: All structures shall be designed and constructed in conformance with the most recently adopted California Building Code requirements for seismic design. The City Engineer shall approve all final design and engineering plans. GEO-1b: As a condition of approval and prior to the issuance of a grading permit, the applicant shall submit a final site-specific, design-level geotechnical investigation, to be prepared by a licensed professional, to the City for review and approval. The geotechnical investigation shall include recommendations for grading, avoidance of settlement, and differential settlement of infrastructure and buildings. The recommendations shall be incorporated into all development plans submitted for the project.	LTS

Table II-1 *Continued*

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
GEO-1 *Continued*		GEO-1c: The applicant shall provide information to prospective building occupants regarding earthquake safety. The information shall include one or more of the following publications: Information obtained from the California Division of Mines and Geology in its 1997 report "Guidelines for Evaluating and Mitigating Seismic Hazards in California" (which can be downloaded from the Division's home page at www.consrv.ca.gov), "The Commercial Property Owner's Guide to Earthquake Safety," and "The Homeowner's Guide to Earthquake Safety" both produced by the Seismic Safety Commission (SSC) and available from SSC at 1755 Creekside Oaks Drive, Suite 100, Sacramento, CA 95883 or at 916-263-5506), and "Peace of Mind in Earthquake Country" (Peter Yanev, 1991, Chronicle Books).	
GEO-2: Ground settlement could result in structural damage to proposed site improvements.	S	GEO-2a: All structures shall be designed and constructed in conformance with the most recently adopted California Building Code requirements for building design in areas undergoing compaction. The Building Official shall approve all final design and engineering plans.	LTS
		GEO-2b: As required in Mitigation Measure GEO-1b, the applicant shall prepare and submit to the City for final approval a final design-level geotechnical investigation that includes recommendations for avoidance of settlement and placement of fill materials.	
		GEO-2c: The final geotechnical investigation shall include an Inspection and Repair Plan to address future settlement of the project site. The Inspection and Repair Plan shall delineate an inspection schedule for storm water conveyances and other utilities (on at least an annual basis) to determine adverse effects of settlement. The Plan shall identify responsibility for repair of any affected improvements (e.g., property owner, lessees, or property management company). The inspection results and repairs shall be documented to the City in a biannual report. (See also Mitigation Measure GEO-3).	

Table II-1 *Continued*

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
GEO-3: Dike instability may affect site improvements.	S	GEO-3: The applicant shall ensure that the Inspection and Repair Plan (see Mitigation Measure GEO-2c) includes provisions for dike inspections and repairs. The dikes shall be inspected at least annually (and immediately following a seismic event) and necessary repairs to ensure stability shall be implemented. All inspections and repairs shall be conducted by or in accordance with the recommendations of a licensed professional engineer.	LTS
GEO-4: Landfill integrity and site improvements could be compromised by strong ground motion during a seismic event, resulting in risks to humans and damage to property.	S	GEO-4: The applicant shall ensure that the Post-Earthquake Inspection and Corrective Action Plan (Plan) is updated to reflect the changes in conditions at the project site since its initial preparation in 1996. The Inspection and Repair Plan (see Mitigation Measure GEO-2c) should work cooperatively with the Plan. The revised Post-Earthquake Inspection and Corrective Action Plan shall be submitted to the City prior to site occupancy.	LTS
G. HYDROLOGY AND WATER QUALITY			
HYDRO-1: Construction activities could result in surface water quality degradation.	S	HYDRO-1a: As a condition of approval of the final grading plans, the applicant shall file a Notice of Intent to comply with the statewide General Permit for Discharges of Storm Water Associated with Construction Activities, and shall prepare a Storm Water Pollution Prevention Plan (SWPPP) for construction activities on the site. The SWPPP shall include all provisions of the Erosion and Sediment Control Plan submitted by the applicant. In addition to 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.	LTS
		HYDRO-1b: The grading of the project site shall be conducted in conformance with the approved Grading Plan. All recommendations for grading presented in the site-specific geotechnical reports shall be incorporated into the grading activities.	
		HYDRO-1c: As a condition of approval, the applicant shall be responsible for continued compliance with all requirements of the Waste Discharge Requirements administered by the RWQCB for the Sierra Point Landfill. As necessary, the applicant shall protect or replace all compliance monitoring points within the project site.	

Table II-1 *Continued*

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
HYDRO-2: Runoff from the operational phase of the project could result in surface water and groundwater quality degradation.	S	HYDRO-2a: As a condition of approval of the final grading plan, the project applicant shall fully comply with the San Mateo County Countywide Stormwater Pollution Prevention Program (STOPPP) which maintains compliance with the NPDES Stormwater Discharge Permit. Responsibilities include, but are not limited to, designing Best Management Practices (BMPs) into the project features and operation to reduce potential impacts to surface water quality associated with operation of the project. The applicant shall prepare a Final Stormwater Management Plan to be reviewed and approved by the City Engineer. The Final Stormwater Management Plan will be the guiding document detailing practices for mitigating water quality in the post-construction phase. The Plan shall provide operations and maintenance guidelines for all of the BMPs identified in the Plan, include measures designed to mitigate potential water quality degradation of runoff from all portions of the completed development (including roof and sidewalk runoff), and clearly identify the funding sources for the required on-going maintenance. In general, passive, low-maintenance BMPs (e.g., grassy swales, porous pavements) are preferred in areas where year-round irrigation is already planned. Higher-maintenance BMPs may only be used if the development of at-grade treatment systems is not possible, or would not adequately treat runoff. If the design includes higher maintenance BMPs (e.g., sedimentation basins, hydrocarbon interceptors), then funding for long-term maintenance needs must be specified (the City shall not assume maintenance responsibilities for these features). The Plan shall incorporate as many concepts as practicable from *Start at the Source, Design Guidance Manual for Stormwater Quality Protection.* The applicant shall thoroughly review and comply with the requirements of the most current Brisbane municipal permit for storm water discharges (currently NPDES Permit Amendment Order No. R2-2003-0023). The City of Brisbane Public Works Department and/or Building Division shall ensure that the final project design and stormwater management plan are prepared and are adequate prior to approval of the grading plan.	LTS

Table II-1 *Continued*

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
HYDRO-2 *Continued*		HYDRO-2b: As a condition of approval of the final grading plan, the project applicant shall develop and implement an Integrated Pest Management Plan (IPM) for all common landscaped areas. The IPM shall be prepared by a qualified professional approved by the City. The IPM shall address and recommend methods of pest prevention and that use of pesticides is a last resort in pest control. Types and rates of fertilizer and pesticide application shall be specified. Pesticides shall be used only in response to a persistent pest problem. Preventative chemical use shall not be employed. Cultural and biological approaches to pest control shall be more fully integrated into the IPM with an emphasis toward reducing pesticide application.	
H. BIOLOGICAL RESOURCES			
BIO-1: Grading and construction of the proposed project may harm or adversely impact the burrowing owl.	S	BIO-1a: Comprehensive pre-construction surveys for burrowing owl presence shall be conducted no more than 30 days prior to any ground disturbing activities. If ground disturbing activities are delayed or suspended for more than 30 days after the initial pre-construction surveys, the site shall be re-surveyed. All surveys shall be conducted in accordance with current CDFG burrowing owl survey protocol (CDFG, October 17, 1995). A qualified biologist shall conduct surveys for burrowing owls in all suitable habitats on the site. Surveys shall be conducted regardless of season, as suitable habitat on-site may be used at all times of the year. A report shall be prepared at the end of each construction season detailing the results of the preconstruction surveys. The report shall be submitted to the CDFG by November 30 of each year.	LTS

Table II-1 *Continued*

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
BIO-1 *Continued*		BIO-1b: If burrowing owls are found on the site, CDFG shall be notified and a qualified biologist shall implement a routine monitoring program in coordination with CDFG and establish an exclusion zone around each occupied burrow in which no construction-related activity shall occur until the burrows are confirmed to be unoccupied. No disturbance shall occur within 160 feet (50 meters) of an occupied burrow during the non-breeding season (September 1 through January 31) and within 250 feet (75 meters) of an occupied burrow during the breeding season (February 1 through August 31). If burrows cannot be avoided, passive relocation methods shall be implemented pursuant to CDFG guidelines. All activities shall be coordinated with the CDFG prior to disturbance of the burrows. BIO-1c: In the unlikely event that burrowing owls are found nesting on the site, 6.5 acres of suitable habitat, as determined by an experienced wildlife biologist and approved by CDFG, shall be preserved as mitigation for each individual or pair of owls found on-site. A management plan shall be developed for the mitigation area and approved by CDFG and the City. Mitigation may include permanent protection of on-site foraging habitat around the burrow of each pair or unpaired burrowing owl, or the permanent protection of habitat at a nearby off-site location acceptable to CDFG if mitigation on-site is not feasible. Any mitigation site shall be dedicated in perpetuity as wildlife habitat either through establishment of a conservation easement on the mitigation site or through transfer of ownership of the lands to an appropriate public agency that shall preserve and manage the lands as wildlife habitat.	
BIO-2: Grading, construction and post-construction industrial uses associated with the project may alter or degrade marine habitats adjacent to the project site.	S	BIO-2: The project shall comply with conditions of the NPDES permit and SWPPP for construction and industrial operations. See Mitigation Measures HYDRO-1 and HYDRO-2 in Section IV.G, Hydrology and Water Quality.	LTS
BIO-3: Grading, construction and industrial uses associated with the proposed project may result in indirect impacts to Essential Fish Habitat (EFH) in the Bay.	S	BIO-3: Implementation of Mitigation Measure BIO-2 would reduce this impact to a less-than-significant level.	LTS

Table II-1 *Continued*

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
BIO-4: Grading and construction activities associated with the project have the potential to harm or disturb nesting birds or destroy their nests.	S	BIO-4: If demolition, tree removal, or grading will begin within the breeding season for songbirds (March – August), a qualified biologist shall conduct surveys on the project site, including the existing buildings and woody plants, to identify any nesting native bird species. These surveys shall be carried out no sooner than two weeks prior to the start of construction. Impacts to active nests shall be avoided by establishing a 100-foot exclusion zone around all active nests, within which construction-related activities shall be prohibited until nesting is complete or the nest is abandoned. A qualified biologist shall monitor each nest once per week in order to track the status of each nest and inform the project applicant of when a nest area has been cleared for construction. Alternatively, the project applicant shall apply for a federal depredation permit for migratory birds from the USFWS, with notification to the CDFG, if nests are to be disturbed during the nesting season.	LTS
I. HAZARDS AND HAZARDOUS MATERIALS			
HAZ-1: Improper use, storage, or disposal of hazardous materials or wastes during site development and construction activities could result in releases affecting construction workers, the public, and the environment.	S	HAZ-1a: Project construction plans shall include emergency procedures for hazardous materials releases for materials that will be brought onto the site as part of site development and construction activities. The emergency procedures for hazardous materials releases shall include the necessary personal protective equipment, spill containment procedures, and training of workers to respond to accidental spills/releases. All use, storage, transport and disposal of hazardous materials (including any hazardous wastes) during construction activities shall be performed in accordance with existing local, state, and federal hazardous materials regulations. HAZ-1b: The Storm Water Pollution Prevention Plan (SWPPP) required for the proposed project (see Mitigation HYDRO-2) shall include requirements for storage of hazardous materials during construction to minimize the potential for releases. All use, storage, transport and disposal of hazardous materials during construction activities shall be performed in accordance with existing local, state, and federal hazardous materials regulations.	LTS

Table II-1 *Continued*

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
HAZ-2: Project development and operations could result in hazardous conditions by virtue of its location on a former closed landfill site.	S	HAZ-2: Prior to grading and/or building permit issuance, the applicant shall obtain Department of Health Services approval for Title 27 compliance, including but not limited to ensuring: landfill cover integrity; drainage and erosion control systems; a means to address differential settlement; and gas control and monitoring.	LTS
HAZ-3: Operation of the project could result in hazardous conditions related to the introduction of facilities that may use animals in research.	S	HAZ-3: Following development of the project, any facility using animals in research shall, at the City of Brisbane's request, furnish to the City documentation demonstrating their compliance with applicable standards for laboratory animal care, such as a copy of their license with the USDA and a copy of the results of the USDA inspections (that occur on at least an annual basis) to ensure compliance with the ongoing requirements of the federal Animal Welfare Act and the Health Research Extension Act of 1985.	LTS
J. PUBLIC SERVICES AND RECREATION			
There are no significant Public Services and Recreation impacts.			
K. UTILITIES AND INFRASTRUCTURE			
UTL-1: The City of Brisbane would have inadequate water supplies to meet system-wide demand during multiple dry years.	S	UTL-1a: Future water supply shortages would be managed through water conservation and rationing programs and increased demand management. In accordance with previously adopted Water Conservation Programs, the project site and all other water users in the Brisbane Water Service Area could be subject to mandatory reductions in consumption on a system-wide basis, mandatory reductions in consumption for outside irrigation, restrictions on various types of water use, excess use charges and flow restrictions and termination of water service for non-compliance with the program elements.	LTS

Table II-1 *Continued*

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
UTL-1 *Continued*		UTL-1b: As a condition of approval and prior to the issuance of any building permits for the project, the applicant shall confirm that water conservation and effective demand management measures are incorporated into project design per a detailed program prepared by a LEED Accredited Professional. The project water conservation program shall quantify water demand reduction and efficiency and shall be reviewed and approved by the City Engineer. The specific LEED water conservation measures shall be incorporated in the final building design. These measures may include, but are not limited to, the use of water efficient fixtures, faucet aerators and low-flow toilets and showerheads.	
UTL-2: Existing water storage capacity would be inadequate to meet fire flow requirements for the project site.	S	UTL-2a: As a condition of approval and prior to issuance of building permits, the proposed project shall incorporate a pressure reducing/ pressure sustaining valve on the 16-inch interconnection between CalWater and the City of Brisbane Water Districts in a valve box located in the center median of Shoreline Court. The valve shall be properly sized and have the ability to provide bidirectional fire flow to Sierra Point and the proposed project while concurrently maintaining the capacity to provide the required fire flow and pressure to the CalWater District. The new interconnection assembly shall comply with the City of Brisbane Public Works Department, CalWater and North County Fire Department specifications.	LTS
		UTL-2b: As a condition of approval and prior to issuance of building permits, an agreement must be made between CalWater and the City of Brisbane Water District and a program prepared that identifies and establishes responsibilities and operating ranges for the pressure reducing/pressure sustaining valve and the routine maintenance and testing of the facility. The applicant shall be responsible for the costs associated with preparation and implementation of the program.	
		UTL-2c: The project proponent shall pay a fair share, as determined by the City of Brisbane Public Works Department, for the future development of a fire storage water tank to serve Sierra Point.	

Table II-1 *Continued*

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
UTL-3: The joint potable water and fire flow water distribution system could result in contamination in the potable water distribution system.	S	UTL-3: The proposed project shall include a dedicated fire flow supply loop separate from the potable water system properly sized to handle project fire flow requirements and connected, through a double detector check valve assembly, directly into the street main at two separate locations in accordance with Public Works Department and Fire Authority specifications. Each fire supply loop connection to the street main shall include a double detector check valve. A fire loop system separated from the potable water system will allow for smaller water mains to serve the peak daily demand for the project, thereby allowing for quicker water turnover in the potable water system. Separate potable and fire supply systems will also allow for maintenance on either looped system without affecting the other.	LTS
UTL-4: During peak flow conditions, wastewater flow from the project could exceed the capacity of the Sierra Point Lift Station.	S	UTL-4: The project applicant shall pay for the installation of larger pumps or a complete replacement of the Sierra Point Lift Station, as determined by the Public Works Department, to accommodate the increase in peak sewer flows from the project site. Additional required improvements to the lift station may include replacement of the electrical system and a larger standby generator.	LTS
UTL-5: At peak sewer flow conditions, the project could exceed the capacity of the downstream 10-inch gravity sewer line in Sierra Point Parkway.	S	UTL-5: The project applicant shall fund the replacement of the downstream 10-inch gravity line in Sierra Point Parkway with a pipeline capable of accommodating peak flow levels in accordance with the 2003 City of Brisbane Sewer Master Plan pipe capacity requirements. The Public Works Department shall ensure that the replacement pipe is adequately sized to comply with the 2003 City of Brisbane Sewer Master Plan requirements and meets all specifications.	LTS
UTL-6: At peak sewer flow conditions, the project could exceed the capacity of the 16-inch diameter gravity line in Bayshore Boulevard.	S	UTL-6: The project applicant shall pay a fair share of the cost as determined by the Public Works Department to upgrade the existing downstream 16-inch gravity line in Bayshore Boulevard with a pipeline capable of accommodating peak flow levels in accordance with the 2003 City of Brisbane Sewer Master Plan pipe capacity requirements. The Public Works Department shall ensure that the replacement pipeline is adequately sized to comply with the 2003 City of Brisbane Sewer Master Plan requirements and meets all specifications.	LTS

Table II-1 *Continued*

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
UTL-7: The construction of new water, sewer and storm drain lines could potentially cause significant environmental effects.	S	UTL-7a: The construction of new water, wastewater and stormwater infrastructure shall incorporate mitigation measures GEO-1a, GEO-1b, GEO-1c, GEO-2a, GEO-2b, GEO-2c, GEO-3, GEO-4, HYDRO-1a, HYDRO-1b, HYDRO-1c, HYDRO-2a, HYDRO-2b, HAZ-1a and HAZ-1b.	LTS
		UTL-7b: To address the potential of differential ground settlement, the construction of water, sewer and storm drain lines shall include flexible utility connections at buildings and provide support for the utilities under buildings on the structures themselves.	
UTL-8: Stormwater runoff from the project site could exceed the capacity of the stormwater system in the northwest portion of the site.	S	UTL-8: Stormwater drainage on the project site should be directed away from the intersection of Sierra Point Parkway and Marina Boulevard at the northwest corner of the site. The City of Brisbane Public Works Department and/or Building Division shall review and approve final project design and drainage plans prior to approval of the grading plan.	LTS
L. VISUAL RESOURCES			
VIS-1: Construction of the proposed parking garage at the northeast corner of Sierra Point Parkway would degrade existing public views and the visual quality of the site.	S	VIS-1: During the Design Review process, the City of Brisbane shall ensure that the parking garage façade along Sierra Point Parkway provides adequate architectural treatments and landscaping to ensure that the parking structure does not degrade the visual quality of the site. These treatments may include the use of decorative building materials, fenestration, landscaping or other treatments designed to provide a visually appealing building façade and streetscape along Sierra Point Parkway. The City shall require the applicant to provide a final design to the City for final approval prior to approval of a building permit. While implementation of this mitigation measure would reduce the degradation of the public views and visual quality of the site the impact would remain significant and unavoidable.	SU

Table II-1 *Continued*

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
VIS-2: Implementation of the proposed project would create a new source of light and glare.	S	VIS-2: As a condition of project approval, a photometric analysis and lighting plan shall be prepared for the proposed project. This analysis shall include an assessment of potential lighting impacts based on the height, location, light fixtures, direction and illumination intensity and hours of operation. This analysis shall identify any potential light spill beyond the site boundaries, including light that could impact water vessel or aircraft navigation. The lighting plan 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 off-site light spillage and reduce impacts to water vessel and aircraft navigation. The lighting plan shall be submitted to the Community Development Department and City Engineer for final approval prior to approval of a building permit.	LTS

Source: LSA Associates, Inc., 2006.

III. PROJECT DESCRIPTION

This chapter describes the Sierra Point Biotech project (proposed project), which is evaluated in this Environmental Impact Report (EIR). A description of the proposed project's regional and planning context, objectives, and background is also provided, in addition to a discussion of the intended uses of the EIR, and required project approvals and entitlements. For the purposes of this EIR, the project "applicant" is considered to be Slough Estates International Inc. (the applicant of record) and Sierra Point L.L.C. (the landowner).

A. PROJECT SITE

The following section describes the project's local and regional context, surrounding land uses, and site characteristics.

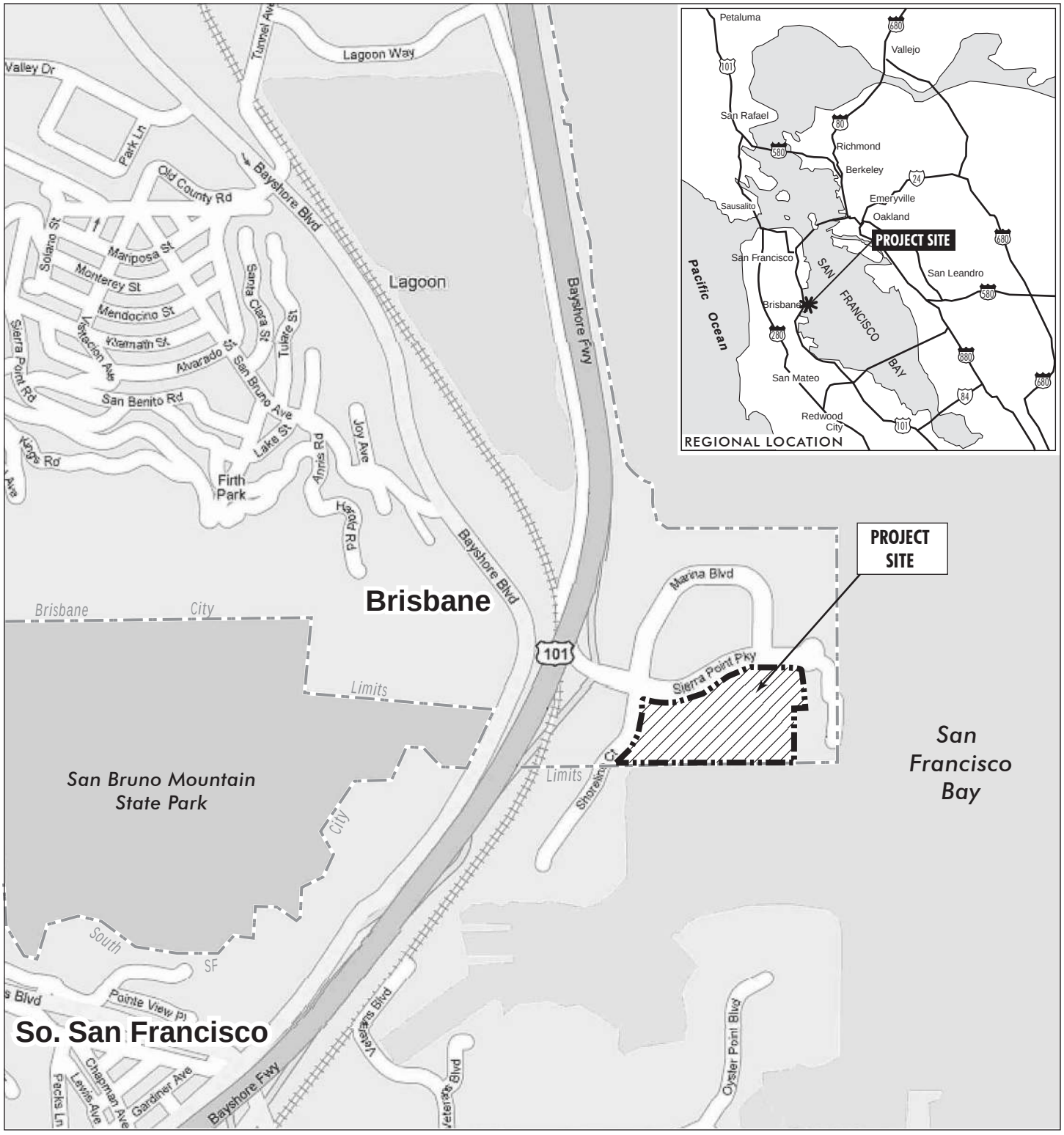
1. Location

The 22.8-acre project site is located on Sierra Point in Brisbane. The site is just east of Highway 101, which traverses Brisbane's Bay shoreline in a north-south direction. The City of San Francisco and Daly City are located to the north and northwest of Brisbane, respectively. Unincorporated portions of San Mateo County border Brisbane to the west along with San Bruno Mountain State and County Park, which borders Brisbane to the west and south. South San Francisco also borders Brisbane to the south. The Sierra Point Parkway freeway ramps, west of the project site, provide regional access to the project site, which is generally bounded by Sierra Point Parkway to the north, the Sierra Point Yacht Club and Brisbane Marina to the east, the Bay to the south, and Shoreline Court to the west, as depicted in Figure III-1. The San Francisco International Airport is located approximately 3.25 miles south of the project site along Highway 101.

The project site is also accessible via regional transit services. A public shuttle connects the Sierra Point area to the Caltrain South San Francisco Station and the Balboa Park BART Station, which are approximately four and seven miles from the project site, respectively.

2. Surrounding Land Uses

The project site is surrounded by office, lodging, and recreational uses. The site's proximity to the Bay, the Sierra Point Yacht Club and Harbor, and Bay Trail provides opportunities for recreation. Mid-rise office towers (3 to 12 stories in height) with surface parking and parking structures form the majority of uses on Sierra Point. A hotel and residence inn are also located across Shoreline Court to the west of the project site. Yacht club parking and vacant lots border the site to the east and north-east. Land uses surrounding the project site are described in detail in Section IV.A, Land Use and Planning Policy.



LSA

FIGURE III-1

N

0 660 1320

FEET

PROJECT SITE

CITY LIMITS

Sierra Point Biotech Project EIR

Project Vicinity and Regional Location

SOURCE: GOOGLE MAPS, 2006.

I:\BRI0601 sierra point\figures\Fig_III1.ai (08/24/06)

3. Site Characteristics

The 22.8-acre project site is generally flat with an average elevation of approximately 15 feet above mean sea level. Three parcels comprise the project site: APN 007-165-080, APN 007-165-090, and APN 007-165-100. The site is predominately covered by grass and gravel with three sheds located in the eastern portion of the site. The one-story sheds were used in the past for storage and as leasing offices. Currently, palm trees are the predominant natural feature on the project site. The site contains 60 palm trees located along Shoreline Court and Sierra Point Parkway and clustered at the northwest and northeast corners and across from the intersection of Marina Boulevard and Sierra Point Parkway. Figure III-2 provides an aerial view of the project site and surrounding area.

Local vehicular access is provided to the project site from Shoreline Court and Sierra Point Parkway, both four-lane roads. Access to the project site from northbound Highway 101 is provided by the Sierra Point Parkway exit, approximately 580 feet east of the project site. Access from southbound Highway 101 is provided by the Sierra Point Parkway exit, approximately 1.2 miles northwest of the project site. Once off the freeway, southbound drivers must travel along Sierra Point Parkway until reaching the U.S. 101 underpass, at which point the parkway bends eastward onto the Sierra Point peninsula.

A portion of the regional San Francisco Bay Trail runs along the shoreline of the project site. The trail is paved through this section and connects with Oyster Cove Marina to the south. While portions of the existing trail are further than 100 feet from the shoreline, land and facilities within 100 feet of the mean high tide line are subject to the jurisdiction of the San Francisco Bay Conservation and Development Commission (BCDC) planning policies and regulations.

The General Plan designation for the project site is Sierra Point Commercial/Retail/Office (SP C/R/O) and the zoning designation is Sierra Point Commercial (SP-CRO). As part of the proposed project, the General Plan would be amended to permit research and development uses (including life sciences) within Sierra Point. The Zoning Ordinance would also be amended to allow research and development uses, including limited live animal testing, within Sierra Point. These General Plan and zoning designations and amendments are described more fully in Section IV.A, Land Use and Planning Policy.

B. PROJECT BACKGROUND

Historically, the project site and surrounding parcels were used as a landfill for the City of San Francisco. Redevelopment of the filled peninsula was initiated in the mid-1970s with the Brisbane Community Redevelopment Project Area Number One Environmental Review. The City published a Draft EIR and Addendum in 1976 for the Sierra Point peninsula. In 1978 the Planning Commission approved a master use permit to allow a phased development that would include a convention center and hotel complex with a 3,000-person maximum capacity, up to nine restaurants, commercial and office buildings, and tennis court and spa.[1] As a condition of the use permit, the City required the dedication of the easterly 20 acres adjacent to the Bay for the purposes of a marina. Development of the project commenced in the early 1980s.

[1] The Planning Commission conditionally approved Use Permit-11-78 on September 20, 1978.

Requirements for closure of a landfill include the construction of engineered barrier layers over the landfill. A clay cap was constructed in the early 1980s during the initial development phases. In the late 1990s and early 2000s, a clay cap was constructed over the project site and tied into the existing cap boundaries. The California Regional Water Quality Control Board approved the closure of the landfill in 1982.[2]

The City approved Architectural Design Guidelines for Sierra Point in 1982 and revised the guidelines two years later in 1984. Several mid-rise office buildings were built on the peninsula in the early and mid-1980s. A development agreement with the City and Sierra Point Associates One and Two was recorded in 1984. This agreement for the Sierra Point property referenced the 1978 Use Permit and the 1982 Architectural Design Guidelines for Sierra Point Office Park.

The owner of the project site, Sierra Point L.L.C., drafted revised architectural design guidelines for Sierra Point, which were approved by the City on March 12, 2001.[3] Site development at that time envisioned three office buildings of 6, 8, and 10 stories, a parking structure with up to four-levels above grade, and surface parking lots. Total building square footage was estimated at 630,000 square feet. These guidelines serve as the Master Plan for the project site and surrounding parcels and are described in detail in Section IV.A, Land Use and Planning Policy. In 2005, Slough Estates International submitted an application with the City for the Sierra Point Biotech project.

The City published an Initial Study for the proposed project on January 5, 2006 and found that the project may have a significant effect on the environment and that an Environmental Impact Report (EIR) was required. The City circulated a Notice of Preparation to solicit input for the scope and content of the EIR. The Planning Commission held a hearing on January 12, 2006 to receive public comment on issues related to the project and EIR. The Initial Study was revised on January 13, 2006 to incorporate Planning Commission comments. The Initial Study, Notice of Preparation, and the comments received are included as Appendix A to this Draft EIR.

C. PROJECT OBJECTIVES

The primary objectives of the proposed project are the following:

- Develop an underutilized brownfield site with research and development facilities which are safe and attractive.
- Design a project which enhances the sense of place and the identity of Sierra Point.
- Implement the objectives of the Sierra Point Design Guidelines.
- Maximize public views of the San Francisco Bay.
- Improve the public's access to and enjoyment of the San Francisco Bay by improving the on-site portion of the regional San Francisco Bay Trail, and providing landscaping and other amenities within those portions of the site under the jurisdiction of the San Francisco Bay Conservation and Development Commission.

[2] Swiecki, John, 2006. Principal Planner, City of Brisbane. Personal correspondence with LSA Associates, Inc. May 23.

[3] OPUS West Corporation, 2001. Combined Site and Architectural Design Guidelines, Sierra Point. March.

LSA

N

0 275 550

FEET

PROJECT SITE

FIGURE III-2

Sierra Point Biotech Project EIR

Project Site and Surrounding Area

SOURCE: GLOBEXPLORER, 2005.

I:\BRI0601 sierra point\figures\Fig_III2.ai (08/24/06)

- Build a project that creates desirable jobs for Brisbane.
- Generate net property tax, sales tax and other fees from the development project, and enhance property values.
- Build a project that is economically viable based upon market conditions and projected service requirements for the area.

D. PROPOSED PROJECT

This EIR considers the environmental effects of the project proposed by Slough Estates International (project applicant). This section provides a description of the proposed project based on information provided by the project applicant to develop the site with five buildings and one parking structure, adding up to 540,185 square feet of office/research and development space and 1,799 parking spaces in structured (1,380 spaces) and surface lots (419 spaces), as shown in Tables III-1 and III-2. The project would include 2,500 square feet of retail space in the first floor level of the parking structure. The project would be designed as a campus facility, with space for multiple tenants, and would accommodate approximately 1,800 employees. The components of the proposed project are described below. Figure III-3 depicts the site plan for the proposed project and Figure III-4 provides an illustrative aerial perspective of the proposed project when constructed.

Table III-1: Structure Characteristics

Structure	# of Levels	Height (Ft.)	First Floor Footprint (Sq.Ft.)	Total Size (Sq.Ft.)	Structured Parking Spaces
Building A	3	68	29,947	90,005	0
Building B	4	85	30,436	120,225	0
Building C	4 + 1[a]	85	30,436	120,225	131
Building D	4	85	29,772	119,652	0
Building E	3	68	30,026	90,078	0
Parking Garage	6[b]	60	58,671	337,587	1,249

[a] Sub-surface parking within building.
[b] The garage would have one partially below grade level, four levels above grade, and roof top parking.
Source: DES Architects Engineers, 2006.

Table III-2: Parking

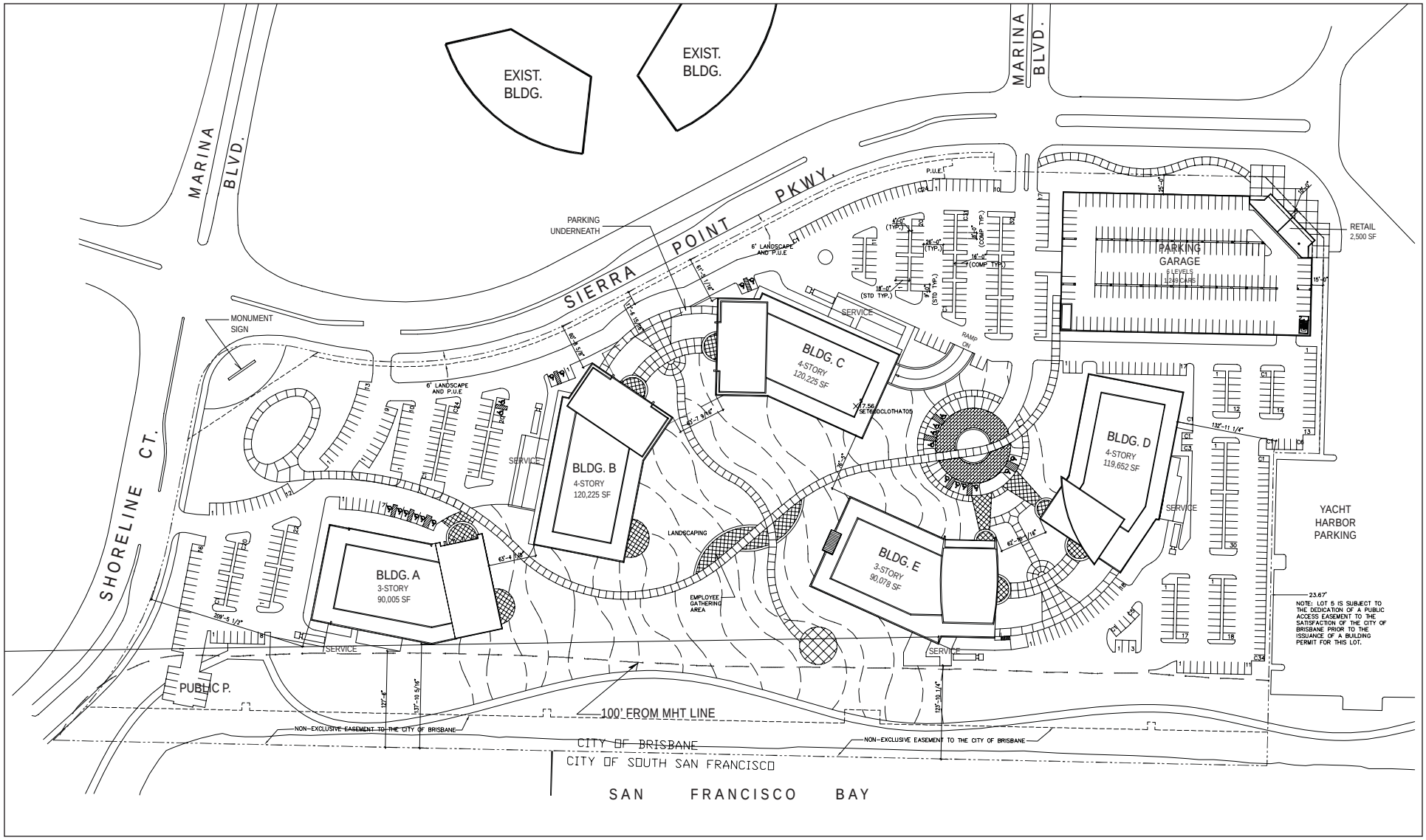
Parking	# of Spaces
Parking Garage	1,249
Building C	131
Surface Lots	419
Total	**1,799**

Source: DES Architects Engineers, 2006.

1. Research and Development Buildings

Implementation of the proposed project would result in the construction of five three- and four-story buildings (Buildings A-E) ranging in size from 90,005 square feet to 120,225 square feet. Based on the campus design concept, the project would provide open space areas between the buildings and pathways for east/west and north/south pedestrian movement through the interior of the site. Two focal areas would be created by the orientation of the buildings and landscape features: Buildings B and C would serve as the central visual entrance to the site from Sierra Point Parkway; Buildings D and E would provide a visual entrance as viewed from the Bay Trail along the southeastern portion of the site.

Building A would be constructed on the western portion of the project site with vehicular access from Shoreline Court and Sierra Point Parkway. Building A would be located just north of the 100-foot BCDC jurisdictional line and the three-story building would have a height of 68 feet at the waterfront. The proposed building would be the smallest of the five buildings and would contain a total area of 90,005 square feet. Surface parking lots would be located to the north and west of the building, fronting Shoreline Court and Sierra Point Parkway. A representative building elevation and longitudinal section are shown in Figure III-5.



LSA

FIGURE III-3

Sierra Biotech Project EIR
Site Plan

N

0 120 240
FEET

SOURCE: DES ARCHITECTS ENGINEERS, JANUARY, 2006.
I:\BRI0601 sierra point\figures\Fig_III3.ai (06/09/06)

LSA

N

0 120 240

FEET

FIGURE III-4

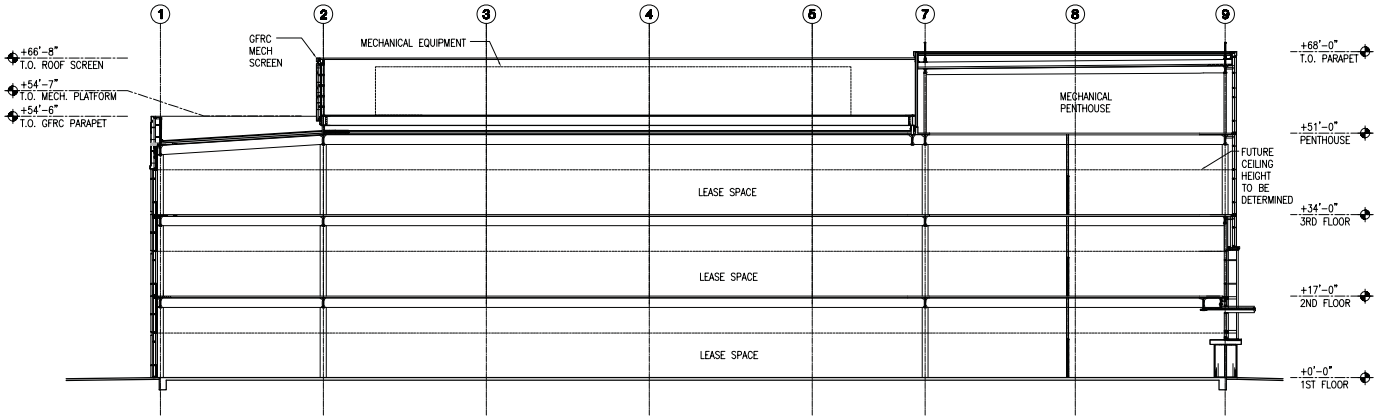
Sierra Point Biotech Project EIR

Conceptual Aerial Perspective of Built Project

SOURCE: DES ARCHITECTS - ENGINEERS, JUNE, 2006

I:\BRI0601 sierra point\figures\Fig_III4.ai (10/27/06)

NORTH ELEVATION



BUILDING LONGITUDINAL SECTION

LSA

FIGURE III-5

Sierra Biotech Project EIR

Building A, North Elevation and Longitudinal Section

0 16 32
FEET

SOURCE: DES ARCHITECTS ENGINEERS, AUGUST 2005

I:\BRI0601 sierra point\figures\Fig_III5.ai (05/11/06)

Building B would be located in the center of the project site and would have vehicular access from Sierra Point Parkway. The building would have four stories and a height of 85 feet. Building B would have 120,225 square feet of space and, along with Building C, would be the largest of the project buildings. A representative building elevation and longitudinal section are shown in Figure III-6.

Building C would be located northeast of Building B and would have vehicular access from Sierra Point Parkway at the intersection with Marina Boulevard. The building would have four stories of leasable space above sub-surface parking and would be 85 feet high. The building would have total of 120,225 square feet. A representative building elevation and longitudinal section are shown in Figure III-7.

Building D would be located directly south of the parking structure, along the eastern edge of the project site. The four-story building would have a total of 119,652 square feet and have a height of 85 feet, as shown in Figure III-8. Vehicular access to the building would also occur via parking lot entrances on Sierra Point Parkway at the intersection with Marina Boulevard. A surface parking lot would be located east of Building D, adjacent to the Sierra Point Yacht Club and Harbor parking.

Building E would be located southwest of Building D, immediately north of the BCDC 100-foot jurisdiction line. The three-story building would be 68 feet high along the waterfront edge of the building and would have a total area of 90,078 square feet. Figure III-9 provides a representative building elevation and longitudinal section for Building E.

2. Parking Structure

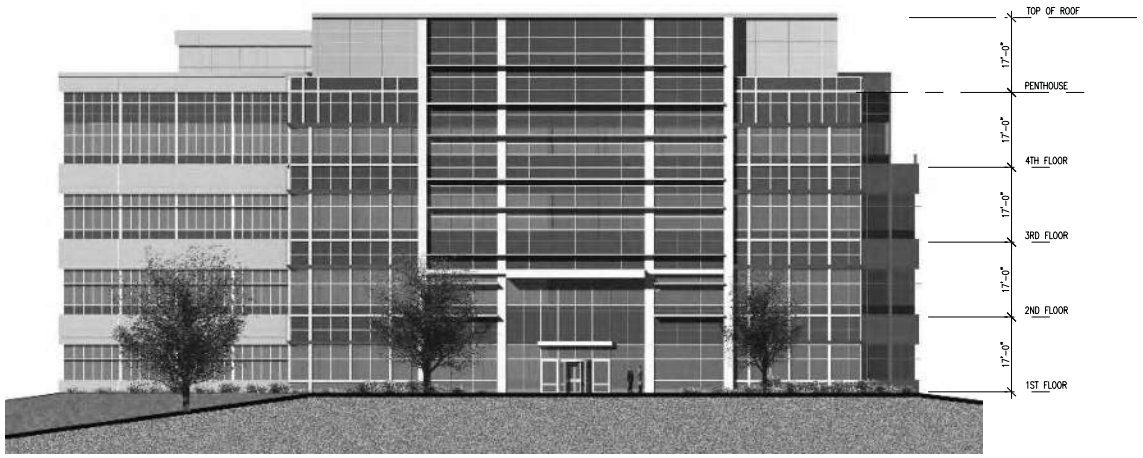
The proposed parking structure would be constructed on the northeast corner of the project site at the intersection of Sierra Point Parkway and Marina Boulevard, as illustrated in Figure III-3. The parking garage would include one partially below-grade level, four levels above-grade and rooftop parking. The garage would be 337,587 square feet and would provide parking for a total of 1,249 vehicles (566 standard size vehicles and 683 compact size vehicles). Access to the structure would be provided from Sierra Point Parkway via the surface parking lots for Buildings C and Building D. Figure III-10 provides representative garage elevations.

3. Retail Space

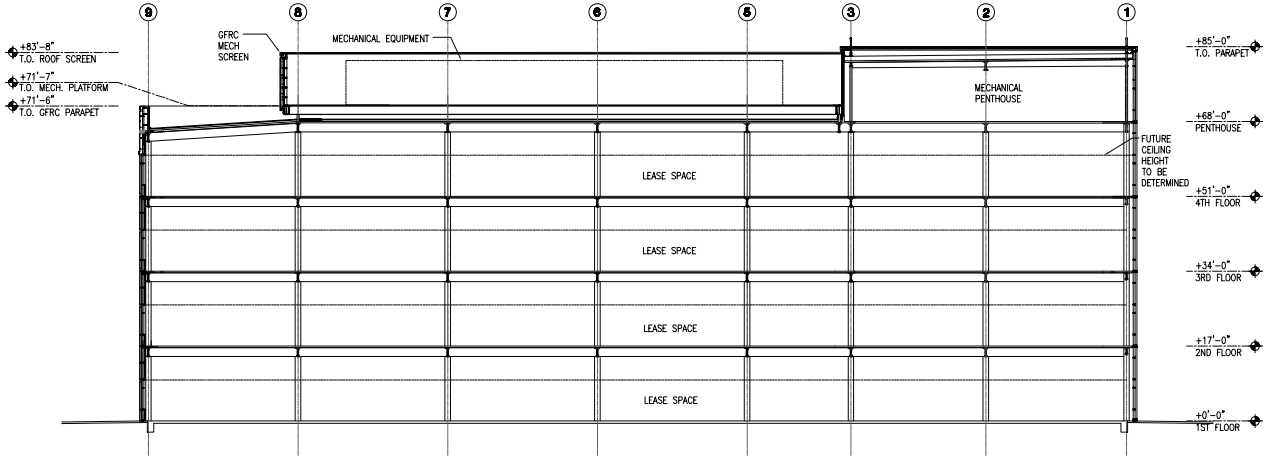
A total of 2,500 square feet of retail space would be provided on the first floor of the parking structure and would face the corner of Sierra Point Parkway and the Sierra Point Yacht Club and Brisbane Marina parking. Retail tenants (e.g., a coffee shop or deli) would lease the space and an outdoor seating area would be located along the sidewalk.

4. Transportation, Circulation and Parking

Access to the project site would be from two entrances on Sierra Point Parkway and one entrance on Shoreline Court along the northern and western edge of the site, respectively (see Figure III-3). Circulation within the project site would occur along an internal driveway that parallels Sierra Point Parkway and generally runs east/west. All parking areas would be accessible via this roadway, although direct access to the parking structure would be provided via the project entrance at the Sierra Point Parkway/Marina Boulevard intersection.



NORTH ELEVATION



BUILDING LONGITUDINAL SECTION

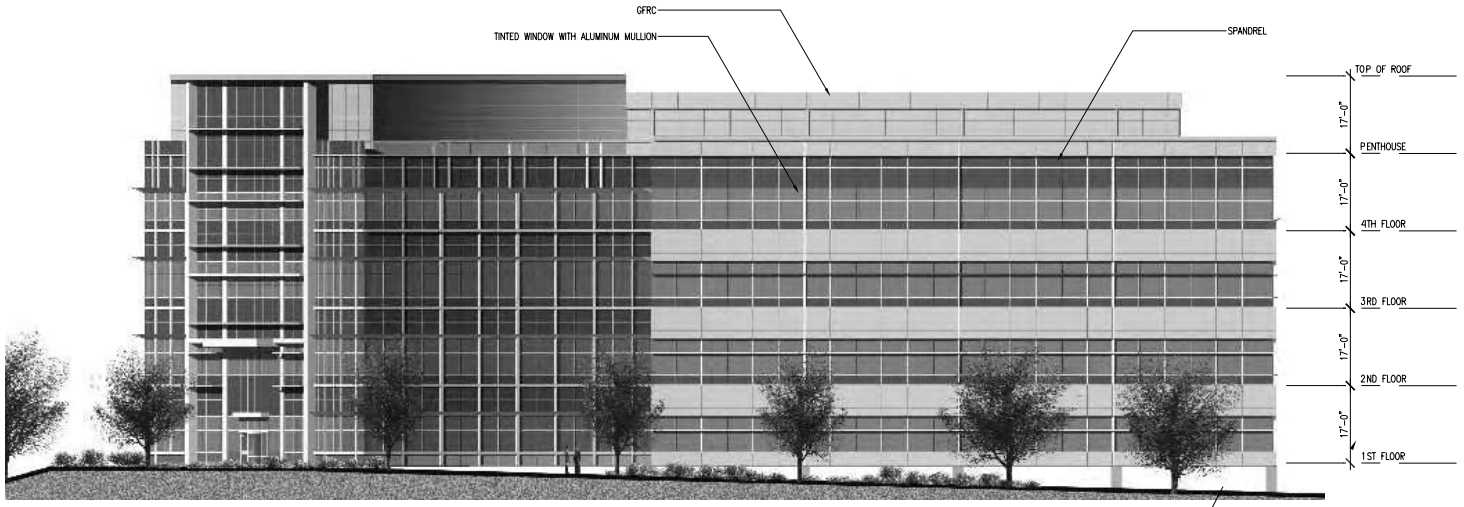
LSA

FIGURE III-6

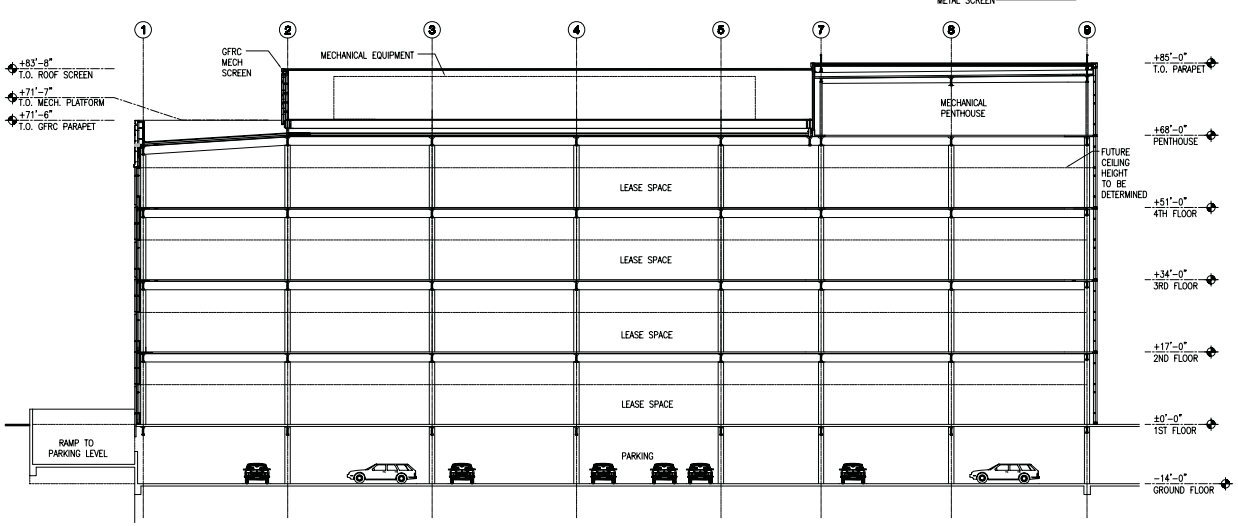
Sierra Biotech Project EIR
Building B, North Elevation
and Longitudinal Section

0 16 32
FEET

SOURCE: DES ARCHITECTS ENGINEERS, AUGUST 2005
I:\BRI0601 sierra point\figures\Fig_III6.ai (05/15/06)



SOUTH ELEVATION



BUILDING LONGITUDINAL SECTION

LSA

FIGURE III-7

Sierra Biotech Project EIR

Building C, South Elevation and Longitudinal Section

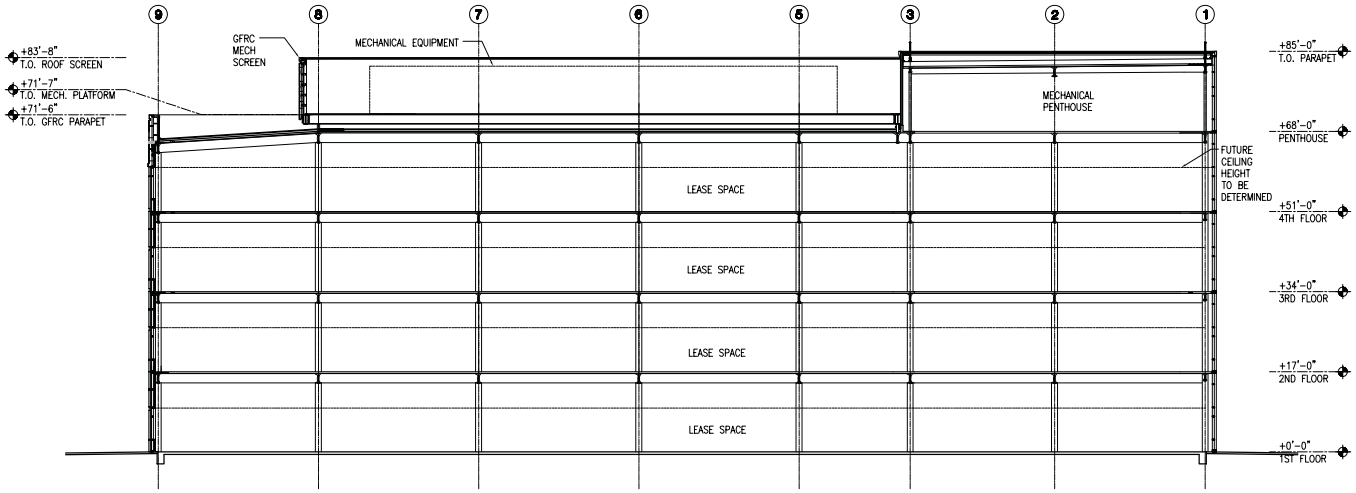
0 16 32

FEET

SOURCE: DES ARCHITECTS ENGINEERS, AUGUST 2005

I:\BRI0601 sierra point\figures\Fig_III7.ai (05/15/06)

WEST ELEVATION



BUILDING LONGITUDINAL SECTION

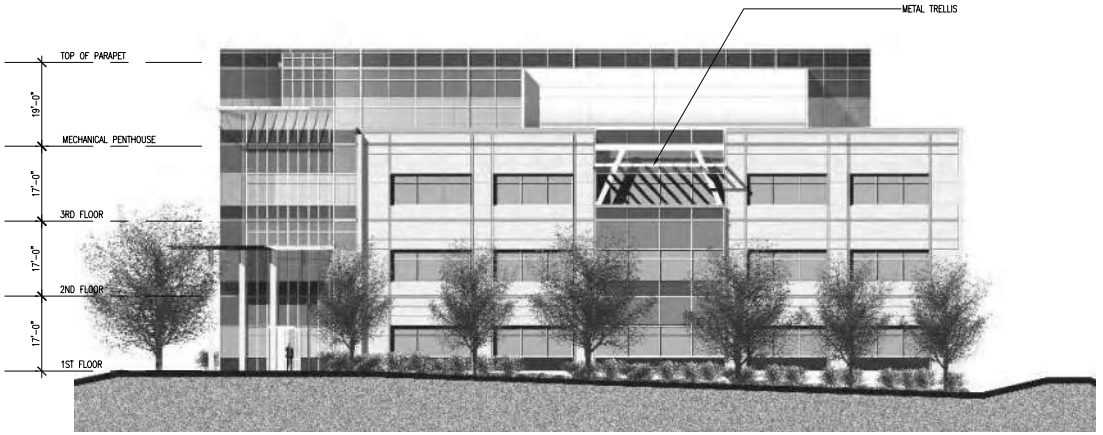
LSA

FIGURE III-8

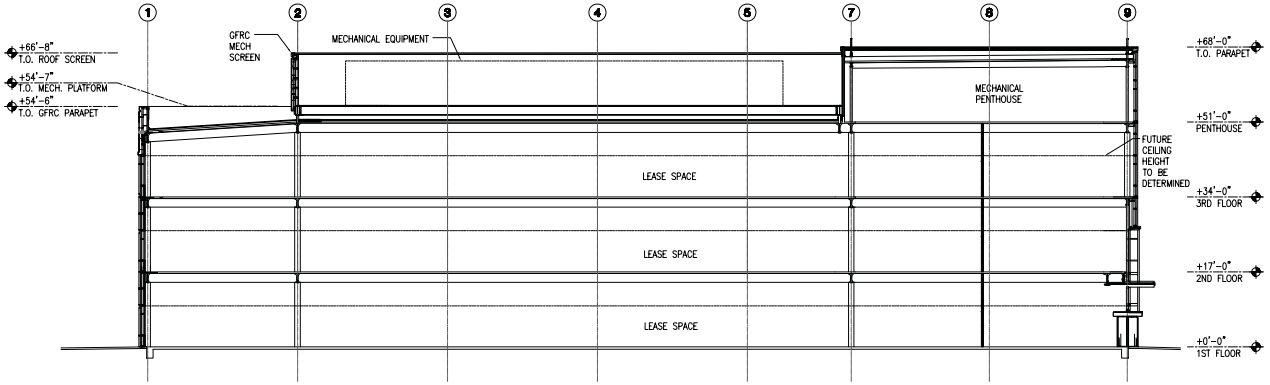
Sierra Biotech Project EIR
Building D, West Elevation
and Longitudinal Section

0 16 32
FEET

SOURCE: DES ARCHITECTS ENGINEERS, AUGUST 2005
I:\BRI0601 sierra point\figures\Fig_III8.ai (08/24/06)



WEST ELEVATION



BUILDING LONGITUDINAL SECTION

LSA

FIGURE III-9

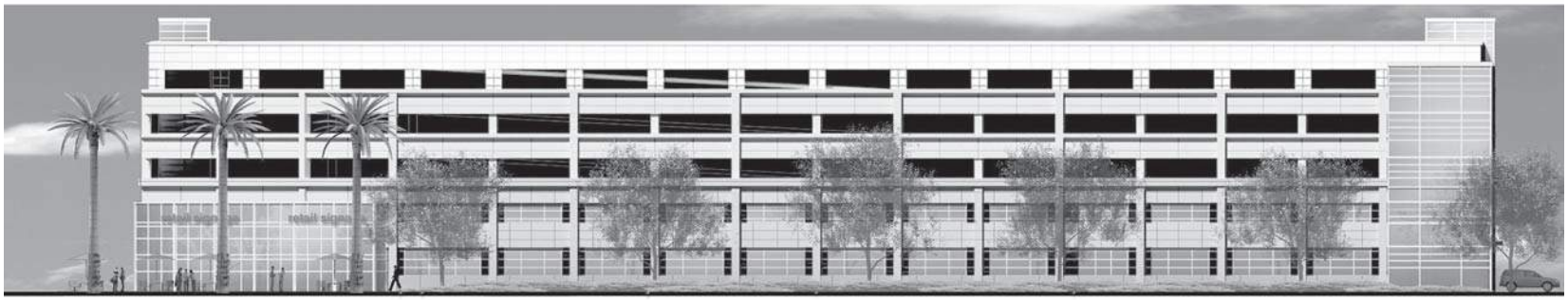
Sierra Biotech Project EIR
Building E, West Elevation
and Longitudinal Section

0 16 32
FEET

SOURCE: DES ARCHITECTS ENGINEERS, AUGUST 2005
I:\BRI0601 sierra point\figures\Fig_III9.ai (05/15/06)

EAST ELEVATION (FACING THE HARBOR)

WEST ELEVATION (FACING BUILDING C)



NORTH ELEVATION (FACING SIERRA POINT PARKING)

LSA

FIGURE III-10

Sierra Biotech Project EIR

Parking Garage Elevations

SOURCE: DES ARCHITECTS ENGINEERS, OCTOBER, 2006.

I:\BRI0601 sierra point\figures\Fig_III0.ai (10/17/06)

Off-street parking would be provided in four surface parking lots, sub-surface parking below Building C, and a six-level parking garage. As described above, a total of 1,799 stalls would be provided on site, as shown in Table III-2. Parking lots would be located along the external roadways and adjacent to the Sierra Point Yacht Club and Brisbane Marina parking. A public parking area with ten parking spaces for Bay Trail users would be located near the Shoreline Court entrance to the project site.

Sidewalks throughout the site would provide pedestrian access between buildings and outdoor areas and would be integrated into the site landscaping, as described below.

5. Landscaping

Landscaping of open areas and surface parking lots would cover approximately 47 percent of the project site, as shown in Figure III-11. Landscaping would be used to break up paved expanses of parking lots and to define the usability and privacy of areas.

The proposed project would require the relocation of 13 palm trees and the removal of five palm trees from the project site, as well as the trees and shrubs in the vicinity of the three sheds, as shown in Figure III-12.

The landscape design would include undulating mounds as a key feature to create visually interesting open space between buildings. The project site would have a landscaped area at the corner of Shoreline Court and Sierra Point Parkway that would contain project signage. Two pedestrian paths would provide access through the site; one east/west path and one north/south path. Trees would be planted in surface parking lots and along interior pathways. An employee gathering area with seating and employee patios would be constructed at various locations throughout the site.

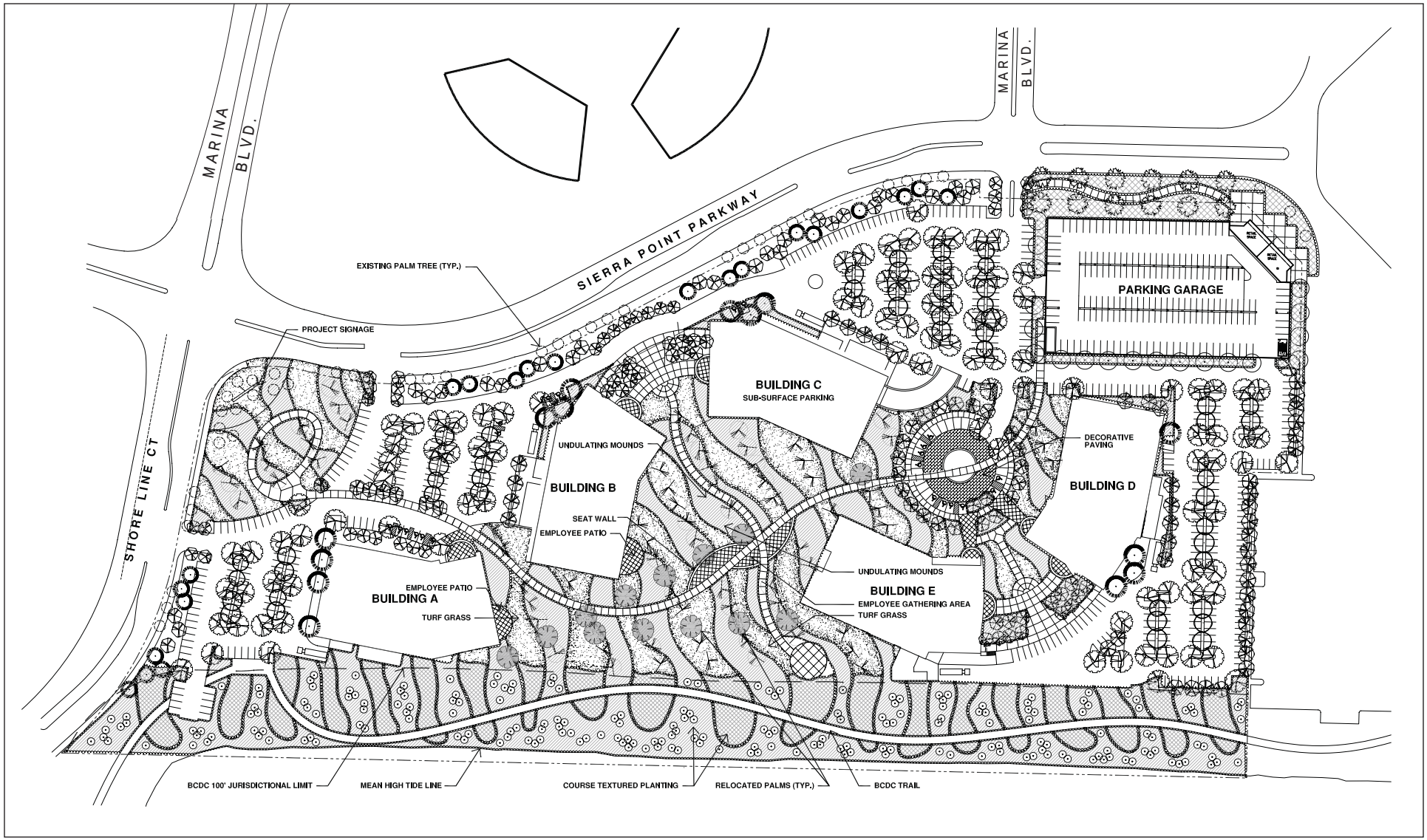
As part of the project the Bay Trail would be relocated and improved and landscaping along the shoreline would be enhanced. As proposed, the Bay Trail would be approximately 10 feet in width, handicapped accessible, and improved with paving, benches, lighting, trash cans, picnic tables and public access signage. The trail will be pulled back from the top of the rip rap. A designated public parking area will be located on the southwest corner of the site and will provide the main access to the Bay Trail. Installation of landscaping along the south shore was established as a condition of building occupancy under previous Sierra Point approvals, and this required landscaping would be completed as part of the proposed project.[4] Additionally, all development and trail improvements within the 100-foot shoreline band would require BCDC permits and City review and approval.

6. Utilities and Infrastructure

This section describes the utilities and infrastructure to serve the proposed project.

a. Water Service. Water is provided to the City of Brisbane by the San Francisco Public Utilities Commission (SFPUC). The Brisbane Water District, one of two water districts in the City, distributes water to Sierra Point and the project site. The proposed project would connect to existing water mains along Sierra Point Parkway and along the Bay shoreline, as shown in Figure III-13.

[4] The Agreement Concerning Project Approval Documents was adopted December 22, 1997 by the City Council as Resolution No. 97-69. The Second Amendment to the Agreement Concerning Project Approval Documents (November 17, 2003) established the above condition of occupancy.



LSA

FIGURE III-11

Sierra Biotech Project EIR

Preliminary Landscape Plan

N

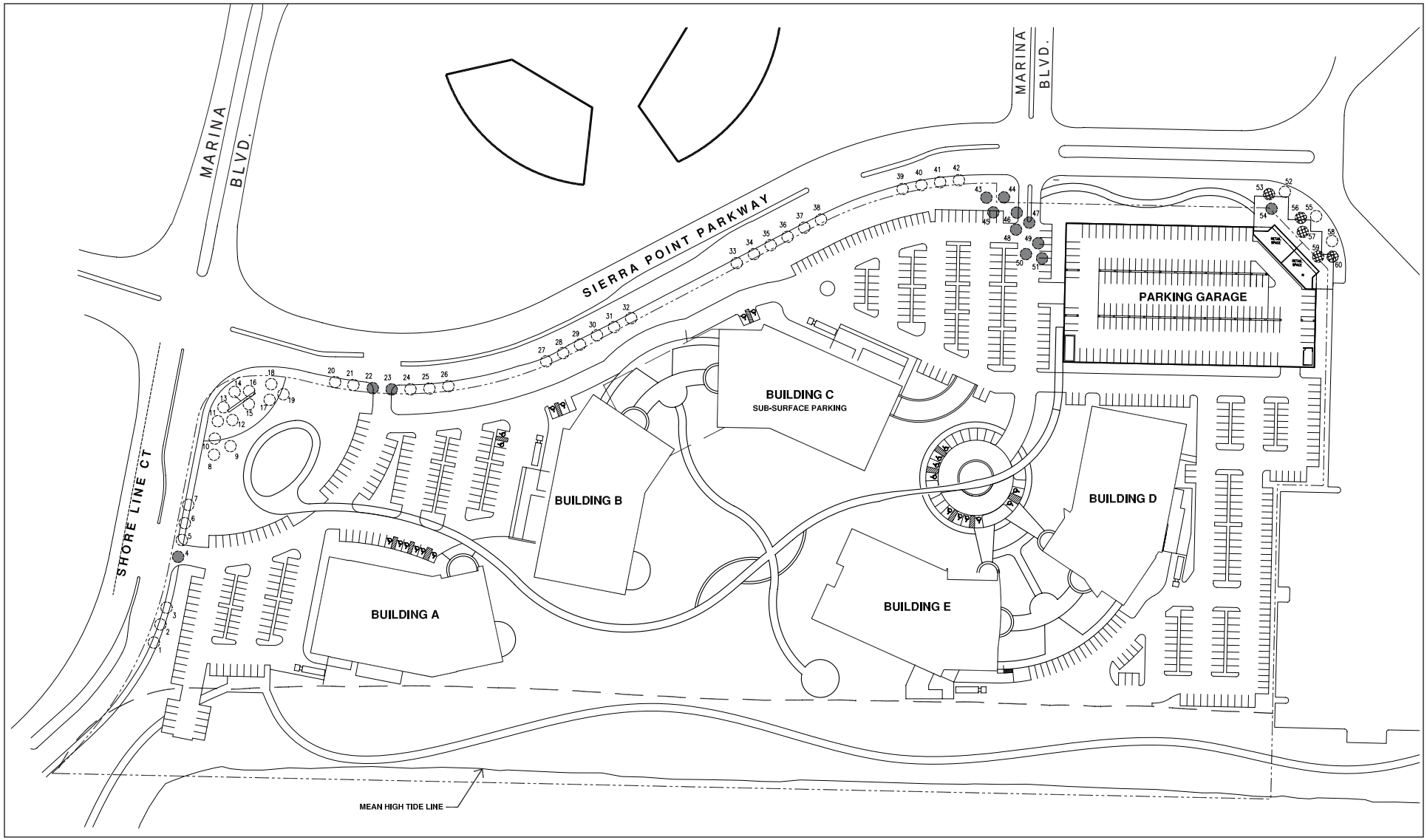
0 120 240

FEET

NOTE: A FULL SIZE VERSION IS AVAILABLE FOR REVIEW AT THE CITY PLANNING DEPARTMENT.

SOURCE: DES ARCHITECTS ENGINEERS, OCTOBER, 2006.

I:\BRI0601 sierra point\figures\Fig_III11.ai (10/18/06)

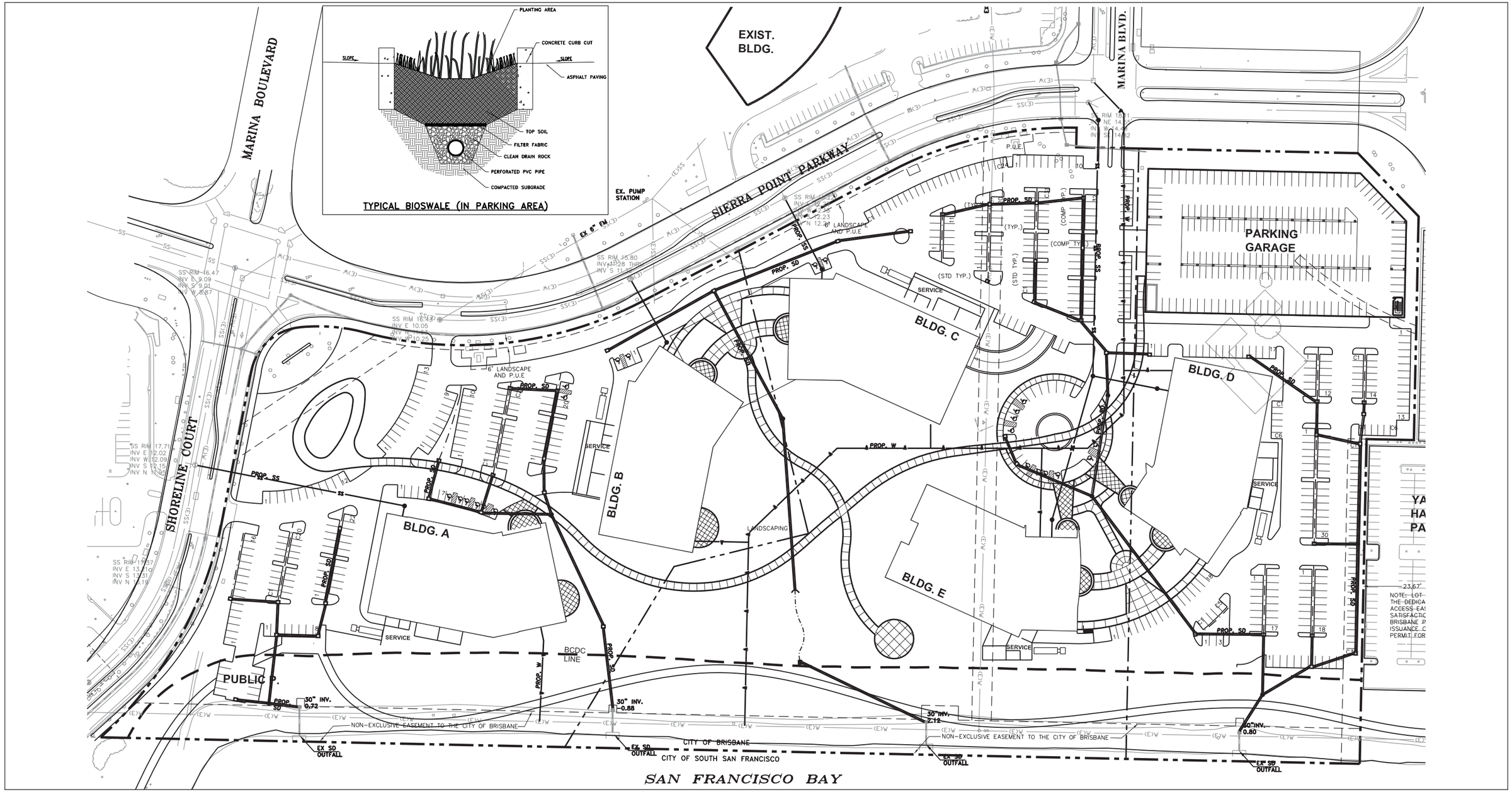


LSA

FIGURE III-12

Sierra Biotech Project EIR
Palm Tree Inventory

SOURCE: DES ARCHITECTS ENGINEERS, OCTOBER, 2006.
I:\BRI0601 sierra point\figures\Fig_III12.ai (10/17/06)



LSA

NOTE: STORMWATER RUNOFF WILL BE TREATED USING VARIOUS TREATMENT METHODS AND SHALL INCLUDE BIOFILTRATION AS SITE CONSTRAINTS PERMIT (SEE INSERT).

NOTE: A FULL SIZE VERSION IS AVAILABLE FOR REVIEW AT THE CITY PLANNING DEPARTMENT.

0 100 200
FEET

UTILITY PLAN LEGEND

- PROPERTY LINE
- EASEMENT
- EXISTING STORM DRAIN INLET
- EXISTING STORM DRAIN PIPE
- PROPOSED STORM DRAIN INLET
- PROPOSED STORM DRAIN MANHOLE
- PROPOSED STORM DRAIN PIPE
- EXISTING SANITARY SEWER
- EXISTING SANITARY SEWER MANHOLE
- PROPOSED SANITARY SEWER
- PROPOSED SANITARY SEWER MANHOLE
- EXISTING WATER
- PROPOSED WATER

ABBREVIATIONS

COMP	COMPACT
EX	EXISTING
FM	FORCE MAIN
INV	INVERT
PROP	PROPOSED
PUE	PUBLIC UTILITIES EASEMENT
SS	SANITARY SEWER
STD	STANDARD
SD	STORM DRAIN
TYP	TYPICAL
W	WATER

SOURCE: WILSEY-HAM; DES ARCHITECTS ENGINEERS, AUGUST 2005
I:\BRI0601 sierra point\figures\Fig_III13.ai (10/18/06)

FIGURE III-13

Sierra Point Biotech Project EIR
Utility Plan

b. Sanitary Sewer. The City of Brisbane provides sanitary sewer services to the project site. Building A would connect to existing sanitary sewer lines along Shoreline Court. Building B and C would connect directly to sanitary sewer lines along Sierra Point Parkway and Buildings D and E would be served by an extension of the sewer line from Sierra Point Parkway at the intersection of Marina Boulevard, as shown in Figure III-13.

c. Stormwater. Stormwater pipes would collect runoff from parking lots and other impervious surfaces and connect with existing storm drain outfalls to the Bay at four sites along the shoreline. Stormwater runoff would be treated using various treatment methods, including biofiltration, as site constraints permit. Stormwater treatment is described in greater detail in Section IV.G, Hydrology and Water Quality.

d. Power and Communications. Pacific, Gas, and Electric Company (PG&E) supplies electricity and natural gas in Brisbane. PG&E infrastructure is located in the public rights-of-way. AT&T provides telephone and broadband DSL service to Sierra Point via underground conduits. The proposed project would connect to the existing PG&E facilities and would extend new underground conduits to the AT&T lines. An existing 10-foot wide PG&E easement connects to the existing maintenance buildings on the northeastern portion of the project site. As a part of the proposed project, the maintenance buildings would be removed; the existing PG&E easement would be abandoned, and the appropriate documentation would be recorded with the City and PG&E.

7. Demolition

Demolition activities would include the removal of three vacant sheds located on the eastern portion of the project site, totaling approximately 4,038 square feet, as well as the removal of all ancillary surface-level parking areas and existing trees and landscaping around the sheds. Additionally, 13 palm trees would be relocated and five palm trees would be removed from the project site, as shown in Figure III-12. The existing segment of the Bay Trail along the shoreline would be removed and replaced as part of the proposed project.

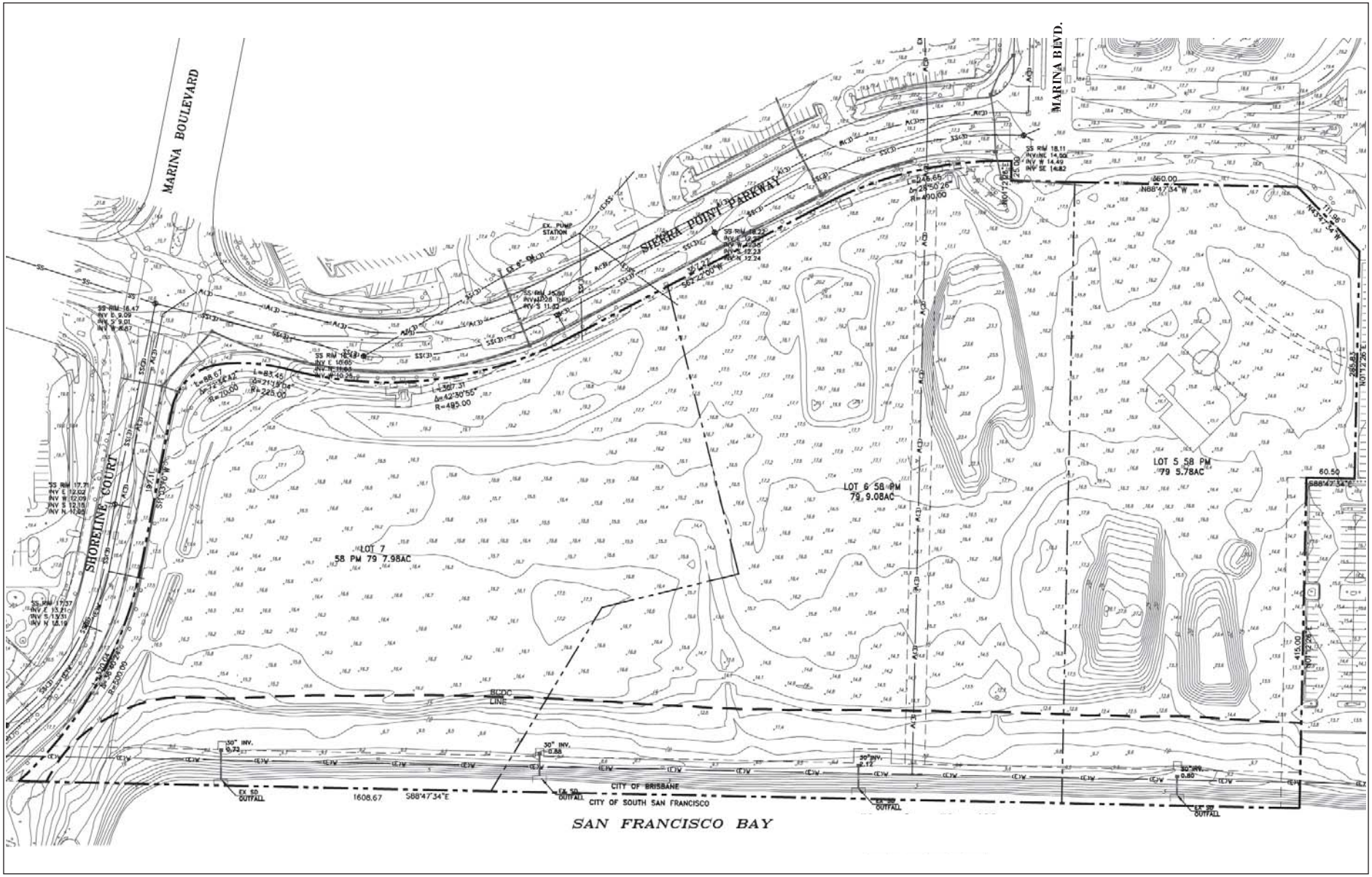
8. Grading

The topography of the project site is generally flat with three elevated mounds. To prepare the site, approximately 21,100 cubic yards of cut soils would be moved. To build up the building and parking structure pads, a total of 68,500 cubic yards of fill material, or 47,400 net cubic yards will be required. The maximum cut and fill required would be approximately 10 feet and 8 feet deep, respectively, Figures III-14 and III-15 depict the existing site topography and grading plan.

9. Project Construction and Phasing

Construction of the proposed project could occur over a three-year period, subject to market conditions, potentially beginning in 2007 with expected buildout as early as Spring 2010, with individual building completions as follows:

- Building A: March 2009
- Building B: June 2009
- Building C: September 2009
- Building D: December 2009
- Building E: March 2010



LSA

FIGURE III-14

Sierra Point Biotech Project EIR

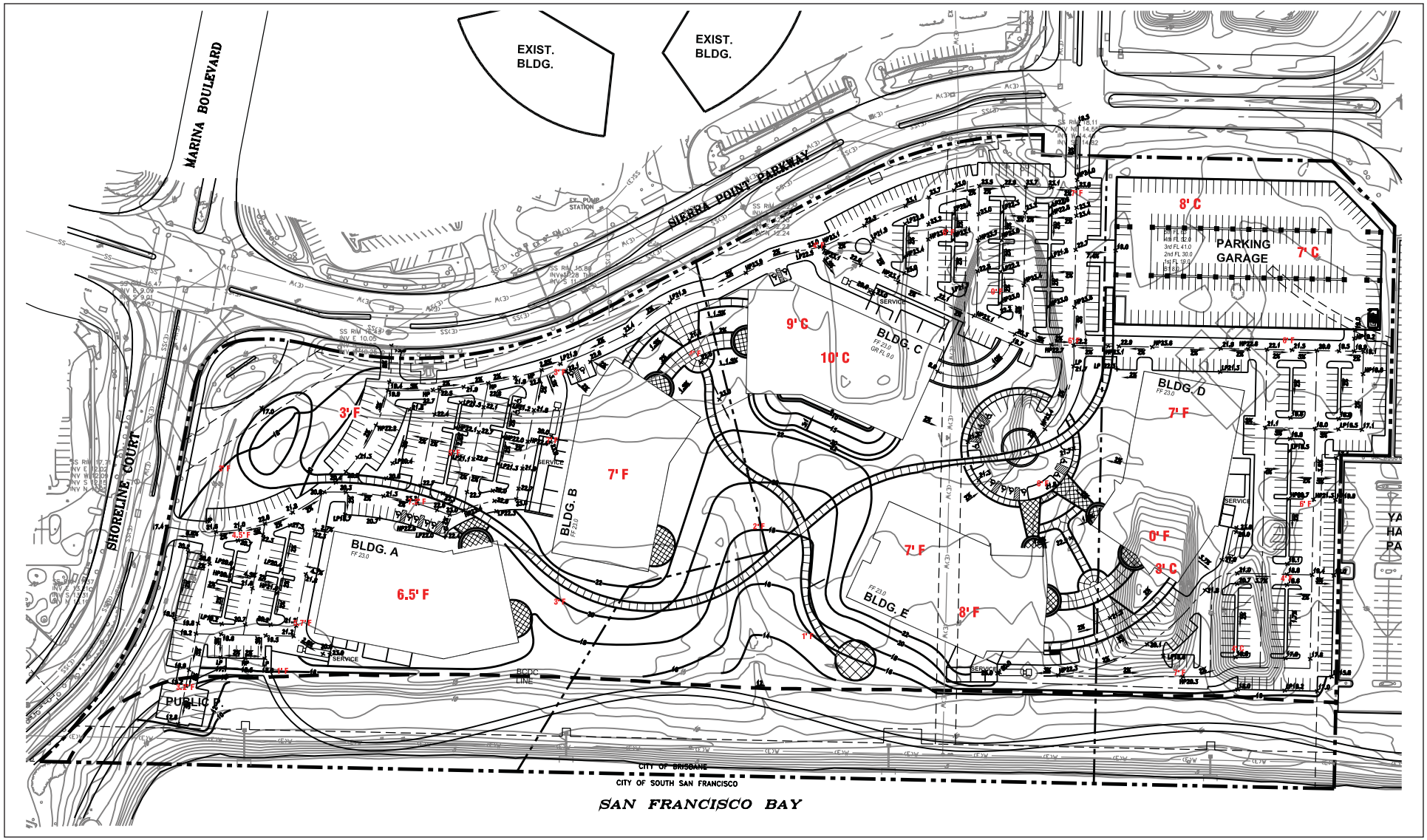
Topographic Survey

NOTE: A FULL SIZE VERSION IS AVAILABLE FOR REVIEW AT THE CITY PLANNING DEPARTMENT.

0 100 200
FEET

SOURCE: WILSEY-HAM; DES ARCHITECTS - ENGINEERS, AUGUST, 2005

I:\BRI0601 sierra point\figures\Fig_III14.ai (10/17/06)



LSA

FIGURE III-15

Sierra Biotech Project EIR

Site Grading Plan

ABBREVIATIONS
LP – LOW POINT
HP – HIGH POINT
FF – FINISHED FLOOR
FL – FLOOR
F – FILL
C – CUT

0 100 200
FEET

NOTE: A FULL SIZE VERSION IS AVAILABLE FOR REVIEW AT THE CITY PLANNING DEPARTMENT.

SOURCE: DES ARCHITECTS ENGINEERS, OCTOBER, 2006.

I:\BRI0601 sierra point\figures\Fig_III15.ai (10/18/06)

Buildings would have a piling depth of up to approximately 250 feet. See Section IV.F, Geology, for a discussion of soils and requirements for post-closure landfill construction.

10. Transfer of Approved Office Space

The Master Plan allows for development of 630,000 square feet of office space on the project site, whereas, implementation of the proposed project would result in construction of 540,185 square feet of office/research and development space. The building square footage approved for the project site under the Master Plan that would *not* be constructed by the proposed project (i.e., 89,815 square feet), may be transferred to another parcel, as approved by the City.[5] As part of the project, the applicant proposes to transfer the additional 89,815 square feet of office space to Parcel 3 in the northwest corner of the Sierra Point Master Plan area which is currently vacant. The proposed transfer is analyzed at a programmatic level in this EIR. When a specific project is proposed on Parcel 3 that utilizes the square footage transferred from the proposed project, then the new development on Parcel 3 would be subject to subsequent environmental review. The transfer is described in more detail in Section IV.A, Land Use and Planning Policy.

E. DISCRETIONARY ACTIONS

The project applicant will seek approval for a General Plan amendment, a Zoning Ordinance amendment and modification of the Sierra Point Combined Site and Architectural Design Guidelines and Site Plan Approval/Design Review from the City of Brisbane, which would allow the applicant to proceed with the development as proposed. The General Plan amendment would allow Research and Development as a permitted use within the Sierra Point Commercial/Retail/Office land use designation. The Zoning Ordinance amendment would allow Research and Development as a permitted use in the Sierra Point Commercial zoning district, with limited animal testing permitted as a matter of right and testing of higher order animals permitted, subject to a conditional use permit.

The Site Plan Approval/Design Review would assure the proposed development (as described herein) is in conformance to the regulations of the City of Brisbane

The approved Sierra Point Combined Site and Architectural Design Guidelines, which serve as the Master Plan for the project site and surrounding parcels, would be modified to accommodate the project as proposed.

[5] Resolution No. 97-69. A Resolution of the City Council of the City of Brisbane Approving the "Agreement Concerning Project Approval Documents" For Sierra Point and Authorizing Execution of Said Agreement of Behalf of the City. December 22, 1997. The First, Second and Third Amendments have modified the Project Approval Documents (September 15, 1998, November 17, 2003, and November 7, 2005, respectively).

F. INTENDED USES OF THIS EIR

It is anticipated that this EIR will provide environmental review for all discretionary approvals necessary for the project. A number of permits and approvals would be required before the development of this project could proceed. As lead agency for the proposed project, the City of Brisbane would be responsible for the majority of approvals required for development. Other agencies also have some authority related to the project and its approvals. A list of the required permits and approvals that may be required by the City and other agencies is provided in Table III-3.

Table III-3: Required Permits and Approvals

Lead Agency	Permit/Approval
City of Brisbane	• General Plan amendment to allow research and development within Sierra Point • Rezoning to allow research and development, including standards for animal testing • Site Plan approval and Design Review • Lot Line Adjustment • Encroachment, demolition, grading, and building permits • Tree removal approval
Responsible Agencies	
California Regional Water Quality Control Board (RWQCB)	• National Pollutant Discharge Elimination System (NPDES) permit for storm water discharge • Oversight of compliance with Waste Discharge Requirements for the Sierra Point Landfill
San Mateo County Environmental Health Division, Solid Waste Program	• Project approval consistent with the post-closure landfill development requirements of the California Integrated Waste Management Board (CIWMB)
San Francisco Public Utilities Commission (SFPUC)	• Approval and waste discharge permit for sewer system use
Bay Conservation and Development Commission (BCDC)	• Approval and permit of development located within the 100-foot-wide bay shoreline
Other Agencies	
AT&T	• Approval of communication line improvements and connection permits
Pacific Gas & Electric (PG&E)	• Approval of natural gas improvements and connection permits • Approval of existing easement abandonment
Bay Area Air Quality Management District (BAAQMD)	• Approval of a permit for an emergency generator

Source: LSA Associates, Inc., 2006.

IV. SETTING, IMPACTS AND MITIGATION MEASURES

This chapter contains an analysis of each topic that has been identified through preliminary environmental evaluation of the Sierra Point Biotech Project and, as such, constitutes the major portion of this Draft EIR. Sections A through L of this chapter describe the environmental setting of the proposed project as it relates to each specific environmental topic, the impacts resulting from implementation of the project, and mitigation measures, as appropriate, that would reduce impacts of the project.

A. DETERMINATION OF SIGNIFICANCE

Under CEQA, a significant effect is defined as a substantial, or potentially substantial, adverse change in the environment.[1] The *CEQA Guidelines* direct that this determination be based on scientific and factual data. Each impact evaluation in this chapter is prefaced by criteria of significance, which are the thresholds for determining whether an impact is significant. These criteria of significance are based on Appendix G of the *CEQA Guidelines*, standards expressed through policies in the City's General Plan, as well as thresholds established by other regulatory agencies with jurisdiction over aspects of the proposed project, and were confirmed in consultation with City of Brisbane staff.

B. ISSUES ADDRESSED IN THE DRAFT EIR

The following environmental issues are addressed in this chapter:

A. Land Use and Planning Policy
B. Population, Employment and Housing
C. Transportation, Circulation and Parking
D. Air Quality
E. Noise
F. Geology, Soils and Seismicity
G. Hydrology and Water Quality
H. Biological Resources
I. Hazards and Hazardous Materials
J. Public Services and Recreation
K. Utilities and Infrastructure
L. Visual Resources

[1] Public Resources Code Section 21068.

C. FORMAT OF ISSUE SECTIONS

Each environmental issue section has two main subsections: 1) Setting, and 2) Impacts and Mitigation Measures. Each impacts and mitigation measures subsection is further divided into an initial discussion of *less-than-significant* impacts and a subsequent discussion of *significant* impacts. Any identified significant impacts are numbered and shown in bold type, and the corresponding mitigation measures are numbered and indented. Significant impacts and mitigation measures are numbered consecutively within each topic and begin with a shorthand abbreviation for the impact section (e.g., POL for Land Use and Planning Policy). The following abbreviations are used for individual topics:

LU:	Land Use and Planning Policy
POP:	Population, Employment and Housing
TRANS:	Transportation, Circulation and Parking
AIR:	Air Quality
NOISE:	Noise
GEO:	Geology, Soils and Seismicity
HYD:	Hydrology and Water Quality
BIO:	Biological Resources
HAZ:	Hazards and Hazardous Materials
PUB:	Public Services and Recreation
UTL:	Utilities and Infrastructure
VIS:	Visual Resources

The following notations are provided after each identified significant impact and after identification of mitigation measures:

SU	=	Significant and Unavoidable
S	=	Significant
LTS	=	Less than Significant

These notations indicate the significance of the impact before and after mitigation.

A. LAND USE AND PLANNING POLICY

This section evaluates the land use related effects of the proposed project. Potential land use impacts that would result from implementation of the proposed project are identified, and mitigation measures are recommended, as appropriate. This section also contains a discussion of the consistency of the proposed project with relevant land use policies. However, policy conflicts do not, in and of themselves, constitute a significant environmental impact. Policy conflicts are considered to be environmental impacts only when they would result in direct physical impacts. Therefore, land use policies are discussed in this section for informational purposes only. All other associated physical impacts are discussed in this EIR in specific topical sections such as the noise, air quality, and transportation sections.

1. Setting

The following subsection describes existing land use within the project site and its vicinity, and summarizes relevant land use policies.

a. Overview. The project site is located in the City of Brisbane in San Mateo County. Brisbane is located south of San Francisco, east of Daly City, north of South San Francisco and north and east of San Bruno Mountain State and County Park. The project site is located on the Sierra Point peninsula, east of Highway 101 and the Union Pacific Railroad, which physically separate the peninsula from central Brisbane. Sierra Point is an approximately 130-acre reclaimed landfill that has been redeveloped with office, hotel and recreational uses. As of June 2006, approximately 45 acres, including the project site (22.8 acres), remain vacant.

(1) Project Boundaries. The project site is bounded by Sierra Point Parkway to the north, the Brisbane Marina and Sierra Point Yacht Club to the east; the San Francisco Bay to the south; and Shoreline Court to the west (see Figure IV.A-1).

(2) Existing Land Uses Within the Project Site. The project site is approximately 22.8 acres and comprises three parcels. The site is generally flat with an average elevation of approximately 15 feet above mean sea level. As shown in Figures IV.A-2 and IV.A-3, the site is predominately covered by grass and gravel with three sheds located in the eastern portion of the site. The one-story sheds were used in the past for storage and as leasing offices. The first 100 feet of the site inland from the shoreline is subject to the jurisdiction of the San Francisco Bay Conservation and Development Commission (BCDC), which regulates development and modification of natural features. The San Francisco Bay Trail runs along this shoreline band. Gravel areas on the site provide unofficial parking for nearby recreational activities.

b. Existing Land Uses in the Vicinity of the Project Site. The following discussion details the land uses in the vicinity of the project site, as shown in Figure IV.A-1.

Land uses across Sierra Point Parkway to the north include office buildings and a vacant lot. Two mid-rise office towers of eight and 12 stories in height are located near the parkway with surface parking oriented toward Marina Boulevard and a parking structure along the eastern portion of Marin

a Boulevard. East of the parking structure is an approximately 6-acre vacant lot that is proposed for a hotel use.[1]

The Brisbane Marina and Sierra Point Yacht Club are located immediately to the east of the project site. Surface parking lots for the Marina and Yacht Club border the proposed project site and extend north along the eastern shoreline of Sierra Point. The Marina facilities include 580 berths for docking vessels ranging from 30 to 66 feet in length, a guest dock accommodating vessels up to 100 feet long, and 822 City-owned parking spaces.[2] The San Francisco Bay Trail is improved from the northwest edge of Sierra Point, through the Brisbane Marina, and connects with Oyster Point to the south.

Land uses to the west and southwest of the project site include lodging and office buildings. Two hotels, the eight-story Radisson and the four-story Hilton Homewood Suites, are located across Shoreline Court. Several three and four-story office buildings are located to the southwest with vehicular access from Shoreline Court.

2. Guiding Documents

The main guiding documents regulating land use within and around the project site are the City of Brisbane General Plan, the City of Brisbane Zoning Ordinance and the Redevelopment Plan for the Brisbane Community Redevelopment Area Number One. The San Francisco Bay Plan (BCDC) and the Bay Trail Plan (Association of Bay Area Governments) policies regulate the development of the shoreline and Bay Trail on the project site. Additionally, the San Francisco International Airport Land Use Plan (City/County Association of Governments of San Mateo County) policies are relevant to the proposed project, as the project site is located approximately 3.25 miles north of the airport.

Several documents provided background information regarding the development of Sierra Point including the 1976 Brisbane Community Redevelopment Project Area Number One Draft EIR and Addendum, the 1978 Use Permit, the 1985 Tentative Subdivision Map (RS-2-85), the 1984 Development Agreement between Sierra Point Associates One and Two and the City as well as the 1997 Agreement Concerning Project Approval Documents.[3] The Development Agreement established the 1982 Architectural Design Guidelines for Sierra Point Office Park as the guiding design documents for development. These guidelines have been amended and are now called the Combined Site and Architectural Design Guidelines for Sierra Point (2001). The Agreement Concerning Project Approval Documents established developer responsibilities as well as a method for transferring approved but undeveloped square footage from one parcel to another.

The consistency of the proposed project with other non-land use related policies is addressed in the appropriate topical sections of the EIR (e.g., Air Quality). Applicable land use policies from each of the documents listed above are described below.

[1] OPUS West Corporation, 2001. Combined Site and Architectural Design Guidelines, Sierra Point. March 12.

[2] Warburton, Ted, 2006. Harbormaster, Sierra Point Marina. Personal communication with LSA Associates, Inc. October 10.

[3] The City Council adopted Ordinance No. 299 approving the 1984 Development Agreement on March 26, 1984. The Agreement Concerning Project Approval Documents was adopted December 22, 1997 by the City Council as Resolution No. 97-69. The First, Second and Third Amendments have modified the Project Approval Documents (September 15, 1998, November 17, 2003, and November 7, 2005, respectively).

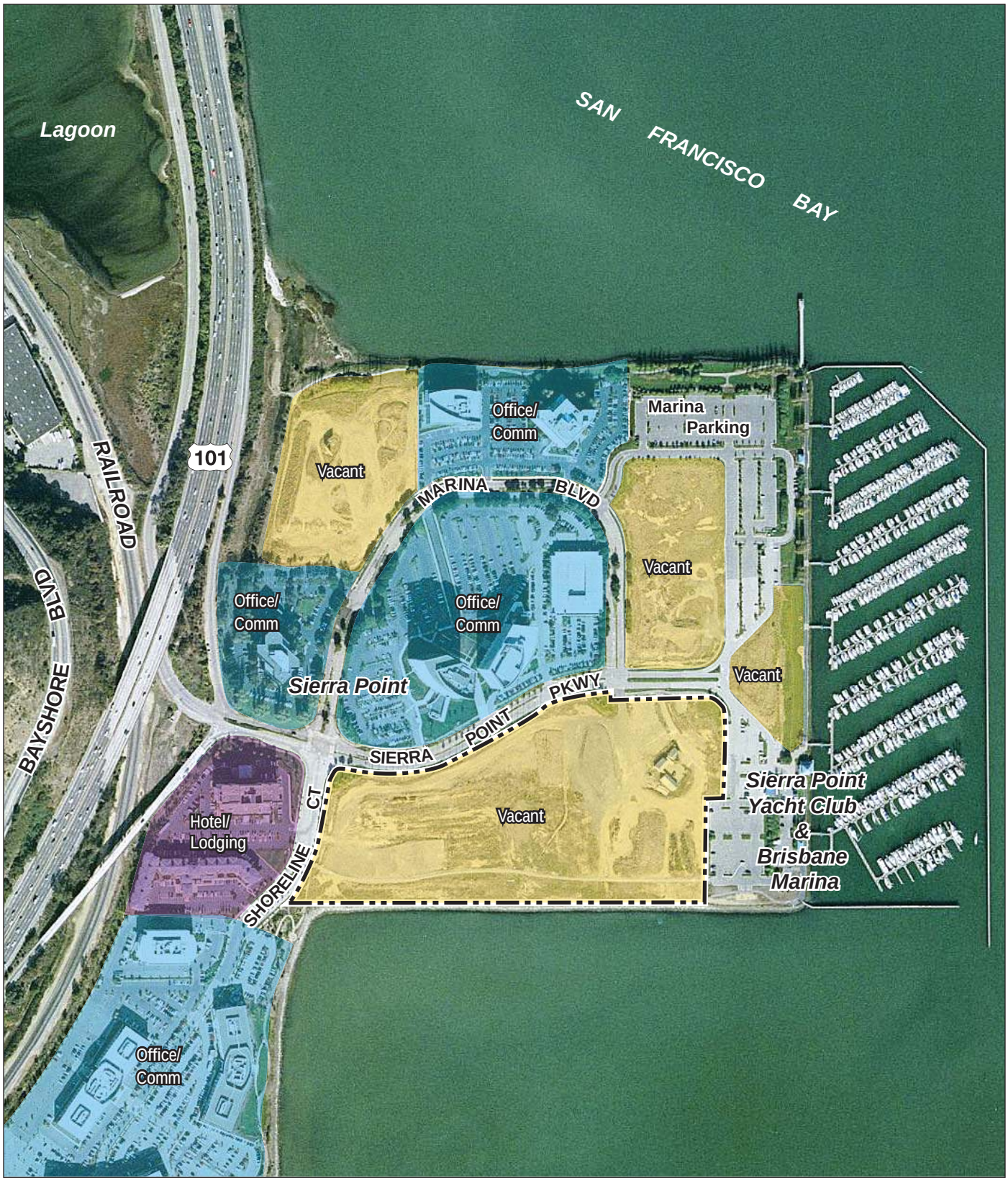


FIGURE IV.A-1

Sierra Point Biotech Project EIR

Aerial View of Site and Land Use in the Vicinity

SOURCE: GLOBEXPLORER, 2005.

I:\BRI0601 sierra point\figures\Fig_IVA1.ai (07/01/06)

Photo 1: View looking northeast of Bay Trail and gravel parking area on the project site (foreground) and adjacent office buildings (background).

Photo 2: View looking east of Bay Trail and sheds, with Bay to the south.

LSA

FIGURE IV.A-2

Sierra Point Biotech Project EIR
Existing Site Conditions

SOURCE: LSA ASSOCIATES, INC., 2006

I:\BRI0601 sierra point\figures\Fig_IVA2.indd (07/3/06)

Photo 3: View looking west with sheds on project site (foreground) and adjacent buildings and San Bruno Mountain (background).

Photo 4: View looking west across the project site with the Bay, adjacent hotels/office buildings and San Bruno Mountain in the background.

LSA

FIGURE IV.A-3

Sierra Point Biotech Project EIR
Existing Site Conditions
(continued)

SOURCE: LSA ASSOCIATES, INC., 2006

I:\BRI0601 sierra point\figures\Fig_IVA3.indd (08/09/06)

a. City of Brisbane General Plan. The City of Brisbane General Plan (General Plan) is a comprehensive plan for the development and use of land in the City and is an expression of community values. The General Plan was adopted by the City Council on June 21, 1994. The General Plan includes policies related to: land use; circulation; conservation; open space; noise; safety; and housing.

In the General Plan, the project site is designated as Sierra Point Commercial/Retail/Office (SPCRO). The General Plan describes this land use designation as follows:

Sierra Point Commercial/Retail/Office (SPCRO) represents a subarea devoted to commercial enterprises, encompassing a wide range of uses, as outlined in the Development Agreement for Sierra Point. Such uses may include, but not be limited to, retail uses, personal services, medical, professional and administrative offices, corporate headquarters, hotels, conference centers and cultural facilities, commercial recreation, restaurants, and other uses of a commercial character. Public and semi-public facilities and educational institutions may be located under this designation.

The General Plan provides specific land use policies for the Sierra Point subarea. In addition to general land use policies, land use policies that are relevant to the proposed project are listed below.

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 16: Acknowledge the mountain setting and the proximity to the Bay as central factors in forming the physical character of the City.

> *Program 16a*: In making land use decisions, consider the proximity of open space on San Bruno Mountain and public views of and access to the Bay as issues to be addressed.

Policy 19: In the context of respecting private property rights, make every effort to preserve and enhance public views of the Mountain and the Bay.

Policy 28: The establishment of open areas within private developments shall be utilized as means of preserving unique environmental features on the site or avoiding the appearance of excessive bulk or concentration of structures.

Policy 30: Retain sufficient distances between developments and designate open space and natural areas to enhance and respect the amenity and value of the resource.

> *Program 30a*: Establish minimum setback requirements from the Brisbane Lagoon, Levinson Marsh, and other designated aquatic areas consistent with good planning and conservation practices in consultation with the California Department of Fish and Game.

Policy 229: Development of Sierra Point shall be guided by the Redevelopment Plan for Project Area No. 1, and the 1984 Development Agreement between the City and Sierra Point Associates One and Two, and any subsequent amendments adopted by the City. [4]

Policy 230: Seek opportunities to enhance commercial services for users of the Marina and occupants of the office park.

[4] Subsequent documents guiding development on Sierra Point include: The Combined Site and Architectural Design Guidelines for Sierra Point (2001) and The Agreement Concerning Project Approval Documents adopted December 22, 1997 by the City Council as Resolution No. 97-69.

Beginning in 2004, the City initiated an update to the General Plan with public workshops, culminating in a placemaking workshop facilitated by Project for Public Spaces, Inc. Participants at the placemaking workshops evaluated key public places in Brisbane, including Sierra Point, and made a series of short and long term recommendations to enhance these places.[5] Recommended improvements and concerns for Sierra Point include: creating a more vibrant area with uses extending into the evenings; reducing the number of parking lots; increasing signage, safety and amenities for Bay Trail users; ecologically sensitive development along the shoreline; retail uses along the streets; and a preference for development with an active urban street edge having ground-floor retail instead of the typical suburban office park design with buildings placed behind parking lots. These suggestions have not been formally adopted, but will be taken under consideration in conjunction with the City's ongoing General Plan update process.

b. City of Brisbane Zoning Ordinance. The City of Brisbane Zoning Ordinance (Zoning Ordinance) implements the policies of the General Plan and certain other of the City's plans, policies, and ordinances. The Zoning Ordinance divides the City into districts, each of which is assigned different regulations. These regulations direct the construction, nature, and extent of building use. The project site and surrounding area on the Sierra Point peninsula are designated as the Sierra Point Commercial District (SP-CRO). The SP-CRO designation permits a variety of uses including: offices; hotels; retail sales and rental; restaurants; bars; financial institutions; personal services; commercial gyms and health facilities; meeting halls; and marinas. Conditional uses, subject to the granting of a use permit, include: medical facilities; commercial recreation; transit/transportation facilities; and temporary uses. Table IV.A-1 lists the development regulations in the SP-CRO district.

c. Redevelopment Plan for the Brisbane Community Redevelopment Area Number One. The Brisbane Community Redevelopment Project Area Number One includes Sierra Point peninsula, as well as parcels to the north along the Brisbane Bay shoreline and Brisbane lagoon.[6] The area adversely affected the economic functioning of the City due to the vacant, under-utilized lots characterized by declining tax revenues, lack of public utilities and inadequate roadway access. The Plan's primary objective was to "provide an improved, physical, social and economic environment within the City of Brisbane by the elimination of the economic, social and physical blight existing" within the redevelopment area.[7] The Plan creates a framework for the Redevelopment Agency to achieve the objectives through public infrastructure improvements, property acquisition, disposition and development.

[5] Project for Public Spaces, 2005. *Brisbane is Awesome! Defining the Core Places in Downtown Brisbane, Place Evaluation Workshop Results*. December.

[6] Brisbane, City of, 1976. *Redevelopment Plan, Brisbane Community Redevelopment Project Area Number One*. December 6. Last amended April 17, 2006.

[7] Brisbane, op. cit., p. 5.

Table IV.A-1: Development Regulations for Sierra Point

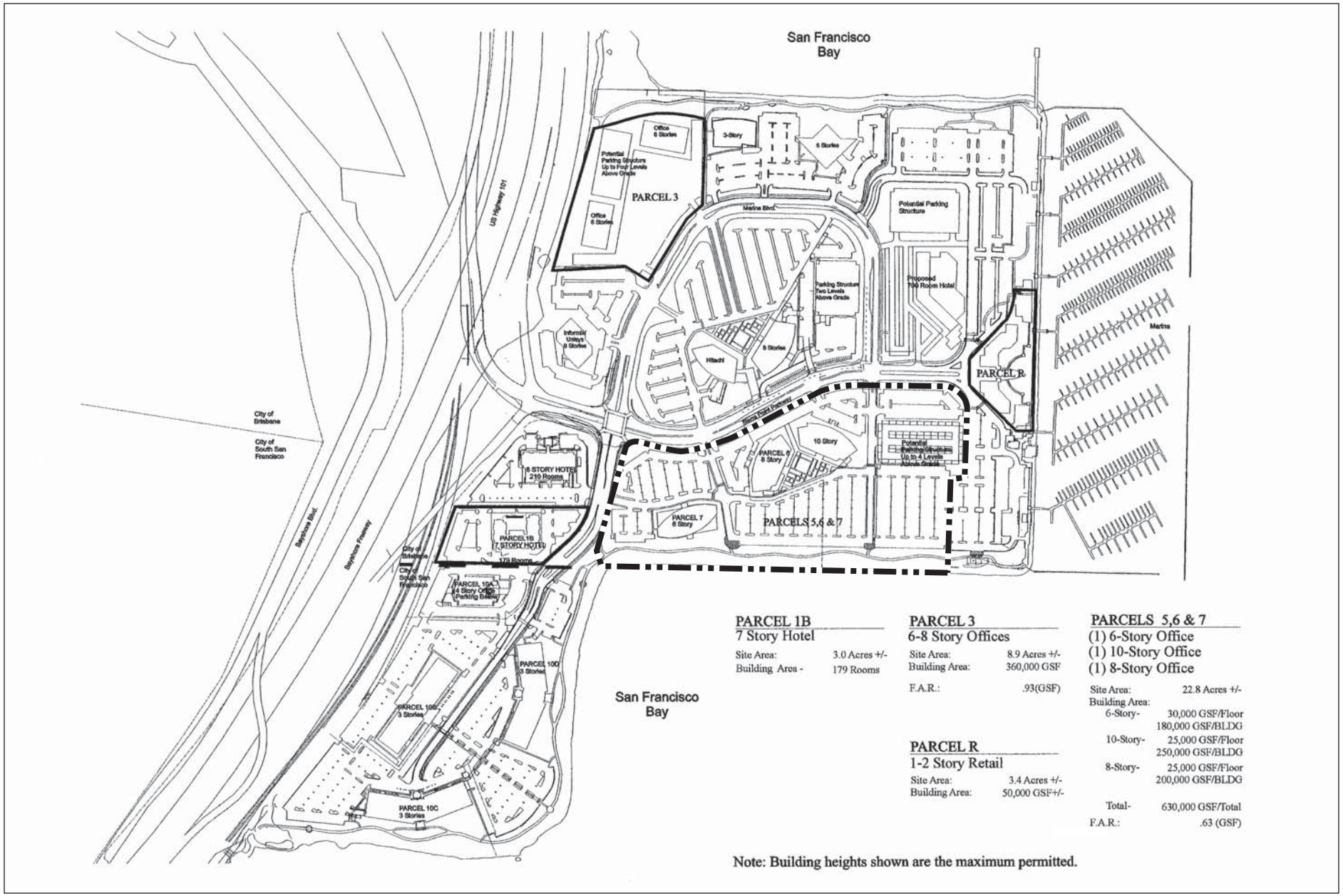
Regulation	Design Standard
Minimum Lot Area	1 acre
Minimum Lot Dimensions	100 feet wide, no requirement for depth
Required Minimum Setbacks	Front, 25 feet; side interior yard, 15 feet; side exterior yard, 20 feet; rear interior lots, 20 feet; rear corner lots, 15 feet
Maximum Land Coverage	40%
Minimum Landscaping	25% of total lot area
Maximum Height	12 stories; 8 stories along the freeway; 6 stories along shoreline
Parking	In accordance with Chapter 17.34 and the Design Guidelines

Source: Brisbane Zoning Ordinance, revised 2003. Combined Site and Architectural Design Guidelines for Sierra Point, 2001.

d. Combined Site and Architectural Design Guidelines for Sierra Point (Design Guidelines). The Design Guidelines for Sierra Point were approved by the City Council in 2001 and contain the conceptual Sierra Point Master Plan (Master Plan) for the area. The Plan seeks to create a coherent identity for Sierra Point by creating a framework for consistent design to occur across phased devel opments. The Brisbane portion of the Plan includes 10 mid-rise office buildings and three hotels. Buildings were sited with the intention of preserving views of the Bay and San Bruno Mountain.

Preservation of open space areas is a key component of the Design Guidelines and is achieved through limiting building heights to between five and 12 stories and constructing outdoor courtyard areas between buildings. The Guidelines emphasize the use of pathways to: connect open spaces and adjacent development; serve as utility corridors; and provide public access to the Marina and Fisherman's Park and set a threshold for interior paths to be a minimum of 8-feet wide and shoreline paths to be a minimum of 10-feet wide. Circulation and parking plans are required to have a parking scheme that includes surface, subterranean and garage parking in order to minimize the number of driver decisions and enable pedestrian movement. The Guidelines require adequate public parking for the Marina and related recreational uses to be located at various locations. Landscaping should serve the function of buffering parking, provide a transition between spaces, soften building edges and frame views along the water's edge.

The Master Plan conceptually describes the development of Sierra Point, as shown in Figure IV.A-4. As of June 2006, the majority of the Plan has been implemented. However, four sites, totaling approximately 45 acres, remain vacant. On the project site the approved Plan would allow construction of three office buildings: a six-story building, a 10-story building, and an eight-story building, which together would comprise 630,000 square feet. A parking structure with four levels of parking and rooftop parking above grade is approved for the northeast corner of the lot and surface parking are approved to cover the remaining site, aside from the BCDC shoreline area. The main visual focal point would be located along Sierra Point Parkway across from the existing eight and 12-story buildings.



LSA

PROJECT SITE

N

0 300 600

FEET

FIGURE IV.A-4

Sierra Point Biotech Project EIR

Sierra Point Master Plan

SOURCE: OPUS WEST CORPORATION, MARCH 2001.

I:\BRI0601 sierra point\figures\Fig_IV.A4.ai (07/7/06)

Land uses and development intensities may be transferred from one parcel to another within Sierra Point, as provided by The Agreement Concerning Project Approval Documents adopted by the City Council on December 22, 1997.[8] Transference requires prior City design review and approval, must occur concurrently with the reduction or change in land use on a specific parcel and must be assigned to a specific alternative parcel.

e. San Francisco Bay Plan. The San Francisco Bay Plan (Bay Plan) is a policy tool that, under the provisions of the McAteer-Petris Act, allows the San Francisco BCDC to "exercise its authority to issue or deny permit applications for placing fill, extracting materials, or changing the use of any land, water, or structure within the area of its jurisdiction," an area that includes all of the San Francisco Bay, a shoreline band of 100 feet from the water, and salt ponds, managed wetlands and certain waterways associated with the Bay. The Bay Plan stipulates: "Any public agency or private owner holding shoreline land is required to obtain a permit from the Commission before proceeding with (shoreline) development."

The project site is located in the Central Bay Area on Map 5 in the Bay Plan.[9] The highest expected water level is the 5.85 elevation line and BCDC jurisdiction extends 100 feet inland from this line on the project site.[10] Five special area plans have been created for regions of the Bay but the Sierra Point area does not fall within any of these planning areas. Therefore, the Bay Plan is the guiding document for BCDC policies applicable to the project site. BCDC suggestions for the Sierra Point area emphasize the provision of easy pedestrian access across Highway 101.

In general, the Bay Plan recommends that urban development be clustered so as to maximize Bay views and conserve natural landscape features and that development maximize shoreline access while protecting biological resources. Bay fill is to be used only where no practicable alterative to fill exists. Applicable planning-related polices are listed below.

Water Quality 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 non-polluting materials; and (c) applying appropriate, accepted and effective best management practice, especially where water dispersion is poor and near shellfish beds and other significant biotic resources.

Recreation Policy 5d: In all recreation facilities, access to the marinas, launch ramps, beaches, fishing piers, and other recreation facilities should be clearly signed and easily available from parking reserved for the public or from public streets.

Recreation Policy 7: In addition to the major recreational facilities indicated on the Plan maps, public access should be included wherever feasible in any shoreline development, as described in the policies for Public Access to the Bay. That policy is intended to result in much more access to the Bay than can be provided by public parks alone, especially in urban areas, and to encourage private development of the shoreline.

Public Access Policy 5: Whenever public access to the Bay is provided as a condition of development, on fill or on the shoreline, the access should be permanently guaranteed. This should be done wherever appropriate by

[8] Brisbane City Council Resolution No. 97-69.

[9] San Francisco Bay Conservation and Development Commission, 1968. *San Francisco Bay Plan*. Amended December 2005.

[10] OPUS West Corporation, 2001. Ibid.

requiring dedication of fee title or easements at no cost to the public, in the same manner that streets, park sites, and school sites are dedicated to the public as part of the subdivision process in cities and counties.

Public Access Policy 8: Access to and along the waterfront should be provided by walkways, trails, or other appropriate means and connect to the nearest public thoroughfare where convenient parking or public transportation may be available. Diverse and interesting public access experiences should be provided which would encourage users to remain in the designated access areas to avoid or minimize potential adverse effects on wildlife and their habitat.

Appearance, Design, and Scenic Views Policy 8: Shoreline developments should be built in clusters, leaving open area around them to permit more frequent views of the Bay. Developments along the shores of tributary waterways should be Bay-related and should be designed to preserve and enhance views along the waterway, so as to provide maximum visual contact with the Bay.

Other Uses of the Bay and Shoreline Policy 3: Wherever waterfront areas are used for housing, whenever feasible, high densities should be encouraged to provide the advantages of waterfront housing to larger numbers of people.

Implementation of the proposed project would require BCDC permit approval for development within the 100-foot shoreline band. Past BCDC review of development on the project site includes a 1998 public hearing of the Design Review Board on a previous conceptual development master plan for Sierra Point that was different than the proposed project. The BCDC Board expressed interest in key issues associated with proposed development on the site including: view corridors from the peninsula to the Bay; setbacks between buildings to allow access to views; "moments" or points of arrival; access from buildings to the shoreline; and the location of access nodes for the trail.[11] BCDC reviewed a proposed development for Parcel 10, located to the southwest of the project site, as part of the Sierra Point master plan and issued a permit for this project on May 26, 1999.[12] No previous BCDC permits have been issued for the project site.

f. San Francisco Bay Trail Plan. The San Francisco Bay Trail Plan proposes the development of a regional hiking and bicycling trail around the perimeter of the San Francisco and San Pablo Bays.[13] 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 Bay Trail Plan was adopted by ABAG in 1989 and planned for approximately 400 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 non-profit organization. As of June 2006, another 100 miles of trails have been planned.

[11] San Francisco Bay Conservation and Development Commission (BCDC), 1999. *Approved Minutes of Design Review Board Meeting of October 5, 1998.*

[12] San Francisco Bay Conservation and Development Commission (BCDC), 2000. *Permit No. M99-3*. Issued May 26, 1999, as amended through June 22, 2000.

[13] Association of Bay Area Governments, 1989. *San Francisco Bay Trail Plan.* July.

In the vicinity of the project site, the Bay Trail runs on-street along Sierra Point Parkway next to the Brisbane Lagoon and connects to the off-street trail that runs along the perimeter of the Sierra Point peninsula. The Trail connects with Oyster Point and San Bruno Point Park portions of the trail to the south and is generally an off-street paved pathway through this area.

g. San Francisco International Airport Land Use Plan. State law requires an airport land use commission to prepare and adopt a comprehensive airport/land use compatibility plan (CLUP) for each public-use airport in the county.[14] The CLUP is a tool used by airport land use commissions to fulfill their purpose of promoting airport/land use compatibility. The purpose of the CLUP is to provide for the orderly growth of each public airport and surrounding area and to safeguard the general welfare of the inhabitants within the vicinity of the airport and the public in general.

The San Mateo County Comprehensive Airport Land Use Plan (CLUP) is focused on the following three major concerns: 1) aircraft noise impact reduction; 2) the safety of persons on the ground and in aircraft flight; and 3) height restrictions and airspace protection.[15] The San Francisco International Airport is within the jurisdiction of the San Mateo County CLUP and applies to geographic areas near the Airport. The project site is located approximately 3.25 miles north of the San Francisco International Airport and is just outside of the mapped height restriction areas for the airport. The CLUP is also described in Sections IV.E, Noise and IV.L, Visual Resources, of this Draft EIR

Certain types of land uses are recognized by the Airport Land Use Commission as hazards to air navigation in the vicinity of the San Francisco International Airport. These land uses include any of the following:

- Any use that would direct a steady or flashing light toward an aircraft engaged in an initial straight climb following takeoff or toward and aircraft engaged in straight final approach toward a landing.
- Any use that would cause sunlight to be reflected toward an aircraft in an initial straight climb following takeoff or toward an aircraft engaged in straight final approach toward a landing.
- Any use that would generate smoke or rising columns of air.
- Any use that would attract large concentrations of birds within approach-climbout areas.
- Any use that would generate electrical interference that may interfere with aircraft communications or aircraft instrumentation.

3. Impacts and Mitigation Measures

This subsection analyzes impacts related to land use that could result from implementation of the proposed project. It begins with the criteria of significance, which establish the thresholds for determining whether an impact is significant. The latter part of this subsection identifies impacts associated with the proposed project. As noted above, conflicts between a project and applicable policies do not constitute significant physical environmental impacts in and of themselves; as such,

[14] California Public Utilities Code Section 21675(a).

[15] City/County Association of Governments of San Mateo County (C/CAG), 1996. San Mateo County Comprehensive Airport Land Use Plan, 1996. Adopted November 14, 1996.

the proposed project's consistency with applicable policies is discussed separately from the physical land use impacts associated with the proposed project.

However, questions of policy consistency are used to inform analysis of the physical environmental implications of a project. That is, a policy inconsistency is considered to be a significant adverse environmental impact only when it is related to a policy adopted for the purpose of avoiding or mitigating an environmental effect, and it is anticipated that the inconsistency would result in a significant adverse *physical* impact based on the established significance criteria. The proposed project's consistency with regional policies related to certain physical environmental topics (e.g., air quality, transportation, and noise) is fully analyzed and discussed in those sections of this EIR.

a. Significance Criteria. The project site is not subject to a habitat conservation plan or natural community conservation plan, and therefore no criteria concerning these issues was included. Implementation of the proposed project would have a significant effect on land use if it would:

- Disrupt or divide the physical arrangement of an established community.
- Alter the type or intensity of land use on a proposed site, causing it to be substantially incompatible with surrounding land uses or the overall character of surrounding neighborhoods.
- Fundamentally 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 or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect and where such conflict would actually result in a physical adverse change in the environment.

b. Less-than-Significant Land Use Impacts. The following discussion describes land use impacts associated with implementation of the Sierra Point Biotech project and the proposed Zoning Ordinance/General Plan amendments. As described in Chapter III, Project Description, implementation of the Sierra Point Biotech project would result in the construction of an office/research and development (R&D) campus consisting of five buildings on 22.8 acres.

(1) Community Integrity. The physical division of an established community typically refers to the construction of a physical feature (such as an interstate highway or railroad tracks) or removal of a means of access (such as a local road or bridge) that would impair mobility within an existing community, or between a community and outlying areas.

The project site and surrounding area is a capped sanitary landfill and many of the surrounding parcels have been redeveloped with commercial, hotel and recreational uses. This area is separated from central Brisbane by Highway 101 and the Union Pacific Railroad tracks to the west, but has vehicular access via Sierra Point Parkway and Highway 101 and pedestrian access from the Bay Trail.

The project site is predominantly vacant with three sheds near the eastern portion of the site and currently has no access through the site, aside from the Bay Trail along the shoreline. The vacant site currently lends a "feeling of desolation and isolation" to the area, as described in the Place Evaluation Workshop Results.[16] Implementation of the proposed project would result in the demolition of the

[16] Project for Public Spaces, 2005. *Brisbane is Awesome! Defining the Core Places in Downtown Brisbane, Place Evaluation Workshop Results*. December.

existing sheds and redevelopment of the site with 540,185 square feet of office/R&D space in five buildings and improved access through the site. The proposed project would link the offices and hotels to the southwest and west of the project site, respectively, with the offices to the north of the project site and would create a more cohesive urban environment. Pedestrian pathways would connect the buildings, surface parking, garage parking, and outdoor amenities that would be constructed. Improvements, including landscaping, along the Bay Trail would enhance the pedestrian experience. On-site public parking for recreational activities would be constructed along Shoreline Court and would facilitate public access to the Bay Trail.

Generally, the proposed project would not disrupt or divide the physical arrangement of the community; however, the proposed six-level parking garage with a height of approximately 60 feet, could form a *visual* barrier to pedestrians seeking access to the Bay. The proposed location for the garage on the northeast corner of the site along view corridors and public access pathways designated in the Design Guidelines, also could result in a *psychological* barrier to the Bay. However, the garage as a potential visual or psychological barrier is not a physical impact and is therefore not addressed in this section. See Section IV.L, Visual Resources, for a detailed description of visual impacts.

(2) Compatibility with Surrounding Land Uses. Implementation of the project would not result in the development of uses that would be intrinsically incompatible with surrounding land uses (e.g., a power plant, factory, or other noise, air pollution, or hazard-generating land use). The office/ R&D, and biotech use would not permanently interfere with the daily operations of surrounding land uses including: the recreational uses at the Marina and Yacht Club; the office uses north and southwest of the project site; or the hotel uses west of the project site.

In addition, none of the land uses surrounding the site are intrinsically incompatible with the office/R&D and biotech uses, including limited animal testing, proposed for the project site. While the internal design and function of proposed research laboratory space would be different from the internal design of adjacent office uses, the external appearance and uses of the proposed laboratory buildings would be similar to adjacent office buildings. The placement of R&D uses next to office/hotel/or recreation uses would not constitute an inherent land use conflict, and similar projects have been constructed throughout the Bay Area.

Adjacent office, hotel, and recreational uses would not be adversely impacted by the proposed uses, but could benefit from the increased connectivity to Sierra Point activity nodes such as the marina and shoreline, and trail use by employees and visitors that may result from implementation of the proposed project.

(3) Consistency with Applicable Policies. Consistency with the policy documents that regulate development on Sierra Point, including the Brisbane General Plan, the Zoning Ordinance, the Redevelopment Plan, and the Design Guidelines and Master Plan for Sierra Point is discussed below. The proposed project's consistency with the City's Tree Regulations is discussed in Section IV.H, Biological Resources.

General Plan and Zoning Amendments. As described in Chapter III, Project Description, implementation of the proposed project would result in an amendment to the uses for the Sierra Point Commercial/Retail/Office (SPCRO) subarea of the General Plan and a zoning amendment to the permitted and conditional uses for the Sierra Point Commercial District (SP-CRO). This change

would allow research and development as a permitted use, defined as studying, testing, designing, analyzing and experimenting with potential or existing products, processes or services, including live animal testing limited to rodents, rabbits, fish and amphibians. Research and development involving the testing of laboratory animals other than rodents, rabbits, fish or amphibians would be subject to review via the conditional use permit process. The physical impacts of the General Plan and zoning amendments are analyzed at a program, or general level, in this EIR.

Any development proposed for R&D uses in the amended district (other than the Sierra Point Biotech project addressed in this EIR) would be subject to subsequent environmental and City review. Thus certification of this Draft EIR would not result un-regulated development projects having R&D uses.

While the social and philosophical implications of R&D do not constitute an adverse environmental impact and thus are not discussed in this EIR, the direct physical impacts to the environment are analyzed. The proposed research and development uses do not have unique physical impacts and are very similar in their external appearance, function and environmental effects to typical office, research and commercial uses. In the case of the proposed project, the physical exterior of the building will look similar to other offices and the exterior uses (parking and landscaped outdoor areas) would also be similar to an office campus environment. The R&D use requires different interior specifications for research/ laboratory space. However, these issues are regulated by building codes and health and safety codes and do not present a unique external impact on the environment that would not be analyzed through other review processes already in place.

Research and development with laboratory animals is highly regulated by the U.S. Federal Government through the Animal Welfare Act and Animal Welfare Regulations. The U.S. Department of Agriculture (USDA) administers the regulations and each institution that uses laboratory animals must establish an Institutional Care and Animal Use Committee (IACUC) to oversee and evaluate the institution's use and care program. Additionally, the Centers for Disease Control (CDC), Occupational Health and Safety in the Care and Use of Research Animals, the National Institutes of Health (NIH), the Occupational Safety and Health Administration (OSHA), and the National Institute for Occupational Safety and Health Administration (NIOSH) also provide guidance and regulation of animal research. Section IV.I, Hazards and Hazardous Materials, provides a more detailed discussion of the use of animals in research.

Brisbane General Plan. As noted above, the project involves an amendment to the Brisbane General Plan to permit Research and Development (R&D) with limited animal testing. R&D uses would be compatible with the retail, personal services, professional and administrative office uses currently permitted within the SPCRO designation, and the physical characteristics of R&D uses would be in character with those uses that are now permitted.

The Sierra Point Biotech project is consistent with the land use policies in the Brisbane General Plan, as it would: promote a mix of uses in order to have a diversified tax base; preserve visual corridors and character associated with the San Bruno Mountain and San Francisco Bay; and preserve open areas along the shoreline. The project also addresses policies which recommend increasing commercial services for users of the Marina and office park with two proposed retail spaces totaling 2,500 square feet. These retail services would be located at the corner of Sierra Point Parkway and the Yacht Harbor Parking and would be accessible to the users of the Marina and office space.

The proposed project is partially consistent with the Place Evaluation Workshop Results for the General Plan update. The project would improve the visual character of the Bay Trail on the project site with landscaping, preservation of open space along the shoreline and creation of new sidewalks and pathways for pedestrian activity on the site. However, the project would not support a more-lively evening and weekend environment, nor would it provide ground-floor retail along the streets, with the exception of the small retail spaces described above. The proposed parking garage would be an inactive use at a key intersection of the Sierra Point area and would not bring energy or activity to the site as envisioned by the placemaking workshops. In these respects, the project would be more similar to the existing commercial/office uses already on Sierra Point than the recommendations from the workshops.

Brisbane Zoning Ordinance. The Sierra Point Biotech project complies with zoning regulations including lot area and dimensions, minimum required setbacks, maximum lot coverage and landscaping, maximum building height, maximum floor area, and parking (see Table IV.A-1). As noted above, the Zoning Ordinance would be amended as part of this project to allow research and development uses within Sierra Point. As discussed previously, R&D uses would be operationally and physically consistent with the uses otherwise permitted within the SP-CRO zoning district.

Redevelopment Plan for the Brisbane Community Redevelopment Area Number One. The proposed project complies with the Redevelopment Plan. While the project site is not owned by the Redevelopment Agency, the project supports the Plan's goals for increased tax revenue, utilization of vacant parcels, creation of attractive development, and enhanced access to the Bay.

Combined Site and Architectural Design Guidelines for Sierra Point (Design Guidelines). The Design Guidelines permit a higher development intensity for the project site than that proposed for the Sierra Point Biotech project. The Design Guidelines allow for three office buildings with heights of six-stories, eight-stories, and 10-stories. A total of 630,000 square feet is permitted with a floor-area ratio (FAR) of 0.63. The proposed project would include five buildings ranging in height from three to four-stories with a total FAR of 0.54 resulting in 540,185 square feet. The remaining un-built 89,815 square feet of office space is proposed to be transferred to a vacant parcel in the northwest corner of Sierra Point, designated as Parcel 3 in the Master Plan (see Figure IV.A-4). Parcel 3 is approximately 8.9 acres and has been approved for a total of 360,000 square feet in two six to eight-story offices and a parking structure. Because the square footage proposed for transfer would be consistent with the office use currently approved for Parcel 3 and is allowed under the terms of the Master Plan, the transfer of square footage would not result in adverse environmental land use impacts. The development of Parcel 3 would also be subject to subsequent environmental review and City approval at the time a project is proposed for the site.

Compared with the approved Conceptual Master Plan (Master Plan) in the Design Guidelines, the proposed project would result in five office/research buildings with fewer floors and larger footprints instead of three taller office buildings. The proposed six-level parking garage, however, would be two stories taller and have a larger footprint than the four-story parking garage approved in the Master Plan. Specific project differences from the Master Plan include: a proposed building height of three and four stories instead of the approved six, eight and 10 stories; a proposed total of 540,185 square feet instead of the approved 630,000 square feet; the angled placement of buildings on the site such that bulk is moved away from the shoreline; and relocation of parking away from the Bay and toward the streets. The proposed project would result in less surface parking on the southern portion of the

site, providing more open space along the Bay than would occur with the previously approved Master Plan. Visual impacts of the proposed project are described in detail in Section IV.M, Visual Resources.

San Francisco Bay Plan and Bay Trail Plan. The Sierra Point Biotech project is consistent with the Bay Plan policies for water quality, recreation, public access, appearance, design and scenic views. The proposed project would maximize shoreline access and views of the Bay, as described above. Project implementation would result in improvements to the Bay Trail along the shoreline portion of the project site. The improvements proposed as part of the project are consistent with the Bay Trail Plan policies. These policies seek to create a complete trail around the Bay that is close to the shoreline (where feasible, and where such a trail can be provided with minimal environmental impact) and that connects to other trails. The improved trail would be 10 feet wide and public access parking would be located near the southwest corner of the project site, along the trail, as shown in Figure III-3. The meander of the current trail would be increased to create a more visually interesting experience.

BCDC recommendations for the proposed development include: maintenance of the view corridor from Marina Boulevard to the Bay; provision of public access parking separate from the office parking lot; provision of wind protection along the trail; and development of a "pausing point" over the Bay, such as a small dock, deck, or overlook.[17] These recommendations, in addition to the policies described above, would be taken under consideration by BCDC prior to issuance of a permit.

San Francisco International Airport Land Use Plan. The project site is located just outside of the mapped height restriction areas for the San Francisco International Airport and thus building heights are not regulated by the San Mateo County Comprehensive Land Use Plan (CLUP). Proposed construction materials are similar to other buildings in the area and would not create conflicts with design restrictions regarding light or direction of light towards aircraft, nor would any uses generate conflicts with the CLUP. Potential impacts associated with the proximity of the project site to the airport and flight paths are described in detail in Sections IV.E, Noise and IV.L, Visual Resources, of this Draft EIR.

c. Significant Land Use Impacts. Implementation of the proposed project would not result in any significant land use impacts.

[17] Gaut, Andrea M., 2006. Coastal Program Analyst, San Francisco Bay Conservation and Development Commission. Personal communication with LSA Associates, Inc. October 10.

B. POPULATION, EMPLOYMENT AND HOUSING

This section describes the local area's existing and projected population, employment, and housing statistics and evaluates the potential impacts of the proposed project on the area's population, employment, and/or housing. Also considered is the City's current "jobs/housing balance" and the effect that the project would have on this City characteristic. Mitigation measures are recommended as necessary.

1. Setting

The following sections utilize data from the U.S. Census Bureau, California Department of Finance, Association of Bay Area Governments (ABAG), and City of Brisbane General Plan.

a. Population. The City of Brisbane, which is located in the northern portion of San Mateo County, had a population of 3,597 in 2000.[1] Reversing a declining trend since the 1970s, the City grew by 645 residents (21.8 percent) from 1990 to 2000. Table IV.B-1 shows population and housing data for years 1970 to 2000. According to 2006 California Department of Finance (DOF) population estimates, the City of Brisbane currently has approximately 3,744 residents.[2] Recent DOF estimates state that the population of Brisbane has increased by 147 residents (4 percent) since 2000.[3] The median age in the City of Brisbane is 40.3 years old.[4]

Table IV.B-1: City Of Brisbane Population and Housing Data (1970-2000)

	1970	1980	1990	2000
Total Population	3,003	2,969	2,952	3,597
Total Households	1,133	1,362	1,300	1,620
Total Units	1,172	1,405	1,382	1,646

Source: City of Brisbane, 2002. 1999-2006 Housing Element. Adopted October 15, 2002.

From 1970 to 2000, the number of households in the City of Brisbane increased from 1,133 to 1,620. In 2005, there were 1,680 households in the City of Brisbane.[5] ABAG estimates that the total number of households in Brisbane will reach 1,790 by 2010 (a 10.5 percent increase from 2000 to 2010) and 2,190 by 2030 (a 31 percent increase from 2010 to 2030). A summary of ABAG household projections for Brisbane is provided in Table IV.B-2.

Table IV.B-2: Households Data, City of Brisbane

Source	2000	2010	2020	2030
ABAG *Projections 2005*	1,620	1,790	2,060	2,380

Source: ABAG, 2005. *2005 Projections.*

The average household size for Brisbane was 2.20 persons in 2000, which is lower than the San Mateo County average of 2.74.[6] Average household size declined in Brisbane from 1990 to 2000.[7]

[1] U.S. Census, 2000. Census 2000 Summary File 1 (SF 1) and Summary File 3 (SF 3) Brisbane, California.

[2] California Department of Finance, 2006. E:1 City/County/State Population Estimates with Annual Percent Change, January 1, 2005 and 2006.

[3] California Department of Finance, 2006. E:4 Population Estimates for Cities, Counties and State, 2001 – 2006 with 2000 DRU Benchmark.

[4] U.S. Census, 2000. op. cit.

[5] ABAG, 2005. *2005 Projections*.

[6] ABAG, 2005. 2005 Projections; and U.S. Census, 2000. Census 2000 Summary File 1 (SF 1) and Summary File 3 (SF 3) Brisbane, California.

[7] City of Brisbane, 2002. *1999-2006 Housing Element*. Adopted October 15.

ABAG projects the average household size in Brisbane will remain steady at around 2.2 through 2030.[8]

b. Employment. The civilian labor force includes: 1) those who are employed (except in the armed forces); and 2) those who are unemployed but actively seeking employment. Those who have never held a job, who have stopped looking for work, or who have been unemployed for a long period are not considered to be in the labor force. Employment data for the City of Brisbane includes data from the entire City sphere of influence area in order to allow for an equivalent comparison between total jobs and employed residents using ABAG Projections 2005 data.

(1) Total Jobs. An estimated 7,480 total jobs were located in the City of Brisbane in 2000. Total jobs in the City of Brisbane are projected to reach 9,580 by 2010 (a 28 percent increase from 2000 to 2010) and 20,420 by 2030 (a 113 percent increase from 2010 to 2030).[9] Table IV.B-3 shows the projected increase in total jobs in the City of Brisbane through 2030.

(2) Employed Residents. The City of Brisbane had 2,192 employed residents in 2000 according to ABAG. ABAG estimates that the total number of employed residents will decrease slightly to 2,190 in 2010 and will increase to 3,350 (a 53 percent increase from 2010 to 2030). A summary of data on employed residents in Brisbane is provided in Table IV.B-3.

Table IV.B-3: City of Brisbane Employment Data

	2000	2005	2010	2020	2030
Total Jobs[a]	7,480	8,200	9,580	13,350	20,420
Employed Residents[a]	2,192	1,930	2,190	2,730	3,350
Total Jobs/Employed Residents	3.41	4.25	4.37	4.89	6.10

[a] Figures for jobs and employed residents data includes data from the entire City of Brisbane sphere of influence area.

Source: ABAG 2005. *2005 Projections.*

c. Housing Stock. The housing stock in the City of Brisbane is characterized by a majority of single-family homes, a smaller percentage of multi-unit buildings, and relatively low vacancy rates of 11 percent.[10] There were 1,818 housing units (1,614 occupied units) in Brisbane in 2000 according to the 2000 U.S. Census. Of these, about 55 percent were detached single-family homes, about 14.2 percent were attached single-family homes, about 28.4 percent were units located in multi-unit buildings, and about 2.4 percent were mobile homes. Approximately 19 percent of the City's housing units were in buildings with five or more units and 9.6 percent were in buildings with 2 to 4 units. According to the City of Brisbane Housing Element, 66.7 percent of all occupied housing units in Brisbane were owner-occupied and remaining 33.3 percent were renter-occupied.[11]

d. Jobs/Housing Balance. The concept of jobs/housing balance is used to examine whether a City or region has a balance between its housing supply and its employment base. The primary functions of an analysis of the relationship between jobs and housing are: 1) to provide a generalized measure of employment or housing need in areas where the relationship between these two

[8] ABAG, 2005. op. cit.

[9] ABAG, 2005. op. cit.

[10] The reported 11 percent vacancy rate in the 2000 U.S Census included 148 newly constructed but not yet occupied housing units in the Northeast Ridge subarea known to have been vacant at the time of the Census. Past U.S. Census vacancy rates in Brisbane were 3.8 percent in 1990, 2.9 percent in 1985 and 3.1 percent in 1980.

[11] City of Brisbane, 2002. *1999-2006 Housing Element*. Adopted October 15.

characteristics is out of balance; and 2) to indicate the potential severity and trending direction of such a condition on traffic flows, air quality, and housing affordability.

A region that has too many jobs relative to its housing supply is likely to experience escalation in housing prices (with a concurrent decline in affordability for the lower-income segments of the community) and intensified pressure for additional residential development. Conversely, if a region has relatively few jobs in comparison to employed residents, this may be a good indication that many workers are commuting to jobs located elsewhere. The resulting commuting patterns can lead to traffic congestion and adverse effects on both local and regional air quality.

Even if a community has a statistical balance between jobs and housing, sizeable levels of in-commuting and out-commuting are still possible especially where employment opportunities do not match the skills and educational characteristics of the local labor force. Intra-regional commuting tends to result in such instances. A community can also have a balance between jobs and housing, but with a housing stock that is not affordable to its workers. These conditions are often referred to as a region's jobs/housing match. Jobs/housing analyses (which examine either the "balance" issue or the "match" issue) are often more useful for examining the *potential* for "self-containment," particularly at the county or larger regional level, than they are for determining whether this self-sufficiency actually exists in a given community.

(1) Methodology. Although the term "jobs/housing balance" is typically used to refer to a relationship between jobs and housing units within any given community, the key relationship is between jobs and the number of employed residents within a community, because some households have no workers. The balance between population and employment is typically measured by computing the ratio of jobs to employed residents, with 1.0 indicating a balance between the two variables. As noted above, this ratio does not, however, take into account intra-regional commuting due to job/labor mismatches or housing affordability. Nevertheless, the jobs-to-employed residents ratio is still a useful way of comparing jobs/housing balances between different areas, such as between cities or between a city and a county.

(2) Jobs/Housing Data for the City of Brisbane and San Mateo County. According to ABAG,[12] Brisbane has more jobs than employed residents, indicating that some employees must commute from outside of the City to work there. The jobs/employed residents ratio within Brisbane in 2000 was a noticeably high 3.41, as shown in Table IV.B-3. In 2010, ABAG projects that the jobs/employed residents ratio in Brisbane will increase to 4.37, based on projections of 9,580 jobs and 2,190 employed residents. By 2030, ABAG projects a jobs/employed residents ratio of 6.10, based on projections of 20,420 jobs and 3,350 employed residents.

Countywide, the jobs/employed residents ratio is relatively balanced compared to the greater amount of jobs to employed residents in the City of Brisbane. In 2000, according to ABAG, the ratio in San Mateo County was 1.05, indicating a relatively balanced potential for jobs/employed residents. ABAG projects this situation to remain nearly unchanged through 2030, when the ratio is projected to increase slightly to 1.09, based on 507,090 jobs and 464,600 employed residents. The close proximity of South San Francisco and other communities within San Mateo County provides various concentra-

[12] ABAG, 2005. op. cit.

tions of housing and jobs and as a result, a relatively close balance of jobs to employed residents exists.

2. Impacts and Mitigation Measures

This section analyzes impacts related to population, employment, and housing that could result from implementation of the proposed project. The section begins with the criteria of significance, which establish the thresholds to determine whether an impact is significant. The latter part of this section presents the impacts associated with the proposed project and identifies mitigation measures, as appropriate.

a. Criteria of Significance. The proposed project would have a significant impact on population, employment, and housing if it would:

- Induce substantial, unanticipated population growth in an area either directly or indirectly.
- Displace a substantial number of existing housing units or people, necessitating the construction of replacement housing elsewhere.

b. Less-than-Significant Population, Employment and Housing Impacts. The following discussion examines potential less-than-significant impacts of the proposed project.

(1) Induce Substantial Population Growth in an Area. The proposed project would generate approximately 1,800 new jobs but would not include any additional residential housing units. Employment growth on the project site is not unforeseen as demonstrated by the 1994 City of Brisbane General Plan designation of Sierra Point Commercial/Retail/Office (SPCRO) on the site. In addition, the Sierra Point Master Plan (Master Plan), as discussed in Section IV.A, Land Use, assumes office and commercial development would occur on Sierra Point.[13] These documents illustrate the City's intent to develop the project site for commercial and office uses.

The proposed project could have effects related to employment; however, it is unlikely that significant environmental impacts would result. The current jobs/housing (employed residents) ratio in the City of Brisbane is 4.25. The ratio is projected to increase slightly in 2020 to 4.89. The proposed project would generate approximately 1,800 new jobs, which could potentially encourage people to move to Brisbane and increase the amount of employed residents within the City. The proposed project would result in 89,815 gross square feet fewer than were approved in the original Sierra Point Design Guidelines[14] and would result in 300 fewer employees at the project site than were originally anticipated. Because the proposed project has been anticipated by the City of Brisbane and included in its growth projections, the additional 1,800 jobs would be within the projected increase of 5,150 jobs by 2020, as shown in Table IV.B-3. The project would not result in substantial unforeseen population or employment growth beyond that planned for the area and no significant impact would result.

[13] OPUS West Corporation, 2001. Combined Site and Architectural Design Guidelines for Sierra Point. Adopted by the City on March 12, 2001

[14] Ibid.

(2) Displace a Substantial Number of Existing Housing Units or People. There are currently no inhabited residential units on the project site, thus the proposed project would not result in the displacement of existing housing units or people.

c. Significant Population, Employment and Housing Impacts. Implementation of the proposed project would not result in any significant population, employment, or housing impacts.

C. TRANSPORTATION, CIRCULATION AND PARKING

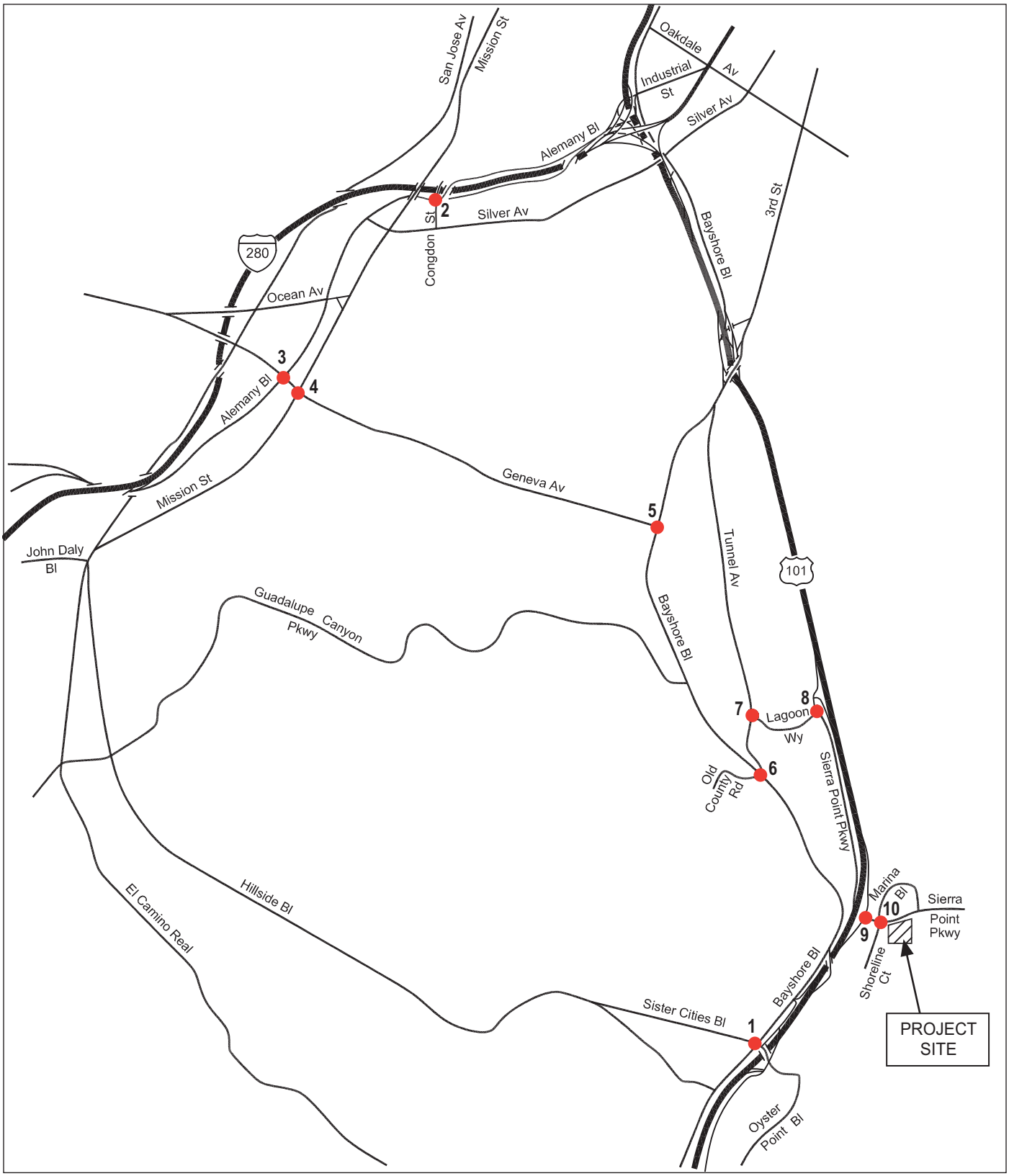
This section of the EIR describes the transportation and circulation conditions in the area surrounding the project site, and identifies transportation impacts associated with the development of the proposed project. The analysis focuses on potential impacts to intersections, roadway and freeway segments; pedestrian, bicycle, and transit networks; and internal site circulation. Significant impacts are quantified and mitigation measures are identified to address these impacts, as necessary. The following section on transportation, circulation, and parking was prepared based on a Traffic Impact Analysis (TIA) completed by Hexagon Transportation Consultants, Inc. All technical analyses related to this study are included in Appendix C.

1. Existing Setting

This section describes the existing transportation infrastructure including the road and transit system, as well as the pedestrian and bicycle facilities. The study intersections are identified as are the analysis scenarios. The methods used to analyze the study intersections are discussed, followed by their existing operational characteristics.

a. Existing Roadway Network. The Sierra Point Biotech project site is located east of Shoreline Court and south of Sierra Point Parkway in the City of Brisbane, as shown in Figure IV.C-1. Existing land uses near the project site are primarily office, commercial and hotels. A description of roadways in the project vicinity is provided below. Regional access to the project site is provided by U.S. Highway 101 (US 101) and Interstate 280 (I-280), while a number of arterials and local roads provide local access. Existing lane configurations and traffic controls are shown in Figure IV.C-2 for each study intersection.

- *US 101* is a north/south freeway that provides regional access between San Francisco and points north (the North Bay and the Golden Gate Bridge) and points south (the Peninsula and South Bay). US 101 connects with Highway 1 north of San Francisco, and connects with I-80 near the Bay Bridge. US 101 has a northbound on/off ramp in the immediate vicinity of the project site. In addition, southbound on/off ramps are located approximately 1.25 miles north of the project site at Sierra Point Parkway and Lagoon Way.
- *I-280* provides regional access between San Francisco, the Peninsula and the South Bay. The freeway provides a direct connection to US 101 and terminates at the surface street in the South of Market/Mission Bay area. South of the interchange with US 101, I-280 is a six to eight-lane freeway. Access between I-280 and the proposed project site is provided via US 101.
- *Sierra Point Parkway* is primarily a north/south roadway that extends from Lagoon Way in the north to its termination east of the project site. In the vicinity of the project, Sierra Point Parkway is a four-lane roadway that runs in an east/west direction and provides direct access to the project site.
- *Shoreline Court* is a four-lane, north/south roadway that extends from its intersection with Sierra Point Parkway in the north to its terminus approximately ¼ mile south. Shoreline Court provides direct access to the proposed project site.



LSA

N

NOT TO SCALE

LEGEND

PROJECT SITE

1 STUDY INTERSECTION

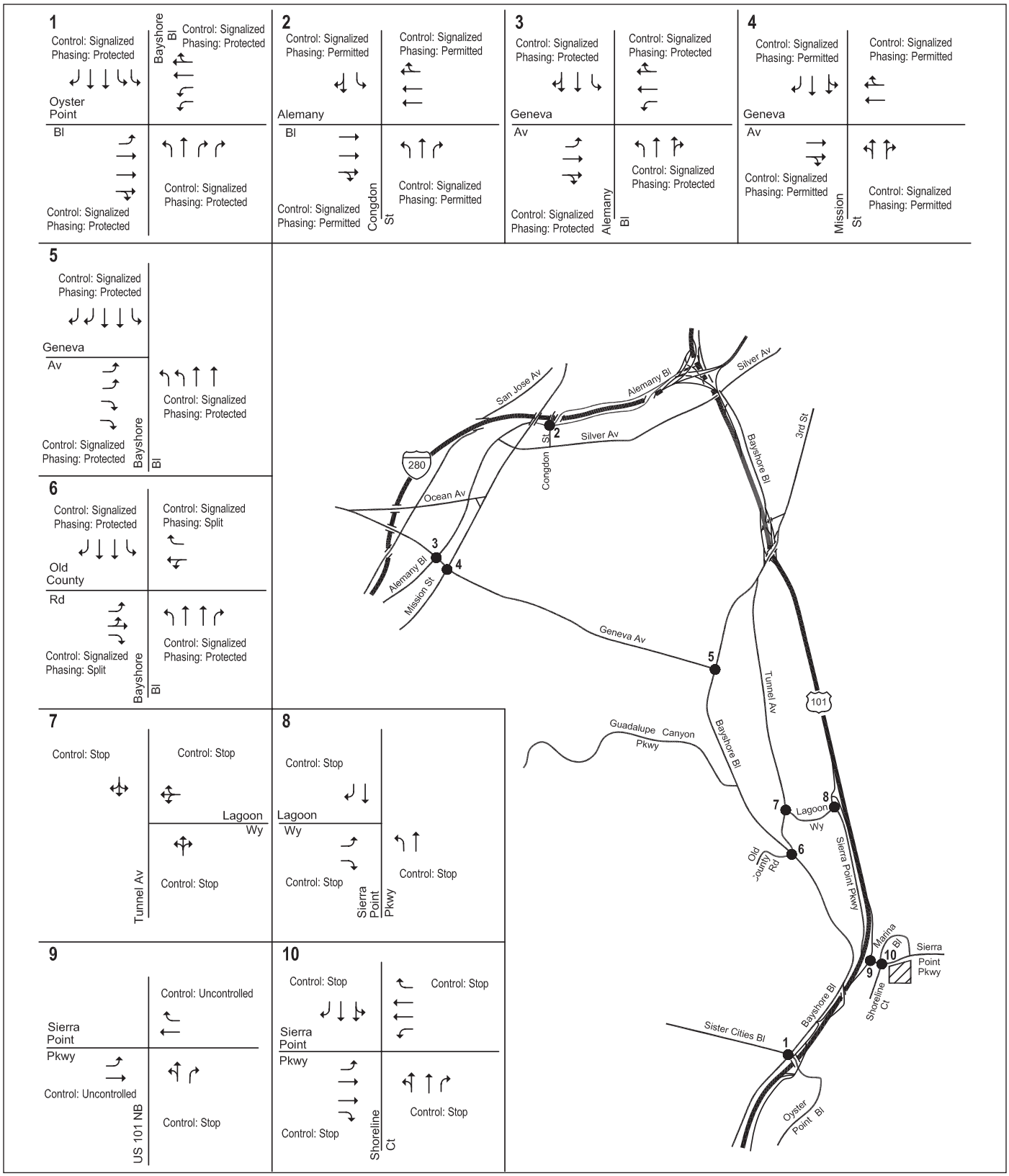
FIGURE IV.C-1

Sierra Biotech Project EIR

Project Site Vicinity and Study Intersections

SOURCE: HEXAGON TRANSPORTATION CONSULTANTS, INC 2006.

I:\BRI0601 sierra point\figures\Fig_IVC1.ai (10/10/06)



LSA

FIGURE IV.C-2

Sierra Biotech Project EIR
Existing Lane Configurations

SOURCE: HEXAGON TRANSPORTATION CONSULTANTS, INC., 2006.

I:\BRI0601 sierra point\figures\Fig_IVC2.ai (11/10/06)

- *Bayshore Boulevard* is a north/south arterial that generally parallels US 101, extending from Airport Boulevard in South San Francisco, through the City of Brisbane, and into San Francisco where it becomes 3rd Street. In the vicinity of the project, Bayshore Boulevard has two travel lanes in each direction.
- *Tunnel Avenue* is a two-lane, north/south roadway that extends from Bayshore Boulevard near Hester Avenue in the north to Bayshore Boulevard in the south where it becomes Old County Road.

b. Existing Transit Service. Transit service in the vicinity of the project site is provided by the San Mateo County Transit District (Samtrans) and CalTrain.

(1) Samtrans operates two routes (292 and 397) in the vicinity of the project study area, which provide service between San Mateo and downtown San Francisco. Routes FX, KX, MX, NX, PX and RX are express routes that provide service along US 101 near the project site.

- *Route 292* operates in the vicinity of the project study area along Bayshore Boulevard, west of the project site across US 101. Route 292 passes by the Hillsdale Shopping Center, Downtown San Francisco and connects to CalTrain. Weekday service is provided from 4:45 a.m. to 2:00 a.m. with 20- to 40-minute headways. A bus stop at the Brisbane Park & Ride at Bayshore Boulevard and Old County Road is provided in the project vicinity.
- *Route 397* operates in the vicinity of the project study area along Bayshore Boulevard, west of the project site across US 101. Route 397 passes by the Eastridge Transit Center, Milpitas and BART and CalTrain stations. Weekday service is provided from 12:45 p.m. to 5:45 p.m. with 60-minute headways. A bus stop at the Brisbane Park & Ride at Bayshore Boulevard and Old County Road is provided in the project vicinity.

(2) CalTrain operates a shuttle service from its South San Francisco station to the Sierra Point area office buildings during commute hours. Weekday service is provided from 6:30 a.m. to 6:00 p.m. with 15- to 45-minute headways.

c. Existing Bicycle and Pedestrian Facilities. The project vicinity includes bicycle and pedestrian facilities as described below.

(1) Bicycle Facilities. Bicycle facilities can be classified in three categories:

- *Class I (Bike Paths)* – A Class I bicycle facility provides a bicycle path for the exclusive use of bicycles and pedestrians, separate from the auto travel-way. The State standard for minimum width of a two-way bicycle path is 8 feet with a 2-foot shoulder on either side.
- *Class II (Bike Lanes)* – A Class II bicycle facility is an on-street bicycle lane, with painted markings and signs designating the lane's bicycle-only use. The bicycle lane is separated from vehicle and pedestrian traffic, but the route may be interrupted by pedestrian crossings, vehicle turning movements or parked vehicles. The width for a one-way bicycle lane varies depending upon on-street parking facilities and the type of curb and gutter, but is generally 5 feet or greater.
- *Class III (Bike Routes)* – A Class III bicycle facility is a route for bicyclists usually shared by either vehicles or pedestrians. The facility is designated by signs or other markings, and is usually provided when a Class I or Class II facility cannot be provided.

Bicycle access to the project site is provided by a series of existing Class II bike routes on Lagoon Way and Sierra Point Parkway (from Lagoon Way to Shoreline Court). A proposed Class II bikeway currently under construction on Tunnel Avenue will connect from Bayshore Boulevard to Lagoon Way. The Bay Trail, a Class I trail, provides access to northern portions of Sierra Point and areas south of Oyster Point and San Bruno Point Park.

(2) Pedestrian Facilities. Pedestrian facilities in the project area are comprised of sidewalks, crosswalks and pedestrian signal heads. Sidewalks are found along Sierra Point Parkway and Marina Boulevard in the vicinity of the site. The Bay Trail currently runs through the southern portion of the site and provides access to points along the Bay.

d. Study Intersections. Intersections considered most likely to experience traffic impacts resulting from the project and analyzed in this EIR were selected in consultation with the City of Brisbane staff and are as follows:

1. Bayshore Boulevard and Sister Cities/Oyster Point Boulevard
2. Alemany Boulevard and Congdon Street
3. Alemany Boulevard and Geneva Avenue
4. Mission Street and Geneva Avenue
5. Bayshore Boulevard and Geneva Avenue
6. Bayshore Boulevard and Old County Road
7. Tunnel Avenue and Lagoon Way
8. Sierra Point Parkway and Lagoon Way
9. Sierra Point Parkway and US 101 Northbound Ramps
10. Seirra Point Parkway and Shoreline Court

Study intersections are shown on Figure IV.C-1. Project impacts to the roadway system were identified by evaluating the morning (6:00 a.m. to 9:00 a.m.) and evening (4:00 p.m. to 7:00 p.m.) peak period operations of selected intersections under five scenarios. These periods represent the most congested traffic conditions of an average weekday.

e. Freeway Segments. The freeway roadway segments considered most likely to experience traffic impacts resulting from the project and analyzed in this EIR are as follows:

1. US 101 between Oyster Point Boulevard and Sierra Point Parkway
2. US 101 between Sierra Point Parkway and Harney Way
3. I-280 between Alemany Boulevard and San Jose Avenue.

f. Analysis Scenarios. Project impacts were evaluated for five time/volume scenarios (existing, background, and 2030).

1. ***Existing Conditions*** – Existing peak hour conditions based on recent traffic volumes and existing roadway network.

2. ***Background Conditions*** – Background traffic volumes (without the project) were estimated by adding the projected volumes from approved but not yet completed development to the existing peak-hour volumes. The projected volumes were obtained from previous traffic reports provide by the City of Brisbane, City of San Francisco and the City of South San Francisco.

3. ***Background Plus Project Conditions*** – Future traffic volumes with the project were estimated by adding the peak-hour volumes in the background conditions described above plus trips generated by the proposed project.

4. ***Cumulative Conditions*** – Future long-term (2030) conditions as described above plus trips generated by the proposed project. Cumulative background traffic volumes are estimated by applying the current version of the C/CAG travel demand forecasting model. The C/CAG model includes previous development assumptions for the project site. Assumptions include the development of 630,000 square feet office park on the project site as currently approved under the Sierra Point Master Plan.

5. ***Cumulative Plus Project Conditions*** – Future long-term (2030) conditions as described above plus trips generated by the proposed project. This scenario also includes mitigation measures that would reduce average delay at intersections to less than or equal to the delay at the same intersection under the 2030 no build scenario.

g. Analysis Methods. This section describes the methods used to evaluate intersection operations. The operation of roadway facilities are described with the term "level of service" (LOS). LOS is a qualitative description of traffic flow based on such factors as speed, travel time, delay, and freedom to maneuver. It is generally measured in terms of vehicular delay and described using a scale that ranges from level of service (LOS) A to F, where LOS A represents free-flow conditions and LOS F indicates over-capacity conditions with substantial congestion and delay.

Different criteria and methods were used to assess operating conditions for the different types of intersections (i.e., signalized and unsignalized [stop-sign controlled]). LOS criteria and methods for each intersection type are described in the following sections.

(1) Unsignalized Intersections. For unsignalized (all-way stop-controlled and side-street stop-controlled) intersections, the 2000 Highway Capacity Manual (HCM) method for unsiganlized intersections is used. This method evaluates intersection operations on the basis of average delay for all vehicles at the intersection. This average delay can then be correlated to a level of service for signalized intersections as shown in Table IV.C-1. For two way stop-controlled intersections, the level of service reported is for the worst approach of the intersection. For all-way stop-controlled intersections, the average control delay is calculated for the intersection as a whole. This method incorporates delay associated with deceleration, acceleration, stopping and moving up in the queue.

Table IV.C-1: Unsignalized Intersection Level of Service Definitions Using Average Control Delay

Level of Service	Description	Average Control Delay Per Vehicle (seconds)
A	Operations with very low delay occurring with favorable progression.	< 10.0
B	Operations with low delay occurring with good progression.	10.1 to 15.0
C	Operations with average delays resulting from fair progression.	15.1 to 25.0
D	Operations with longer delays due to a combination of unfavorable progression or high V/C ratios.	25.1 to 35.0
E	Operations with high delay values indicating poor progression and high V/C ratios. This is considered to be the limit of acceptable delay.	35.1 to 50.0
F	Operation with delays unacceptable to most drivers occurring due to oversaturation and poor progression.	> 50.0

Source: *Highway Capacity Manual*, Transportation Research Board, 2000.

(2) Signalized Intersections. For signalized intersections, the average control delay is calculated for the intersection as a whole. This method incorporates delay associated with deceleration, acceleration, stopping and moving up in the queue. Table IV.C-2 summarizes the relationship between delay and level of service for signalized intersections.

(3) Freeway Segments. The County of San Mateo monitors congestion on the freeways and other regional facilities that are part of the Congestion Management Roadway Network. This analysis includes an analysis to determine if the proposed project would create any traffic impacts to the Congestion Management Program (CMP).

Table IV.C-2: Signalized Intersection Level of Service Definitions Using Average Control Delay

Level of Service	Description	Average Control Delay Per Vehicle (Seconds)
A	Operations with very low delay occurring with favorable progression and/or short cycle lengths.	≤ 10.0
B	Operations with low delay occurring with good progression and/or short cycle lengths.	10.1 to 20.0
C	Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	20.1 to 35.0
D	Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, and high V/C ratios. Many vehicles stop and individual cycle failures are noticeable.	35.1 to 55.0
E	Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences.	55.1 to 80.0
F	Operations with delays unacceptable to most drivers occurring due to over-saturation, poor progression, or very long cycle lengths.	> 80.0

Source: *Highway Capacity Manual*, Transportation Research Board, 2000.

As prescribed in the CMP technical guidelines, the level of service for freeway segments is estimated based on volume-to-capacity ratios. Volume-to-capacity ratios are calculated by the following formula:

$R = V / (C * N)$
where:
R= volume-to-capacity ratio
V= peak hour volume, in vehicles per hour (vph)
C= capacity in vehicles per lane per hour (vplph)
N= number of travel lanes

The volume-to-capacity ratio on a segment is correlated to level of service as shown in Table IV.C-3. The CMP requires that mixed-flow lanes and auxiliary lanes be analyzed separately from HOV (carpool) lanes. The CMP specifies that a capacity of 2,300 vehicles per hour per lane (vphpl) be used for segments six lanes or wider in both directions, and a capacity of 2,200 vphpl be used for segments four lanes wide in both directions. The CMP defines an acceptable level of service for freeway segments as LOS E or better.

Table IV.C-3: Freeway Segment Level of Service Definitions

Level of Service	Volume-to-Capacity Ratio
A	< 0.6
B	0.6 – 0.69
C	0.7 – 0.79
D	0.8 – 0.89
E	0.9 – 0.99
F	> 1.0

Source: *Highway Capacity Manual*, Transportation Research Board, 2000.

h. Existing Traffic Volumes. Intersection operations were analyzed for the weekday AM (6:00 a.m. to 9:00 a.m.) and PM (4:00 p.m. to 7:00 p.m.) peak periods. Existing AM and PM peak-hour traffic volumes for the 10 signalized study intersections were obtained from new manual turning-movement counts at the study intersections conducted in the summer of 2006. The traffic count data are included in Appendix C. Intersection operations were evaluated for the one hour during the AM

and PM period with the highest measured traffic volumes. Existing peak-hour traffic volumes at each study intersection are shown on Figure IV.C-3.

i. Existing Intersection Operating Conditions. The existing operations of the study intersections were evaluated using TRAFFIX software to determine levels of service. The lane configurations used for the calculations are shown in Figure IV.C-2. The intersection turn movement volumes are shown in Figure IV.C-3. As shown in Table IV.C-4, all of the study intersections currently operate at acceptable levels of service during the AM and PM peak hours. Detailed level of service calculations can be found in Appendix C.

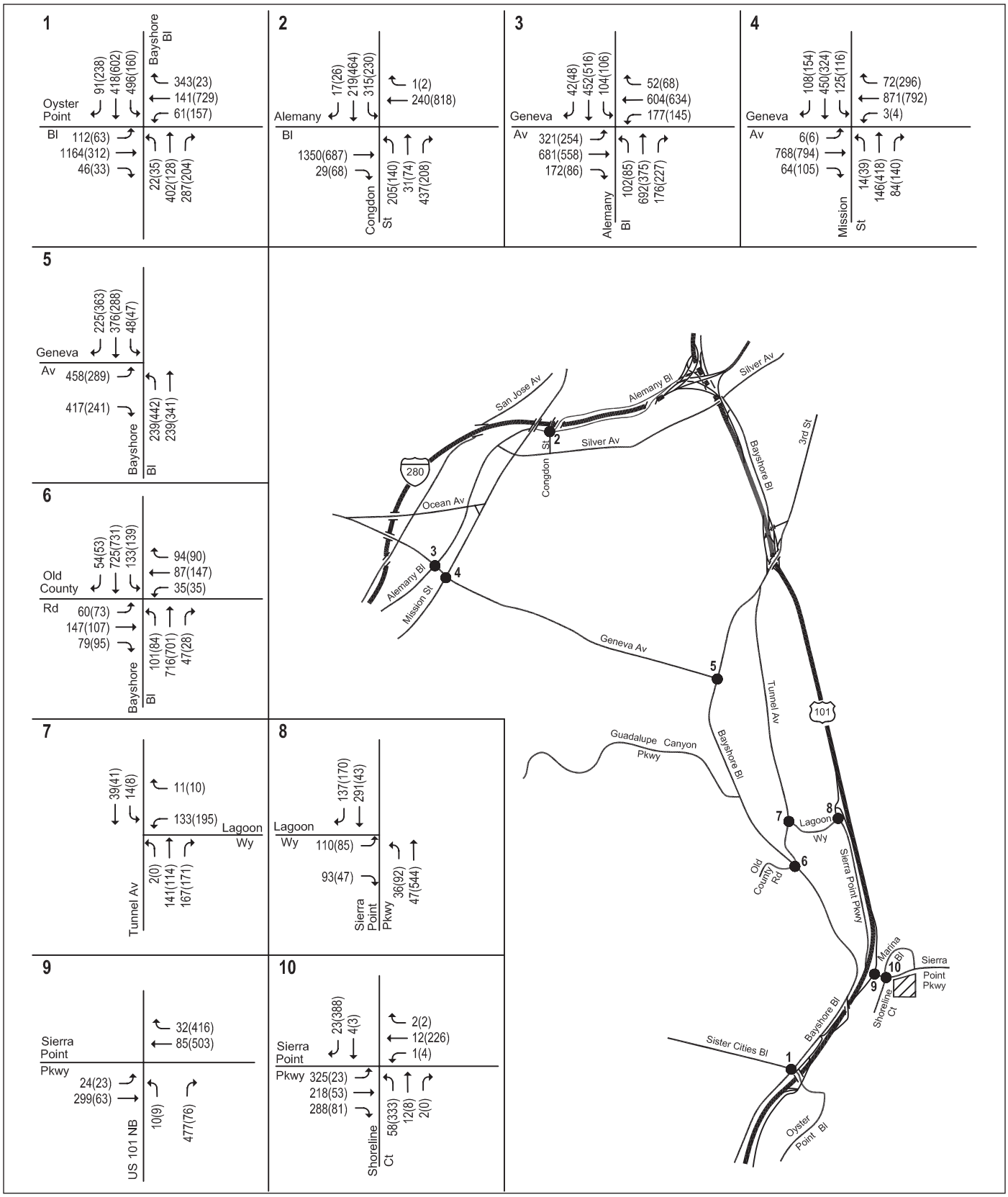
j. Existing Freeway Operating Conditions. Traffic volumes for the subject freeway segments were obtained from Caltrans. The data provided by Caltrans consisted of a nearby count station on the actual freeway main line and a series of ramp counts at the interchanges between the count station and the study limits. These data were used to derive the counts for the segments that were studied. The results of the analysis are summarized in Table IV.C-5. All of the analyzed freeway segments operate at LOS E or better during the AM and PM peak hours.

k. Background Intersection Conditions. Background traffic conditions are defined as conditions just prior to completion of the proposed project. Traffic volumes for Background Conditions comprise volumes from existing traffic counts plus traffic generated by other approved developments in the vicinity of the site. It is assumed in this analysis that the future near-term roadway network under Background Conditions would be the same as the existing roadway network.

Background peak-hour traffic volumes were calculated by adding to existing volumes the estimated traffic from approved but not yet constructed developments. The added traffic from approved but not yet constructed developments was supplied by the City of Brisbane, the City of San Francisco, and the City of South San Francisco and can be found in Appendix C. Background traffic volumes are shown on Figure IV.C-4. The following are the approved developments that would produce trips in the study area:

- One Quarry Road – Brisbane
- 2011 Bayshore – San Francisco
- Executive Park – San Francisco
- Home Depot – South San Francisco
- Lowes – South San Francisco
- 249 East Grand – South San Francisco
- Genentech – South San Francisco
- Brittania East Grand – South San Francisco
- Terrabay – South San Francisco

Intersection level of service calculations were conducted to evaluate the operating levels of the key intersections under Background Conditions. The TRAFFIX calculation sheets are included in Appendix C. As shown in Table IV.C-6, all of the study intersections are projected to operate at acceptable levels during the AM and PM peak hours for the Background Conditions.



LSA

LEGEND

= Site Location

= Study Intersection

XX(XX) = AM(PM) Volume

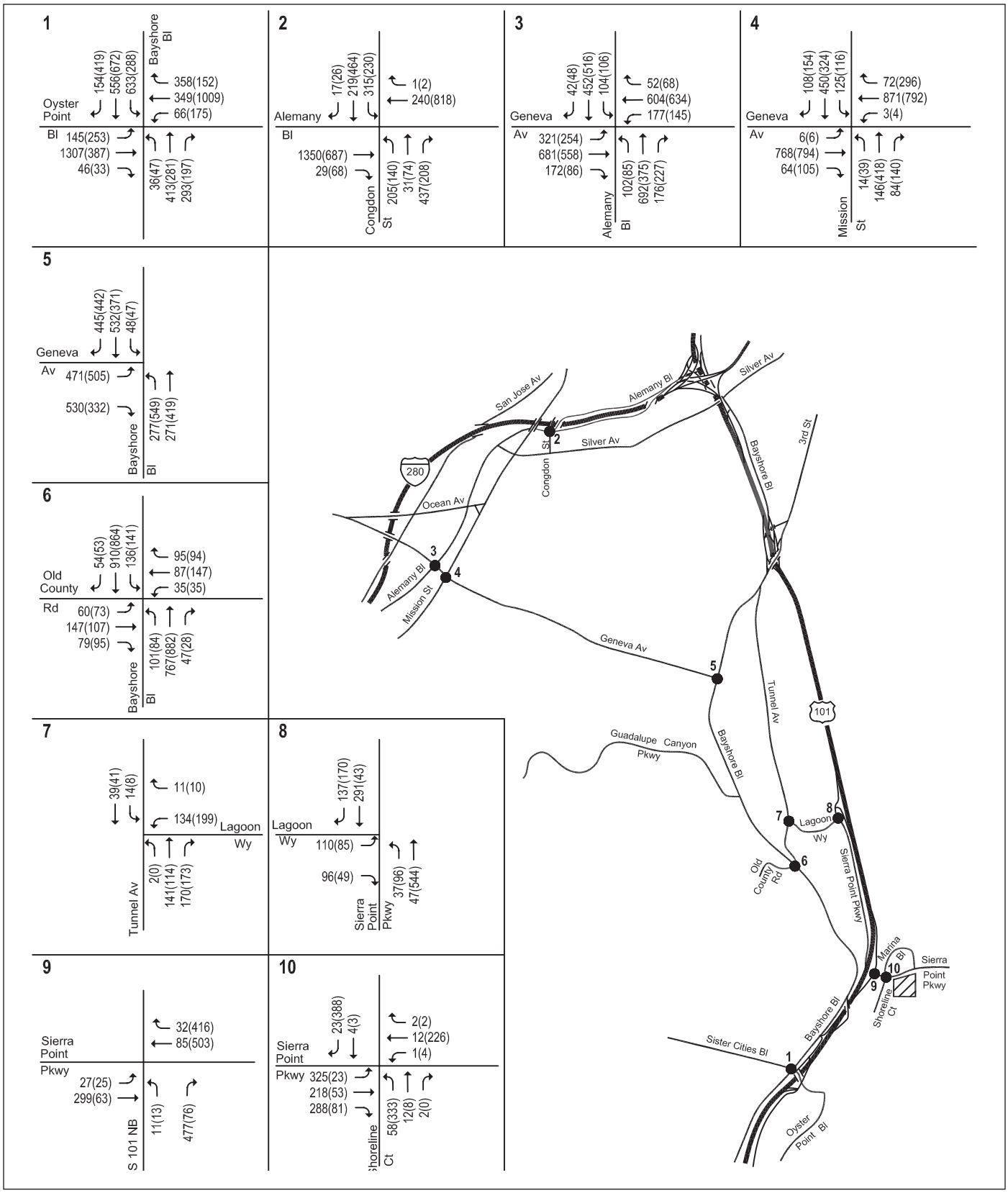
NOT TO SCALE

FIGURE IV.C-3

Sierra Biotech Project EIR
Existing Peak Hour
(Without Project) Traffic Volumes

SOURCE: HEXAGON TRANSPORTATION CONSULTANTS, INC 2006.

I:\BRI0601 sierra point\figures\Fig_IVC3.ai (11/13/06)



LSA

NOT TO SCALE

LEGEND

= Site Location

= Study Intersection

XX(XX) = AM(PM) Volume

FIGURE IV.C-4

Sierra Biotech Project EIR
Background (Without Project)
Traffic Volumes

SOURCE: HEXAGON TRANSPORTATION CONSULTANTS, INC 2006.

I:\BRI0601 sierra point\figures\Fig_IVC4.ai (11/13/06)

Table IV.C-4: Existing Conditions Peak Hour Intersection Level of Service Summary

Intersection	Control	Peak Hour	Existing Conditions	
			Average Delay (Seconds)	LOS
1. Bayshore Boulevard and Sister Cities/Oyster Point Boulevard	Signal	AM	28.9	C
	Signal	PM	22.5	C
2. Alemany Boulevard and Congdon Street	Signal	AM	14.1	B
	Signal	PM	14.9	B
3. Alemany Boulevard and Geneva Avenue	Signal	AM	36.0	D
	Signal	PM	33.4	C
4. Mission Street and Geneva Avenue	Signal	AM	10.3	B
	Signal	PM	10.9	B
5. Bayshore Boulevard and Geneva Avenue	Signal	AM	16.8	B
	Signal	PM	17.3	B
6. Bayshore Boulevard and Old County Road[a]	Signal	AM	21.6	C
	Signal	PM	22.1	C
7. Tunnel Avenue and Lagoon Way	All-Way Stop	AM	8.9	A
	All-Way Stop	PM	9.1	A
8. Sierra Point Parkway and Lagoon Way	All-Way Stop	AM	9.9	A
	All-Way Stop	PM	16.9	C
9. Sierra Point Parkway and US 101 NB Ramps	One-Way Stop	AM	17.9	C
	One-Way Stop	PM	9.6	A
10. Sierra Point Parkway and Shoreline Court	All-Way Stop	AM	10.4	B
	All-Way Stop	PM	18.4	C

[a] Per City of Brisbane level of service guidelines, intersection must remain at LOS C or better.
Source: Hexagon Transportation Consultants, Inc., 2006.

Table IV.C-5: Existing Conditions Freeway Levels of Service Summary

Freeway	Segment	Direction	Peak Hour	Average Speed	Mixed-Flow Lanes			
					# of Lanes	Volume	V/C	LOS
US 101	Harney Way to Sierra Point Parkway	SB	AM	65	4	8,656	0.94	E
			PM	65	4	7,775	0.85	D
US 101	Sierra Point Parkway to Oyster Point Boulevard	SB	AM	65	4	7,355	0.80	D
			PM	65	4	7,413	0.81	D
I - 280	Alemany Boulevard to San Jose Avenue	SB	AM	65	4	5,458	0.59	A
			PM	65	4	8,651	0.94	E
US 101	Oyster Point Boulevard to Sierra Point Parkway	NB	AM	65	4	7,484	0.81	D
			PM	65	4	8,412	0.91	E
US 101	Sierra Point Parkway to Harney Way	NB	AM	65	4	7,167	0.78	C
			PM	65	4	7,593	0.83	D
US 101	San Jose Ave to Alemany Boulevard	NB	AM	65	4	7,666	0.83	D
			PM	65	4	5,688	0.62	B

Source: Hexagon, 2006 and Caltrans freeway count data.

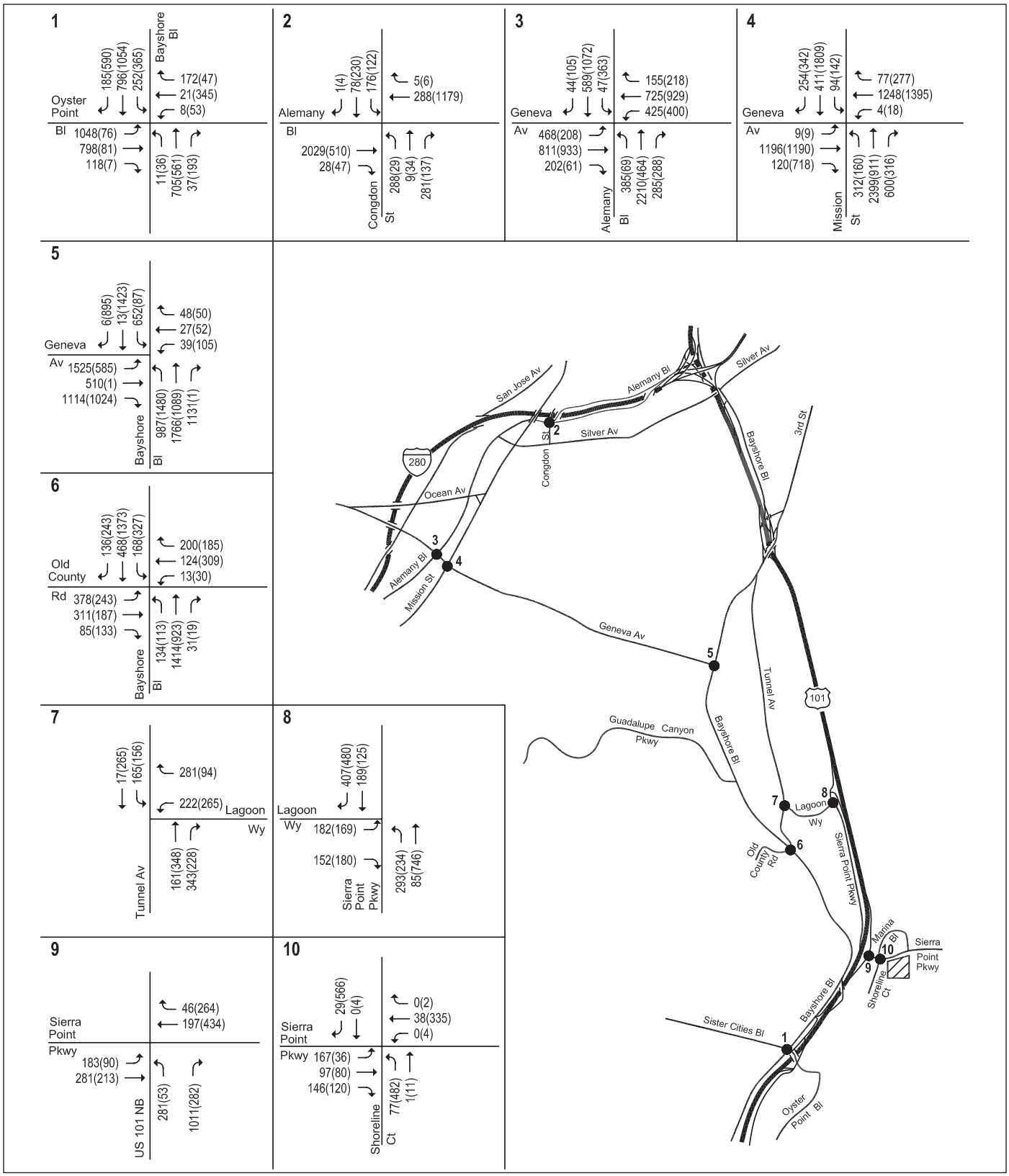
Table IV.C-6: Background Conditions Intersection Levels of Service Summary

Intersection	Control	Peak Hour	Existing		Background	
			Average Delay (Seconds)	LOS	Average Delay (Seconds)	LOS
1. Bayshore Boulevard and Sister Cities/Oyster Point Boulevard	Signal	AM	28.9	C	32.4	C
	Signal	PM	22.5	C	31.0	C
2. Alemany Boulevard and Congdon Street	Signal	AM	14.1	B	14.1	B
	Signal	PM	14.9	B	14.9	B
3. Alemany Boulevard and Geneva Avenue	Signal	AM	36.0	D	36.0	D
	Signal	PM	33.4	C	33.4	C
4. Mission Street and Geneva Avenue	Signal	AM	10.3	B	10.3	B
	Signal	PM	10.9	B	10.9	B
5. Bayshore Boulevard and Geneva Avenue	Signal	AM	16.8	B	16.4	B
	Signal	PM	17.3	B	18.2	B
6. Bayshore Boulevard and Old County Road [a]	Signal	AM	21.6	C	20.4	C
	Signal	PM	22.1	C	22.1	C
7. Tunnel Avenue and Lagoon Way	All-Way Stop	AM	8.9	A	8.9	A
	All-Way Stop	PM	9.1	A	9.2	A
8. Sierra Point Parkway and Lagoon Way	All-Way Stop	AM	9.9	A	9.9	A
	All-Way Stop	PM	16.9	C	16.9	C
9. Sierra Point Parkway and US 101 NB Ramps	One-Way Stop	AM	17.9	C	17.9	C
	One-Way Stop	PM	9.6	A	9.9	A
10. Sierra Point Parkway and Shoreline Court	All-Way Stop	AM	10.4	B	10.4	B
	All-Way Stop	PM	18.4	C	18.4	C

[a] Per City of Brisbane level of service guidelines, intersection must remain at LOS C or better.
Source: Hexagon Transportation Consultants, Inc., 2006.

The peak-hour signal warrant (Caltrans Traffic Manual, Chapter 9, Warrant 11) was checked for the four unsignalized intersections to determine whether signalization would be justified on the basis of background peak-hour volumes. The analysis showed that the peak-hour volume signal warrant is not satisfied under Background Conditions at the intersections, and therefore signalization would not be required under this scenario. The signal warrant analysis sheets are included in Appendix C.

l. 2030 Cumulative Intersection Operating Conditions (Without the Project). The analysis of Cumulative Conditions was conducted based on projected roadway link volumes using year 2030 land use data. AM and PM peak hour traffic volumes were developed using the C/CAG Travel Demand Model System "TDM 1101" for 2030. Traffic volumes for year 2030 are shown in Figure IV.C-5. The 2030 C/CAG Travel Demand Forecasting System was run using ABAG Projections 2005 for year 2030. These projections of jobs and household reflect all new development in Brisbane (including Sierra Point), South San Francisco, and the Executive Park/Candlestick Park areas of San Francisco.



LSA

N

NOT TO SCALE

LEGEND

= Site Location

= Study Intersection

XX(XX) = AM(PM) Volume

FIGURE IV.C-5

Sierra Biotech Project EIR
Cumulative (Year 2030)
Without Project Traffic Volumes

SOURCE: HEXAGON TRANSPORTATION CONSULTANTS, INC 2006.

I:\BRI0601 sierra point\figures\Fig_IVC5.ai (11/13/06)

The year 2030 roadway network includes planned transportation improvements. The improvements included in the C/CAG Travel Demand Forecast Model System for year 2030 have a high probability of receiving funding in the future. Within the study area, the following improvement was included:

- Geneva Avenue. Geneva Avenue will be extended between Bayshore Boulevard and the US 101/Beatty Avenue interchange.

Planned improvements on US 101, specifically auxiliary lanes between Sierra Point Parkway and the County Line; and between Sierra Point Parkway and San Bruno Avenue were not included in the 2030 model run of cumulative traffic volumes; yielding a potentially more conservative estimate of 2030 traffic volumes on the local street system.

m. Relevant General Plan Policies. The Transportation and Circulation Element of the City of Brisbane General Plan lists policies related to transportation, circulation, safety and parking. Key policies applicable to the proposed project are listed below.

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 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 intersection within the City ad such impacts shall be mitigated as necessary to maintain the LOS "C" standard at the identified intersections.

Policy 39.1: Investigate and pursue alternative means of access to and egress from Sierra Point.

Policy 41: Require a minimum unobstructed street width of 20 feet, as required by the Uniform Fire Code.

Policy 50: In the design of internal circulation systems for new development or expansion of existing uses, provide for adequate emergency access around all buildings.

Policy 58: Provide bicycle access to all areas of the City.

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.

Policy 62: Provide or require bicycle parking facilities at major destination points.

Policy 64: Provide safe pedestrian facilities throughout the City.

Policy 66: In conjunction with new development, provide pedestrian amenities within the same project to connect with other areas of the City.

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.

2. Impacts and Mitigation Measures

This section analyzes impacts related to transportation and circulation that could result from implementation of the proposed project. The section begins with a discussion of the criteria utilized to determine whether the project would result in a significant impact. The discussion is followed by a brief description of the proposed project including identification of new vehicle trips that would be generated; then an analysis of the Background Plus Project and Cumulative Plus Project Conditions is provided.

a. Criteria of Significance. The project would result in a significant adverse impact on transportation if it would:

- Cause a signalized intersection to exceed the City of Brisbane's General Plan, level of service standards. Level of service D (LOS D) is the minimum threshold at all key intersection locations with the exception of two intersections on Bayshore Boulevard: 1) Bayshore Boulevard/Old County Road; and 2) Bayshore Boulevard/San Bruno Avenue. These intersections have been designated in the General Plan as intersections at which the level of service threshold is LOS C. Therefore, an intersection, other than Bayshore at Old County Road and at San Bruno Avenue, is considered satisfactory when operating at LOS A to LOS D. When an intersection level of service becomes LOS E, it is considered below the minimum threshold and requires mitigation. When the level of service for Bayshore Boulevard at Old County Road and/or San Bruno Avenue becomes LOS D, it is considered below the minimum threshold and requires mitigation.
- Cause a freeway mainline segment to exceed San Mateo C/CAG CMP level of service standards. LOS E is the acceptable service threshold for the Highway 101 mainline segments in the study area. When a mainline segment level of service becomes LOS F, it is considered below the minimum threshold and requires mitigation.
- Result in the degradation of level of service on a CMP freeway segment from an acceptable LOS E or better to an unacceptable LOS F or result in a freeway segment operation of LOS F, and the proposed project increases traffic volume on the segment by an amount equal to 1 percent or more of the segment capacity, or causes the segment volume-to capacity (V/C) ratio to increase by 1 percent as a result of the proposed project and future cumulative traffic volumes.[1]
- Result in an increase in critical delay of four (4) or more seconds at an intersection already operating at an unacceptable level of service standard (generally LOS D with the exception of Bayshore Boulevard/Old County Road and Bayshore Boulevard/San Bruno Avenue which have an LOS standard of C) under background conditions.[2]
- Result in inadequate emergency access.
- Result in inadequate parking supply suitably located to serve projected parking demand for new development.
- Create unsafe conditions for pedestrians or bicyclists.

[1] This criterion is according to C/CAG's *Policy on Traffic Impact Analysis (TIA) To Determine Traffic Impacts on the Congestion Management Program (CMP) Roadway Network Resulting From Roadway Changes, General Plan Updates and Land Use Developments.* August 2006.

[2] The term "critical delay" refers to intersection delay associated with the critical movements. The critical movements are calculated uniquely for each intersection, the primary variables being the distribution of the intersection traffic volumes on the various intersection legs, and the signal phasing for the intersection approaches.

- Conflict with adopted local or regional policies or programs supporting alternative modes of transportation.

b. Project Trip Estimates. Traffic projections for the proposed project were estimated using a three-step process: (1) trip generation, (2) trip distribution, and (3) trip assignment. In the first step, the amount of traffic added to the surrounding roadway system by the proposed project is estimated. In the second step, the general directions of approach and departure are estimated. In the third step, the trips are assigned to specific street segments and intersection turning movements. Project conditions are represented by background traffic conditions with the addition of traffic generated by the project (i.e., Background Plus Project Conditions).

(1) Project Trip Generation. The amount of traffic generated by the proposed project was estimated by applying the appropriate trip generation rates to the size of the development. The trip generation rates used were those published in the *ITE Trip Generation Manual, Seventh Edition, 2003* for research and development and retail uses, as shown in Table IV.C-7. Based on these rates, the project is estimated to generate 784 AM peak-hour trips and 689 PM peak-hour trips, as shown in Table IV.C-8.

Table IV.C-7: Project Peak-Hour Trip Generation Rate

Land Use	AM Peak Hour		PM Peak Hour	
	Rate	% Inbound	Rate	% Inbound
R & D (Parcel 6 - Proposed Project) 540,200 square feet	1.24	83	1.08	15
Additional R & D (Parcel 3) 89,800 square feet	1.24	83	1.08	15
Retail 2,500 square feet	1.03	61	3.75	48

Source: R & D (760), Retail - Shopping Center (820) ITE *Trip Generation*, Seventh Edition, 2003.

Table IV.C-8: Project Trip Generation

Land Use	AM Peak Hour			PM Peak Hour		
	Total	In	Out	Total	In	Out
R & D (Parcel 6 - Proposed Project)	670	556	114	583	87	496
Additional R & D (Parcel 3)	111	92	19	97	14	83
Retail	3	2	1	9	4	5
Total Net New Trips	**784**	**650**	**134**	**689**	**105**	**584**

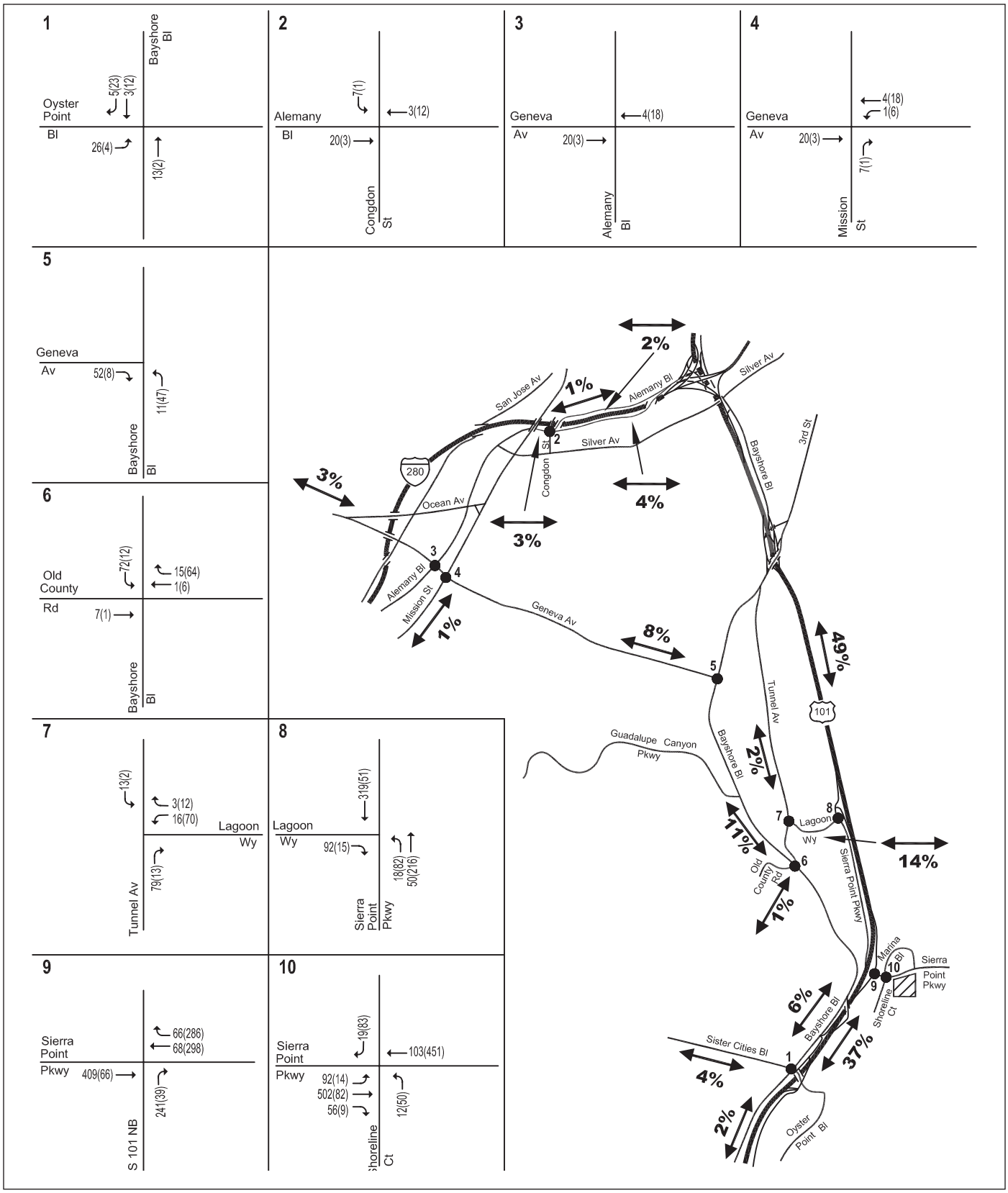
[a] Size is expressed in 1,000 square feet.

Source: R & D (760), Retail - Shopping Center (820) ITE *Trip Generation*, Seventh Edition, 2003.

Using the inbound/outbound splits recommended by ITE, the project would produce 650 inbound and 134 outbound trips during the AM peak hour and 105 inbound and 584 outbound trips during the PM peak hour, as shown in Table IV.C-8.

(2) Project Trip Distribution and Assignment. The project trip distribution and assignment, as shown in Figure IV.C-6, was estimated based on travel patterns suggested by the C/CAG travel demand forecasting model system (TDM 1101). The trips generated by the proposed project were then assigned to the roadway network based on this directional distribution during the peak hours of adjacent street traffic and added to the Background Conditions volumes, as shown in Figure IV.C-7.

c. Background Plus Project Conditions Analysis. The Background Plus Project Conditions for study intersections and freeway segments are evaluated below.



LSA

N

NOT TO SCALE

LEGEND

= Site Location

= Study Intersection

XX(XX) = AM(PM) Volume

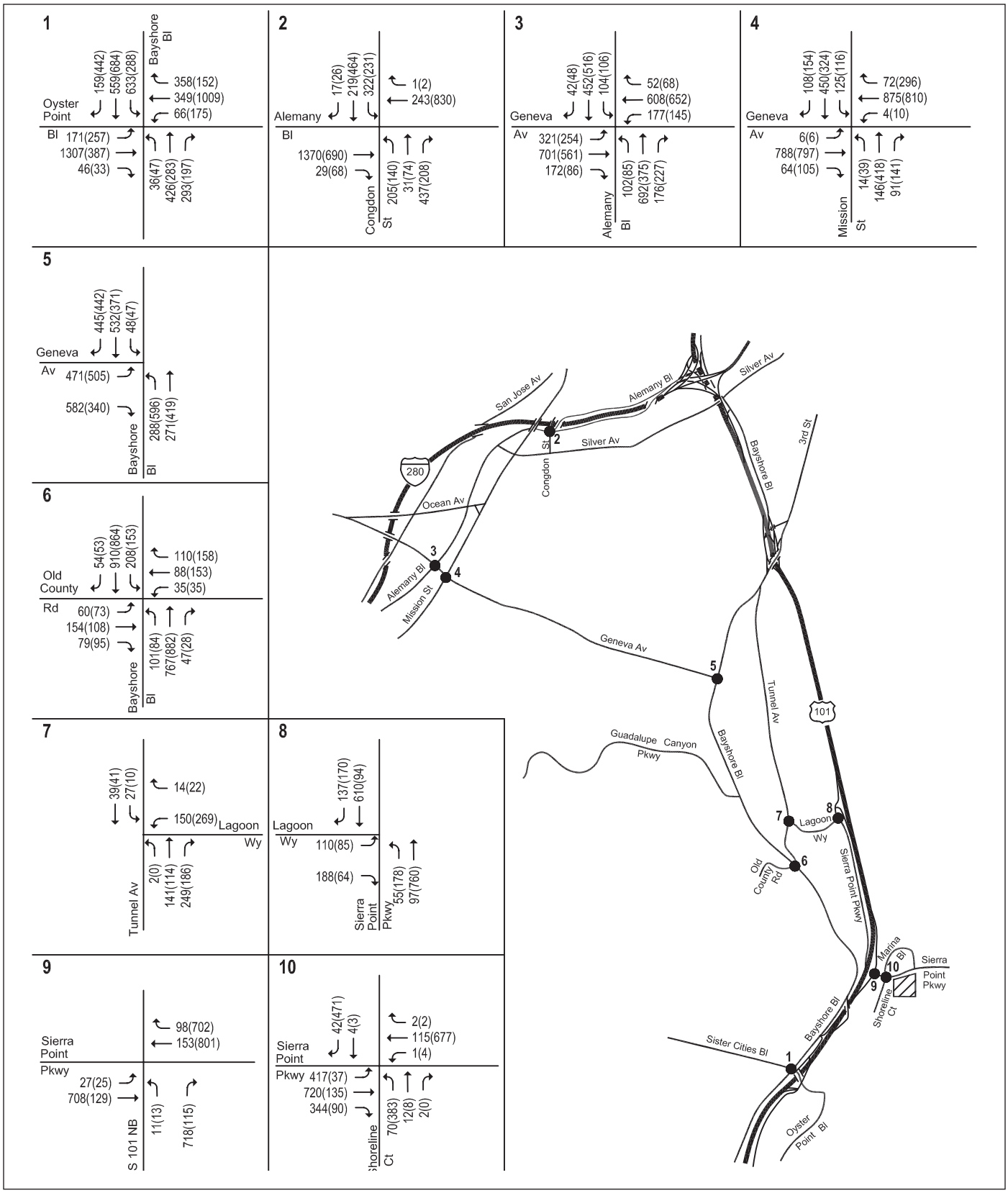
FIGURE IV.C-6

Sierra Biotech Project EIR

Peak Hour Project Trip Assignment

SOURCE: HEXAGON TRANSPORTATION CONSULTANTS, INC 2006.

I:\BRI0601 sierra point\figures\Fig_IVC6.ai (11/13/06)



LSA

NOT TO SCALE

LEGEND

= Site Location

= Study Intersection

XX(XX) = AM(PM) Volume

FIGURE IV.C-7

Sierra Biotech Project EIR
Background With Project
Traffic Volumes

SOURCE: HEXAGON TRANSPORTATION CONSULTANTS, INC 2006.

I:\BRI0601 sierra point\figures\Fig_IVC7.ai (11/13/06)

(1) Intersection Analysis. The results of the intersection level of service analysis for Background Plus Project Conditions are summarized in Table IV.C-9. The level of service calculation sheets are included in Appendix C. Under Background Plus Project Conditions, the results show that three of the study intersections would operate at an unacceptable LOS when compared to the City of Brisbane level of service guidelines:

- The unsignalized intersection (#9) of Sierra Point Parkway/US 101 northbound ramp would operate at LOS F during the AM peak hour.
- The unsignalized intersection (#8) of Sierra Point Parkway/Lagoon Way would operate at LOS F during the PM peak hour.
- The unsignalized intersection (#10) of Sierra Point Parkway/Shoreline Court would operate at LOS F during the PM peak hour.

The remaining study intersections would operate at an acceptable LOS.

The intersection of Bayshore Boulevard and San Bruno Avenue was not included in this analysis due to the very small number of project trips that would likely use the intersection. According to the estimated project trip distribution, approximately four trips from the north and three trips from the south would use this intersection. Both north and south trips would be through trips rather than right- or left-turn movements. In total, these seven trips account for much less than 1.0 percent of the total project trips. Therefore, for purposes of traffic operations and level of service analysis, this intersection was not considered in this study.

Based on the Second Amendment to Agreement Concerning Project Approval Documents, November 17, 2003 ("Second Amendment document") contained in Appendix B, Sierra Point L.L.C. (the "Developer") and the City of Brisbane have agreed that specific public improvements shall be completed by the Developer when traffic volumes reach the thresholds at the following selected intersections: [3]

- Sierra Point Parkway/Shoreline Court;
- Sierra Point Parkway/Lagoon Way;
- Sierra Point Parkway/US 101 northbound off-ramp.

As shown in Table IV.C-10, in the Background Plus Project Conditions, the intersections of Sierra Point Parkway/Shoreline Court and Sierra Point Parkway/Lagoon Way would reach the established triggers during both the AM and PM peak hours. The intersection of Sierra Point Parkway/US 101 northbound off-ramp would not reach the triggers during the AM or PM peak hours under this condition.

[3] The City Council adopted Ordinance No. 299 approving the 1984 Development Agreement on March 26, 1984. The Agreement Concerning Project Approval Documents was adopted December 22, 1997 by the City Council as Resolution No. 97-69. The First, Second and Third Amendments have modified the Project Approval Documents (September 15, 1998, November 17, 2003, and November 7, 2005, respectively). The Second Amendment document was further refined through unpublished memorandums by Fehr and Peers entitled, "Sierra Point Improvement Phasing Analysis Update", dated April 24, 2000, and "Updated Sierra Point Phasing Analysis," dated October 10, 2001.

Table IV.C-9: Background Plus Project Conditions Peak Hour Intersection Level of Service Summary

Intersection	Control	Peak Hour	Background Without Project		Background Plus Project Conditions		
			Average Delay	LOS	Average Delay	LOS	Increase in Critical Delay
1. Bayshore Boulevard and Sister Cities/ Oyster Point Boulevard	Signal	AM	32.4	C	33.6	C	0.8
	Signal	PM	31.0	C	31.3	C	0.6
2. Alemany Boulevard and Congdon Street	Signal	AM	14.1	B	14.1	B	0.0
	Signal	PM	14.9	B	14.9	B	0.0
3. Alemany Boulevard and Geneva Avenue	Signal	AM	36.0	D	36.0	D	0.1
	Signal	PM	33.4	C	33.4	C	0.1
4. Mission Street and Geneva Avenue	Signal	AM	10.3	B	10.3	B	0.0
	Signal	PM	10.9	B	10.9	B	0.0
5. Bayshore Boulevard and Geneva Avenue	Signal	AM	16.4	B	16.4	B	0.1
	Signal	PM	18.2	B	18.3	B	0.0
6. Bayshore Boulevard and Old County Road[a]	Signal	AM	20.4	C	21.5	C	0.2
	Signal	PM	22.1	C	22.7	C	0.6
7. Tunnel Avenue and Lagoon Way	All-Way Stop	AM	8.9	A	9.7	A	0.8
	All-Way Stop	PM	9.2	A	10.1	B	0.8
8. Sierra Point Parkway and Lagoon Way	All-Way Stop	AM	9.9	A	29.0	D	19.1
	All-Way Stop	PM	16.9	C	55.4	**F**	38.5
9. Sierra Point Parkway and US 101 NB Ramps	One-Way Stop	AM	17.9	C	315.9	**F**	-[b]
	One-Way Stop	PM	9.9	A	11.4	B	-[b]
10. Sierra Point Parkway and Shoreline Court	All-Way Stop	AM	10.4	B	14.7	B	4.3
	All-Way Stop	PM	18.4	C	68.5	**F**	50.2

[a] Per City of Brisbane level of service guidelines, intersection must remain at LOS C or better.

[b] The intersection of Sierra Point Parkway and US 101 NB ramps is stop controlled in the northbound direction and uncontrolled in the east/westbound direction. Critical delay does not apply in this instance.

Source: Hexagon Transportation Consultants, Inc., 2006.

Table IV.C-10: Intersection Trigger Thresholds for Improvements

Intersection	Volume Threshold[a]		Project Conditions Volumes		Improvements Required?
	AM Peak	PM Peak	AM Peak	PM Peak	
Sierra Point Parkway and Shoreline Court	1,680	1,460	1,708	1,793	Yes
Sierra Point Parkway and US 101 NB off-ramp	2,200	1,970	1,708	1,793	No
Sierra Point Parkway and Lagoon Way	1,590	1,360	1,708	1,793	Yes

[a] Volume thresholds and project conditions volume are for two-way volumes on Sierra Point Parkway west of Shoreline Court.

Source: Second Amendment to Agreement Concerning Project Approval Document, November 17, 2003. Fehr & Peers Sierra Point Improvement Phasing Analysis Update, October 10, 2001. Randy Breault, City Engineer, City of Brisbane, 2006.

<u>Impact TRANS-1</u>: In the Background Plus Project Conditions, the proposed project would have a significant impact on the unsignalized intersection (#9) of Sierra Point Parkway and the US 101 northbound ramp. (S)

During the AM peak hour, the unsignalized intersection of Sierra Point Parkway and US 101 northbound ramp would operate at LOS C under Background Conditions. With addition of proposed project trips, the intersection would operate at LOS F constituting a significant impact according to the City of Brisbane guidelines. Implementation of the following mitigation measure would reduce this impact to a less-than-significant level.

> Mitigation Measure TRANS-1: The applicant shall be responsible for installing a signal, to the satisfaction of the City Engineer in regards to design and the timing of the improvement, at the intersection of Sierra Point Parkway and US 101 northbound ramp. This mitigation measure would allow the intersection to operate at LOS C during the AM peak hour and LOS A during the PM peak hour. (LTS)

Impact TRANS-2: In the Background Plus Project Conditions, the proposed project would have a significant impact on the unsignalized intersection (#8) of Sierra Point Parkway and Lagoon Way. (S)

During the PM peak hour, the unsignalized intersection of Sierra Point Parkway and Lagoon Way would operate at LOS C under Background Conditions. With the proposed project it would operate at LOS F constituting a significant impact according to the City of Brisbane guidelines. In addition, the intersection also would reach the traffic volume thresholds established in the Second Amendment document contained in Appendix B, during both the AM and PM peak hours.

Implementation of the following mitigation measure would reduce this impact to a less-than-significant level.

> Mitigation Measure TRANS-2: Based on the Second Amendment document, the applicant shall be responsible for modifying the intersection of Sierra Point Parkway and Lagoon Way, to the satisfaction of the City Engineer in regards to design and the timing of the improvement, so that the intersection is signalized and a second northbound through lane is added. This mitigation measure would allow the intersection to operate at LOS B during the AM peak hour and LOS B during the PM peak hour. (LTS)

Impact TRANS-3: In the Background Plus Project Conditions, the proposed project would have a significant impact on the unsignalized intersection (#10) of Sierra Point Parkway and Shoreline Court. (S)

During the PM peak hour, the unsignalized intersection of Sierra Point Parkway and Shoreline Court would operate at LOS C under Background Conditions. With the proposed project it would operate at LOS F, constituting a significant impact according to the City of Brisbane guidelines. In addition the intersection also would reach the traffic volume thresholds established in the Second Amendment document during both AM and PM peak hours. Implementation of the following mitigation measure would reduce this impact to a less-than-significant level.

> Mitigation Measure TRANS-3: Based on the Second Amendment document, the applicant shall be responsible for signalizing the intersection of Sierra Point Parkway and Shoreline Court and adding a second northbound left-turn lane, a second southbound right-turn lane, and a second eastbound left-turn lane, to the satisfaction of the City Engineer in regards to design and the

timing of the improvement. This mitigation measure would allow the intersection to operate at LOS B during the AM peak hour and LOS C during the PM peak hour. (LTS)

(2) Freeway Segment Operations Analysis. Project traffic volumes on freeway segments were established by adding the estimated project trips to existing freeway segment volumes. The results of the analysis are summarized in Table IV.C-11. The results show that none of the directional freeway segments analyzed would operate at an unacceptable LOS F during at least one of the peak hours under Background Plus Project Conditions. All of the analyzed freeway segments would operate at an acceptable LOS E or better during the AM and PM peak hours.

d. 2030 Cumulative Plus Project Conditions Analysis. The analysis of Cumulative Conditions was conducted based on projected roadway link volumes using year 2030 land use data. AM and PM peak hour traffic volumes were developed using the C/CAG Travel Demand Model System "TDM 1101" for 2030. For the purposes of estimating the impacts of the project in the cumulative conditions, the traffic impacts of the project were evaluated relative to the 2030 cumulative traffic volumes without the project. The traffic estimates for the 2030 Cumulative Plus Project Conditions were produced using the following three step process:

- To determine cumulative traffic generation and trip distribution, the 2030 C/CAG Travel Demand Forecasting System was run using ABAG Projections 2005 for year 2030. These projections of jobs and households reflect all new development in Brisbane (including Sierra Point), South San Francisco, and the Executive Park/Candlestick Park areas of San Francisco.
- To determine cumulative traffic assignment for the project, the 4-hour AM and PM vehicle trip tables, derived from the peak period diurnal model, were assigned to the AM and PM transportation networks using equilibrium highway assignment. As part of this process, a detailed account of the assignment of the project trips for Sierra Point Biotech project was also produced. The project trips were subtracted from the total "Cumulative Plus Project" volumes to yield "Cumulative Without Project" traffic volumes. The assigned project trips were added to the 2030 traffic volumes, as shown in Figure IV.C-8.

(1) Cumulative Intersections Analysis. The results of the intersection level of service analysis under Cumulative Plus Project Conditions are summarized in Table IV.C-12. The level of service calculation sheets are included in Appendix C. In the year 2030 Cumulative Conditions (without the project), Table IV.C-11 shows that four of the study intersections would operate at an unacceptable LOS per the City of Brisbane significance criteria:

- The unsignalized intersection (#9) of Sierra Point Parkway/US 101 northbound ramp would operate at LOS F during the AM peak hour.
- The unsignalized intersection (#8) of Sierra Point Parkway/Lagoon Way would operate at LOS F during the PM peak hour.
- The unsignalized intersection (#10) of Sierra Point Parkway/Shoreline Court would operate at LOS F during the PM peak hour.
- The signalized intersection (#6) of Bayshore Boulevard/Old County Road would operate at LOS D during the AM peak hour and LOS C during the PM peak hour. Under cumulative conditions with the project it would operate at LOS D during the AM peak hour, with an increase in the average delay of more than 4 seconds. During the PM peak hour, the intersection would operate at LOS D.

Table IV.C-11: Background Plus Project Conditions Peak Hour Freeway Operating Conditions

Freeway	Segment	Direction	Peak Hour	Background Plus Project Trips				Project Trips	
				# of Lanes	Volume	V/C	LOS	Volume	Percent Capacity
US 101	Harney Way to Sierra Point Parkway	SB	AM	4	8,975	0.98	E	319	3.5
			PM	4	7,826	0.85	D	51	0.6
US 101	Sierra Point Parkway to Oyster Point Boulevard	SB	AM	4	7,405	0.80	D	50	0.5
			PM	4	7,629	0.83	D	216	2.3
I - 280	Alemany Boulevard to San Jose Ave	SB	AM	4	5,459	0.59	A	1	0.0
			PM	4	8,657	0.94	E	6	0.1
US 101	Oyster Point Boulevard to Sierra Point Parkway	NB	AM	4	7,725	0.84	D	241	2.6
			PM	4	8,451	0.92	E	39	0.4
US 101	Sierra Point Parkway to Harney Way	NB	AM	4	7,233	0.79	C	66	0.7
			PM	4	7,879	0.86	D	286	3.1
I - 280	San Jose Avenue to Alemany Boulevard	NB	AM	4	7,673	0.83	D	7	0.1
			PM	4	5,689	0.62	B	1	0.0

Source: Caltrans freeway count data and Hexagon Transportation Consultants, Inc., 2006.

While the following intersections in the study area would operate at LOS F under Cumulative Plus Project Conditions in the AM peak hour, implementation of the project would not cause the operation of the intersections listed below to result in an increase in critical delay of four (4) or more seconds and therefore would not represent a significant impact:

- Bayshore Boulevard and Sister Cities/Oyster Point Boulevard;
- Alemany Boulevard and Geneva Avenue;
- Mission Street and Geneva Avenue;
- Bayshore Boulevard and Geneva Avenue.

Impact TRANS-4: Implementation of the proposed project would contribute to a significant cumulative impact at the intersection (#9) of Sierra Point Parkway and the US 101 northbound ramp. (S)

During the AM peak hour, the unsignalized intersection of Sierra Point Parkway and the US 101 northbound ramp would operate at LOS F under Cumulative Conditions without the project. Under Cumulative Plus Project Conditions, it would operate at LOS F, with an increase in the average delay of more than 4 seconds constituting a significant impact according to the City of Brisbane guidelines.

Mitigation Measure TRANS-4: Implement Mitigation Measure TRANS-1. This mitigation measure would allow the intersection of Sierra Point Parkway and the US 101 northbound ramp to operate at LOS C during the cumulative PM peak hour and LOS F during the AM peak hour with a decrease in the average delay compared to Cumulative Conditions without the project. While implementation of this mitigation measure would reduce the impact, it would not reduce it to a less-than-significant level in the cumulative AM peak hour condition and this impact would remain significant and unavoidable. (SU)

Table IV.C-12: Cumulative 2030 Peak Hour Intersection Levels of Service Summary

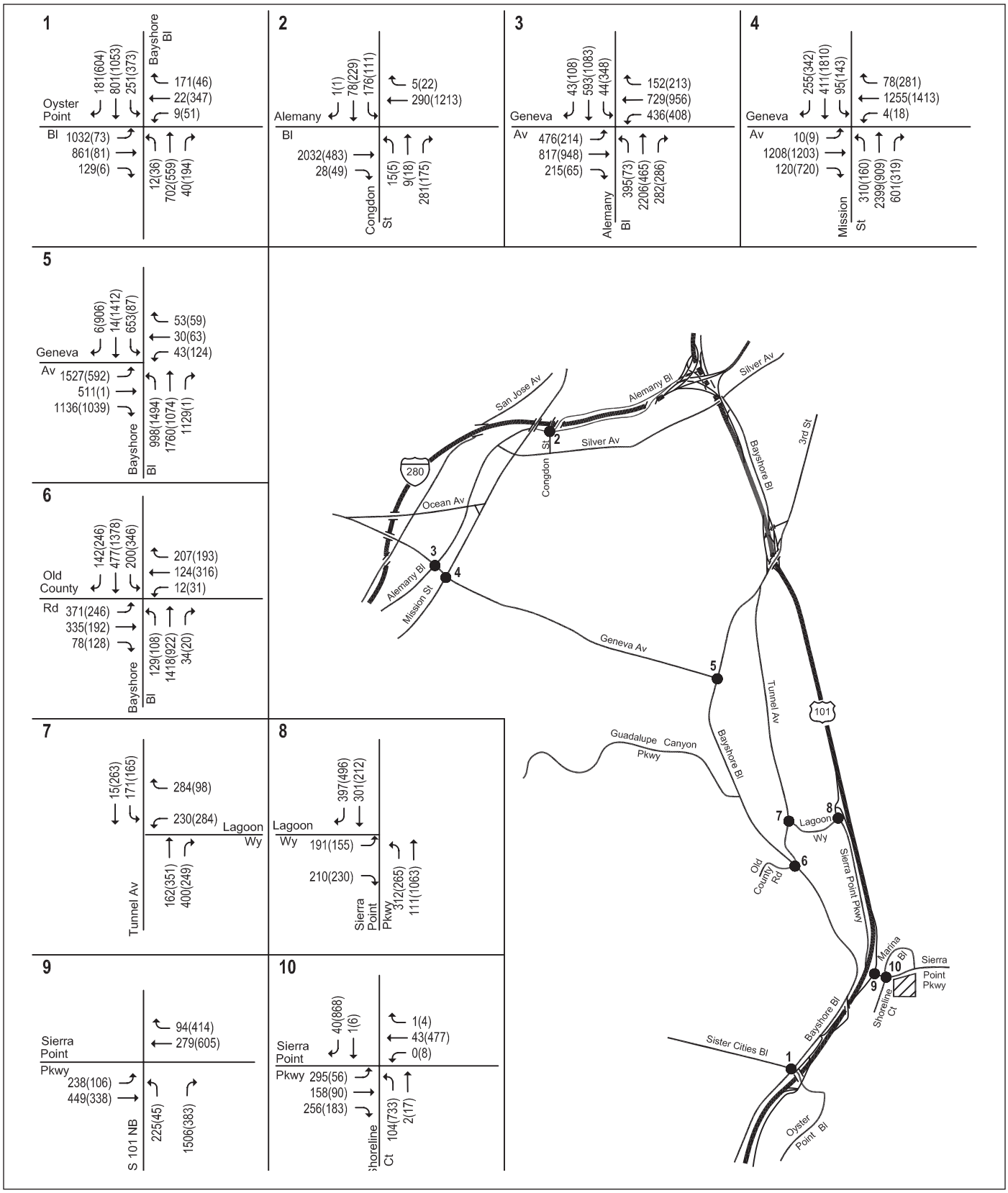
Intersection	Control	Peak Hour	Cumulative Without Project		Cumulative With Project	
			Average Delay (Seconds)	LOS	Average Delay (Seconds)	LOS
1. Bayshore Boulevard and Sister Cities/Oyster Point Boulevard	Signal	AM	133.6	**F**	127.7	**F**
	Signal	PM	21.4	C	21.3	C
2. Alemany Boulevard and Congdon Street	Signal	AM	11.9	B	10.5	B
	Signal	PM	10.7	B	10.6	B
3. Alemany Boulevard and Geneva Avenue	Signal	AM	215.6	**F**	217.4	**F**
	Signal	PM	65.3	E	67.4	E
4. Mission Street and Geneva Avenue	Signal	AM	190.4	**F**	191.7	**F**
	Signal	PM	70.5	E	72.5	E
5. Bayshore Boulevard and Geneva Avenue	Signal	AM	295.3	**F**	295.5	**F**
	Signal	PM	72.0	E	75.4	E
6. Bayshore Boulevard and Old County Road [a]	Signal	AM	36.9	D	42.0	D
	Signal	PM	34.8	C	36.5	D
7. Tunnel Avenue and Lagoon Way	All-Way Stop	AM	20.6	C	25.5	D
	All-Way Stop	PM	27.5	D	33.4	D
8. Sierra Point Parkway and Lagoon Way	All-Way Stop	AM	14.4	B	16.5	C
	All-Way Stop	PM	83.9	**F**	220.7	**F**
9. Sierra Point Parkway and US 101 NB Ramps	One-Way Stop	AM	153.7	**F**	620.0	**F**
	One-Way Stop	PM	13.2	B	18.5	C
10. Sierra Point Parkway and Shoreline Court	All-Way Stop	AM	8.8	A	10.6	B
	All-Way Stop	PM	86.1	**F**	319.8	**F**

[a] Per City of Brisbane level of service guidelines, intersection must remain at LOS C or better.
Source: Hexagon Transportation Consultants, Inc., 2006.

Impact TRANS-5: Implementation of the proposed project would contribute to a significant cumulative impact at the intersection (#8) of Sierra Point Parkway and Lagoon Way. (S)

During the PM peak hour, the unsignalized intersection of Sierra Point Parkway and Lagoon Way would operate at LOS F under Cumulative Conditions (year 2030) without the project. Under Cumulative Plus Project Conditions it would operate at LOS F, with an increase in the average delay of more than 4 seconds constituting a significant impact according to the City of Brisbane guidelines. Implementation of the following mitigation measure would reduce this impact to a less-than-significant level.

Mitigation Measure TRANS-5: Implement Mitigation Measure TRANS-2. This mitigation measure would allow the intersection of Sierra Point Parkway and Lagoon Way to operate at LOS B during the AM peak hour and LOS B during the PM peak hour, with a decrease in the average delay compared to Cumulative Conditions without the project. (LTS)



LSA

NOT TO SCALE

LEGEND

= Site Location

= Study Intersection

XX(XX) = AM(PM) Volume

FIGURE IV.C-8

Sierra Biotech Project EIR
Cumulative (Year 2030)
With Project Traffic volumes

SOURCE: HEXAGON TRANSPORTATION CONSULTANTS, INC 2006.

I:\BRI0601 sierra point\figures\Fig_IVC8.ai (11/13/06)

Impact TRANS-6: Implementation of the proposed project would contribute to a significant cumulative impact at the intersection (#10) of Sierra Point Parkway and Shoreline Court. (S)

During the PM peak hour, the unsignalized intersection of Sierra Point Parkway and Shoreline Court would operate at LOS F under Cumulative Conditions (year 2030) without the project. Under Cumulative Plus Project Conditions, it would operate at LOS F, with an increase in the average delay of more than 4 seconds, constituting a significant impact according to the City of Brisbane guidelines. Implementation of the following mitigation measure would reduce this impact to a less-than-significant level.

Mitigation Measure TRANS-6: Implement Mitigation Measure TRANS-3. This mitigation measure would allow the intersection of Sierra Point Parkway and Shoreline Court to operate at LOS B during the AM peak hour and LOS C during the PM peak hour, with a decrease in the average delay compared to the cumulative condition without the project. (LTS)

Impact TRANS-7: Implementation of the proposed project would contribute to a significant cumulative impact at the intersection (#6) of Bayshore Boulevard and Old County Road. (S)

During Cumulative Conditions (year 2030) without the project, the signalized intersection of Bayshore Boulevard and Old County Road would operate at LOS D during the AM peak hour and LOS C during the PM peak hour. Under Cumulative Plus Project Conditions it would operate at LOS D during the AM peak hour, with an increase in the average delay of more than 4 seconds. During the PM peak hour, the intersection would operate at LOS D. An LOS D at this intersection would constitute a significant impact according to the City of Brisbane guidelines. Implementation of the following mitigation measure would reduce this impact to a less-than-significant level.

Mitigation Measure TRANS-7: The project applicant shall implement up to two of the following measures (per the requirements of the City Engineer in regards to design and the timing of the improvement), to reduce the project's contribution to the impact to the intersection of Bayshore Boulevard and Old County Road:

- Install an additional second eastbound left-turn lane and convert the existing shared-through-left to a through lane at the intersection of Bayshore Boulevard/Old County Road. This improvement would change the existing eastbound geometry from one left-turn, one shared-through-left, and one right-turn to two left-turns, one through lane, and one right-turn lane. This mitigation measure would allow the intersection to operate at LOS C during both the AM and PM peak hours. Implementation of this mitigation may require the need for additional right-of-way to be obtained from nearby property owners.
- Install a westbound through lane at the intersection of Bayshore Boulevard/Old County Road to change the existing westbound geometry from one shared-through-left and one right-turn to one shared-through-left, one through lane, and one right-turn lane. This mitigation measure would allow the intersection to operate at LOS C during both the AM and PM peak hours. This mitigation may require the need for additional right-of-way to be obtained from the nearby property owners.
- Adjust the signal timing of the intersection which would improve the LOS to an acceptable level. (LTS)

(2) Cumulative Freeway Segment Operations Analysis. Traffic volumes on freeway segments were obtained from the C/CAG 2030 Travel Demand Forecasting Model for the Cumulative Plus Project Conditions. The results of the analysis are summarized in Table IV.C-13. As shown, seven of the directional freeway segments analyzed would operate at an unacceptable LOS F during at least one of the peak hours under Cumulative Plus Project Conditions. However, per the C/CAG's Policy on Traffic Impact Analysis and the relevant significance criterion, a significant impact associated with project-related traffic that contributes to an increase of 1 percent or more of freeway segment capacity would result on only three of the LOS F freeway segments studied.

Impact TRANS-8: Implementation of the proposed project would contribute to a significant level of service cumulative impact on the following three freeway segments:

- **US 101 southbound between Harney Way and Sierra Point Parkway in the AM Peak hour.**
- **US 101 southbound between Sierra Point Parkway and Oyster Point Boulevard in the PM Peak hour.**
- **US 101 northbound between Oyster Point Boulevard and Sierra Point Parkway in the AM Peak hour. (S)**

Mitigation Measure TRANS-8: In accordance with CMP requirements, the project applicant shall ensure that Travel Demand Management (TDM) measures to reduce project impacts are implemented by the project applicant or tenants, per the approval of the City Engineer regarding the specific measures and the implementation timing. A list of TDM measures are provided in the San Mateo County Final Congestion Management Program. In coordination with the City and prior to issuance of a building permit, the applicant shall prepare and provide the City with a Traffic Reduction Plan that identifies specific TDM measures to be implemented. Specific measures that could be included in the Plan are listed below:

- Provide for the existing shuttle service to serve the Sierra Point Biotech project buildings and provide for increased frequencies of the shuttle during the peak periods to access the CalTrain and/or BART rail stations. Coordinate with the shuttle and transit operators with respect to the location of transit stops and the provision of related shuttle-user amenities (e.g., dedicated shuttle stops, seating areas, crosswalks);
- Provide secure bicycle parking;
- Provide and operate an on-site commute assistance center to allow for one stop shopping for transit and commute alternatives information, preferably staffed with a live person to assist building tenants with trip planning;
- Provide subsidized transit passes;
- Charge for parking and offer employees a parking cash-out program; and
- Implement an alternate hours workweek program, also known as flextime.

Table IV.C-13: Cumulative Plus Project Conditions Peak Hour Freeway Operating Conditions

Freeway	Segment	Direction	Segment Capacity	Peak Hour	# of Lanes	Cumulative Plus Project Trips			Project Trips	
						Volume	V/C	LOS	Volume	Percent Capacity
US 101	Harney Way to Sierra Point Parkway	SB	9,200	AM	4	9,294	1.01	**F**	319	**3.4**
			9,200	PM	4	10,205	1.11	**F**	51	0.5
US 101	Sierra Point Parkway to Oyster Point Boulevard	SB	9,200	AM	4	7,455	0.81	D	50	0.5
			9,200	PM	4	10,073	1.09	**F**	216	**2.1**
I - 280	Alemany Boulevard to San Jose Ave	SB	9,200	AM	4	5,460	0.59	A	1	0.0
			9,200	PM	4	11,536	1.25	E	6	0.1
US 101	Oyster Point Boulevard to Sierra Point Parkway	NB	9,200	AM	4	10,261	1.12	**F**	241	**2.3**
			9,200	PM	4	9,443	1.03	**F**	39	0.4
US 101	Sierra Point Parkway to Harney Way	NB	9,200	AM	4	9,388	1.02	**F**	66	0.7
			9,200	PM	4	8,844	0.96	E	286	3.1
I - 280	San Jose Avenue to Alemany Boulevard	NB	9,200	AM	4	11,003	1.20	**F**	7	0.1
			9,200	PM	4	7,380	0.80	D	1	0.0

Source: Hexagon Transportation Consultants, Inc., October 2006.

While implementation of this mitigation measure would reduce the impact, mitigation measures, involving implementation of TDM measures are typically designed to achieve a 10 to 20 percent traffic reduction. Even if these reductions could be achieved, the freeway segments could continue to operate above the CMP threshold for significant impacts. The measure would not reduce impacts to a less-than-significant level in the cumulative condition and this impact would remain significant and unavoidable. (SU)

e. Construction Traffic. Construction traffic that would access the site during each phase of construction could generate short-term traffic impacts on the surrounding roadway network. The project will also require the importation of construction material including approximately 47,400 net cubic yards of fill and raw materials for the building pads, the buildings, the parking areas, and landscaping.

Impact TRANS-9: Construction traffic associated with employees, grading and development of the project site could impact surrounding roadways by interrupting traffic flow. (S)

The following mitigation measure would reduce the impact to a less-than-significant level.

Mitigation Measure TRANS-9: Prior to the approval of a grading permit, the applicant shall prepare a Construction Traffic Control Plan for review and approval by the City. The plan should identify locations for temporary signals; construction signage; striping; construction vehicle travel routes and site ingress and egress; staging areas; and timing of construction activities which appropriately limits hours during which large construction equipment may be brought on or off the site. (LTS)

f. Public Transit Operations. Transit service in the project vicinity would be provided via CalTrain, the Caltrain shuttle service to Sierra Point and several Samtrans operated bus routes.

Assuming up to 3 percent transit mode share for the project equates to approximately 24 new transit riders during the AM peak commute period and 23 new transit riders during the PM peak period. These new riders easily could be accommodated by the available ridership capacity of the nearby Samtrans bus and rail lines. However, Samtrans may consider adjusting the schedules for bus routes near the project site to accommodate any shift in ridership patterns. Caltrain operates a shuttle service from its South San Francisco station to the Sierra Point area office buildings during the commute hours. Implementation of Mitigation Measure TRANS-8 would ensure that the proposed project includes a shuttle stop and provisions for the Caltrain shuttle service to increase the frequency of the existing shuttle service.

g. Bicycle and Pedestrian Mobility. Pedestrian traffic primarily would be generated by transit stops and nearby businesses. The extensive network of sidewalks within the study area would provide workers with a safe connection between the project site and the other surrounding land uses in the area. Although the project would increase the demand for pedestrian facilities, the incremental increase in pedestrian travel as a result of the project would be small, and therefore, would not be considered significant.

Many of the roadways near the project site are designated bike routes. A reasonable and conservative assumption for bicycle commute trip generation would be a 1 percent mode share. This calculates to approximately 7 new peak hour bicycle trips in the AM and about 7 bicycle trips in the PM peak period of traffic. Thus, the project would have no negative impact on the existing bicycle facilities in the study area.

The Bay Trail provides bicycle and pedestrian access across the southern portion of the site. The proposed project includes reconstruction of a new segment of the Bay Trail through the project site connecting to the existing trail segments on either side of the project site. The current site plan for the proposed project, as shown in Figure III-3, indicates the Bay Trail would pass through parking spaces and the access road in the public parking area, located in the southwestern portion of the project site.

Impact TRANS-10: The proposed design for the reconstruction of the Bay Trail would be unsafe and would conflict with pedestrian and bicycle mobility. (S)

The construction of the Bay Trail through the public parking lot in the southwestern corner of the project site would conflict with the mobility and safety of pedestrians and cyclists using the Bay Trail. Implementation of the following mitigation measure would reduce this impact to this impact to a less-than-significant level.

> Mitigation Measure TRANS-10**:** Prior to the approval of the grading permit for the project, the site plan shall be revised so that the Bay Trail does not pass through the public parking area. The reconstruction of the Bay Trail shall be subject to San Francisco Bay Conservation and Development Commission (BCDC) and City of Brisbane review and approval to ensure that the reconstructed trail does not impact pedestrian and bicycle mobility and that the Bay Trail design includes amenities such as benches, lighting and landscaping. (LTS)

h. Circulation Issues Analysis. Circulation issues associated with public transit operations, bicycle and pedestrian mobility, parking, site access and emergency vehicle access are evaluated below.

(1) Site Access. The proposed site plan shows two project driveways on Sierra Point Parkway and one driveway on Shoreline Court. The three proposed project driveways are full-access, allowing for left-in, right-in, left-out, and right-out maneuvers. All project driveways would contain one inbound lane and one outbound lane. ITE standards for driveway design and location were used to evaluate the project driveways on Sierra Point Parkway and Shoreline Court. ITE recommends the following standards for two-way commercial driveways:

- Widths between 30 to 40 feet and 15-feet radii (driveways with low-volume activity may have widths of 24 feet, providing that 20-foot radii are used).
- Spacing of at least 35 feet apart.
- 51-150 feet of frontage for two driveways.

There is approximately 1,400 feet of property frontage on Sierra Point Parkway, which is sufficient for the two driveways. The western driveway on Sierra Point Parkway is 24 feet wide, while the eastern driveway is 32 feet wide, and the Shoreline Court driveway is 24 feet wide

Impact TRANS-11: The proposed driveway curb radii for the project access driveways may be inadequate and could create a hazardous circulation condition. (S)

The proposed site plan does not show the driveway curb radii for the proposed project. Implementation of the following mitigation measure would ensure that impacts to vehicle access are less-than-significant.

Mitigation Measure TRANS-11: The project site plan shall be revised to include a minimum 20-foot turning radius at the western driveway on Sierra Point Parkway and the driveway at Shoreline Court; and a minimum 15-foot radius at the eastern driveway on Sierra Point Parkway. The revised site plan shall be reviewed and approved by the City Engineer to ensure that adequate driveway curb radii are provided. (LTS)

Impact TRANS-12: The proposed project could result in inadequate sight distance at project driveways leading to a hazardous circulation condition. (S)

The proposed site could include landscaping, parking and signage that may obstruct the view of drivers exiting the site. Implementation of the following mitigation measure would ensure that impacts to vehicle sight distance are less-than-significant.

Mitigation Measure TRANS-12: Prior to issuance of a grading permit, the applicant shall provide the City with a revised site plan and parking plan that maintains some of the existing on-street parking prohibitions along the site frontages in the vicinity of the driveways in order to ensure that there would be sufficient sight distance at the project driveways. Prior to approval of a final site plan, the City Engineer shall ensure that any landscaping, parking or signage allows for unobstructed views for vehicles leaving the site. (LTS)

Impact TRANS-13: The alignment of the proposed project driveway at the western end of Sierra Point Parkway could conflict with the alignment of the opposing driveways. (S)

The proposed site plan shows the proposed project driveway at the western end of Sierra Point Parkway offset from the existing driveway on the opposite side of the street, north of the project site. Generally it is desirable for all opposing roadways to line up at their centerlines, or be offset sufficiently to allow for proper vehicle channelization. Depending on the movements permitted at these driveways, further analysis may be required. Implementation of the following mitigation measure would ensure that impacts to driveway alignment are less-than-significant.

> Mitigation Measure TRANS-13: The project applicant shall provide the City Engineer with an alignment analysis to confirm that the proposed project access driveways are designed to not conflict with the existing alignment of opposing driveways or the traffic signal and related improvement plans at the Sierra Point Parkway and Shoreline Court intersection.[4] (LTS)

(2) Site Circulation. The proposed onsite circulation was reviewed in accordance with generally accepted traffic engineering standards. Generally, the proposed plan would provide adequate connectivity through the parking areas for vehicles, and would provide 90-degree parking throughout the site. There is one proposed dead-end aisle at the southwest end of the project site. Dead-end aisles are undesirable because drivers can enter the aisle, and upon discovering that there is no available parking, must back out or conduct three-point turns. In areas where parking spaces are designated for specific individuals, dead-end aisles are less problematic.

Impact TRANS-14: The existing site plan includes one dead-end aisle within the proposed parking lot at the southwest end of the project site. (S)

The proposed dead-end aisle may require drivers to back out or conduct three-point turns in order to leave the parking aisles. Dead-end aisles can be difficult for vehicles in the last stalls to pull out of the parking space. Implementation of the following mitigation measure would ensure that impacts to site circulation are less-than-significant.

> Mitigation Measure TRANS-14: Prior to issuance of a grading permit, the applicant shall provide to the City a revised site plan and parking plan that eliminates the dead-end parking aisles or shows that parking in the dead end aisle is designated for specific individuals. The plan shall also show that there is adequate turnaround space at the end of each drive aisle. (LTS)

The design of the site circulation and access for the parking structure should consider the driveway and ramp width to the structure, the ramp slope, the ramp vertical clearance, the inside turning radius at all locations of change in aisle direction, and the width of the drive aisles. The ramp design is not shown and therefore could not be evaluated.

[4] The Second Amendment to the Agreement Concerning Project Approval Documents (November 17, 2003). The Agreement Concerning Project Approval Documents was adopted December 22, 1997 by the City Council as Resolution No. 97-69.

(3) Site Parking. The proposed development would consist of 540,185 square feet of office and research and development space and 2,500 square feet of retail space. Based on the size of the development, the applicant is proposing 419 surface parking spaces, 131 parking spaces within Building C, and a six-story parking structure with 1,249 parking spaces for a total of 1,799 parking spaces. The City of Brisbane parking standard for office/research is 1 parking space per 300 square feet. Based on this rate, the proposed project should provide 1,809 parking spaces. While the project does not meet the parking requirement, this condition does not constitute a significant impact as the approximately 10 spaces that would be required for the 2,500 retail space are not necessary due to the fact that the retail is attached to a parking garage and is directly adjacent to an underutilized City parking lot associated with the marina. Therefore, no significant impact related to parking is associated with the project.

Additionally, parking required at a comparable research development in South San Francisco was used for comparison purposes only. Based on the City of South San Francisco parking code used for the Genentech project, at the rate of 1.6 spaces per 1,000 square feet, the proposed project would require 863 parking spaces for the research and development uses and an additional 9 parking spaces for retail uses. Therefore, under the South San Francisco code, the proposed project would require a total of 872 parking spaces.

D. AIR QUALITY

This section has been prepared using methodologies and assumptions recommended in the air quality impact assessment guidelines of the Bay Area Air Quality Management District (BAAQMD).[1] In keeping with these guidelines, this section describes existing air quality, impacts of future traffic on local carbon monoxide levels and impacts of land use related vehicular emissions that have regional effects. Mitigation measures to reduce or eliminate potentially significant air quality impacts are identified, where appropriate.

1. Setting

The following discussion provides an overview of existing air quality conditions in the region and the Brisbane area. Ambient standards and the regulatory framework relating to air quality are summarized. Climate, air quality conditions, and typical air pollutant types and sources are described.

a. Air Quality Standards, Regulatory Framework and Attainment Status. Air quality standards, the regulatory framework, and State and federal attainment status are discussed below.

(1) Air Quality Standards. Both the State and federal governments have established health-based Ambient Air Quality Standards for six air pollutants: carbon monoxide (CO), ozone (O_3), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), lead (Pb), and suspended particulate matter (PM). In addition, the State has set standards for sulfates, hydrogen sulfide, vinyl chloride and visibility reducing particles. These standards are designed to protect the health and welfare of the populace with a reasonable margin of safety.

Table IV.D-1: Federal and State Ambient Air Quality Standards

Pollutant	Averaging Time	Federal Primary Standard	State Standard
Ozone	1-Hour	–	0.09 ppm
	8-Hour	0.08 ppm	0.07 ppm
Carbon Monoxide	8-Hour	9.0 ppm	9.0 ppm
	1-Hour	35.0 ppm	20.0 ppm
Nitrogen Dioxide	Annual	0.05 ppm	–
	1-Hour	–	0.25 ppm
Sulfur Dioxide	Annual	0.03 ppm	–
	24-Hour	0.14 ppm	0.04 ppm
	1-Hour	–	0.25 ppm
PM_{10}	Annual	50 $\mu g/m^3$	20 $\mu g/m^3$
	24-Hour	150 $\mu g/m^3$	50 $\mu g/m^3$
$PM_{2.5}$	Annual	15 $\mu g/m^3$	12 $\mu g/m^3$
	24-Hour	65 $\mu g/m^3$	–

Notes: ppm = parts per million
$\mu g/m^3$ = micrograms per cubic meter

Source: California Air Resources Board, 2005, *Ambient Air Quality Standards*.

In addition to primary and secondary Ambient Air Quality Standards, the State of California has established a set of episode criteria for O_3, CO, NO_2, SO_2, and PM. These criteria refer to episode levels representing periods of short-term exposure to air pollutants that actually threaten public health. Health effects are progressively more severe as pollutant levels increase from Stage One to Stage Three.

California Ambient Air Quality Standards and National Ambient Air Quality Standards for the criteria air pollutants are listed in Table IV.D-1. Health effects of these criteria pollutants are described in Table IV.D-2.

[1] Bay Area Air Quality Management District, 1999. *BAAQMD CEQA Guidelines.*

Table IV.D-2: Health Effects Summary of the Common Pollutants Found in Air

Pollutant	Health Effects	Examples of Sources
Particulate Matter (PM_{10}: less than or equal to 10 microns)	• Increased respiratory disease • Lung damage • Premature death	• Cars and trucks, especially diesels • Fireplaces, wood stoves • Windblown dust from roadways, agriculture, and construction
Ozone (O_3)	• Breathing difficulties • Lung damage	• Formed by chemical reactions of air pollutants in the presence of sunlight; common sources are motor vehicles, industries, and consumer products
Carbon Monoxide (CO)	• Chest pain in heart patients • Headaches, nausea • Reduced mental alertness • Death at very high levels	• Any source that burns fuel such as cars, trucks, construction and farming equipment, and residential heaters and stoves
Nitrogen Dioxide (NO_2)	• Lung damage	• See carbon monoxide sources
Toxic Air Contaminants	• Cancer • Chronic eye, lung, or skin irritation • Neurological and reproductive disorders	• Cars and trucks, especially diesels • Industrial sources such as chrome platers • Neighborhood businesses such as dry cleaners and service stations • Building materials and products

Source: ARB, 2005.

(2) Regulatory Framework. BAAQMD is primarily responsible for regulating air pollution emissions from stationary sources (e.g., factories) and indirect sources (e.g., traffic associated with new development), as well as for monitoring ambient pollutant concentrations. The District's jurisdiction encompasses seven counties—Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara and Napa—and portions of Solano and Sonoma counties. The California Air Resources Board (ARB) and the U.S. Environmental Protection Agency (EPA) regulate direct emissions from motor vehicles.

Federal Clean Air Act. The Federal 1970 Clean Air Act authorized the establishment of national health-based air quality standards and also set deadlines for their attainment. The Federal Clean Air Act Amendments of 1990 changed deadlines for attaining National Ambient Air Quality Standards as well as the remedial actions required of areas of the nation that exceed the standards. Under the federal Clean Air Act, State and local agencies in areas that exceed the National Ambient Air Quality Standards are required to develop State Implementation Plans to show how they will achieve the National Ambient Air Quality Standards for O_3 by specific dates.

The federal Clean Air Act requires that projects receiving federal funds demonstrate conformity to the approved State Implementation Plan and local air quality attainment plan for the region. Conformity with the State Implementation Plan requirements would satisfy the federal Clean Air Act requirements.

California Clean Air Act. In 1988, the California Clean Air Act required that all air districts in the State endeavor to achieve and maintain California Ambient Air Quality Standards for O_3, CO, SO_2 and NO_2 by the earliest practical date. Plans for attaining California Ambient Air Quality Standards were submitted to the California Air Resource Board by June 30, 1991, 1994, 1997 and 2000. The California Clean Air Act provides districts with new authority to regulate indirect sources and mandates that air quality districts focus particular attention on reducing emissions from transportation and area-wide emission sources. Each district plan is to achieve a 5 percent annual reduction, averaged over consecutive 3-year periods, in district-wide emissions of each nonattainment pollutant or its precursors. Additional physical or economic development within the region would tend to impede the emissions reduction goals of the California Clean Air Act.

In 2005, the BAAQMD prepared the Bay Area 2005 Ozone Strategy, which demonstrates how the San Francisco Bay Area will achieve compliance with the California Ambient Air Quality Standards including the State 1-hour air quality standard for ozone. The plan also demonstrates how the region will reduce transport of ozone and ozone precursors to neighboring air basins. The Ozone Strategy also includes stationary source control measures, mobile source control measures and transportation control measures.

(3) Attainment Status Designations. The California Air Resources Board is required to designate areas of the state as attainment, nonattainment or unclassified for all State standards. An "attainment" designation for an area signifies that pollutant concentrations did not violate the standard for that pollutant in that area. A "nonattainment" designation indicates that a pollutant concentration violated the standard at least once, excluding those occasions when a violation was caused by an exceptional event, as defined in the criteria. An "unclassified" designation signifies that data does not support either an attainment or nonattainment status. The California Clear Air Act divides districts into moderate, serious, and severe air pollution categories, with increasingly stringent control requirements mandated for each category.

The U.S. EPA designates areas for O_3, CO, and NO_2 as either "does not meet the primary standards," or "cannot be classified" or "better than national standards." For SO_2, areas are designated as "does not meet the primary standards," "does not meet the secondary standards," "cannot be classified" or "better than national standards." In 1991, new nonattainment designations were assigned to areas that had previously been classified as Group I, II, or III for PM_{10} based on the likelihood that they would violate national PM_{10} standards. All other areas are designated "unclassified."

Table IV.D-3 provides a summary of the attainment status for the San Francisco Bay Area with respect to national and State ambient air quality standards.

(4) City of Brisbane. The following policies from the City of Brisbane General Plan Community Health and Safety Element are related to air quality:

Policy 190: Cooperate with the Bay Area Air Quality Management District to facilitate the monitoring and enforcement of air quality standards.

Table IV.D-3: Bay Area Attainment Status

Pollutant	Averaging Time	California Standards[a]		National Standards[b]	
		Concentration	Attainment Status	Concentration	Attainment Status
Carbon Monoxide (CO)	8-Hour	9.0 ppm (10 mg/m^3)	Attainment	9 ppm (10 mg/m^3)	Attainment[c]
	1-Hour	20 ppm (23 mg/m^3)	Attainment	35 ppm (40 mg/m^3)	Attainment
Nitrogen Dioxide (NO_2)	Annual Mean	Not Applicable	Not Applicable	0.053 ppm (100 µg/m^3)	Attainment
	1-Hour	0.25 ppm (470 µg/m^3)	Attainment	Not Applicable	Not Applicable
Ozone (O_3)	8-Hour	0.07 ppm (140 µg/m^3)	Not Established	0.08 ppm (157 µg/m^3)	Marginal
	1-Hour	0.09 ppm (180 µg/m^3)	Nonattainment	Not Applicable	Not Applicable[d]
Suspended Particulate Matter (PM_{10})	Annual Mean	20 µg/m^3	Not Applicable	50 µg/m^3	Attainment
	24-Hour	50 µg/m^3	Nonattainment	150 µg/m^3	Unclassified
Suspended Particulate Matter ($PM_{2.5}$)	Annual Mean	12 µg/m^3	Nonattainment	15 µg/m^3	Unclassified
	24-Hour	Not Applicable	Not Applicable	65 µg/m^3	Unclassified
Sulfur Dioxide (SO_2)	Annual Mean	Not Applicable	Not Applicable	0.03 ppm (80 µg/m^3)	Attainment
	24-Hour	0.04 ppm (105 µg/m^3)	Attainment	0.14 ppm (365 µg/m^3)	Attainment
	1-Hour	0.25 ppm (655 µg/m^3)	Attainment	Not Applicable	Not Applicable

[a] California standards for O_3, CO (except Lake Tahoe), SO_2 (1-hour and 24-hour), NO_2 and PM_{10} are values that are not to be exceeded. If the standard is for a 1-hour, 8-hour, or 24-hour average, then some measurements may be excluded. In particular, measurements are excluded that ARB determines would occur less than once per year on the average.

[b] National standards other than for O_3 and those based on annual averages or annual arithmetic means are not to be exceeded more than once a year. For example, the O_3 standard is attained if, during the most recent 3-year period, the average number of days per year with maximum hourly concentrations above the standard is equal to or less than 1.

[c] In April 1998, the Bay Area was redesignated to Attainment for the national 8-hour CO standard.

[d] The National 1-hour ozone standard was revoked by U.S. EPA on June 15, 2005.

Lead (Pb) is not listed in the above table because it has been in attainment since the 1980s.

ppm = parts per million
mg/m^3 = milligrams per cubic meter
µg/m^3 = micrograms per cubic meter

Source: BAAQMD, Bay Area Attainment Status, 2005.

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.

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.

Policy 197: Continue to improve existing roadways to reduce congestion in order to reduce emissions generated by "stop-and-go" driving.

Policy 198: Actively participate in and support the development and implementation of transportation system management plans (TSMs) and transportation demand management measures (TDMs).

Policy 201: Encourage households and businesses to properly manage materials that affect air quality and replace these materials with safer alternatives whenever possible.

The City's Municipal Code Chapter 15.01, Grading,[2] provides the following regulation that is applicable to the proposed project:

- The movement of earth material within, to, or from a site shall require the periodic implementation of dust control measures. On projects as determined by the city engineer, a water truck shall be continuously present on-site to assure maximum control.

b. Existing Climate and Air Quality. Regional air quality, local climate and air quality in the peninsula region, and air pollution climatology are described next.

(1) Regional Air Quality. The City of Brisbane is located in the San Francisco Bay Area, a large shallow air basin ringed by hills that taper into a number of sheltered valleys around the perimeter. Two primary atmospheric outlets exist. One is through the strait known as the Golden Gate, a direct outlet to the Pacific Ocean. The second extends to the northeast, along the west delta region of the Sacramento and San Joaquin Rivers.

The City of Brisbane is within the jurisdiction of the BAAQMD. Air quality conditions in the San Francisco Bay Area have improved significantly since the BAAQMD was created in 1955. Ambient concentrations of air pollutants and the number of days during which the region exceeds air quality standards have fallen dramatically. Exceedances of air quality standards occur primarily during meteorological conditions conducive to high pollution levels, such as cold, windless winter nights or hot, sunny summer afternoons.

Ozone levels, measured by peak concentrations and the number of days over the State 1-hour standard, have declined substantially as a result of aggressive programs by the BAAQMD and other regional, State and federal agencies. The reduction of peak concentrations represents progress in improving public health, however the Bay Area still exceeds the State standard for 1-hour ozone. Levels of PM_{10} in the Bay Area have exceeded State standards at least three times per year the last for the last three years, and the area considered nonattainment for this pollutant relative to the State standards. The Bay Area is an unclassified area for the federal PM_{10} standard.

No exceedances of the State or federal CO standards have been recorded at any of the region's monitoring stations since 1991. The Bay Area is currently considered a maintenance area for State and federal CO standards.

(2) Local Climate and Air Quality. Air quality is a function of both local climate and local sources of air pollution. Air quality is the balance of the natural dispersal capacity of the atmosphere and emissions of air pollutants from human uses of the environment. Annual average wind speeds at the project site range from 5 to 10 mph and are generally from the west, although wind patterns in this area are often influenced by local topographic features. Winds in the vicinity of the project site are often high in certain areas, such as near the San Bruno Gap.

[2] City of Brisbane Municipal Code. Chapter 15.01, Grading.

Two important gaps in the Santa Cruz Mountains that affect air pollution occur on the peninsula. The larger of the two is the San Bruno Gap, extending from Fort Funston on the ocean to the San Francisco Airport. Because the gap is oriented in the same northwestern to southeast direction as the prevailing winds, and because the elevations along the gap are less than 2,000 feet, marine air is easily able to penetrate into the bay. As the sea breeze strengthens on summer afternoons, the gap permits maritime air to pass across the mountains and over the southeastern areas of the peninsula.

In the southeastern portion of the peninsula, air pollutant emissions are relatively high due to motor vehicle traffic as well as stationary sources. However, winds are generally fast enough to carry the pollutants away before they can accumulate.

Pollutants can be diluted by mixing in the atmosphere both vertically and horizontally. Vertical mixing and dilution of pollutants are often suppressed by inversion conditions, when a warm layer of air traps cooler air close to the surface. Cities in the southeastern peninsula experience warmer temperatures and fewer foggy days because the marine layer is blocked by the ridgeline to the west.

Topography can restrict horizontal dilution and mixing of pollutants by creating a barrier to air movement. Air pollution potential is highest along the southeastern portion of the peninsula especially in portions of the area that are most protected from the high winds and fog of marine layer. Pollutant transport from upwind sites is common.

Pollutant monitoring results for the years 2003 to 2005 (see Tables IV.D-4 and IV.D-5) at the San Francisco – Arkansas Street ambient air quality monitoring station indicate that air quality in the project area has generally been good. Based on the monitoring results, one or fewer violations per year of the State PM_{10} standard during the three year period were recorded with no violations of the federal PM_{10} standard. $PM_{2.5}$ levels did not exceeded the State or federal standard during the last three years (2003 to 2005). State 1-hour and 8-hour ozone standards have not been exceeded the last three years at this monitoring station. Federal 8-hour ozone standards have not been exceeded within the three year period at this monitoring station. CO, SO_2, and NO_2 standards were not exceeded in this area during the three year period.

c. Air Quality Issues. Five key air quality issues – CO hotspots, vehicle emissions, fugitive dust, odors, and construction equipment exhaust – are described below.

(1) Local Carbon Monoxide Hotspots. Local air quality is most affected by CO emissions from motor vehicles. CO is typically the pollutant of greatest concern because it is created in abundance by motor vehicles and it does not readily disperse into the air. Because CO does not readily disperse, areas of vehicle congestion can create "pockets" of high CO concentration called "hot spots." These pockets have the potential to exceed the State 1-hour standard of 20 ppm and/or the 8-hour standard of 9.0 ppm. While CO transport is limited, it does disperse over time and with distance from the source under normal meteorological conditions. However, under certain extreme meteorological conditions, CO concentrations near congested roadways or intersections may reach unhealthful levels affecting local sensitive receptors (e.g., residents, schoolchildren, the elderly, and hospital patients). Typically, high CO concentrations are associated with roadways or intersections operating at unacceptable levels of service or with extremely high traffic volumes. In areas with high ambient background CO concentration, modeling is recommended to determine a project's effect on local CO levels.

Table IV.D-4: Results from the San Francisco-Arkansas Street Ambient Air Quality Monitoring Station Exceeded Standards, 2003 to 2005, Maximum 1-Hour

	Ozone			Carbon Monoxide		Nitrogen Dioxide		PM_{10}		
Year	Max. 1-Hour (ppm)	National D-O-S	California D-O-S	Max. 1-Hour (ppm)	California D-O-S	Max. 1-Hour (ppm)	California D-O-S	Max. 24-Hour (mg/m^3)	National D-O-S	California D-O-S
2003	0.085	0	0	3.6	0	0.072	0	51.7	0	1
2004	0.093	0	0	2.9	0	0.063	0	51.8	0	1
2005	0.058	0	0	2.5	0	0.066	0	46.4	0	0

D-O-S = Days Over Standard ppm = parts per million
ppb = parts per billion mg/m^3 = milligrams per cubic meter

Source: U.S. EPA and ARB, 2003 to 2005.

Table IV.D-5: Results from the San Francisco-Arkansas Street Ambient Air Quality Monitoring Station Exceeded Standards, 2003 to 2005, Maximum 8-Hour

	Ozone		Carbon Monoxide		Sulfur Dioxide		$PM_{2.5}$		
Year	Max. 8-Hour (ppm)	National D-O-S	Max. 8-Hour (ppm)	California D-O-S	Max. 24-Hour (ppm)	California D-O-S	Max. 24-Hour (mg/m^3)	National D-O-S	California D-O-S
2003	0.059	0	2.8	0	0.007	0	41.6	0	0
2004	0.059	0	2.2	0	0.006	0	45.8	0	0
2005	0.054	0	2.1	0	0.007	0	43.6	0	0

D-O-S = Days Over Standard ppm = parts per million mg/m^3 = milligrams per cubic meter

Source: U.S. EPA and ARB, 2003 to 2005.

(2) Vehicle Emissions. Long-term air emission impacts are those associated with changes in automobile travel within the City. Mobile source emissions would result from vehicle trips associated with increased vehicular travel. As is true throughout much of the U.S., motor vehicle use is projected to increase substantially in the region. The BAAQMD, local jurisdictions, and other parties responsible for protecting public health and welfare are continually seeking ways of minimizing the air quality impacts of growth and development in order to avoid further exceedances of the standards.

(3) Fugitive Dust. Fugitive dust emissions are generally associated with demolition, land clearing, exposure of soils to the air, and cut and fill operations. Dust generated during construction varies substantially on a project-by-project basis, depending on the level of activity, the specific operations and weather conditions.

The U.S. EPA has developed an approximate emission factor for construction-related emissions of total suspended particulate of 1.2 tons per acre per month of activity. This factor assumes a moderate activity level, moderate silt content in soils being disturbed and a semi-arid climate. The California Air Resources Board estimates that 64 percent of construction-related total suspended particulate emissions occur in the form of PM_{10}.

Therefore, the emission factors for uncontrolled construction-related PM_{10} emissions are:

- 0.77 tons per acre per month of PM_{10}; or

- 51 pounds per acre per day of PM_{10}.

However, construction emissions can vary greatly depending on the level of activity, the specific operations taking place, the equipment being operated, local soils, weather conditions, and other factors. There are a number of feasible control measures that can be reasonably implemented to significantly reduce PM_{10} emissions from construction. Rather than attempting to provide detailed quantification of anticipated construction emissions from projects, the BAAQMD suggests the following:

> "The determination of significance with respect to construction emissions should be based on a consideration of the control measures to be implemented. From the District's [BAAQMD] perspective, quantification of emissions is not necessary, although a lead agency may elect to do so. If all of the control measures indicated as appropriate, depending on the size of the project are implemented, then air pollution from emissions from construction activities would be considered a less-than-significant impact."[3]

(4) Odors. Odors are also an important element of local air quality conditions. Specific activities allowed within each of the major general plan land use categories can raise concerns on the part of nearby neighbors. Major sources of odors include restaurants, manufacturing plants, and agricultural operations. Odors associated with tidal changes may exist in the project area. While sources that generate objectionable odors must comply with air quality regulations, the public's sensitivity to locally produced odors often exceeds regulatory thresholds.

(5) Construction Equipment Exhaust. Construction activities cause combustion emissions from utility engines, heavy-duty construction vehicles, equipment hauling materials to and from construction sites and motor vehicles transporting construction crews. Exhaust emissions from construction activities vary daily as construction activity levels change. The use of construction equipment results in localized exhaust emissions.

2. Impacts and Mitigation Measures

This section evaluates potential impacts to air quality resulting from implementation of the proposed project. The evaluation of environmental effects presented in this section focuses on potential air quality impacts associated with consistency with air quality management plans, construction emissions, odors and development-related traffic emissions. Mitigation measures are proposed as necessary.

a. Criteria of Significance. The project would result in a significant air quality impact if it would:

Construction Impacts

- Create a substantial increase in localized concentrations of PM_{10} during construction-related activities.

Note that the BAAQMD does not consider construction impacts to be significant if the District's control measures for construction emissions for PM_{10} are implemented.

[3] Bay Area Air Quality Management District, 1966. *BAAQMD CEQA Guidelines Assessing the Air Quality Impacts of Projects and Plans*. April. (Amended in December 1999.)

Project Operation Impacts

- Violate the District's air quality standards or contribute substantially to an existing or projected air quality violation by:
  - Contributing to CO concentrations exceeding the State ambient air quality standards of 9 ppm averaged over 8 hours and 20 ppm for 1 hour; or
  - Generating criteria air pollutant emissions of ROG, NO_x, or PM_{10} in excess of 15 tons per year, or 80 pounds per day.
- Frequently expose members of the public to objectionable odors.
- Expose sensitive receptors (including residential areas) or the general public to toxic air contaminants in excess of the following thresholds:
  - Probability of contracting cancer for the Maximally Exposed Individual (MEI) exceeds 10 in one million; or
  - Ground-level concentrations of non-carcinogenic toxic air contaminants would result in a Hazard Index greater than 1 for the MEI.
- Result in a cumulative air quality impact. Projects that would individually have a significant air quality impact due to project operations would also result in a cumulative air quality impact. For projects that do not individually have significant operational air quality impacts, a cumulative impact would result if the project would cause the City's General Plan to conflict with the Clean Air Plan (CAP) or, if the City's General Plan is already inconsistent with the Clean Air Plan and the project would combine with other reasonably foreseeable future projects to either: 1) exceed the BAAQMD individual operational thresholds of significance, or 2) exceed the CAP population and vehicle miles traveled (VMT) assumptions for growth in the City or County.

Impacts from $PM_{2.5}$ emissions have not been analyzed quantitatively as there are no recommended significance thresholds from the BAAQMD. Also, the air quality models that are used to estimate emissions of ROG, NOx, CO and PM_{10} currently do not have the capability to estimate $PM_{2.5}$ separately. Therefore, impacts from $PM_{2.5}$ emissions (particularly the diesel particulate matter) have been analyzed qualitatively.

b. Less-than-Significant Impacts. A discussion of several less-than-significant impacts of the proposed project follows.

(1) Clean Air Plan (CAP) Consistency. The *Bay Area 2005 Ozone Attainment Plan* discussed above is the relevant regional air quality plan. The BAAQMD uses the CAP to evaluate a project's potential cumulative air quality impacts. The *BAAQMD CEQA Guidelines* state that "for any project that does not individually have significant operational air quality impacts, the determination of significant cumulative impacts should be based on an evaluation of the consistency of the project with the local general plan and the general plan with the regional air quality plan." The *BAAQMD CEQA Guidelines* present the following elements for evaluation of consistency between the General Plan and the CAP:

- General plan population projections are consistent with CAP and ABAG projections;
- Rate of increase in vehicle miles traveled (VMT) does not exceed rate of increase in population;

- General plan implements CAP transportation control measures; and
- General plan provides buffer zones around sources of odors, toxics and accidental releases.

The proposed project is consistent with the policy documents that regulate development on Sierra Point including the Brisbane General Plan, the Zoning Ordinance, Redevelopment Plan and the Design Guidelines and Master Plan for Sierra Point. Therefore, the proposed project is consistent with the Clean Air Plan.

Existing power supplies relied upon by the local electricity provider, Pacific Gas & Electric, would generally be sufficient to provide electricity to the proposed project, and no additional power plant would be required to serve the project's energy needs. Additionally, the power supply would be derived from various sources and connections, with much of the power supply coming from sources outside of the San Francisco Bay area. In addition, some of this power would be generated by hydroelectrical facilities that produce minimal air pollution.

(2) Odor Emissions. The project would not contain any major sources of odor, and with the exception of the generally inoffensive smell of the "salt air" of San Francisco Bay, would not be located in an area with existing odors. It therefore would not have the "potential to frequently expose members of the public to objectionable odors" and would be deemed to have a less-than-significant impact in terms of odors.

(3) Toxic Emissions. The implementation of the proposed project would not result in any new sources of toxic air contaminants, and the project land uses would not be located near any existing major sources of toxic air contaminants. The project would not have the potential to "expose sensitive receptors or the general public to substantial levels of toxic air contaminants" and would be deemed to have a less-than-significant impact in terms of toxic emissions.

(4) Operational Emissions – CO Analysis. Vehicular traffic associated with the proposed project would emit carbon monoxide (CO) into the air along roadway segments and near intersections. Because CO does not readily disperse, areas of vehicle congestion can create pockets of high CO concentrations, called "hot spots." Typically, high CO concentrations are associated with roadways or intersections operating at deficient levels of service (LOS) or with extremely high traffic volumes. Table IV.D-6 lists the 1-hour and 8-hour CO concentrations under the existing conditions at 10 intersections in the project area. Table IV.D-7 lists CO concentrations under the background and background conditions with the project at 10 intersections in the project area. Table IV-D-8 shows CO concentrations under the cumulative no project and cumulative with project conditions.

Based on the methodology suggested by the U.S. EPA and California Department of Transportation, the higher of the second highest CO concentrations monitored at the nearest air monitoring station in the past three years were used as the existing background CO concentrations. In this case, 2.6 ppm for the 1-hour period and 3.2 ppm for the 8-hour period measured at the San Francisco ambient air quality monitoring station were used. The traffic analysis prepared by Hexagon Transportation Consultants (August 2006) provided traffic data associated with the proposed project, which was used in the CALINE4 model.

Table IV.D-6 shows the 1-hour and 8-hour CO concentrations under existing conditions. Results of the modeling indicate existing 1-hour CO concentrations at intersections in the study area range from

4.1 ppm to 6.2 ppm, much lower than the State standard of 20 ppm and the federal standard of 35 ppm. The 8-hour CO levels range from 3.2 ppm to 4.6 ppm, also lower than the State and federal standards of 9 ppm.

Table IV.D-7 shows the 1-hour and 8-hour CO concentrations under background and background with project conditions. As described in Section IV.B., Transportation, Circulation and Parking, background conditions include the traffic from approved but not yet constructed development in the study area, planned and funded roadway improvements. Table IV.D-7 shows that all of the background with project 1-hour and 8-hour CO concentrations would below the federal and State CO standards. The 1-hour CO level ranges from 3.7 ppm to 6.5 ppm, much lower than the State standard of 20 ppm and the federal standard of 35 ppm. The 8-hour CO level ranges from 3.0 ppm to 4.9 ppm, also lower than the State and federal standards of 9 ppm.

Table IV.D-8 shows the 1-hour and 8-hour CO concentrations under cumulative plus project conditions. For the cumulative conditions plus the proposed project, the 1-hour CO level ranges from 3.5 ppm to 4.2 ppm, much lower than the State standard of 20 ppm and the federal standard of 35 ppm. The 8-hour CO level ranges from 2.7 ppm to 3.3 ppm, which is within the State standards of 9 ppm. Therefore, the proposed project would not lead to significant CO impacts, nor would the proposed project, in combination with other cumulative development, lead to CO concentrations that exceed federal or State standards.

(5) Operational Emissions – Long Term. Long-term air emission impacts would be those caused by changes in usage of the project site. Mobile source emissions would result from vehicle trips associated with the proposed project. The Urban Emission Model (URBEMIS 2002) computer program, which is the most current air quality model available in California for estimating emissions associated with land use development projects, was used to calculate long-term mobile source emissions associated with the proposed project. Increases in long-term stationary emissions from natural gas, electricity and back-up generator use within the project site are expected to be negligible when compared with mobile source emissions. Therefore, these emissions were not included in the calculation.

Table IV.D-6: Existing CO Concentrations[a]

Intersection	Receptor Distance to Road Centerline (Meters)	Existing 1-Hour CO Concentration (ppm)	Existing 8-Hour CO Concentration (ppm)	Exceeds State Standards	
				1-Hr	8-Hr
Bayshore Blvd & Oyster Point	21	5.8	4.3	No	No
	21	5.6	4.2	No	No
	19	5.3	4.0	No	No
	17	5.3	4.0	No	No
Congdon St & Alemany Blvd	17	5.6	4.2	No	No
	14	5.5	4.1	No	No
	14	5.4	4.1	No	No
	12	5.4	4.1	No	No
Alemany Blvd & Geneva Ave	21	6.0	4.5	No	No
	21	5.8	4.3	No	No
	14	5.7	4.3	No	No
	14	5.7	4.3	No	No
Mission St & Geneva Ave	14	6.2	4.6	No	No
	14	5.9	4.4	No	No
	14	5.8	4.3	No	No
	14	5.7	4.3	No	No
Bayshore Blvd & Geneva Ave	21	5.7	4.3	No	No
	17	5.4	4.1	No	No
	17	5.3	4.0	No	No
	17	5.3	4.0	No	No
Bayshore Blvd & Old Country Rd	17	5.3	4.0	No	No
	17	5.3	4.0	No	No
	15	5.2	3.9	No	No
	15	5.1	3.9	No	No
Tunnel Ave & Lagoon Way	26	4.3	3.3	No	No
	8	4.3	3.3	No	No
	8	4.2	3.2	No	No
	7	4.1	3.2	No	No
Sierra Point Pkwy & Lagoon Way	12	4.7	3.6	No	No
	12	4.6	3.5	No	No
	12	4.6	3.5	No	No
	12	4.5	3.4	No	No
US 101 N & Sierra Point Pkwy	12	5.5	4.1	No	No
	10	5.3	4.0	No	No
	10	5.3	4.0	No	No
	10	4.7	3.6	No	No
Shoreline Court & Sierra Point Pkwy	17	4.7	3.6	No	No
	15	4.6	3.5	No	No
	15	4.6	3.5	No	No
	15	4.6	3.5	No	No

[a] Per suggested U.S. EPA methodology, the existing CO concentrations include predicted concentrations of CO for existing traffic conditions at study intersections plus the ambient 1-hour concentration of 3.2 ppm and ambient 8-hour concentration of 2.6 ppm as measured at the San Francisco - Arkansas Street Monitoring Station.

Source: LSA Associates, Inc., 2006.

Table IV.D-7: Background CO Concentrations With and Without the Project[a]

Intersection	Receptor Distance to Road Centerline (Meters)	Project Related Increase 1-hr/8-hr (ppm)	Without/ With Project One-Hour CO Concentration (ppm)	Without/ With Project Eight-Hour CO Concentration (ppm)	Exceeds State Standards	
					1-Hr	8-Hr
Bayshore Blvd & Oyster Point	21 / 21	0.1 / 0.1	6.4 / 6.5	4.8 / 4.9	No	No
	21 / 21	-0.2 / -0.1	6.2 / 6.0	4.7 / 4.6	No	No
	19 / 19	-0.1 / 0.0	6.1 / 6.0	4.6 / 4.6	No	No
	17 / 17	-0.1 / -0.1	5.9 / 5.8	4.5 / 4.4	No	No
Congdon St & Alemany Blvd	17 / 17	0.0 / 0.0	5.3 / 5.3	4.1 / 4.1	No	No
	14 / 14	0.0 / 0.0	5.1 / 5.1	3.9 / 3.9	No	No
	14 / 14	0.0 / 0.0	5.0 / 5.0	3.9 / 3.9	No	No
	12 / 12	0.0 / 0.0	5.0 / 5.0	3.9 / 3.9	No	No
Alemany Blvd & Geneva Ave	17 / 14	0.1 / 0.0	5.3 / 5.4	4.1 / 4.1	No	No
	16 / 14	0.1 / 0.0	5.3 / 5.4	4.1 / 4.1	No	No
	14 / 14	0.1 / 0.0	5.3 / 5.4	4.1 / 4.1	No	No
	14 / 14	0.1 / 0.1	5.2 / 5.3	4.0 / 4.1	No	No
Mission St & Geneva Ave	14 / 14	0.0 / 0.0	5.8 / 5.8	4.4 / 4.4	No	No
	14 / 14	0.0 / 0.0	5.5 / 5.5	4.2 / 4.2	No	No
	14 / 14	0.0 / 0.0	5.4 / 5.4	4.1 / 4.1	No	No
	14 / 14	0.0 / 0.0	5.3 / 5.3	4.1 / 4.1	No	No
Bayshore Blvd & Geneva Ave	21 / 21	0.2 / 0.1	6.0 / 6.2	4.6 / 4.7	No	No
	17 / 17	0.3 / 0.2	5.6 / 5.9	4.3 / 4.5	No	No
	17 / 17	0.3 / 0.3	5.4 / 5.7	4.1 / 4.4	No	No
	17 / 7	0.1 / 0.1	5.4 / 5.5	4.1 / 4.2	No	No
Bayshore Blvd & Old Country Rd	17 / 17	0.0 / 0.0	5.2 / 5.2	4.0 / 4.0	No	No
	17 / 17	0.1 / 0.1	5.1 / 5.2	3.9 / 4.0	No	No
	15 / 15	0.0 / 0.0	5.1 / 5.1	3.9 / 3.9	No	No
	15 / 15	0.0 / 0.0	5.0 / 5.0	3.9 / 3.9	No	No
Tunnel Ave & Lagoon Way	26 / 26	0.3 / 0.2	3.9 / 4.2	3.1 / 3.3	No	No
	8 / 8	0.2 / 0.1	3.9 / 4.1	3.1 / 3.2	No	No
	8 / 8	0.2 / 0.2	3.8 / 4.0	3.0 / 3.2	No	No
	7 / 7	0.2 / 0.1	3.7 / 3.9	3.0 / 3.1	No	No
Sierra Point Pkwy & Lagoon Way	12 / 12	0.7 / 0.5	4.3 / 5.0	3.4 / 3.9	No	No
	12 / 12	0.6 / 0.4	4.2 / 4.8	3.3 / 3.7	No	No
	12 / 12	0.5 / 0.4	4.2 / 4.7	3.3 / 3.7	No	No
	12 / 10	0.4 / 0.3	4.1 / 4.5	3.2 / 3.5	No	No
US 101 N & Sierra Point Pkwy	12 / 12	1.1 / 0.8	5.1 / 6.2	3.9 / 4.7	No	No
	10 / 10	1.0 / 0.7	4.9 / 5.9	3.8 / 4.5	No	No
	10 / 10	1.0 / 0.7	4.9 / 5.9	3.8 / 4.5	No	No
	10 / 10	1.0 / 0.7	4.3 / 5.3	3.4 / 4.1	No	No
Shoreline Court & Sierra Point Pkwy	17 / 17	0.9 / 0.6	4.3 / 5.2	3.4 / 4.0	No	No
	15 / 15	1.0 / 0.7	4.2 / 5.2	3.3 / 4.0	No	No
	15 / 15	0.9 / 0.6	4.2 / 5.1	3.3 / 3.9	No	No
	15 / 15	0.5 / 0.4	4.2 / 4.7	3.3 / 3.7	No	No

[a] Includes predicted concentrations of CO for background traffic conditions with and without the project at study intersections plus the ambient 1-hour concentration of 3.2 ppm and ambient 8-hour concentration of 2.6 ppm as measured at the San Francisco - Arkansas Street Monitoring Station.

Source: LSA Associates, Inc., 2006.

Table IV-D-8: Cumulative CO Concentrations With and Without the Project[a]

Intersection	Receptor Distance to Road Centerline (Meters)	Project Related Increase 1-hr/8-hr (ppm)	Without/ With Project 1-Hour CO Concentration (ppm)	Without/ With Project 8-Hour CO Concentration (ppm)	Exceeds State Standards	
					1-Hr	8-Hr
Bayshore Blvd & Oyster Point	21 / 21	0.0 / 0.0	3.7 / 3.7	3.0 / 3.0	No	No
	21 / 21	0.0 / 0.0	3.7 / 3.7	3.0 / 3.0	No	No
	19 / 19	0.0 / 0.0	3.6 / 3.6	2.9 / 2.9	No	No
	17 / 17	0.0 / 0.0	3.6 / 3.6	2.9 / 2.9	No	No
Congdon St & Alemany Blvd	17 / 17	0.0 / 0.0	3.5 / 3.5	2.8 / 2.8	No	No
	17 / 17	0.0 / 0.0	3.5 / 3.5	2.8 / 2.8	No	No
	17 / 17	0.0 / 0.0	3.5 / 3.5	2.8 / 2.8	No	No
	17 / 17	0.0 / 0.0	3.5 / 3.5	2.8 / 2.8	No	No
Alemany Blvd & Geneva Ave	21 / 14	0.0 / 0.0	3.8 / 3.8	3.0 / 3.0	No	No
	14 / 14	0.1 / 0.0	3.7 / 3.8	3.0 / 3.0	No	No
	14 / 14	0.0 / 0.0	3.7 / 3.7	3.0 / 3.0	No	No
	14 / 14	0.0 / 0.0	3.7 / 3.7	3.0 / 3.0	No	No
Mission St & Geneva Ave	14 / 14	0.0 / 0.0	4.2 / 4.2	3.3 / 3.3	No	No
	14 / 14	0.0 / 0.0	4.1 / 4.1	3.2 / 3.2	No	No
	14 / 14	0.0 / 0.0	4.1 / 4.1	3.2 / 3.2	No	No
	14 / 14	0.0 / 0.0	4.0 / 4.0	3.2 / 3.2	No	No
Bayshore Blvd & Geneva Ave	21 / 21	0.0 / 0.0	4.1 / 4.1	3.2 / 3.2	No	No
	17 / 17	0.0 / 0.0	4.0 / 4.0	3.2 / 3.2	No	No
	17 / 17	0.0 / 0.0	4.0 / 4.0	3.2 / 3.2	No	No
	17 / 17	0.0 / 0.0	3.9 / 3.9	3.1 / 3.1	No	No
Bayshore Blvd & Old Country Rd	17 / 17	0.0 / 0.0	3.8 / 3.8	3.0 / 3.0	No	No
	17 / 17	0.0 / 0.0	3.7 / 3.7	3.0 / 3.0	No	No
	17 / 17	0.0 / 0.0	3.7 / 3.7	3.0 / 3.0	No	No
	15 / 15	0.0 / 0.0	3.6 / 3.6	2.9 / 2.9	No	No
Tunnel Ave & Lagoon Way	26 / 26	0.0 / 0.0	3.4 / 3.4	2.7 / 2.7	No	No
	26 / 26	0.0 / 0.0	3.4 / 3.4	2.7 / 2.7	No	No
	8 / 8	0.0 / 0.0	3.4 / 3.4	2.7 / 2.7	No	No
	8 / 8	0.0 / 0.0	3.4 / 3.4	2.7 / 2.7	No	No
Sierra Point Pkwy & Lagoon Way	12 / 12	0.0 / 0.0	3.6 / 3.6	2.9 / 2.9	No	No
	12 / 12	0.1 / 0.1	3.5 / 3.6	2.8 / 2.9	No	No
	12 / 12	0.1 / 0.1	3.5 / 3.6	2.8 / 2.9	No	No
	10 / 10	0.1 / 0.1	3.5 / 3.6	2.8 / 2.9	No	No
US 101 N & Sierra Point Pkwy	12 / 12	0.2 / 0.2	3.4 / 3.6	2.7 / 2.9	No	No
	12 / 10	0.1 / 0.1	3.4 / 3.5	2.7 / 2.8	No	No
	10 / 10	0.1 / 0.1	3.4 / 3.5	2.7 / 2.8	No	No
	10 / 10	0.1 / 0.1	3.4 / 3.5	2.7 / 2.8	No	No
Shoreline Court & Sierra Point Pkwy	17 / 17	0.3 / 0.3	3.4 / 3.7	2.7 / 3.0	No	No
	17 / 15	0.3 / 0.3	3.4 / 3.7	2.7 / 3.0	No	No
	15 / 15	0.2 / 0.2	3.4 / 3.6	2.7 / 2.9	No	No
	15 / 15	0.1 / 0.1	3.4 / 3.5	2.7 / 2.8	No	No

[a] Includes predicted concentrations of CO for future traffic conditions with and without the project at study intersections plus the ambient 1-hour concentration of 3.2 ppm and ambient 8-hour concentration of 2.6 ppm as measured at the San Francisco - Arkansas Street Monitoring Station.

Source: LSA Associates, Inc., 2006.

The daily emission increase associated with project operational trip generation is identified in Table IV.D-9 for reactive organic gases (ROG) and nitrogen oxides (NO_x) (two precursors of ozone) and coarse particle matter (PM_{10}). The BAAQMD has established thresholds of significance for ozone precursors and fugitive dust of 80 pounds per day. Proposed project emissions shown in Table IV.D-9 would not exceed these thresholds of significance for ROG, NO_x, or PM_{10}, and therefore, the proposed project would not have a significant effect on regional air quality.

Table IV.D-9: Project Regional Emissions in Pounds Per Day

	Reactive Organic Gases	Nitrogen Oxides	PM_{10}
Regional Emissions	62.96	68.23	65.55
BAAQMD Significance Threshold	80.0	80.0	80.0
Exceed?	No	No	No

Source: LSA Associates, Inc., 2006.

c. Significant Impacts. The proposed project would result in the following significant impact related to air quality as described below.

Impact AIR-1: Construction period activities could generate significant dust, exhaust, and organic emissions. (S)

Development of the proposed project would require excavation of soil and other existing infrastructure improvements which are construction activities with a high potential for creating air pollutants. Construction dust would continue to affect local air quality during construction of the project. Construction activities would generate exhaust emissions from vehicles/equipment and fugitive particulate matter emissions that would affect local air quality.

Construction activities are also a source of organic gas emissions. Solvents in adhesives, non-water-base paints, thinners, some insulating materials and caulking materials would evaporate into the atmosphere and would participate in the photochemical reaction that creates urban ozone. Asphalt used in paving is also a source of organic gases for a short time after its application.

The effects of construction activities would be increased dustfall and locally elevated levels of PM_{10} downwind of construction activity. Construction dust could be generated at levels that would create an annoyance to nearby properties, including the Brisbane Marina.

The BAAQMD has identified a set of feasible construction PM_{10} control measures for construction activities. Implementation of the following controls would reduce construction emissions to less than significant levels.

Mitigation Measure AIR-1: Consistent with guidance from the BAAQMD, the following actions shall be required of construction contracts and specifications for the project.

Construction. The following controls shall be implemented at all construction sites:

- Water all active construction areas at least twice daily and more often during windy periods; active areas adjacent to existing land uses shall be kept damp at all times, or shall be treated with non-toxic stabilizers to control dust;
- Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least 2 feet of freeboard;

- Pave, apply water three times daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas, and staging areas at construction sites;
- Sweep daily (with water sweepers) all paved access roads, parking areas, and staging areas at construction sites; water sweepers shall vacuum up excess water to avoid runoff-related impacts to water quality;
- Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets;
- Apply non-toxic soil stabilizers to inactive construction areas;
- Enclose, cover, water twice daily, or apply non-toxic soil binders to exposed stockpiles (dirt, sand, etc.);
- Limit traffic speeds on unpaved roads to 15 mph;
- Install sandbags or other erosion control measures to prevent silt runoff to public roadways;
- Replant vegetation in disturbed areas as quickly as possible.
- Install base rock at entryways for all exiting trucks, and wash off the tires or tracks of all trucks and equipment in designated areas before leaving the site; and
- Suspend excavation and grading activity when sustained wind speeds exceed 25 mph.

Implementation of this mitigation measure would reduce construction period air quality impacts to a less-than-significant level. (LTS)

d. Projects, Criteria Pollutants and Public Health. Despite great progress in air quality improvement, approximately 146 million people nationwide lived in counties with pollution levels above the NAAQS in 2002. Out of the 230 nonattainment areas identified during the 1990 Clean Air Act Amendment designation process, 124 areas remain as nonattainment today. In these nonattainment areas, however, the severity of air pollution episodes has decreased. Air quality in the San Francisco Bay Area Air Basin in the past 20 years has improved steadily and dramatically, even with the tremendous increase in population and vehicles and other sources.

As shown in Table IV.D-2, long-term exposure to elevated levels of criteria pollutants could result in potential health effects. However, as stated in the thresholds of significance, emission thresholds established by the air district are used to manage total regional emissions within an air basin, based on the air basin attainment status for criteria pollutants. These emission thresholds were established for individual projects that would contribute to regional emissions and pollutant concentrations that may affect or delay the projected attainment target year for certain criteria pollutants.

Because of the conservative nature of the thresholds and the basin-wide context of individual project emissions, there is no direct correlation of a single project to localized health effects. One individual project does not necessarily result in adverse health effects for residents in the project vicinity. This condition is especially true when the criteria pollutants exceeding thresholds are those with regional effects, such as ozone precursors like NOx and ROG.

As shown in Table IV.D-9, emissions generated by the proposed project would not generate regional emissions in excess of significance standards established by the BAAQMD. Additionally, based on

the above discussion, the potential for an individual project to significantly deteriorate regional air quality or contribute to significant health risk is small. Because of the overall improvement trend on air quality in the air basin, it is unlikely the regional air quality or health risk would worsen from the current condition due to emissions from an individual project.

E. NOISE

This section describes the general characteristics of sound and the categories of audible noise. The regulatory framework related to noise issues at the City, State and federal levels is then described. Lastly, potential noise impacts associated with the project are evaluated, and mitigation measures are recommended as necessary.

1. Setting

This section describes the characteristics of sound, the federal, State and City regulations related to noise, and the existing noise sources in and adjacent to the project area.

a. Characteristics of Sound. To the human ear, sound has two significant characteristics: pitch and loudness. A specific pitch can be an annoyance, while loudness can affect our ability to hear. Pitch is the number of complete vibrations or cycles per second of a wave that results in the range of tone from high to low. Loudness is the strength of a sound that describes a noisy or quiet environment, and it is measured by the amplitude of the sound wave. Loudness is determined by the intensity of the sound waves combined with the reception characteristics of the human ear. Sound intensity refers to how hard the sound wave strikes an object, which in turn produces the sound's effect. This characteristic of sound can be precisely measured with instruments.

Noise is usually defined as unwanted sound. Noise consists of any sound that may produce physiological or psychological damage and/or interfere with communication, work, rest, recreation or sleep.

Several noise measurement scales exist which are used to describe noise in a particular location. A *decibel* (dB) is a unit of measurement which indicates the relative intensity of a sound. The 0 point on the dB scale is based on the lowest sound level that the healthy, unimpaired human ear can detect. Changes of 3 dB or less are only perceptible in laboratory environments. Audible increases in noise levels generally refer to a change of 3 dB or more, as this level has been found to be barely perceptible to the human ear in outdoor environments. Sound levels in dB are calculated on a logarithmic basis. An increase of 10 dB represents a 10-fold increase in acoustic energy, while 20 dB is 100 times more intense, 30 dB is 1,000 times more intense. Each 10-dB increase in sound level is perceived as approximately a doubling of loudness. Sound intensity is normally measured through the *A-weighted sound level* (dBA). This scale gives greater weight to the frequencies of sound to which the human ear is most sensitive. Table V.E-1 shows representative outdoor and indoor noise levels in units of dBA.

As noise spreads from a source, it loses energy so that the farther away the noise receiver is from the noise source, the lower the perceived noise level would be. Geometric spreading causes the sound level to attenuate or be reduced, resulting in a 6-dB reduction in the noise level for each doubling of distance from a single point source of noise to the noise sensitive receptor of concern.

Table IV.E-1: Typical A-Weighted Sound Levels

Noise Source	A-Weighted Sound Level in Decibels	Noise Environments	Subjective Evaluations
Near Jet Engine	140	Deafening	128 times as loud
Civil Defense Siren	130	Threshold of Pain	64 times as loud
Hard Rock Band	120	Threshold of Feeling	32 times as loud
Accelerating Motorcycle at a few feet away	110	Very Loud	16 times as loud
Pile Driver; Noisy Urban Street/Heavy City Traffic	100	Very Loud	8 times as loud
Ambulance Siren; Food Blender	95	Very Loud	
Garbage Disposal	90	Very Loud	4 times as loud
Freight Cars; Living Room Music	85	Loud	
Pneumatic Drill; Vacuum Cleaner	80	Loud	2 times as loud
Busy Restaurant	75	Moderately Loud	
Near Freeway Auto Traffic	70	Moderately Loud	Reference Level
Average Office	60	Moderate	1/2 as loud
Suburban Street	55	Moderate	
Light Traffic; Soft Radio Music in Apartment	50	Quiet	1/4 as loud
Large Transformer	45	Quiet	
Average Residence Without Stereo Playing	40	Faint	1/8 as loud
Soft Whisper	30	Faint	
Rustling Leaves	20	Very Faint	
Human Breathing	10	Very Faint	Threshold of Hearing

Source: Compiled by LSA Associates, Inc., 2004.

b. Fundamentals of Noise. Based on the adverse effects of noise, the federal government, the State of California, and many local governments have established maximum allowed noise levels to protect public health and safety and to prevent disruption of certain activities.

Various noise measurements are used to assess the level and the annoyance potential of community noise such as that generated by aircraft activity and arterial traffic. They include:

(1) A-Weighted Sound Level (dBA). The A-weighted sound pressure level is commonly abbreviated dBA. The dB refers to a measurement in decibels. The "A" identifies a particular setting of the measurement instrument, the sound level meter. The A-weighted sound level provides a scale with the range and characteristics most consistent with human hearing ability. The dBA measures sound over a period of time, typically 1 hour, to identify the minimum and maximum levels and the statistical variation of fluctuating sounds.

(2) Continuous Equivalent (Average) Noise Level (L_{eq}). The continuous equivalent (average) noise level is an energy equivalent level of fluctuating noise for a measured time period. Data from this measurement are applied to the 24-hour measurement of noise.

(3) Community Noise Equivalent Noise Level (CNEL) or Day-Night Sound Level (L_{dn}). A given level of noise may be more or less tolerable depending on the time of day and duration of exposure experienced by an individual. The U.S. Department of Housing and Urban Development (HUD) and the Environmental Protection Agency (EPA) have adopted the L_{dn} as their standard unit

of measurement for noise levels. This measure increases the average noise level (L_{eq}) for late evening and early morning hours (10:00 p.m. to 7:00 a.m.) by 10 dBA. The daytime noise levels (7:01 a.m. to 9:59 p.m.) are then combined with these weighted levels and are averaged to obtain a 24-hour averaged noise level. A similar noise scale, the CNEL, which weights noise events in the late evening through early morning (as done for the L_{dn}), as well as noise events occurring between 7:00 p.m. and 10:00 p.m. (increasing them by 5 dBA), is also widely used by jurisdictions concerned with noise. These two noise scales are considered interchangeable in general (if not mathematically).

Noise levels that are less than 40 dBA CNEL/L_{dn} are not considered significant. This threshold is commonly used to assess noise impacts in environmental impact documents. In addition, generally established regulatory standards throughout California do not typically address noise levels that are less than 40 dBA. However, even low levels of noise can be annoying to people when concurrent background noise is very low.

c. Noise Regulatory Framework. The following section provides brief discussions of the federal, State, County and City regulatory framework related to noise.

(1) U.S. Environmental Protection Agency (EPA). In 1972 Congress enacted the Noise Control Act. This act authorized the EPA to publish descriptive data on the effects of noise and establish levels of sound "requisite to protect the public welfare with an adequate margin of safety." These levels are separated into health (hearing loss levels) and welfare (annoyance levels) as shown in Table IV.E-2. The EPA cautions that these identified levels are not standards because they do not take into account the cost or feasibility of the levels. For protection against hearing loss, 96 percent of the population would be protected if sound levels are less than or equal to a $L_{eq}(24)$ of 70 dBA. The "(24)" signifies a L_{eq} duration of 24 hours. The EPA activity and interference guidelines are designed to ensure reliable speech communication at about 5 feet in the outdoor environment. For outdoor and indoor environments, interference with activity and annoyance should not occur if levels do not exceed 55 dBA and 45 dBA, respectively.

The noise effects associated with an outdoor L_{dn} of 55 dBA are summarized in Table IV.E-3. At 55 dBA L_{dn}, 95 percent sentence clarity (intelligibility) may be expected at 3.5 meters, and no community reaction would result. However, 1 percent of the population may complain about noise at this level and 17 percent may indicate annoyance.

(2) State of California. The State of California has established regulations that help prevent adverse impacts to occupants of buildings located near noise sources. Referred to as the "State Noise Insulation Standard," it requires buildings to meet performance standards through design or building materials that would offset any noise source in the vicinity of the receptor. State regulations 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 found in the California Code of Regulations, Title 24 (known as the Building Standards Administrative Code), Part 2 (known as the California Building Code), Appendix Chapters 12 and 12A. In order to limit 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.

Table IV.E-2: Summary of EPA Noise Levels for Protection of Public Health and Welfare with an Adequate Margin of Safety

Effect	Level	Area
Hearing loss	70 dBA $L_{eq}(24)$	All areas
Outdoor activity interference and annoyance	55 dBA L_{dn}	Outdoors in residential areas and farms and other outdoor areas where people spend wildly varying amounts of time and other places in which quiet is a basis for use.
	55 dBA $L_{eq}(24)$	Outdoor areas where people spend limited amounts of time, such as school yards, playgrounds, etc.
Indoor activity interference and annoyance	45 dBA L_{eq}	Indoor residential areas.
	45 dBA $L_{eq}(24)$	Other indoor areas with human activities such as schools, etc.

Source: U.S. Environmental Protection Agency, 1974. "Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety." March.

Table IV.E-3: Summary of Human Effects in Areas Exposed to 55 dBA L_{dn}

Type of Effects	Magnitude of Effect
Speech – Indoors	100 percent sentence intelligibility (average) with a 5 dBA margin of safety.
Speech – Outdoors	100 percent sentence intelligibility (average) at 0.35 meters. 99 percent sentence intelligibility (average) at 1.0 meters. 95 percent sentence intelligibility (average) at 3.5 meters.
Average Community Reaction	None evident; 7 dBA below level of significant complaints and threats of legal action and at least 16 dBA below "vigorous action."
Complaints	1 percent dependent on attitude and other non-level related factors.
Annoyance	17 percent dependent on attitude and other non-level related factors.
Attitude Towards Area	Noise essentially the least important of various factors.

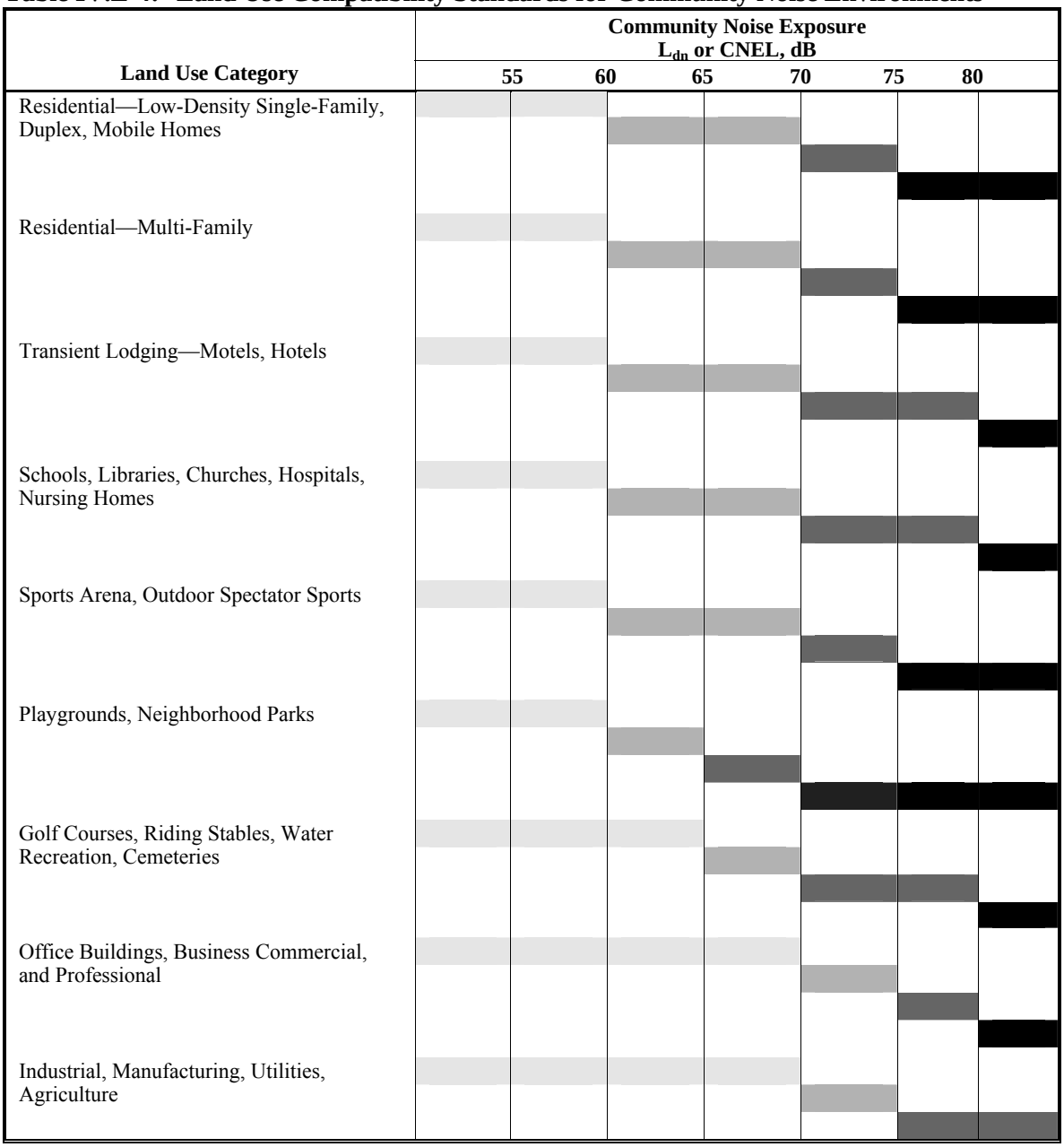
Source: U.S. Environmental Protection Agency, 1974. "Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety." March.

In order to limit noise from exterior noise sources, the noise insulation standards set an interior standard of 45 dBA CNEL in any habitable room with all doors and windows closed. In addition, the standards require preparation of an acoustical analysis demonstrating the manner in which dwelling units have been designed to meet this interior standard, where such units are proposed in area with exterior noise levels greater than 60 dBA CNEL.

The State has also established land use compatibility guidelines for determining acceptable noise levels for specified land uses, as shown in Table IV.E-4 below.[1] This bar chart also recommends steps to be taken if one of the specified land uses (e.g., a school or church) is proposed for an area exposed to a high noise level (e.g., >85 dBA): "Clearly unacceptable. New construction or development should generally not be undertaken."

[1] State of California, Governor's Office of Planning and Research, *General Plan Guidelines, 1998* (Appendix A, Figure 2).

Table IV.E-4: Land Use Compatibility Standards for Community Noise Environments



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 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 requirements must be made and needed noise insulation features included in the design.

CLEARLY UNACCEPTABLE
New construction or development clearly should not be undertaken.

Source: Modified from State of California General Plan Guidelines, October 2003.

(3) City Of Brisbane. The City of Brisbane General Plan Community Health and Safety Element identifies overflight noise from the San Francisco International Airport as the primary source of irritation for residents and businesses. The following policies from the Community Health and Safety Element are intended to protect the community from exposure to excessive noise:

Policy 179: Require the incorporation, when feasible, of new road or landscaping features that buffer traffic 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 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 impact 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 a noise attenuation or a mitigation program to be submitted as a part of the project design.

Policy 189: In the Municipal Code, continue to restrict noise-producing construction activities to daytime hours of operation.

The City's Municipal Code Chapter 8.28, Noise Control,[2] provides the following regulations that are applicable to the proposed project:

- No person shall cause, produce, suffer or allow to be produced by any machine, animal or device or any combination of same, in any commercial or industrial zoning district, a noise level more than ten (10) dB above the local ambient to any receiver for a cumulative period of more than fifteen (15) minutes in any hour, or a noise level more than twenty (20) dB above the local ambient to any receiver for a cumulative period of more than three (3) minutes in any hour. (8.28.040)
- Except as set forth in Section 8.28.050A, notwithstanding any other provision of this chapter, construction shall be allowed only between the hours of seven (7:00) a.m. and seven (7:00) p.m. on weekdays and nine (9:00) a.m. to seven (7:00) p.m. on weekends and holidays. Construction, alteration or repair activities which are authorized by a valid city permit shall be allowed if they meet at least one of the following noise limitations:

  A. No individual piece of equipment shall produce a noise level exceeding eighty-three (83) dBA at a distance of twenty-five (25) feet from the source thereof. If the device or other source is housed within a structure on the property, the measurement shall be made outside the structure, but at a distance as close to the equipment or source as possible.

  B. The noise level at any point outside of the property line of the project shall not exceed eighty-six (86) dBA. (8.28.060)
- Exception permits. If the applicant demonstrates to the satisfaction of the planning director that immediate compliance with the requirements of this chapter would be impractical or unreasonable, the planning director may issue a permit to allow exception from any or all of the provisions contained in this chapter,

[2] City of Brisbane Municipal Code. Chapter 8.28. Noise Control.

with appropriate conditions to minimize the public detriment caused by such exceptions. Any such permit shall be of as short duration as possible and shall be conditioned by a schedule for compliance and details of methods thereof in appropriate cases.

(4) San Mateo County Comprehensive Airport Land Use Plan. The San Mateo County Comprehensive Airport Land Use Plan (CLUP) is a tool used by airport land use commissions to fulfill their purpose of promoting airport/land use compatibility.[3] The purpose of the CLUP is to provide for the orderly growth of each public airport and surrounding area and to safeguard the general welfare of the inhabitants within the vicinity of the airport and the public in general, including reducing aircraft noise impacts.[4] The San Francisco International Airport is within the jurisdiction of the San Mateo County CLUP and applies to geographic areas near airports.

d. Sensitive Land Uses in the Project Vicinity. Land uses surrounding the project site consist of retail buildings, light industrial buildings, the Brisbane Marina and the Bay Trail. Hotels are located approximately 200 feet to the west of the project site and the office and commercial buildings are located 150 feet north to 400 feet northwest of the site.

e. Existing Noise Environment. The project site is located in an urban area and is, therefore influenced by several surrounding noise sources. Primary noise sources that affect the background noise level of the area include the flyover activity from the San Francisco International Airport, vehicle traffic on U.S. Highway 101, Shoreline Court and Sierra Point Parkway.

(1) Existing Ambient Noise Environment. An LSA noise technician conducted ambient noise monitoring on the proposed project site between the hours of 10:00 a.m. and 2:00 p.m. on Tuesday June 13, 2006. The purpose of this noise monitoring was to document the existing noise environment and capture the noise levels associated with traffic and airplane activity in the project vicinity. The noise measurements were collected and compiled for a period of 15 to 30 minutes at each location. A summary of the monitoring results is shown in Table IV.E-5. Figure IV.E-1 shows the noise monitoring locations. Measured noise levels on the project site are in the range of 57.8 dBA L_{eq} to 62.2 dBA L_{eq} with peak noise (L_{max}) primarily occurring due to airplane overflights.

Table IV.E-5: Noise Monitoring Results

Site Location	L_{eq}	L_{max}	L_{min}	L_2	L_8	L_{25}	L_{50}
1	58.3	71.5	48.5	68.5	61.8	56.0	53.0
2	59.3	76.0	49.0	68.3	63.5	56.8	53.7
3	57.8	77.4	50.5	63.5	60.2	56.5	54.0
4	62.2	74.9	56.9	65.7	63.7	62.5	61.3

Source: LSA Associates, Inc., 2006.

[3] California Public Utilities Code Section 21675(a).

[4] City/County Association of Governments of San Mateo County (C/CAG), 1996. San Mateo County Comprehensive Airport Land Use Plan, 1996. Adopted November 14, 1996.

LSA

LEGEND

3 NOISE MONITORING LOCATIONS

PROJECT SITE

N

0 275 550

FEET

FIGURE IV.E-1

Sierra Point Biotech Project EIR

Noise Monitoring Locations

SOURCE: GLOBEXPLORER, 2005.

I:\BRI0601 sierra point\figures\Fig_IVE1.ai (06/13/06)

(2) Existing Traffic Noise Levels. Existing traffic noise levels were calculated using the Federal Highway Administration (FHWA) Highway Traffic Noise Prediction Model. Traffic data used in the model were obtained from the traffic impact analysis prepared by Hexagon Transportation Consultants, Inc. (August 2006). Table V.E-6 lists the calculated traffic noise levels in the project study area under the existing (2006) conditions. Traffic noise in the project vicinity is generally moderate. Peak traffic noise occurs on Bayshore Boulevard. between Main Street and Sunnydale Avenue and also Bayshore Boulevard between Old Country Road and San Bruno Avenue where traffic noise exceeds 65 dBA CNEL at 50 feet from the centerline of the outermost lane. The traffic noise model printouts are included in Appendix E of this EIR.

(3) Existing Aircraft Noise Levels. The project site is located approximately 3.25 miles north of the San Francisco International Airport. Based on the CLUP, the western portion of the project site is within the 65 CNEL aircraft noise contour and the eastern portion of the site (Building D and Building E) falls within the 70 CNEL to 75 CNEL aircraft noise contour for the airport.[5] Noise levels of up to 70 dBA CNEL are considered acceptable of office and commercial land uses. Noise levels between 70 dBA CNEL to 75 dBA CNEL are considered "conditionally acceptable" for office uses.

(4) Existing Rail Noise Levels. The rail line used for commuter trains is located approximately 700 feet west of the project site. Due to the distance of the site from the tracks, rail noise is not a dominant source of noise on the project site.

2. Impacts and Mitigation Measures

This section evaluates potential noise impacts associated with the proposed project and identifies mitigation measures to address those impacts, as appropriate.

a. Criteria of Significance. The proposed project would result in a significant noise impact if it would:

- Expose persons to or generate noise levels in excess of normally acceptable standards established in the General Plan and City's Noise Ordinance;
- Expose persons to or generate excessive groundborne vibration or noise; or
- Result in a substantial permanent increase in ambient noise levels affecting sensitive noise receptors in the project vicinity by over 3 dBA above existing levels without the project.

b. Less-Than-Significant Noise Impacts. Less-than-significant impacts of the proposed project are discussed below.

(1) Operational Noise. The proposed project would not generate significant operational noise. The research and development uses proposed for the site would take place within the project's buildings and no unusual mechanical equipment or noise generating facilities are planned. The project would include an auxiliary power generator, located in enclosed rooms for each proposed building. Neither the periodic testing, nor infrequent use of generators would cause a significant impact.

[5] City/County Association of Governments of San Mateo County (C/CAG), 1996. San Mateo County Comprehensive Airport Land Use Plan, 1996. Adopted November 14, 1996.

Table IV.E-6: Existing Traffic Noise Levels

Roadway Segment	ADT	Centerline to 70 CNEL (Feet)	Centerline to 65 CNEL (Feet)	Centerline to 60 CNEL (Feet)	CNEL (dBA) 50 Feet from Centerline of Outermost Lane
Sierra Pt. Parkway (East of Shoreline Ct.)	2,900	< 50	< 50	79	59.3
Sierra Pt. Parkway (101 NB off/on-ramp to Shoreline Ct.)	10,600	< 50	85	170	64.9
Marina Blvd. (Shoreline Ct. to Sierra Pt. Parkway)	4,300	< 50	< 50	92	62.9
Shoreline Ct. (South of Sierra Pt. Parkway)	4,300	< 50	< 50	93	62.1
Bayshore Blvd. (Old Country Rd. to San Bruno Ave.)	16,800	61	126	270	69.2
Tunnel Ave. (Bayshore to Lagoon Wy.)	5,500	< 50	< 50	108	64.0
Lagoon Way (Tunnel Ave. to Sierra Pt. Parkway)	3,900	< 50	< 50	86	62.5
Bayshore Blvd. (Main St. to Geneva Ave.)	13,200	< 50	108	230	68.2
Bayshore Blvd. (Geneva Ave. to Sunnydale Ave.	13,300	< 50	113	233	67.0

Source: LSA Associates, Inc., 2006.

Occasional truck deliveries would occur to the retail portion of the project. However, these deliveries would be infrequent and would not effect off site receptors in the vicinity of the project.

(2) Traffic Noise. The FHWA highway traffic noise prediction model (FHWA RD-77-108) was used to evaluate highway traffic-related noise conditions in the vicinity of the project area. Traffic data with the proposed project were obtained from the traffic impact analysis prepared by Hexagon Transportation Consultants, Inc. (August 2006) and used in the noise prediction model. The resultant noise levels were weighted and summed over a 24-hour period in order to determine the CNEL values. CNEL contours are derived through a series of computerized iterations to isolate the 60, 65, and 70 dBA CNEL contour for traffic noise levels in the project area. The background traffic noise levels are show in Table IV.E-7. Noise levels predicted to occur under background plus project conditions are shown in Table IV.E-8. Tables IV.E-9 and IV.E-10 show the cumulative and cumulative plus project traffic noise levels.

Table V.E-8 shows that all areas of the project area will be exposed to traffic noise levels within the City's normally acceptable range. Results of noise modeling indicate that traffic associated with the project will increase noise on the surrounding roadways from 0 dBA to 4.9 dBA. Noise levels under the cumulative scenarios are similar to those of the background plus project conditions. The addition of cumulative traffic to the surrounding roadways decreases the project's proportion of the impact. The roadway segment with the highest increase in noise occurs under the background with project scenario is Sierra Point Parkway east of Shoreline Court. This segment exceeds the 3 dBA threshold of change detectable by the human ear.

Table IV.E-7: Background Traffic Noise Conditions

Roadway Segment	ADT	Centerline to 70 CNEL (Feet)	Centerline to 65 CNEL (Feet)	Centerline to 60 CNEL (Feet)	CNEL (dBA) 50 Feet from Centerline of Outermost Lane
Sierra Pt. Parkway (East of Shoreline Ct.)	2,900	< 50	< 50	79	59.3
Sierra Pt. Parkway (101 NB off/on-ramp to Shoreline Ct.)	10,600	< 50	85	170	64.9
Marina Blvd. (Shoreline Ct. to Sierra Pt. Parkway)	4,300	< 50	< 50	92	62.9
Shoreline Ct. (South of Sierra Pt. Parkway)	4,300	< 50	< 50	93	62.1
Bayshore Blvd. (Old Country Rd. to San Bruno Ave.)	19,900	67	141	302	69.9
Tunnel Ave. (Bayshore to Lagoon Wy.)	5,600	< 50	51	109	64.2
Lagoon Way (Tunnel Ave. to Sierra Pt. Parkway)	3,900	< 50	< 50	86	62.6
Bayshore Blvd. (Main St. to Geneva Ave.)	16,800	61	126	270	69.2
Bayshore Blvd. (Geneva Ave. to Sunnydale Ave.	17,900	70	135	283	68.3

Source: LSA Associates, Inc., 2006.

Table IV.E-8: Background with Project Traffic Noise Conditions

Roadway Segment	ADT	Centerline to 70 CNEL (Feet)	Centerline to 65 CNEL (Feet)	Centerline to 60 CNEL (Feet)	CNEL (dBA) 50 Feet from Centerline of Outermost Lane	Increase from Background Conditions
Sierra Pt. Parkway (East of Shoreline Ct.)	9,000	< 50	78	153	64.2	4.9
Sierra Pt. Parkway (101 NB off/on-ramp to Shoreline Ct.)	18,400	63	117	242	67.3	2.4
Marina Blvd. (Shoreline Ct. to Sierra Pt. Parkway)	5,300	< 50	< 50	105	63.8	0.9
Shoreline Ct. (South of Sierra Pt. Parkway)	5,000	< 50	< 50	102	62.8	0.7
Bayshore Blvd. (Old Country Rd. to San Bruno Ave.)	19,900	67	141	302	69.9	0.0
Tunnel Ave. (Bayshore to Lagoon Wy.)	6,500	< 50	56	120	64.8	0.6
Lagoon Way (Tunnel Ave. to Sierra Pt. Parkway)	5,000	< 50	< 50	101	63.7	1.1
Bayshore Blvd. (Main St. to Geneva Ave.)	17,400	62	129	277	69.4	0.2
Bayshore Blvd. (Geneva Ave. to Sunnydale Ave.	17,900	70	135	283	68.3	0.0

Source: LSA Associates, Inc., 2006.

Table IV.E-9: 2030 Cumulative Without Project Traffic Noise Conditions

Roadway Segment	ADT	Centerline to 70 CNEL (Feet)	Centerline to 65 CNEL (Feet)	Centerline to 60 CNEL (Feet)	CNEL (dBA) 50 Feet from Centerline of Outermost Lane
Sierra Pt. Parkway (East of Shoreline Ct.)	4,300	< 50	< 50	98	61.0
Sierra Pt. Parkway (101 NB off/on-ramp to Shoreline Ct.)	12,000	< 50	91	184	65.5
Marina Blvd. (Shoreline Ct. to Sierra Pt. Parkway)	6,200	< 50	55	117	64.5
Shoreline Ct. (South of Sierra Pt. Parkway)	6,300	< 50	57	119	63.8
Bayshore Blvd. (Old Country Rd. to San Bruno Ave.)	26,000	80	168	361	71.1
Tunnel Ave. (Bayshore to Lagoon Wy.)	10,600	< 50	78	167	66.9
Lagoon Way (Tunnel Ave. to Sierra Pt. Parkway)	7,500	< 50	62	132	65.4
Bayshore Blvd. (Main St. to Geneva Ave.)	51,300	124	264	568	74.1
Bayshore Blvd. (Geneva Ave. to Sunnydale Ave.	41,300	112	230	492	72.0

Source: LSA Associates, Inc., 2006.

Table IV.E-10: 2030 Cumulative Traffic With Project Noise Conditions

Roadway Segment	ADT	Centerline to 70 CNEL (Feet)	Centerline to 65 CNEL (Feet)	Centerline to 60 CNEL (Feet)	CNEL (dBA) 50 Feet from Centerline of Outermost Lane	Increase from Cumulative No Project Conditions
Sierra Pt. Parkway (East of Shoreline Ct.)	6,600	< 50	67	126	62.9	1.9
Sierra Pt. Parkway (101 NB off/on-ramp to Shoreline Ct.)	18,300	63	117	241	67.3	1.8
Marina Blvd. (Shoreline Ct. to Sierra Pt. Parkway)	9,600	< 50	73	156	66.4	1.9
Shoreline Ct. (South of Sierra Pt. Parkway)	9,600	< 50	74	157	65.6	1.8
Bayshore Blvd. (Old Country Rd. to San Bruno Ave.)	25,900	80	168	360	71.1	0.0
Tunnel Ave. (Bayshore to Lagoon Wy.)	11,100	< 50	80	172	67.1	0.2
Lagoon Way (Tunnel Ave. to Sierra Pt. Parkway)	8,100	< 50	65	139	65.8	0.4
Bayshore Blvd. (Main St. to Geneva Ave.)	51,600	124	265	570	74.1	0.0
Bayshore Blvd. (Geneva Ave. to Sunnydale Ave.	41,300	112	230	492	72.0	0.0

Source: LSA Associates, Inc., 2006.

The traffic noise increase on Sierra Point Parkway east of Shoreline Court that would result from development of the proposed project would represent a significant increase in noise levels. However, along this segment of Sierra Point Parkway there are no sensitive receptors. Land use on this segment includes office space. The resultant noise level would be 63.7 dBA L_{dn} at 50 feet from the centerline of the outermost travel lane, which is within the normally acceptable range for office land use.

The existing hotel located on Sierra Point Parkway west of Shoreline Court is approximately 130 feet from the centerline of the outermost travel lane of Sierra Point Parkway. With the project, traffic noise on this segment would increase 2.4 dBA, which is less than the 3 dBA noise level perceptible to the human ear. Traffic noise levels from this roadway segment would be 59.0 dBA L_{dn} at this location, which is considered acceptable. Therefore, this effect would not be significant and mitigation for this segment is not necessary. The reader should note that the hotel is not considered a "sensitive receptor."

c. Significant Noise Impacts. The proposed project would result in two significant noise-related impacts as described below.

Impact NOISE-1: Existing aircraft noise levels exceed the land use compatibility standard for office building and commercial noise environments. (S)

Because the western portion of the project site is within the 65 CNEL aircraft noise contour and the eastern portion of the site (Building D and Building E) falls within the 70 CNEL to 75 CNEL aircraft noise contour for the airport, the land use compatibility standard would be exceeded. Noise levels of up to 70 dBA CNEL are considered acceptable for office and commercial land uses. Noise levels between 70 dBA CNEL to 75 dBA CNEL are considered "conditionally acceptable" for office uses.

Based on the EPA's Protective Noise Levels (EPA 550/9-79-100, November 1978), with a combination of walls, doors, and windows, standard construction for northern California commercial buildings would provide more than 25 dBA in exterior to interior noise reduction with windows closed and 15 dBA or more with windows open. Based on the California Land Use Guidelines, closed windows and fresh air supply systems or air conditioning will normally suffice to achieve an acceptable noise environment.

Implementation of the following mitigation measure would reduce impacts from existing noise sources to a less-than-significant level:

> Mitigation Measure NOISE-1: Mechanical ventilation, such as air conditioning systems, shall be included in the design for Building D and Building E in order to meet the California Land Use Compatibility Guidelines for office uses. (LTS)

Impact NOISE-2: On-site construction activities could result in short-term noise impacts on adjacent hotel, office and commercial uses. (S)

Two types of short-term noise impacts would occur during demolition and project construction. The first is the increase in traffic flow on local streets, associated with the transport of workers, equipment, and materials to and from the project site. Heavy equipment for grading and construction would be moved to the site and remain for the duration of each construction phase. The increase in traffic

flow on the surrounding roads due to construction traffic is expected to be small. The associated increase in long-term traffic noise would not be perceptible. However, there would be short-term intermittent high noise levels associated with trucks arriving at and departing from the project site.

The second type of short-term noise impact is related to the noise generated by heavy equipment operating on the project site and pile driving activities. Construction (including pile driving) is performed in discrete steps, each of which has its own mix of equipment and, consequently, its own noise characteristics. These various sequential phases would change the character of the noise generated on the site and, therefore, the noise levels surrounding the site as construction progresses. Despite the variety in the type and size of construction equipment, similarities in the dominant noise sources and patterns of operation allow construction related noise ranges to be categorized by work phase. Table IV.E-11 lists typical construction equipment noise levels recommended for noise impact assessments, based on a distance of 50 feet between the equipment and a noise receptor.

Table IV.E-11: Maximum Construction Equipment Noise Levels

Type of Equipment	Range of Sound Levels Measured (dBA at 50 feet)	Suggested Sound Levels for Analysis (dBA at 50 feet)
Pile Drivers	81 to 96	93
Rock Drills	83 to 99	96
Jackhammers	75 to 85	82
Pneumatic Tools	78 to 88	85
Pumps	68 to 80	77
Dozers	85 to 90	88
Tractors	77 to 82	80
Front-End Loaders	86 to 90	88
Hydraulic Backhoe	81 to 90	86
Hydraulic Excavators	81 to 90	86
Scrapers	81 to 87	85
Graders	79 to 89	86
Air Compressors	76 to 86	86
Trucks	81 to 87	86

Source: Noise Control for Buildings and Manufacturing Plants, Bolt, Beranek & Newman, 1987.

Noise levels range up to 96 dBA L_{max} at 50 feet during construction. The site preparation phase, which includes pile driving, tends to generate the highest noise levels because of the equipment used. Earthmoving equipment includes excavation machinery such as dozers and loaders. Earthmoving and compacting equipment includes compactors, scrapers, and graders. Typical operating cycles for these types of construction equipment may involve one or two minutes of full power operation followed by three to four minutes at lower power settings. Construction of the proposed project is expected to require the use of earthmovers, dozers, pile drivers, materials crushing equipment and water and pickup trucks. Noise typically associated with the use of grading construction equipment is estimated between 79 and 89 dBA L_{max} at a distance of 50 feet from the construction effort, which would be used on the project site. As seen in Table IV.E-11, the maximum noise level generated by each earthmover on the proposed project site is assumed to be 88 dBA L_{max} at 50 feet from the earthmover.

Noise typically associated with the use of pile driving equipment is estimated between 81 and 96 dBA L_{max} at a distance of 50 feet from the construction effort. As seen in Table IV.E-11, the maximum noise level generated by pile driving on the project site is assumed to be 93 dBA L_{max} at 50 feet from the building locations and pile driving activities.

The maximum noise level generated by water and pickup trucks is approximately 86 dBA L_{max} at 50 feet from these vehicles. Each doubling of the sound sources with equal strength increases the noise level by 3 dBA. Assuming that each piece of construction equipment operates as an individual noise

source, the worst-case composite noise level during this phase of construction would be 93 dBA L_{max} at a distance of 50 feet from an active construction area.

The proposed project includes two buildings (B and C) that would be located 50 feet from the property line and 200 feet south of the nearest office building across Sierra Point Parkway. The parking garage would be constructed within 25 feet of the property line but further from nearby office buildings on Sierra Point than Buildings B and C. Given the likely composition of construction activities on the site that is describe above, the nearest office buildings may be subject to short-term, intermittent, maximum noise reaching 81 dBA L_{max}, generated by construction activities on the project site. This range of noise levels would be higher than the ambient noise from vehicular traffic in the project vicinity.

The City of Brisbane Municipal Code Chapter related to noise control establishes that no individual piece of equipment shall produce a noise level exceeding 83 dBA at a distance of 25 feet from the source and the noise level at any point outside of the property line of the project shall not exceed 86 dBA. Construction related noise from pile driving could reach 93 dBA L_{max} at a distance of 50 feet (the distance of Building B and Building C from the property line). Therefore, the project applicant would be required to obtain an exception permit (issued by the City's Planning Director) for construction related noise. The noise control exception permit for the construction phase shall incorporate the standards set forth in the following mitigation measure in order to reduce the project's temporary construction-period noise impacts. Due to the short-term nature (six to eight months) of this construction-related impact, implementation of the following mitigation measure would reduce construction related noise to a less-than-significant impact.

Mitigation Measure NOISE-2: The project shall comply with the following noise reduction measures:

- General construction activities shall be allowed only between the hours of 7:00 a.m. to 7:00 p.m. on weekdays and 9:00 a.m. and 7:00 p.m. on weekends and holidays. Construction outside of these hours may be approved through an exception permit issued by the Planning Director. The exception permit shall include appropriate conditions to minimize noise disturbance of affected hotel, office and commercial uses.
- All heavy construction equipment used on the project site shall be maintained in good operating condition, with all internal combustion, engine-driven equipment fitted with intake and exhaust mufflers that are in good condition.
- All stationary noise-generating equipment shall be located as far away as possible from neighboring property lines.
- Post signs prohibiting unnecessary idling of internal combustion engines.
- The construction manager shall identify and designate a "noise disturbance coordinator" who would be responsible for responding to any local complaints about construction noise. The disturbance coordinator would determine the cause of the noise complaints and institute reasonable measures warranted to correct the problem. The noise disturbance coordinator shall report all complaints and resolution thereof to the City via monthly reports. A telephone number for the disturbance coordinator shall be conspicuously posted at the construction site.

- Utilize air compressors that are designated as "quiet" and other "quiet" construction equipment sources where such technology exists. (LTS)

F. GEOLOGY, SOILS AND SEISMICITY

This section assesses the project site's geologic environment based on the inspection of current site conditions, published and unpublished geologic reports and maps. This section also assesses potential impacts from seismically-induced fault rupture, strong ground shaking, and liquefaction, slope failure, unstable soils, and differential settlement on the project and identifies mitigation measures.

1. Setting

The Sierra Point peninsula was created by filling of the Bay in about 1965. From 1965 to 1967, three dikes approximately 2,000 feet long on the northern and southern boundaries and 1,900 feet long on the eastern (Bay) boundary were constructed. Beginning in 1968 and continuing until 1972, municipal refuse was dumped into the area contained by the dikes.[1] When the landfill was closed, clay and soil were brought to the site to cover the landfill and "cap" it. Since then, the northern part of the landfill has been developed with high-rise office buildings, and a marina has been located on the eastern portion of Sierra Point.

a. Topography. Sierra Point extends into San Francisco Bay east of U.S. Highway 101. The landfill rises about 16 to 17 feet above mean sea level. San Bruno Mountain rises steeply west of U.S. Highway 101.

b. Geology. Bedrock on the San Francisco Peninsula, which includes the project site, is called the Franciscan Complex. The Franciscan Complex generally includes sedimentary and igneous rocks that occur as relatively coherent blocks called terranes[2] separated by highly sheared rock masses, known as melanges. Near San Francisco, the San Bruno Mountain Terrane extends from the Cliff House in San Francisco to the north to San Bruno Mountain.[3] This terrane 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 San Bruno Mountain.[4] To the north, 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.

Sandstone, siltstone, and shale, about 5 million years old, bury the Franciscan Complex in the valleys north and south of San Bruno Mountain. Many of these rocks were deposited in a coastal marine environment and have been deformed and uplifted by tectonic activity associated with motion along the San Andreas Fault.

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 bury the Franciscan Complex at the project site.

[1] GeoSyntec Consultants, Inc., 2005. *Sierra Point Geotechnical Review of Parcels 5, 6, and 7*. Job No: PRJ2003REM\Slough\Sierra Point\Section 7 SP GeoReport 8-19-05. August 19.

[2] A terrane is a package of rock that differs from adjacent packages in rock type, sequence, or geologic history.

[3] Sloan, Doris, 2006, *Geology of the San Francisco Bay Region*: University of California Press.

[4] Brabb, E.E. and Pampeyan, E.H, 1983, Geologic Map of San Mateo County, California: U.S. Geological Survey, Miscellaneous Investigations Series MAP I-1257-A.

c. Soils and Young Sediments. Artificial fill and municipal refuse approximately 23 to 47 feet deep overlie about 270 feet of Bay Mud and alluvium, as shown in Figure IV.F-1. On the east side of the site, sand with some clay and gravel overlies the bedrock to a thickness of 30 to 60 feet. The Old Bay Mud overlies alluvial sand. The Old Bay Mud is about 80 feet thick and consists of dark, greenish-gray stiff to very stiff plastic clay with minor sand and shells. Alluvial gravelly, silty sand, generally ten to 30 feet thick,[5] overlies the Old Bay Mud. The Young Bay Mud, about 80 feet thick, consists of dark, greenish, plastic, silty clay and overlies the alluvial sediments, and is buried by the landfill refuse. This sequence of alluvial sediments and Bay Mud records rising and falling sea levels as the San Francisco Bay subsided.

Expansive soils have the capacity to swell when wet and shrink when dry. Younger Bay Mud has a fairly high shrink-swell potential, if it is not below groundwater, due to expansive clay derived from upland areas.[6] Minerals in the Younger Bay Mud include mica, montmorillonite, chlorite, kaolinite, quartz, and feldspar.[7] Since the Bay Mud is buried on the site by landfill material, it remains wet and does not have the potential to result in shrink-swell problems. The surface fill has not been identified as having a significant expansive clay component.[8]

d. Regional Seismicity. Seismologists measure the energy released by an earthquake in several different ways. Most reports in newspapers following a quake give the local magnitude, a number based on a seismometer's measurement of ground displacement. The magnitude of the 1906 earthquake was about M7.9 on the local scale.[9] How violently the ground shakes depends on the magnitude of the earthquake, the distance from the epicenter, and the soil or bedrock underlying the site. Specially tuned seismometers, called accelerometers, measure how fast the ground moves, or accelerates, during earthquake shaking. Acceleration is reported as a fraction of the acceleration due to gravity (g).[10]

People's observations, as opposed to machine measurements, provide an intensity scale of earthquakes. The intensity measures the effects on people, buildings, furniture, and so forth. The Modified Mercalli Intensity Scale (MMI) is a widely used scale and describes the effects of ground shaking and assigns Roman numerals to certain classes of effects (Table IV.F-1). For example, an intensity VIII event would indicate partial collapse of substantially constructed buildings, heavy furniture overturned, and chimneys collapse.

[5] GeoSyntec Consultants, Inc., 2005, op. cit.

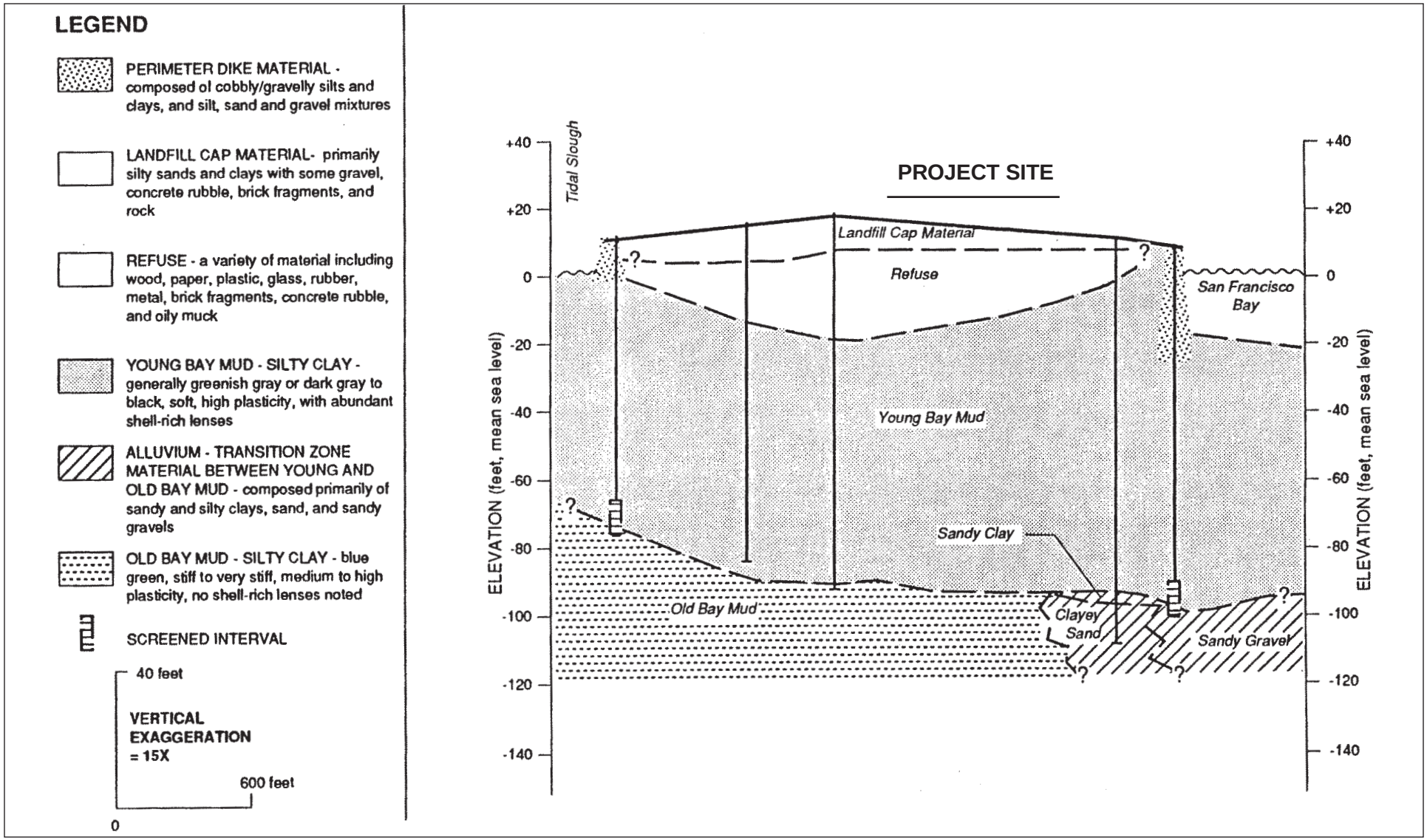
[6] Helley, E.J., and LaJoie, K.R., 1979. *Flatland Deposits of the San Francisco Bay Region, California – their geology and engineering properties, and their importance to comprehensive planning, U.S. Geological Survey Professional Paper 943*.

[7] Oakshott, Gordon B., and Goldman, H.B., 1969. *Geologic and Engineering Aspects of the San Francisco Bay Fill, California Division of Mines and Geology Special Report 97*.

[8] GeoSyntec Consultants, Inc., 2005, op. cit.

[9] California Department of Conservation, 2006. *A Sampling of California's Largest* Earthquakes. Website:www.consrv.ca.gov/index/Earthquakes/qh_earthquakes_Calbigones.htm.

[10] g = acceleration due to earth's mass = 32 ft/sec/sec.



LSA

NOTE: ELEVATIONS ARE BASED ON USCGS BENCHMARK G-571.

ADDITIONAL FILL HAS BEEN PLACED ON THE SITE, BUT IS NEGLIGIBLE IN TERMS OF THE OVERALL THICKNESS OF THE CROSS-SECTION.

THE FIGURE IS SCHEMATIC AND SHOULD BE USED FOR INFORMATIONAL PURPOSES ONLY. THE "?" INDICATES WHERE THE BOUNDARY BETWEEN LAYERS HAS NOT BEEN PRECISELY DEFINED. PROJECT SITE IS APPROXIMATE.

FIGURE IV.F-1

Sierra Biotech Project EIR

Generalized Geologic Cross Section (Eastern)

SOURCE: KLEINFELDER, INC., 1992

I:\BRI0601 sierra point\figures\Fig_IVF1.ai (11/9/06)

Table IV.F-1: Modified Mercalli Scale[a]

	Intensity	Effects	v,[b] cm/s	g[c]
M[d]	I.	Not felt. Marginal and long-period effects of large earthquakes.		
3	II.	Felt by persons at rest, on upper floors, or favorably placed.		
	III.	Felt indoors. Hanging objects swing. Vibration–like passing of light trucks. Duration estimated. May not be recognized as an earthquake.		0.0035-0.007
4	IV.	Hanging objects swing. Vibration–like passing of heavy trucks; or sensation of a jolt like a heavy ball striking the walls. Standing motor cars rock. Windows, dishes, doors rattle. Glasses clink. Crockery clashes. In the upper range of IV wooden walls and frame creak.		0.007-0.015
	V.	Felt outdoors; direction estimated. Sleepers wakened. Liquids disturbed, some spilled. Small unstable objects displaced or upset. Doors swing, close, open. Shutters, pictures move. Pendulum clocks stop, start, change rate.	1-3	0.015-0.035
5	VI.	Felt by all. Many frightened and run outdoors. Persons walk unsteadily. Windows, dishes, glassware broken. Knickknacks, books, etc., off shelves. Pictures off walls. Furniture moved or overturned. Weak plaster and masonry D cracked. Small bells ring (church, school). Trees, bushes shaken (visibly, or heard to rustle - CFR).	3-7	0.035-0.07
6	VII.	Difficult to stand. Noticed by drivers of motor cars. Hanging objects quiver. Furniture broken. Damage to masonry D, including cracks. Weak chimneys broken at roof line. Fall of plaster, loose bricks, stones, tiles, cornices (also unbraced parapets and architectural ornaments - CFR). Some cracks in masonry C. Waves on ponds; water turbid with mud. Small slides and caving in along sand or gravel banks. Large bells ring. Concrete irrigation ditches damaged.	7-20	0.07-0.15
	VIII.	Steering of motor cars affected. Damage to masonry C; partial collapse. Some damage to masonry B; none to masonry A. Fall of stucco and some masonry walls Twisting, fall of chimneys, factory stacks, monuments, towers, elevated tanks. Frame houses moved on foundations if not bolted down; loose panel walls thrown out. Decayed piling broken off. Branches broken from trees. Changes in flow or temperature of springs and wells. Cracks in wet ground and on steep slopes.	20-60	0.15-0.35
7	IX.	General panic. Masonry D destroyed; masonry C heavily damaged, sometimes with complete collapse; masonry B seriously damaged. (General damage to foundations - CFR.) Frame structures, if not bolted, shifted off foundations. Frames racked. Serious damage to reservoirs. Underground pipes broken. Conspicuous cracks in ground. In alluviated areas sand and mud ejected, earthquake foundations, sand craters.	60-200	0.35-0.7
8	X.	Most masonry and frame structures destroyed with their foundations. Some well-built wooden structures and bridges destroyed. Serious damage to dams, dikes, embankments. Large landslides. Water thrown on banks of canals, rivers, lakes, etc. Sand and mud shifted horizontally on beaches and flat land. Rails bent slightly.	200-500	0.7-1.2
	XI.	Rails bent greatly. Underground pipelines completely out of service.		>1.2
	XII.	Damage nearly total. Large rock masses displaced. Lines of sight and level distorted. Objects thrown into the air.		

[a] From Richter (1958).
[b] Average peak ground velocity, centimeters per second (cm/s).
[c] Average peak acceleration (away from source).
[d] Richter magnitude correlation.

Note: *Masonry A, B, C, D.* To avoid ambiguity of language, the quality of masonry, brick or otherwise, is specified by the following lettering (which has no connection with the conventional Class A, B, C construction).

- *Masonry A:* Good workmanship, mortar, and design; reinforced, especially laterally, and bound together by using steel, concrete, etc; designed to resist lateral forces.
- *Masonry B:* Good workmanship and mortar; reinforced, but not designed to resist lateral forces.
- *Masonry C:* Ordinary workmanship and mortar; no extreme weaknesses such as non-tied-in corners, but masonry is neither reinforced nor designed against horizontal forces.
- *Masonry D:* Weak materials, such as adobe; poor mortar; low standards of workmanship; weak horizontally.

Beginning about ten million years ago in the San Francisco area, the Pacific Plate began to move past the North American Plate initiating the San Andreas Fault System. The project site is located near several active, earthquake-producing faults: the San Andreas Fault (5 miles to the west), the San Gregorio Fault (9 miles to the west), the Hayward Fault (13 miles to the east), and the Calaveras Fault (22 miles to the east), as shown in Figure IV.F-2.[11]

Faults that have been mapped, but not documented as active, include the Hillside Fault,[12] located about 1.0 mile southwest of the site, and the City College Shear Zone,[13] located about 2.0 miles north of the site. The City College Shear Zone has been reinterpreted as the City College mélange,[14] which formed prior to activation of the San Andreas Fault ten million years ago. The San Bruno Fault,[15] described as an inactive fault about 4.0 miles south of the site, has been shown through further investigations not to exist.[16]

e. Site-Specific Seismicity. The following paragraphs provide site-specific seismic information for the project site.

(1) Ground Rupture. California has enacted legislation designed to protect citizens from ground rupture, which could damage or destroy buildings. Ground rupture is distinct from ground shaking, which will occur over a much broader area than the relatively narrow fault trace. Under the Alquist-Priolo Earthquake Fault Zoning Act of 1972 (A-PEZA), the State Geologist is required to identify and map earthquake faults that have evidence of ground surface rupture having occurred within the past 11,000 years. The A-PEZA zones average a band about 0.25 miles wide along an active fault trace.[17] Active faults are considered capable of generating significant damage. The project site is not located within an earthquake fault zone as defined by the A-PEZA. The potential for damage at the site due to fault rupture is unlikely.

(2) Ground Shaking. Ground shaking is a general term referring to the motion of the earth's surface resulting from an earthquake from a distant fault. During an earthquake, the ground oscillates back and forth and up and down. The extent of damage depends on the amplitude, frequency, and duration of the seismic waves at a site. These properties depend on the distance from the fault rupture and the path the energy takes to reach the site. In addition, local soil conditions and the type of building affect the damage. The predicted maximum earthquake intensity for the site is characterized

[11] California Department of Conservation, 1998. Maps of Known Active Faults near-Source Zones in California and Adjacent Portions of Nevada, International Conference of Building Officials.

[12] Brabb and Pampeyan, 1983, op. cit.

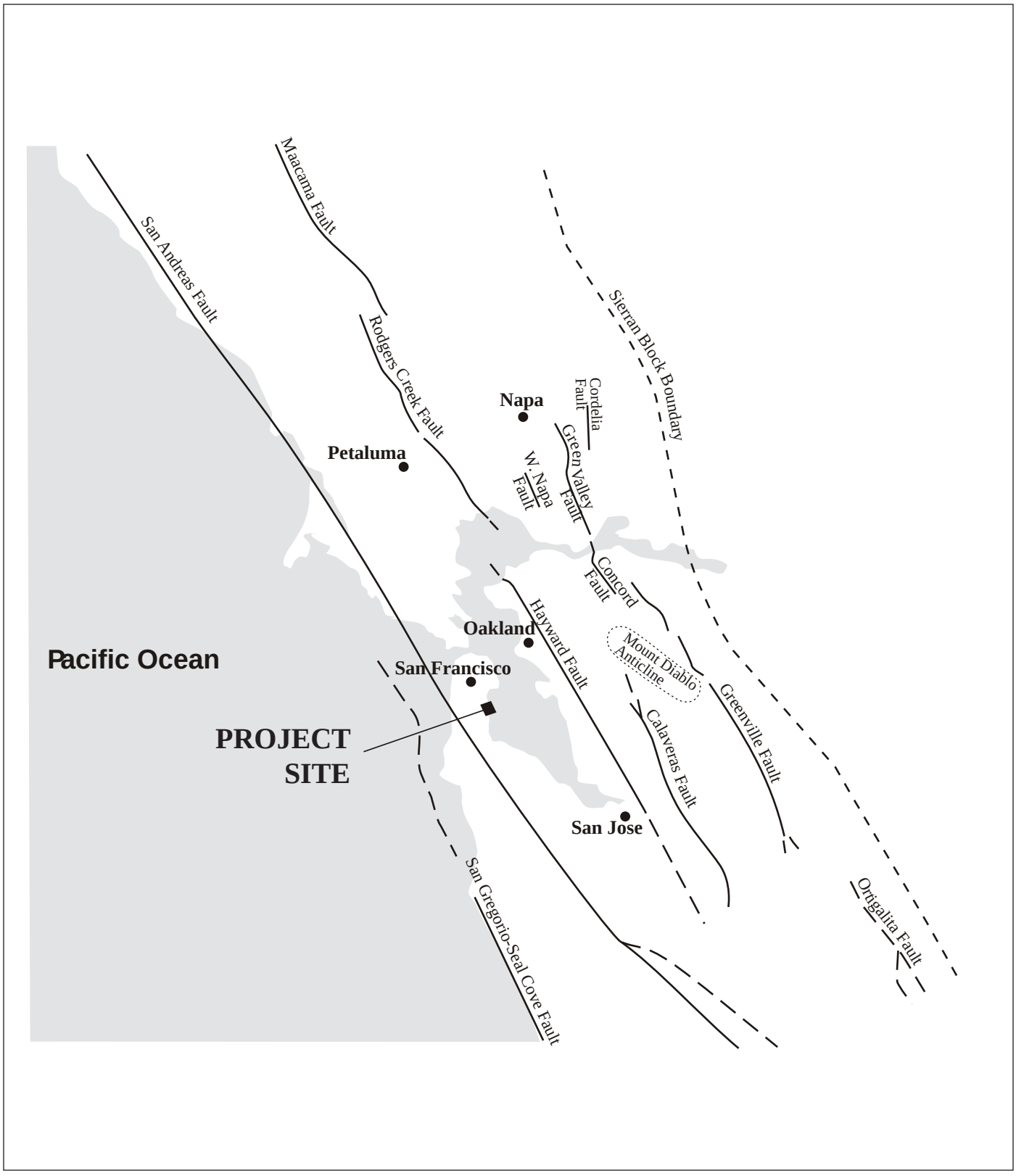
[13] Schlocker, Julius, 1974. *Geology of the San Francisco North Quadrangle, U.S. Geological Survey Professional Paper 782.*

[14] Sloan, Doris, 2006, op. cit.

[15] GeoSyntec Consultants, Inc., 2005, op. cit.

[16] U.S. Geological Survey, 2000. News release: *The Demise of The San Bruno Fault, or the Fault that Never Was.* Website: www.usgs.gov/newsroom/. March 15.

[17] California Geological Survey, 2006. *Alquist-Priolo Earthquake Fault Zones.* Website: www.consrv.ca.gov/CGS/rghm/ap/. May 18.



LSA

FIGURE IV.F-2

LEGEND

ACTIVE FAULT – FAULT HAS EVIDENCE OF SURFACE DISPLACEMENT WITHIN THE LAST 11,000 YEARS (DASHED WHERE INFERRED)

0 10 20
MILES

Sierra Point Biotech Project EIR
Regional Active Faults

SOURCE: BASELINE, 2005.

I:\BRI0601 sierra point\figures\Fig_IVF2.ai (11/9/06)

as "very violent" by the U.S. Geological Survey,[18] and "very strong" (Modified Mercalli Intensity VIII) by the Association of Bay Area Governments (ABAG).[19]

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 Sierra Point by the Loma Prieta 1989 earthquake was about 0.1g.[20] The epicenter of the Loma Prieta event was about 50 miles southeast of the site, whereas the San Andreas Fault is 5.0 miles west of the site. The proximity of the site to the San Andreas Fault and other nearby faults increases the probability of very strong ground motion of the site during a major earthquake.[21]

(3) Liquefaction and Lateral Spreading. Liquefaction occurs when the loose sediments behave like quicksand. Unconsolidated, water-saturated sand is most likely to liquefy under seismic stress. Water in pores between sand grains is compressed again and again during ground shaking 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 is dense, cohesive enough, and deep enough (about 100 feet) to be expected to resist liquefaction.[22] The ABAG map of liquefaction hazard shows Sierra Point as having a moderate liquefaction hazard; however, this map is not intended for site-specific evaluation.[23]

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 towards a free-face (e.g., a slope along a creek) or down a gentle ground slope. Since the potential for liquefaction to occur at the site is small, no significant lateral spreading is likely to occur during an earthquake.

f. Slope Stability. The perimeter dikes that surround Sierra Point on the north, east, and south slope toward the Bay. Steep slopes are often prone to sliding. Slides may occur slowly or suddenly, at times without apparent provocation.[24] Possible 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 ground shaking. The perimeter dikes at the project site are

[18] Borcherdt, R.D., and others, 1975. *Response of Local Geologic Units to Ground Shaking, in: Studies for Seismic Zonation of the San Francisco Bay Region, U.S. Geological Survey Professional Paper 941-A.*

[19] Association of Bay Area Governments (ABAG), 2003. *Earthquake Hazard Map for South San Francisco/Brisbane/San Bruno. Scenario, Peninsula Segment of the San Andreas Fault System.* Website: quake.abag.ca.gov. July 6, 2006.

[20] GeoSyntec Consultants, Inc., 2005, op. cit.

[21] GeoSyntec Consultants, Inc., 2005, op. cit.

[22] Ibid.

[23] Association of Bay Area Governments (ABAG), 2001. *Liquefaction Hazard Map, Entire San Andreas (1906 Quake) - Magnitude 7.9.* Website: quake.abag.ca.gov. July 26, 2006.

[24] Terzaghi, Karl, Peck, Ralph B., and Mesri, Gholamreza, 1996, *Soil Mechanics in Engineering Practice*. John Wiley & Sons.

predominantly composed of silts, clays, sands, and gravels. The depth of these dikes ranges from about 40 to 60 feet below the ground surface, based on data obtained during a geotechnical review.[25]

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 ground shaking) conditions. Geotechnical studies of the site since 1980 have presented safety factors for static stability (no earthquake-induced shaking) from 1.2 to 1.5. Factors of safety above 1.0 indicate that a slope would be considered stable. Recent analyses[26] indicate that some deformation of the dikes could occur during or after a seismic event. Dike slopes appear to be stable under normal, non-seismic conditions, but may experience deformation during earthquake shaking.

g. Settlement and Differential Settlement. Compaction of the refuse in the landfill and the Young Bay Mud will likely result in settlement on the project site. However, settlement of the refuse due to compaction and decomposition is considered to have been largely completed in the 34 years since the landfill was closed.[27]

Tests conducted on samples during the most recent geotechnical review suggest that total settlement of the Young Bay Mud due to the landfilling activities would be about 13 feet; 10 feet of settlement has already occurred since 1975.[28] If no additional fill were placed on the site, about 3 feet of additional settlement would be expected to occur by 2035.

Differential settlement may also occur due to differences in thickness of the Young Bay Mud and refuse at different locations on the site. No differential settlement has been documented in available geotechnical reports.

Strong ground motion can cause seismic settlement of dry, mostly cohesionless soils that make up the upper part of the landfill. About 2 to 7 inches of settlement could occur during a major earthquake in addition to the settlement occurring as part of the slow consolidation of the landfilled material and underlying Bay Mud.[29]

h. Brisbane General Plan Policies. The Community Health and Safety Element of the Brisbane General Plan contains policies pertaining to geology, soils and seismicity that are relevant to the proposed project**.**

The following policies 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.

[25] Kleinfelder, 1993. *Solid Waste Water Quality Assessment Test Report, Sierra Point Landfill, Brisbane and South San Francisco, California*.

[26] GeoSyntec Consultants, Inc., 2005, op. cit.

[27] GeoSyntec Consultants, Inc., 2005, op. cit.

[28] GeoSyntec Consultants, Inc., 2005, op. cit.

[29] Ibid.

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 policies relate to the public awareness of seismic safety:

Policy 150: Encourage citizens to become educated about and take an active role in earthquake preparedness.

Program 150a: Develop programs to increase public awareness of seismic hazards and to educate the community on procedures that can help to minimize injury and property loss before, during, and after an earthquake.

The following policies relate to the slope development 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 apart of the project design.

2. Impacts and Mitigation Measures

This section presents the criteria of significance for determining whether an impact is significant. Impacts are then presented that are considered less than significant, followed by significant impacts and recommended mitigation measures.

a. Significance Criteria. A potentially significant impact would result if the construction or operation of the project would:

- Expose significant numbers of people or structures to 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.
- Expose people or structures to major geologic hazards that could result in loss, injury, or death related to strong seismic ground shaking or seismic-related ground failure, including liquefaction or landslides.
- Result in development 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.
- Result in development on expansive soil, as defined in the Uniform Building Code, creating substantial risks to life or property.
- Be located on corrosive soils, which could cause substantial damage to building foundations, pavements, utilities, and/or other improvements.
- Result in the loss of availability of a known mineral resource that would be of value to the region and residents of the state or a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan.

- Result in substantial soil erosion or loss of topsoil.

b. Less-than-Significant Impacts. No known active fault traces cross the site, and the site is not located in an Alquist-Priolo Earthquake Fault Zone; therefore, impacts associated with fault rupture are considered less than significant. The potential risk from liquefaction of saturated sand layers below the Young Bay Mud is low because of the depth to the sand and the type of subsurface material.[30] The potential for liquefaction and lateral spreading is therefore considered a less-than-significant impact. Expansive soils have not been identified in the surface fill on the site during the geotechnical review;[31] therefore potential hazards associated with expansive soils would be less than significant. Erosion would not affect the areas covered by buildings, streets, and managed landscaped areas proposed for the site. Therefore, under developed conditions, the project would not result in substantial increases in erosion or loss of topsoil.

No geothermal oil, or natural gas resources underlie the project site.[32, 33] No mineral production has occurred on the site. Therefore, development of the project would not result in a loss of these resources.

c. Significant Impacts. Four potentially significant impacts are evaluated below.

Impact GEO-1: Ground shaking at the project site could result in risks to humans and damage to property. (S)

Ground shaking from earthquakes along the known regional active faults in the site vicinity could result in risks to humans and damage to property. Although the damage to structures built in compliance with the California Building Code requirements for seismic design would not likely cause their collapse, the damage could be extensive, endangering the health and safety of building occupants. In 2005, a geotechnical review was prepared by GeoSyntec Consultants for the project site which included basic recommendations (described below) for the proposed project. However, this geotechnical review was prepared in response to conceptual plans for the project site and has not been reviewed and approved by the City of Brisbane Community Development Building Division. In addition to potential damage to structures, nonstructural damage should also be expected. Nonstructural damage could include breakage of windows, doors, piping, ducts, and light fixtures, collapse of walls, partitions, ceilings, and stairways, or damage to contents (appliances, computer equipment, and furnishings).

Implementation of the following three-part mitigation measure would reduce this impact to a less-than-significant level.

[30] GeoSyntec Consultants, Inc., 2005, op. cit.

[31] Ibid.

[32] California Energy Commission, 2005. *Map of Geothermal Resources in* California. Website: www.energy.ca.gov/maps/geothermal_areas.html.

[33] California Department of Conservation, Division of Oil and Gas and Geothermal Resources, 2002, Map W6-3, November 1.

Mitigation Measure GEO-1a: All structures shall be designed and constructed in conformance with the most recently adopted California Building Code requirements for seismic design. The City Engineer shall approve all final design and engineering plans.

Mitigation Measure GEO-1b: As a condition of approval and prior to the issuance of a grading permit, the applicant shall submit a final site-specific, design-level geotechnical investigation, to be prepared by a licensed professional, to the City for review and approval. The geotechnical investigation shall include recommendations for grading, avoidance of settlement, and differential settlement of infrastructure and buildings. The recommendations shall be incorporated into all development plans submitted for the project.

Mitigation Measure GEO-1c: The applicant shall provide information to prospective building occupants regarding earthquake safety. The information shall include one or more of the following publications:

Information obtained from the California Division of Mines and Geology in its 1997 report "Guidelines for Evaluating and Mitigating Seismic Hazards in California" (which can be downloaded from the Division's home page at www.consrv.ca.gov), "The Commercial Property Owner's Guide to Earthquake Safety," and "The Homeowner's Guide to Earthquake Safety" both produced by the Seismic Safety Commission (SSC) and available from SSC at 1755 Creekside Oaks Drive, Suite 100, Sacramento, CA 95883 or at 916-263-5506), and "Peace of Mind in Earthquake Country" (Peter Yanev, 1991, Chronicle Books).

The three-part mitigation measure above would reduce, but not completely eliminate, the severity of impact associated with seismic shaking. However, the risk of earthquakes and associated damage is generally accepted in California and institutional controls are required to reduce the risk to acceptable levels. (LTS)

Impact GEO-2: Ground settlement could result in structural damage to proposed site improvements. (S)

The Young Bay Mud underlying the landfill has settled about 10 feet since 1975 and is expected to continue to settle even without additional loads being placed on the site. Additional fill placed on the site as part of site development would increase total surface settlement up to about 10 feet over the next 30 years.[34]

Differences in soil conditions identified in test borings suggest that differential settlement of about half the total can be expected to occur at the site; if groundwater levels were to decline, additional settlement may occur.[35] The geotechnical recommendation by GeoSyntec for construction at the project is to use pile foundations to support large buildings. Such piles may range up to 250 feet deep and would minimize impacts of surface settlement on the structures.[36] Therefore, continued compaction and settlement of the Younger Bay Mud may not affect the buildings, since they would

[34] GeoSyntec Consultants, Inc., 2005, op. cit.

[35] Ibid.

[36] Ibid.

be supported by the piles. The surface of the site, which includes landscaping, roads, and utilities, would continue to slowly settle as the soil compacts. Such settlement could damage improvements and/or change drainage on the site. A summary of the recommendations from the 2005 geotechnical review by GeoSyntec Consultants follows:

- Due to the soil conditions and a magnitude of ongoing and potentially newly-induced ground settlement, pile foundations are appropriate for heavily loaded structures.
- Design elements that could reduce the impact of differential and whole site settlement include:
  - Use of hinged slabs and flexible features for building entrances;
  - Flexible utility connections at buildings;
  - Supports for under-building utilities connected to structures;
  - Provision for air/vapor control beneath buildings;
  - Use of building/landscape interfaces that allow for settlement and repair;
  - Designs that account for lateral pile capacity and movement;
  - Site settlement improvement and acceleration prior to construction.

The California Code of Regulations, Title 27, Section 21190 contains specific requirements for development on former solid waste landfills (e.g., construction methods for buildings to mitigate the effect of differential settlement, flexible connections and utility collars, placement of utilities) that are in effect for Sierra Point and the project site.

Implementation of the following three-part mitigation measure would reduce this impact to a less-than-significant level.

> Mitigation Measure GEO-2a: All structures shall be designed and constructed in conformance with the most recently adopted California Building Code requirements for building design in areas undergoing compaction. The Building Official shall approve all final design and engineering plans.
>
> Mitigation Measure GEO-2b: As required in Mitigation Measure GEO-1b, the applicant shall prepare and submit to the City for final approval a final design-level geotechnical investigation that includes recommendations for avoidance of settlement and placement of fill materials.
>
> Mitigation Measure GEO-2c: The final geotechnical investigation shall include an Inspection and Repair Plan to address future settlement of the project site. The Inspection and Repair Plan shall delineate an inspection schedule for storm water conveyances and other utilities (on at least an annual basis) to determine adverse effects of settlement. The Plan shall identify responsibility for repair of any affected improvements (e.g., property owner, lessees, or property management company). The inspection results and repairs shall be documented to the City in a biannual report. (See also Mitigation Measure GEO-3). (LTS)

Impact GEO-3: Dike instability may affect site improvements. (S)

The landfill material underlying the site is contained by perimeter dikes. The dikes are about 20 feet above mean low water. They slope about 25 degrees and are faced with angular boulders 1 to 3 feet in diameter (riprap) designed to protect the dike from wave erosion.

During a seismic event, ground shaking could result in slumping of the dikes (by as much as 3 feet).[37] This displacement is not predicted to extend to the proposed building locations, or expose the landfill refuse. However, utilities, such as water lines, located on the tops of dikes could be adversely affected.

Implementation of the following mitigation measure would reduce this impact to a less-than-significant level.

> Mitigation Measure GEO-3: The applicant shall ensure that the Inspection and Repair Plan (see Mitigation Measure GEO-2c) includes provisions for dike inspections and repairs. The dikes shall be inspected at least annually (and immediately following a seismic event) and necessary repairs to ensure stability shall be implemented. All inspections and repairs shall be conducted by or in accordance with the recommendations of a licensed professional engineer. (LTS)

Impact GEO-4: Landfill integrity and site improvements could be compromised by strong ground motion during a seismic event, resulting in risks to humans and damage to property. (S)

Currently the site is unoccupied; however the proposed project includes new commercial office structures that would accommodate approximately 1,800 workers in five multi-story buildings. Earthquake hazard mapping for the project site indicates that MMI-VII (strong) or greater ground shaking[38] and accelerations of 0.565(g)[39] could be expected at the project site from an earthquake along any of the regional faults.

Under Order No. 96-058 issued by the RWQCB on April 17, 1996, a Post-Earthquake Inspection and Corrective Action Plan (Plan) for Sierra Point Landfill was prepared. The Plan would be implemented in the event of a Magnitude 7.0 or greater earthquake within 30 miles of the former landfill. The Plan specifies that results of the inspection of containment features and groundwater and leachate control facilities potentially impacted by the static and seismic deformations of the landfill must be reported to the RWQCB within 72 hours of the event. Immediately following an earthquake event causing damage to the landfill structures, the corrective action plan is required to be implemented and the RWQCB must be notified of any damage. Inspection and Corrective Action Plan activities following a triggering event include assessing: perimeter dikes and shoreline erosion protection measures; the surface locations of underground utilities; landfill cover including roads and parking areas; ground-

[37] GeoSyntec Consultants, Inc., 2005, op. cit.

[38] ABAG, 2004. op. cit.

[39] California Geological Survey (CGS), 2005. *Probabilistic Seismic Hazards Mapping Ground Motion Page.* Website: www.consrv.ca.gov/cgs/rghm/pshamap/pshamain.html. July 27, 2006

water monitoring systems; leachate monitoring systems; and surface-water drainage and outlet facilities.[40]

The landfill owner must also 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.

Implementation of the following mitigation measure would reduce this impact to a less-than-significant level.

> Mitigation Measure GEO-4: The applicant shall ensure that the Post-Earthquake Inspection and Corrective Action Plan (Plan) is updated to reflect the changes in conditions at the project site since its initial preparation in 1996. The Inspection and Repair Plan (see Mitigation Measure GEO-2c) should work cooperatively with the Plan. The revised Post-Earthquake Inspection and Corrective Action Plan shall be submitted to the City prior to site occupancy. (LTS)

[40] Jesionek, Krzysztof S., P.E., Dunn, Jeffery R., Dr, 1997. *Post-Earthquake Inspection and Corrective Action Plan, Sierra Point Landfill,* GeoSyntec Consultants, Inc., March 12.

G. HYDROLOGY AND WATER QUALITY

This section describes the regional and local hydrological conditions at the site and assesses potential significant impacts associated with the proposed project. Mitigation measures are recommended as appropriate.

1. Setting

The project site is located on the western margin of San Francisco Bay in northern San Mateo County, California. The Bay and its northern extension, San Pablo Bay, have a length of approximately 27 miles; the width of the Bay at the project location is approximately seven miles. The site occupies filled land on the western Bay shore.

The climate of the area of the project site is characterized as dry-summer subtropical (often referred to as Mediterranean). Under this temperate climatic regime, two dominant seasons occur: cool, wet winters (October through April) and relatively warm, dry summers (May through September). 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 average annual high temperature is 69.3º Fahrenheit (F); the average annual low is 49.1º F.

The mean annual rainfall in the vicinity of the project site, for the period between 1948 and 2005, is approximately 20.3 inches, with the vast majority of rainfall between October and May.[1] During the period of record, annual rainfall has varied from 9.2 inches (1953) to 38.3 inches (1983). Analysis of long-term precipitation records indicates that wetter and drier cycles lasting several years are common in the region.

a. Topography and Drainage. The natural topography of the Bay margin has been buried by fill placed to accommodate bayshore development. The majority of the site is vacant and covered with ruderal vegetation. The elevation of the interior of the site ranges from approximately 16 to 17 feet above mean sea level (msl). Vegetated stockpiles of fill materials are present in the northern portion of the site; the tops of the piles are seven to ten feet above the surrounding ground surface. Additionally, a barren stockpile of recycled fragments of asphalt is located in the north central area of the site. The southern margin of the site is defined as a riprap slope (approximate slope of 35 percent) adjacent to open water of the Bay. The areas west and north of the site are developed lands on fill. The site is bounded to the east by a marina. West of the project site, Highway 101 runs along the base of the eastern slope of San Bruno Mountain, which rises to an elevation of 1,314 feet msl.

The surface of the project site is elevated relative to the roadways and associated storm drainage system that bounds its northern and southern margins. Therefore, the site does not receive appreciable runoff from off-site areas. There are no natural drainage channels traversing the site. Shallow, unlined drainage ditches at the northern and western boundaries of the site collect runoff from the site. The ditches discharge runoff to existing storm drains along Sierra Point Parkway and Shoreline Court. Additionally, an existing storm drain system collects runoff from the interior of the site. The drainage

[1] Western Regional Climate Center, 2004. Website: www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca6826.

system discharges runoff to the Bay. This system consists of a number of drop inlets that feed buried drainage pipes. The system has been recently inspected and found to be in good working condition.[2]

b. Tidal Conditions. The project site is located at the margin of San Francisco Bay, a tidally influenced water body. Two tidal cycles (high-low) per day cause significant changes in the water levels in the Bay. The range of tides is variable and the United States Corps of Engineers (USCOE) has developed tidal stage (i.e., height) versus frequency relationships from long-term tidal measurement to estimate extreme high tide conditions within San Francisco Bay. The estimated mean higher high water and 100-year high tide[3] at Oyster Point, located approximately 0.3 mile south of the project site, are 3.6 and 6.8 feet msl, respectively.[4]

c. Flood Zone Designation. Flooding hazard mapping prepared by the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Mapping (FIRM) program indicates that the majority of the project site is outside the 100-year flood hazard zone.[5] The project site is not located in any mapped dam failure inundation zones.[6]

Due to the proximity of the project site to San Francisco Bay, the potential for coastal flooding hazards, including tsunami, extreme high tides, and sea level rise should be considered. As stated above, the estimated 100-year tide has an elevation of approximately 6.8 feet msl. "Still water" conditions for this extreme tide would not be expected to inundate developed areas of the site. However, waves generated during storms coincident with high tide events during storms may result in damage to the riprap slope along the southern margin of the site.

In addition to storm waves, the site could potentially be affected by tsunamis. Tsunamis are long-period waves generated during earthquakes that disturb the ocean floor. In some instances, tsunamis can be caused by large submarine landslides. The potential hazard related to tsunamis within San Francisco Bay has been analyzed in regional studies. The expected runup heights in the area of Sierra Point for the 100- and 500-year tsunamis are 4.4 and 6.3 feet msl.[7]

The potential for coastal flooding is exacerbated by the documented trend of rising sea levels world-wide. Globally, sea level has been rising over approximately the past 10,000 years as the result of the amelioration of the last glacial epoch. The rate of sea level rise had been relatively consistent over the last 5,000 years (approximately 0.0039 foot/year). [8] However, the average rate of sea level rise for the

---

[2] CH2M HILL, 2006. *Facility Inspection, First Quarter 2006. Former Sierra Point Landfill, Brisbane and South San Francisco, letter report to Sierra Point Environmental Management Association, Inc*. August.

[3] A 100-year high tide is a tidal event that has a one percent (1/100) probability of occurring, or the highest tide to be expected in any 100-year period.

[4] United States Army Corps of Engineers (USCOE), 1984. *San Francisco Bay Tidal Stage vs. Frequency Study*.

[5] Federal Emergency Management Agency (FEMA), 1983. *Flood Insurance Rate Map (FIRM), Brisbane, California, San Mateo County, Community Panel Numbers 0603140001B.* March 29.

[6] Association of Bay Area Governments, 2005. *Interactive ABAG (GIS) Maps Showing Dam Failure Inundation,* Website: http://www.abag.ca.gov/bayarea/eqmaps/damfailure/damfail.html.

[7] Garcia, A.W. and Houston, J.R., 1975. *Type 16 Flood Insurance Study: Tsunami Predictions for Monterey and San Francisco Bays and Puget Sound, United States Army Corps of Engineers Technical Report H-75-17*.

[8] San Francisco Bay Conservation and Development Commission (BCDC), 1987. *Sea Level Rise: Predictions and Implications for San Francisco Bay*. December

Monterey Bay and San Francisco Bay area has increased to 0.0075 foot/year.[9] The relative rate of sea level change is the difference between global sea level rise and local changes in ground surface elevation (i.e., tectonic uplift or subsidence). Therefore, the rate of relative sea level change is variable even on a local scale. Within San Francisco Bay, the rate of relative sea level change over the past 100 years varies from 0.0002 foot/year at Sausalito to 0.0959 foot/year at Alviso; at the San Mateo Bridge, the rate was 0.0059.

The cause of the measured acceleration in the rate of sea level rise has been the subject of significant scientific debate. The most common explanation for the increased rate of rise has been increased global temperature as the result of increased emission of "greenhouse gases." Investigation of the rate of change in global temperatures and the link between the emission of greenhouse gases and climate change is the subject of on-going research. However, the rate of sea level rise has been documented and presents a significant issue in planning of development and hazard analysis in coastal areas. The most significant potential hazard for the project site would be increased flooding hazards. The USCOE has estimated that the rise in sea level would contribute to increased "highest estimate tides (HET)." The estimated HET under present conditions at the San Mateo Bridge is 7.1 feet msl and the projected estimated HET for 2037 is 7.6 feet.[10] A similar increase in HET can be expected at the project site.

d. Groundwater. The physiographic setting of the project site is filled land in the location of a former tidal marsh on the western margin of San Francisco Bay. The stratigraphy (i.e., sequence of geologic units) that underlies the site has been identified during subsurface investigations conducted at the site. The following brief description of the stratigraphy of the site is summarized by information presented in the Solid Waste Assessment Test (SWAT) report prepared for the closure of the former landfill at the site and surroundings.[11] In general, the uppermost unit is fill materials (including refuse and earthen fill) placed on a former tidal marsh surface. The top of the fill consists of a "cap" placed on a former landfill, which consists of a one-foot thick compacted clay layer overlain by two feet of soil. The overall thickness of the fill is variable (approximately 28 to 57 feet), generally increasing eastward as the consequence of a sloping tidal zone. The fill is underlain by up to about 80 feet of Young Bay Mud sediments, primarily silt and clay deposits. The Young Bay Mud is underlain by Old Bay Mud deposits, distinguished primarily by relatively greater density. In some areas, the Young Bay Mud is directly underlain by discontinuous deposits of relatively coarser clayey sand. The thickness of the clayey sand deposits varies from less than one foot to over 20 feet. Below the Young Bay Mud and/or clayey sand, the Old Bay Mud extends to the top of Franciscan Complex bedrock at depths ranging from less than 50 to over 200 feet.

The subsurface investigations of the site identified the two uppermost aquifers, or water-bearing zones, that underlie the site. The uppermost aquifer, designated Zone A, is the unconsolidated fill deposits that overlie Young Bay Mud. The next lower aquifer, Zone B, is the clayey sand deposits between the bottom of the Young Bay Mud and the top of the Old Bay Mud. Groundwater levels measured in monitoring wells completed in Zone A indicate that the groundwater flow direction in

[9] U. S. Geological Survey, 2000. National Assessment of Coastal Vulnerability to Sea-Level Rise: Preliminary Results for the U.S. Pacific Coast, USGS Open-File Report 00-178, accessed at pubs.usgs.gov on September 28, 2006.

[10] USCOE, 1984, op. cit.

[11] Kleinfelder, Inc., 1993. *Solid Waste Water Quality Assessment Test Report, Sierra Point Landfill, Brisbane and South San Francisco, California,* report prepared for the Owners of the Sierra Point Landfill. August 25.

this zone is toward the edges of the Sierra Point peninsula. Flow in Zone B is predominantly toward the east-northeast. The water levels in wells completed in the two different zones indicate that there is an upward vertical gradient between the lower (Zone B) and upper (Zone A) aquifers. The groundwater levels within both zones fluctuate in response to the rise and fall of tides in the Bay, indicating that both zones are hydraulically connected to the Bay. The fact that the tidal response is more rapid in Zone A than in Zone B has been interpreted to indicate that the aquifers are not directly connected to each other.[12]

e. Water Quality. Significant water quality testing has been and continues to be performed as a requirement of management of the former Sierra Point Landfill, including at locations within and adjacent to the project site. Sampling of Bay surface water from Sierra Point indicates that the water quality is similar to the quality of other samples collected from the Bay in the vicinity of the project.[13]

The groundwater quality of the site has been monitored as part of regulatory requirements for the Sierra Point Landfill. Several monitoring wells are located at the site and are a part of the groundwater monitoring network for the landfill. Monitoring wells MW-9A and MW-11A are located along the southern margin of the site and have been sampled as part of the monitoring plan required by the San Francisco Bay Regional Water Quality Control Board (RWQCB).[14] The RWQCB has required that samples collected from these wells on a semi-annual basis be tested for a wide range of chemical constituents, including nitrogen, ammonia, chemical oxygen demand, total dissolved solids, volatile organic compounds, and metals. Additionally, samples collected every five years are required to be tested for semi-volatile organic compounds, organophosphorus compounds, pesticides and polychlorinated biphenyls, and chlorinated herbicides. A leachate collection point (L-2) must also be sampled. The results of the sampling and analyses are reported to and evaluated by the RWQCB to determine if significant discharge of contaminants is occurring at the landfill.

The stormwater quality of the site has been monitored as part of regulatory requirements for the Sierra Point Landfill. A Stormwater Monitoring Program was approved by the RWQCB in 1997. Sampling consists of grab samples from a representational subset of the stormwater outlets at the site from two different storm events during each wet season. The samples are tested for pH, electrical conductance, total dissolved solids, total suspended solids, total oil and grease, and dissolved metals including arsenic, barium, cadmium, chromium, copper, iron, lead, mercury, nickel, selenium, silver, and zinc. Details of the sampling events, lab results and analysis are reported in an Annual Report to the RWQCB.[15]

Under Order No. 96-058 issued by the RWQCB on 17 April 1996, a Post-Earthquake Inspection and Corrective Action Plan (Plan) for Sierra Point Landfill was prepared. The Plan is to be implemented in the event of a Magnitude 7.0 or greater earthquake within 30 miles of the landfill. The Plan specifies that results of the inspection of containment features and groundwater and leachate control facilities potentially impacted by the static and seismic deformations of the landfill be reported to the

[12] Ibid.

[13] Ibid.

[14] California Regional Water Quality Control Board, San Francisco Bay Region (RWQCB), 1996. *Updated Waste Discharge Requirements, WDR Order No. 96-058.*

[15] Wactor, Jon, 2006. *2005-2006 SWRCB Annual Report for Stormwater Discharges Associated with Industrial Activities, Former Sierra Point Landfill.* Sierra Point Environmental Management Association.

RWQCB within 72 hours of the event. Immediately following after an earthquake event causing damage to the landfill structures, the corrective action plan shall be implemented and the RWQCB will notified of any damage.[16] Inspection and Corrective Action Plan activities following a triggering event include assessing: perimeter dikes and shoreline erosion protection measures; the surface locations of underground utilities; landfill cover including roads and parking areas; ground-water monitoring systems; leachate monitoring systems; and surface-water drainage and outlet facilities.

f. Regulatory Framework. The quality of surface water and groundwater in the vicinity of the project site is affected by past and current land uses at the site and within the watershed and the composition of geologic materials in the vicinity. Water quality in surface and groundwater bodies is regulated by the State and Regional Water Quality Control Boards. The project site is under the jurisdiction of the RWQCB, which is responsible for implementation of state and federal water quality protection guidelines in the area of the project site. The RWQCB implements the Water Quality Control Plan (Basin Plan),[17] a master policy document for managing water quality issues in the region. The Basin Plan establishes beneficial water uses for waterways and water bodies within the region.

As discussed previously in this section, the project site comprises a portion of the former Sierra Point Landfill. This facility is an inactive former municipal solid waste disposal site that has been closed but is regulated as a closed Class III landfill under the provisions of Division 2 of Title 27 of the California Code of Regulations.

The project site is located adjacent to San Francisco Bay. The Bay has been identified as an "impaired waterway" by the State Water Resources Control Board in compliance with Section 303 of the Federal Clean Water Act. This designation indicates that the water quality within a waterway has been adversely affected by one or more pollutants. Listed waterways do not meet water quality objectives, even after point (individual) sources of pollution have installed the minimum required levels of pollution control. The pollutants for which the Bay has been listed are chlordane, DDT, diazinon, dieldrin, dioxin compounds, furan compounds, nickel, mercury, PCBs, and selenium. The identified potential sources of these pollutants include urban runoff, agricultural operations, construction and land development, and atmospheric fallout. The RWQCB is responsible for defining regulatory thresholds, or "total maximum daily loads" (TMDLs), for the listed pollutants. The TMDLs for San Francisco Bay are currently under development.

Within the context of the proposed project, development of the vacant site for commercial uses, the potential for release of pollutants is controlled through state stormwater regulations. Runoff water quality is regulated by the National Pollutant Discharge Elimination System (NPDES) established through the Clean Water Act; the NPDES program objective is to control and reduce pollutants to water bodies from point source discharges and stormwater discharges from municipal systems. The Program is administered by the California Regional Water Quality Control Boards. The project site is currently under the jurisdiction of the RWQCB and the San Mateo County countywide Stormwater Pollution Prevention Program (STOPPP), which is administered by the City and County Association of Governments of San Mateo County and the City of Brisbane. The RWQCB issued the San Mateo

[16] Jesionek, Krzysztof S., P.E., Dunn, Jeffery R., Dr, 1997. *Post-Earthquake Inspection and Corrective Action Plan, Sierra Point Landfill,* GeoSyntec Consultants, Inc., 12 March.

[17] San Francisco Bay Regional Water Quality Control Board, 1995. *Water Quality Control Plan*.

County countywide NPDES Municipal Stormwater Permit Amendment (Order No. R2-2003-0023), which recognized STOPPP's Stormwater Management Plan as the comprehensive stormwater discharge control program for the area of the project site. The permit was amended in 2003 to provide more specificity for the control of urban runoff pollutants from new developments, such as the project site. The permit sets specific requirements for new developments approved after February 15, 2005 and the Stormwater Management Plan presents performance standards for compliance with the permit. The project will also be subject to the State's General Construction Activities Storm Water Permit since it involves more than 1 acre of land disturbance.

g. City of Brisbane General Plan Policies. The Following Hydrology And Water Quality Related Policies From The Conservation Element In The Brisbane General Plan Are Relevant To The Proposed Project.

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.

Program 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.

2. Impacts and Mitigation Measures

This section presents the criteria of significance for determining whether an impact is significant. Impacts are then presented that are considered less than significant, followed by significant impacts. Mitigation measures are recommended as appropriate.

a. Significance Criteria. The project would have a significant effect on hydrology or water quality if it would:

- Violate any water quality standards (including turbidity limitations for discharged water) or waste discharge requirements, including the potential for the project to affect impaired water bodies listed on the State's 303(d) list and/or to conflict with designated beneficial uses.
- Substantially deplete groundwater supplies; 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; or alter the flow of groundwater.
- Increase the risk of accidental surface water or groundwater contamination, or substantially degrade water quality.
- Substantially degrade water quality of streams through pollutant discharges, physical or chemical changes of water bodies, or increased erosion and sedimentation.
- Cause unacceptable impacts to seasonal creeks and/or create new stream crossings that could result in unacceptable levels of erosion or stream channel alteration.
- Create or contribute runoff water of a quantity or volume that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff or would result in flooding on-site or off-site.
- Substantially alter the existing drainage pattern of the site or area, including alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on-site or off-site.
- Result in the construction and/or occupation of structures within an identified flood hazard area.
- 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.
- Expose people or structures to a substantial risk of inundation by seiche, tsunami, extreme high tides, and/or sea level rise.

b. Less-than-Significant Impacts. The majority of the project site, including all areas of proposed development, is located outside the FEMA 100-year flood hazard zone. Only the lower portions of the riprap slope along the south margin of the site are subject to 100-year storm flooding. The grading plan for the project indicates that the land surface for all planned development is above 16 feet msl. The 100-year high tide is estimated to be 6.9 feet msl. Similarly, the expected wave runup during a 100-year tsunami is 4.4 feet msl. Expected sea level rise during the expected life of the project would be less than one foot. Given the proposed elevation of the developed site (generally greater than 16 feet msl), flooding of the site during an extreme tide or tsunami, even with the expected rate of sea level rise, is unlikely. Therefore, on-site flooding and potential impacts from sea level rises would be less than significant.

The project proposes the construction of impervious surfaces on an existing undeveloped site. The construction of impervious surfaces would reduce the rate of infiltration of precipitation and increase the amount of runoff generated during rainstorms. Under existing conditions, runoff from the central and southern portions of the site is collected in an existing storm drain system and discharged to San Francisco Bay via four outfalls along the southern margin of the site. The existing runoff from the northern and western portions flow to drainage ditches discharging to the drainage system for Sierra Point Parkway and Shoreline Court.

Under the proposed project, the site would be graded to direct runoff from the developed portions of the site to an expanded storm drain system. All of the drainage would be conveyed in buried storm sewers to the existing outfalls along the southern margin of the site and discharged to the Bay. The proposed project would increase the impervious surface coverage on the project site by approximately 502,550 square feet.[18] Although an increase in runoff from the increased impervious surface coverage is expected, all of the collected runoff would be discharged to the Bay. Therefore, surface flooding would not be expected at or "downstream" of the project site. The amount of runoff discharged from the site to the storm drain system along Sierra Point Parkway and Shoreline Court would be reduced by more efficient collection of runoff in the drain system discharging to the Bay. Therefore, the volume of runoff from the site that may contribute to existing localized flooding would be reduced. Changes to the amount of stormwater runoff at the site would be less than significant.

c. Significant Impacts. The proposed project would result in two potentially significant impacts.

Impact HYDRO-1: Construction activities could result in surface water quality degradation. (S)

Construction and grading within the project site would require temporary disturbance of surface soils. During the construction period, grading and excavation activities would result in exposure of soil to runoff, potentially causing erosion and entrainment of sediment and contaminants in the runoff. 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.

The potential for chemical releases is present at most construction sites given the types of materials used, including fuels, oils, paints, and solvents. Once released, these substances could be transported to the Bay in stormwater runoff, potentially incrementally reducing water quality. The proximity of the project site to the Bay reduces the chances that the pollutants (e.g., sediment, petroleum hydrocarbons, and lubricants) would be naturally attenuated prior to discharge to the Bay.

In addition to potential impacts to surface water, construction of deep pile foundations for the project could present the potential for the migration of contaminants identified in shallow groundwater at the site to deeper water-bearing zones. The piles would be driven through the uppermost aquifer (Zone A) and would penetrate low permeability sediments that separate this unit from deeper aquifers. The piles could potentially serve as vertical conduits for the migration of contaminants. This potential impact was addressed in the SWAT report for the Sierra Point Landfill.[19] The analysis concluded that there would be a potential for the downward migration of groundwater (potentially containing contaminants) along piles driven through the former landfill. The conclusions of the analysis indicated that the possible migration of contaminants was mitigated by the expected response of the Young Bay Mud to pile driving. The pile driving would tend to increase the density and decrease the permeability of the sediments surrounding the piles. Additionally, during pile driving, the increase in pore pressures would be expected to "liquefy" the sediments, allowing the sediments to flow and seal around the pile. The analysis was submitted to and considered by the RWQCB during its development of Waste Discharge Requirements for the Sierra Point Landfill.

[18] Smith, Diane Floresca, 2006. Project Manager, Project Management Advisors, Inc., Consultant to Slough Estates International (Applicant). Personal communication with LSA Associates, Inc. October.

[19] Kleinfelder, Inc, 1993, op. cit.

Implementation of the following three-part mitigation measure would reduce this impact to a less-than-significant level.

> Mitigation Measure HYDRO-1a: As a condition of approval of the final grading plans, the applicant shall file a Notice of Intent to comply with the statewide General Permit for Discharges of Storm Water Associated with Construction Activities, and shall prepare a Storm Water Pollution Prevention Plan (SWPPP) for construction activities on the site. The SWPPP shall include all provisions of the Erosion and Sediment Control Plan submitted by the applicant. In addition to 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 HYDRO-1b: The grading of the project site shall be conducted in conformance with the approved Grading Plan. All recommendations for grading presented in the site-specific geotechnical reports shall be incorporated into the grading activities.
>
> Mitigation Measure HYDRO-1c: As a condition of approval, the applicant shall be responsible for continued compliance with all requirements of the Waste Discharge Requirements administered by the RWQCB for the Sierra Point Landfill. As necessary, the applicant shall protect or replace all compliance monitoring points within the project site. (LTS)

Impact HYDRO-2: Runoff from the operational phase of the project could result in surface water and groundwater quality degradation. (S)

Operation of the proposed project would introduce new potential sources of water quality degradation. The operation and parking of vehicles at the site presents the potential for accumulation and release of petroleum hydrocarbons, lubricants, sediments, and metals (generated by the wear of automobile parts). The management of landscaped areas presents the potential for runoff and/or infiltration of herbicides and pesticides. These types of common urban pollutants could be transported in runoff, potentially adversely impacting the quality of waters of the Bay or groundwater. Temporary storage and use of hazardous materials by project tenants could result in spills or leaks of these materials (see further discussion in Section IV.I, Hazards and Hazardous Materials).

According to a representative of the project applicant:

> "At this preliminary stage in the development process for Sierra Point, storm drainage and stormwater quality treatment have been considered at the conceptual level. Site grades were, in part, dictated by the storm drain system and the need to gravity flow to the Bay while staying above the existing clay cap with storm drain infrastructure. Stormwater treatment is intended to be handled by the use of biofiltration using bioswales. These swales will be located between parking bays, at edges of paving and in landscaped areas, where feasible. Stormwater runoff will sheet flow from impervious surfaces to the bioswales. Roof drains will be directed to outfall on grade within the swales. The swales will be set at gentle slopes and planted. Runoff will infiltrate through a soil layer and collect in a perforated pipe above the clay cap. The perforated pipes will

discharge directly to the storm drainage system. At this conceptual stage, we have found no evidence that would preclude these designs from moving forward to detail design."[20]

As shown in Figure III-13, the proposed project includes conceptual plans for typical parking lot bioswales.

The requirements of STOPPP's Stormwater Management Plan provide specific guidelines and performance standards for the design, implementation, and maintenance of stormwater BMPs. The Plan presents options for the choice of effective BMPs but requires that the BMPs be based on the results of specific analyses. The Plan requires the approval process for all Group 1[21] projects, including the proposed project, to meet the following general goals:

- Require a project proponent to implement site design/landscape characteristics, where feasible, that maximize infiltration (where appropriate), provide retention or detention, slow runoff, and minimize impervious land coverage, so that post-development pollutant loads from a site have been reduced to the maximum extent practicable; and
- For new and redevelopment projects that discharge directly (not mixed with runoff from other developed sites) to water bodies listed as impaired by a pollutant(s) pursuant to Clean Water Act Section 303(d), ensure that post-project runoff does not exceed pre-project levels for such pollutant(s), through implementation of the control measures addressed in this provision, to the maximum extent practicable, in conformance with Provision C.1.

The project has not yet developed a Storm Water Pollution Prevention Plan (SWPPP) that would specifically identify the type, capacity and location of the BMPs to be implemented at the project site. The applicant is required to develop a SWPPP that identifies BMPs that have been designed on the following hydraulic sizing criteria:

Volume Hydraulic Design Basis. Treatment measures whose primary mode of action depends on volume capacity, such as detention/retention units or infiltration structures, shall be designed to treat stormwater runoff equal to:

- The maximized stormwater capture volume for the area, based on historical rainfall records, determined using the formula and volume capture coefficients set forth in "Urban Runoff Quality Management, WEF Manual of Practice No. 23," *ASCE Manual of Practice No. 87* (1998), pages 175-178 (e.g., approximately the 85th percentile 24-hour storm runoff event); or
- The volume of annual runoff required to achieve 80 percent or more capture, determined in accordance with the methodology set forth in Appendix D of the *California Stormwater Best Management Practices Handbook* (1993), using local rainfall data.

Flow Hydraulic Design Basis. Treatment measures whose primary mode of action depends on flow capacity, such as swales, sand filters, or wetlands, shall be sized to treat:

[20] Smith, Diane Floresca, 2006. Project Manager, Project Management Advisors, Inc., Consultant to Slough Estates International (Applicant). Personal communication with LSA Associates, Inc. October.

[21] Group 1 projects include commercial, industrial, or residential developments that create one acre (43,560 square feet) or more of impervious surface, including roof area, streets, and sidewalks.

- 10 percent of the 50-year peak flow rate; or
- The flow of runoff produced by a rain event equal to at least two times the 85th percentile hourly rainfall intensity for the applicable area, based on historical records of hourly rainfall depths; or
- The flow of runoff resulting from a rain event equal to at least 0.2 inch per hour intensity.

In addition to the general potential water quality impacts related to stormwater runoff, potential erosion of the bank protection at the south margin of the project site could occur. Damage to the existing riprap slope by storm waves could result in adverse discharge of sediment to the Bay. Additionally, severe or continued erosion of the shoreline could potentially damage site improvements or increase flooding hazards.

Implementation of the following mitigation measure would reduce this impact to a less-than-significant level.

> Mitigation Measure HYDRO-2a: As a condition of approval of the final grading plan, the project applicant shall fully comply with the San Mateo County Countywide Stormwater Pollution Prevention Program (STOPPP) which maintains compliance with the NPDES Stormwater Discharge Permit. Responsibilities include, but are not limited to, designing Best Management Practices (BMPs) into the project features and operation to reduce potential impacts to surface water quality associated with operation of the project. The applicant shall prepare a Final Stormwater Management Plan to be reviewed and approved by the City Engineer. The Final Stormwater Management Plan will be the guiding document detailing practices for mitigating water quality in the post-construction phase. The Plan shall provide operations and maintenance guidelines for all of the BMPs identified in the Plan, include measures designed to mitigate potential water quality degradation of runoff from all portions of the completed development (including roof and sidewalk runoff), and clearly identify the funding sources for the required on-going maintenance. In general, passive, low-maintenance BMPs (e.g., grassy swales, porous pavements) are preferred in areas where year-round irrigation is already planned. Higher-maintenance BMPs may only be used if the development of at-grade treatment systems is not possible, or would not adequately treat runoff. If the design includes higher maintenance BMPs (e.g., sedimentation basins, hydrocarbon interceptors), then funding for long-term maintenance needs must be specified (the City shall not assume maintenance responsibilities for these features). The Plan shall incorporate as many concepts as practicable from *Start at the Source, Design Guidance Manual for Stormwater Quality Protection.*[22] The applicant shall thoroughly review and comply with the requirements of the most current Brisbane municipal permit for storm water discharges (currently NPDES Permit Amendment Order No. R2-2003-0023). The City of Brisbane Public Works Department and/or Building Division shall ensure that the final project design and stormwater management plan are prepared and are adequate prior to approval of the grading plan.
>
> Mitigation Measure HYDRO-2b: As a condition of approval of the final grading plan, the project applicant shall develop and implement an Integrated Pest Management Plan (IPM) for all common landscaped areas. The IPM shall be prepared by a qualified professional approved

[22] Bay Area Stormwater Management Agencies Association, 1999. *Start at the Source, Design Guidance Manual for Stormwater Quality Protection*. Website: www.basmaa.org.

by the City. The IPM shall address and recommend methods of pest prevention and that use of pesticides is a last resort in pest control. Types and rates of fertilizer and pesticide application shall be specified. Pesticides shall be used only in response to a persistent pest problem. Preventative chemical use shall not be employed. Cultural and biological approaches to pest control shall be more fully integrated into the IPM with an emphasis toward reducing pesticide application. (LTS)

H. BIOLOGICAL RESOURCES

This section addresses biological resources on the project site including: 1) vegetation communities and wildlife habitats; 2) regulatory context; 3) potentially occurring special-status species; 4) sensitive habitats such as wetlands; and 5) potential impacts to biological resources associated with implementation of the proposed project. Mitigation measures are identified as necessary.

1. Setting

This section provides a discussion of methods, a description of vegetation communities and wildlife habitats, the regulatory context for the project and a discussion of special-status species and sensitive habitats.

a. Methods. Prior to conducting a field visit to the site, the *California Natural Diversity Database* (CNDDB) was searched in order to identify occurrences of special-status species in the project vicinity.[1] The CNDDB search included special-status species occurrences within the United States Geological Survey (USGS) 7.5-minute San Francisco South quadrangle in which the site is located.

An LSA biologist conducted a field survey of the project site on May 23, 2006. The survey focused on characterizing the vegetation communities and habitats, determining if sensitive habitats are present on the site, and evaluating the potential for special-status species to occur on the site. Plant and animal species observed during the site visit were recorded in field notes.

b. Vegetation Communities and Wildlife Habitats. The project site is located on Bay fill that was formerly shallow water over a mud flat.[2] Because the project site represents "new land," built from imported soil, it never supported any natural terrestrial upland vegetation communities. Barren and disturbed land such as Bay fill tends to be colonized by invasive non-native plant species. Thirty-five species of plants were observed on the project site, and all but three species are of non-native origin.

Relatively sparse vegetation characterizes most of the site, but there are smaller patches of dense weeds and shrubs, particularly in areas adjacent to irrigated landscaping. The vegetation community on the project site is best described as ruderal (a general term that refers to vegetation dominated by non-native weedy plant species and is typically present on highly disturbed land).

Two native plant species observed on the project site, flatsedge *(Cyperus eragrostis)* and arroyo willow *(Salix lasiolepis)*, are hydrophytic indicators typically associated with wetland or riparian habitats. Several individuals of these species occur where irrigation water accumulates from landscaped areas on adjacent parcels. Runoff from the off-site irrigation provides enough moisture to allow for establishment and growth of these species. These "wet areas" do not meet the criteria as

[1] California Natural Diversity Data Base 2006. Rarefind search results for the San Francisco South U.S.G.S. 7.5 minute quad and surrounding quads. California Department of Fish and Game. Sacramento.

[2] San Francisco Bay Regional Water Quality Control Board, 1999. *Bay Lands Ecosystem Habitat Goals: A Report of Habitat Recommendations*. Prepared by the San Francisco Bay Area Wetlands Ecosystem Goals Project.

jurisdictional wetlands in that they do not support wetland soils or hydrology and the site conditions would not support hydrophytic vegetation without artificial irrigation.
Landscaping on the project site includes 60 palm trees located along Shoreline Court and Sierra Point Parkway as well as ornamental Lombardy poplar *(Populus nigra* var. *italica)* and myoporum *(Myoporum laetum)* around the cluster of three small buildings on the site. No nesting bird activity was observed in or around the trees on the project site.

The southern edge of the project site fronts on Oyster Cove, an extension of the San Francisco Bay. The Bay shore in this area is composed of riprap. Riprap has relatively low habitat value to most native animals, but burrowing owls *(Athene cunicularia)* sometimes winter in riprap, using the cavities between the rocks as shelter, and some species of shorebirds use the rocks as roosting sites.

Ruderal habitats typically are occupied by common widely distributed animal species that thrive in urban areas. Most of the animal species observed on the project site are relatively common in the Bay Area and occur widely in a variety of open habitats and/or landscaped urban environments. The bird species observed were red-tailed hawk (*Buteo jamaicensis*), American kestrel (*Falco sparverius*), rock pigeon *(Columba livia)*, Anna's hummingbird *(Calypte anna)*, American crow *(Corvus brachyrhynchos)*, barn swallow *(Hirundo rustica)*, European starling *(Sturnus vulgaris)*, house finch *(Carpodacus mexicanus)*, and American goldfinch *(Carduelis tristis)*. Both the rock pigeon and European starling are non-native species. Mammals seen or detected, through observation of tracks burrows or other signs, were black-tailed jackrabbit (*Lepus californicus*), California ground squirrel (*Spermophilus beecheyi*), and Botta's pocket gopher *(Thomomys bottae)*.

c. Regulatory Context. A large number of plans, policies and regulations apply to biological resources on, and in the vicinity of the project site. Starting at the federal level and preceding the State, regional and local levels, this regulatory context is discussed below.

(1) U.S. Fish and Wildlife Service (USFWS). The U.S. Fish and Wildlife Service (USFWS) has jurisdiction over species that are formally listed as threatened or endangered under the federal Endangered Species Act. The Endangered Species Act protects listed wildlife species from harm or "take." The term "take" is broadly defined as to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct." An activity is defined as a "take" even if it is unintentional or accidental. An endangered plant or wildlife species is one that is considered in danger of becoming extinct throughout all, or a significant portion of its range. A threatened species is one that is likely to become endangered within the foreseeable future. In addition to endangered and threatened species, which are legally protected under the federal Endangered Species Act, the USFWS has a list of proposed and candidate species. Proposed species are those for which a proposed rule to list them as endangered or threatened has been published in the Federal Record. A candidate species is one for which the USFWS currently has enough information to support a proposal to list it as a threatened or endangered species. These latter species are not afforded legal protection under the federal Endangered Species Act. However, substantial project-related impacts to federally-listed, proposed, and candidate species or their habitats are considered "significant" under the *CEQA Guidelines* (discussed below).

(2) California Department of Fish and Game (CDFG). The California Department of Fish and Game (CDFG) has jurisdiction over threatened or endangered species that are formally listed by the State under the California Endangered Species Act. The California Endangered Species Act is

similar to the federal Endangered Species Act both in process and substance; it is intended to provide protection to threatened and endangered species listed by the CDFG. The California Endangered Species Act prohibits the "take" of any plant or animal listed or proposed as threatened, endangered, or rare ("rare" applies only to plants). The California Endangered Species Act does not supersede the federal Endangered Species Act, but operates in conjunction with it. Species may be listed as threatened or endangered under both acts (in which case the provisions of both State and federal laws would apply) or under only one act.

The CDFG also maintains informal lists of "species of special concern." These species are broadly defined as plants and wildlife that are of concern to the CDFG because of population declines and restricted distributions, and/or they are associated with habitats that are declining in California. Project-related impacts to species on the State endangered or threatened lists and lists of species of special concern may be considered "significant" under the *CEQA Guidelines* (discussed below). The CDFG also has jurisdiction over the bed and banks of watercourses according to the provisions of Section 1602 of the Fish and Game Code. The CDFG requires a Streambed Alteration Permit for the fill or removal of any material from any natural drainage. The jurisdiction of CDFG extends to the top of the bank and often includes the outer edge of riparian vegetation canopy cover.

(3) U.S. Army Corps of Engineers. Under Section 404 of the Clean Water Act, the U.S. Army Corps of Engineers (Corps) is responsible for regulating the discharge of fill material into waters of the U.S. and their lateral limits are defined in 33 Code of Federal Regulations (CFR) Part 328.3(a) including streams that are tributary to navigable waters and their adjacent wetlands. Wetlands that are not adjacent or connected to waters of the United States are termed "isolated wetlands" and are not subject to Corps jurisdiction.

In general, a Corps permit must be obtained before placing fill in adjacent wetlands or other waters of the U.S. The type of permit required depends on the amount of acreage and the purpose of the proposed fill, and is subject to discretion from the Corps. There are two categories of Corps permits: nationwide (general) permits and individual permits. To qualify for a nationwide permit, a project must demonstrate that it has no more than a minimal adverse effect on an aquatic ecosystem. The Corps typically interprets this condition to mean that there will be no net loss of either habitat acreage or habitat value. This usually results in the need to provide mitigation for project-related fill of jurisdictional wetlands.

An individual permit is required where a nationwide permit is not applicable. The consideration of an individual permit includes, but is not limited to, factors such as significant acreage of wetlands or waters of the U.S., areas of high biological or unique value, or length of watercourse affected. Individual permits require review of the project by the public, evidence that wetland impacts have been avoided or minimized to the extent possible, and provision of appropriate compensatory mitigation for unavoidable impacts.

(4) Regional Water Quality Control Board. Pursuant to Section 401 of the Clean Water Act, projects that apply for a Section 404 (Corps) permit for discharge of dredge or fill material into wetlands or other waters of the U.S. must also obtain water quality certification from the Regional Water Quality Control Board (RWQCB). This certification ensures that the project will uphold State water quality standards. Alternatively, the RWQCB may elect to notify an applicant that the State may issue Waste Discharge Requirements in lieu of a Section 401 certification for a project, including

those that result in discharges of fill into isolated wetlands that are not subject to Section 404 jurisdiction.

(5) San Francisco Bay Conservation and Development Commission. The San Francisco Bay Plan (Bay Plan) is a policy tool that, under the provisions of the McAteer-Petris Act, allows the San Francisco Bay Conservation and Development Commission (BCDC) to "exercise its authority to issue or deny permit applications for placing fill, extracting materials, or changing the use of any land, water, or structure within the area of its jurisdiction," an area that includes all of the San Francisco Bay, a shoreline band of 100 feet from the water, and salt ponds, managed wetlands and certain waterways associated with the Bay. The Bay Plan stipulates: "Any public agency or private owner holding shoreline land is required to obtain a permit from the Commission before proceeding with (shoreline) development."

The project site is located in the Central Bay Area on Map 5 of the Bay Plan. The highest expected water level is the 5.85 elevation line, and the BCDC jurisdiction extends 100 feet inland from this line on the project site.[3] Land within the BCDC jurisdiction on Sierra Point is subject to the policies of the Bay Plan but is not included in any of the five special area plans for the Bay region. Applicable biological resource related policies are listed below.

Fish, Aquatic Organisms and Wildlife Policy 4: The Commission should:

(a) Consult with the California Department of Fish and Game and the U.S. Fish and Wildlife Service or the National Marine Fisheries Service whenever a proposed project may adversely affect an endangered or threatened plant, fish, other aquatic organism or wildlife species;

(b) Do not authorize projects that would result in the "taking" of any plant, fish, other aquatic organism or wildlife species listed as endangered or threatened pursuant to the state or federal endangered species acts, or the federal Marine Mammal Protection Act, or species that are candidates for listing under the California Endangered Species Act, unless the project applicant has obtained the appropriate "take" authorization from the U.S. Fish and Wildlife Service, National Marine Fisheries Service or the California Department of Fish and Game; and

(c) Give appropriate consideration to the recommendations of the California Department of Fish and Game, the National Marine Fisheries Service or the United States Fish and Wildlife Service in order to avoid possible adverse effects of a proposed project on fish, other aquatic organisms and wildlife habitat.

(6) CEQA Guidelines Section 15380. Although only listed threatened and endangered species are protected by federal and State Endangered Species Acts, *CEQA Guidelines* section 15380(b) provides that a species not listed on the federal or State list of protected species may be considered rare or endangered if the species can be shown to meet certain specified biological criteria. These criteria have been modeled after the definition in the federal Endangered Species Act and the section of the California Fish and Game Code dealing with rare or endangered species. Section 15380(b) was included in the guidelines primarily to deal with situations in which a public agency is reviewing a project that may have a significant effect on a species that has not yet been listed by either the USFWS or CDFG. Thus, CEQA provides a lead agency with the ability to protect a species from a project's potential impacts until the respective government agencies have an opportunity to designate the species as protected, if warranted.

[3] OPUS West Corporation, 2001. *Combined Site and Architectural Design Guidelines, Sierra Point.* March.

(7) California Native Plant Society. The California Native Plant Society **(**CNPS), a non-governmental conservation organization, has developed lists of plants of special concern in California.[4] A CNPS List 1A plant is a species, subspecies, or variety that is considered to be extinct. A List 1B plant is considered rare, threatened, or endangered in California and elsewhere. A List 2 plant is considered rare, threatened, or endangered in California but is more common elsewhere. A List 3 plant is a species for which CNPS lacks necessary information to determine if it should be assigned to a list or not. A List 4 plant has a limited distribution in California.

Plant species on List 1 and List 2 typically meet the requirements of Section 1901, Chapter 10 (Native Plant Protection Act) or Sections 2062 and 2067 (California Endangered Species Act) of the CDFG Code, and are eligible for State listing. Therefore, plants appearing on Lists 1 or 2 are considered to meet CEQA's Section 15380 criteria and effects to these species may be considered "significant." Species on CNPS' List 3 and List 4 do not typically meet those criteria.

(8) Other Federal Statutes, Codes, and Policies Affording Limited Species Protection. The federal *Migratory Bird Treaty Act* (16 U.S.C., Sec. 703, Supp. 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. The federal Bald and Golden Eagle Protection Act prohibits persons within the United States (or places subject to U.S. jurisdiction) from "possessing, selling, purchasing, offering to sell, transporting, exporting or importing any bald eagle or any golden eagle, alive or dead, or any part, nest, or egg thereof." Additionally, birds of prey (hawks, eagles, falcons, and owls) are protected in California under the State Fish and Game Code, Section 3503.5. Section 3503.5 states that it is "unlawful to take, possess, or destroy any birds in the order Falconiformes or Strigiformes (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto." Disturbance that causes nest abandonment and/or loss of reproductive effort is considered "taking" by the CDFG and would constitute a significant impact to biological resources.

The Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) mandates the identification of Essential Fish Habitat[5] (EFH) for federally managed species and consideration of measures to conserve and enhance the habitat necessary for these species to carry out their life cycles. The act also requires federal agencies to consult with National Oceanic and Atmospheric Administration (NOAA) Fisheries division on all actions, or proposed actions, permitted, funded, or undertaken by the agency, that may adversely affect EFH. Federal agencies do this by preparing and submitting an EFH Assessment to NOAA Fisheries. The EFH Assessment is a written assessment of the effects of the proposed federal action on EFH. Regardless of federal agency compliance with this directive, the act requires NOAA Fisheries to recommend conservation measures to federal as well as State agencies once it receives information or determines from other sources that EFH may be adversely affected. These EFH conservation recommendations are provided to conserve and

[4] California Native Plant Society (CNPS). 2001. *Inventory of Rare and Endangered Vascular Plants of California.* 6th Ed. Rare Plant Scientific Advisory Committee, David P. Tibor, editor. CNPS, Sacramento, CA. 388pp.

[5] EFH is defined as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." *Waters* include aquatic areas and their associated physical, chemical, and biological properties. *Substrate* includes sediment underlying the waters. *Necessary* means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem. *Spawning, breeding, feeding, or growth to maturity* covers all habitat types utilized by a species throughout its life cycle.

enhance EFH by avoiding, minimizing, mitigating, or otherwise offsetting the adverse effects to EFH. Activities proposed to occur in EFH areas do not automatically require consultation. Consultations are triggered only when the proposed action may adversely affect EFH, and then, only federal actions require consultation. All tidal areas of the San Francisco Bay are considered EFH.

(9) Brisbane General Plan. The Conservation Element of the Brisbane General Plan includes the following policies for the protection of biological resources:

Policy 118: Preserve areas containing rare and endangered species habitat to the extent allowed by law and available resources.

Policy 123: Conserve important biological communities through sensitive project design.

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.

(10) Local Policies. The Brisbane Municipal Code includes tree regulations for the protection and proper maintenance of certain trees.[6] The regulations protect California Bay *(Umbellularia californica)*, Laurel *(Lauraceae)*, Coast Live Oak *(Quercus agrifolia)*, and California Buckeye *(Aesculus californica)* species that have a main stem or trunk measuring at least 24 inches in circumference at a height of 24 inches above natural grade. Other protected trees include: trees designated for protection by the Parks, Beaches and Recreation Commission or the City Council; City maintained trees; trees planted as required by the City; or any street tree at least 30 inches in circumference at a height of 24 inches above natural grade. A tree removal permit is required for removal of protected trees; however, certain exceptions to the requirement for a tree removal permit are provided by the Municipal Code.

d. Special-Status Species. For the purposes of this EIR, special-status species are defined as follows:

- Plants and animals that are listed or proposed for listing as rare, threatened, or endangered under the California Endangered Species Act (Fish and Game Code 1992 Sections 2050 et seq.; 14 CCR Sections 670.1 et seq.) and/or the Federal Endangered Species Act (50 CFR 17.12 for plants; 50 CFR 17.11 for animals);
- Plants and animals that are Candidates for possible future listing as threatened or endangered under the Federal Endangered Species Act (50 CFR 17, Federal Register 69(86): 24876-24904, May 4, 2004);
- Plants and animals that meet the definition of rare or endangered under CEQA (14 CCR Section 15380), which includes species not found on State or Federal Endangered Species lists;
- Plants occurring on List 1A, List 1B, and List 2 of the California Native Plant Society's (CNPS) Inventory of Rare and Endangered Vascular Plants of California. The California Department of Fish and Game (CDFG) recognizes that Lists 1A, 1B, and 2 of the CNPS inventory contain plants that, in the majority of cases, would qualify for State listing, and CDFG requests that impacts to them be addressed in EIRs as necessary;

[6] Brisbane, City of, Municipal Code, 2006. *Chapter 12.12, Tree Regulations.*

- Animals that are designated as "Species of Special Concern" by CDFG; and
- Animal species that are "fully protected" in California (Fish and Game Code, Sections 3511, 4700, 5050 and 5515).

(1) Special-Status Plants. The CNDDB search of the San Francisco South Quad revealed records of occurrence for 26 special-status plants. However, the project site is located on Bay fill and was formerly under the waters of the Bay; it therefore never supported suitable habitat for terrestrial plants until it was filled. Due to the highly disturbed nature of the site, the fact that it never historically supported a terrestrial community, and its isolation from nearby terrestrial habitat by urban development and roadways it is highly unlikely that any of the special-status plants listed in the CNDDB records would occur on the site.

(2) Special-Status Animals. Based on CNDDB records, literature reviews, and LSA's familiarity with the fauna of the region, 15 special-status animal species were considered in the evaluation of the project site. Eleven of these species were eliminated from further consideration due to the highly disturbed nature of the site and lack of suitable habitat for these species on or adjacent to the site.

As listed in Table IV.H-1, only the following special-status species have the potential to occur on the project site:

Double-crested Cormorant. The double-crested cormorant *(Phalacrocorax auritus)* is considered a California species of concern at its nesting sites. These water birds nest colonially in tall trees, on predator-free islands, and on man-made structures such as bridges or electrical transmission towers. The double-crested cormorant occurs along the Bay near the project site and likely forages in Oyster Cove just south of the site. This species is not expected to nest in or adjacent to the project site due to the lack of suitable nesting habitat such as tall isolated groves of trees or man-made structures and no nesting colonies are known in the Sierra Point area.

Burrowing Owl. The burrowing owl occurs in open habitats such as grasslands, barren ruderal lands, airports, shorelines etc. Burrowing owls are also known to occupy riprap along the Bay during the winter. An important habitat element is the presence of small mammal burrows or other underground retreats that the owls use as nesting sites and for shelter. The burrow systems of the California ground squirrel are particularly attractive to these owls and the presence of these rodents is one of the key indicators of good burrowing owl habitat. As noted above, California ground squirrels are present on the project site.

Burrowing owls have greatly declined in many areas of California including the entire Bay Area. Along the western edge of the Bay, in San Mateo County, burrowing owls are rare winter visitors to open habitats. There are no recent records of breeding along the Bay Shore in San Mateo County.[7] Burrowing owls were not observed on the project site during the field survey and evidence indicating the presence of owls, such as regurgitated pellets or "white wash" around burrows, was not found. Burrowing owls are unlikely to be present; however, an occasional individual could use the site as a transient during migration or for wintering habitat.

[7] Sequoia Audubon Society. 2001. *San Mateo County Breeding Bird Atlas.*

Table IV.H-1: Special-Status Animal Species Evaluated for the Project Site

Species	Status (Federal/ State)	Habitat	Potential for Occurrence within Project Area[a]
Double-crested cormorant *Phalacrocorax auritus*	-/CSC (nesting)	Nests in trees, isolated rocky islands, or man-made structures, such as bridges, near water.	Unlikely to nest on the project site due to the lack of suitable habitat. Probably occurs occasionally on the Bay off-site to the south.
Burrowing owl *Athene cunicularia*	-/CSC	Nests in burrows in grasslands and other open habitat; often associated with ground squirrels. Will also nest in artificial structures (culverts, concrete debris piles, etc.) Sparse numbers winter in rip-rap along the Bay shore.	No evidence of nesting on the project site. Could potentially occur on the project site as a transient or rare winter visitor.
Saltmarsh common yellowthroat *Geothlypis trichas sinuosa*	-/CSC	Nests in freshwater marshes and riparian thickets around the Bay.	Unlikely to nest due to lack of suitable habitat, but could occur rarely as a transient during winter.
Alameda song sparrow *Melospiza melodia pusilla*	-/CSC	Nests in salt marsh around the Bay.	Unlikely to nest due to lack of suitable habitat, but could occur rarely as a transient during winter.

Status Codes:

FE = Federally-listed as an endangered species.
FT = Federally-listed as a threatened species.
CE = State-listed as an endangered species.
CT = State- listed as a threatened species.
CFP = State-listed as a fully protected.
CSC = State Species of Special Concern.

[a] Nearest records are based on CNDDB (2006) occurrences unless otherwise noted.
Source: LSA Associates, Inc., 2006.

Songbirds. The Saltmarsh common yellowthroat *(Geothlypis trichas sinuosa)* and the Alameda song sparrow *(Melospiza melodia pusilla)* both nest in wetland habitats adjacent to the Bay. The yellowthroat prefers the upper marsh areas where freshwater is present and nests in dense stands of cattails, willow thickets, and moist weedy fields. Alameda song sparrows nest in salt marsh preferring extensive stands of pickleweed (*Salicornia* spp.). Neither of these species is expected to nest on the site due to the lack of suitable habitat.

2. Impacts and Mitigation Measures

The following section provides the criteria of significance and presents a discussion of potential impacts to biological resources that could result from the implementation of the proposed project. Mitigation measures are recommended to reduce potential impacts to a less-than-significant level.

a. Criteria of Significance. The proposed development of the project would have a significant effect on biological resources if it would:

- Have a substantial adverse effect, either directly or through habitat modification, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the CDFG or USFWS;

- Have a substantial adverse effect on riparian habitat or other sensitive natural communities identified in local or regional plans, policies, regulations, or by the CDFG or USFWS;
- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act through direct removal, filling, hydrological interruption, or other means;
- Create substantial interference 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 the adopted Habitat Conservation Plan for San Bruno Mountain, a Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan.

b. Less-than Significant Biological Resources Impacts. Less-than-significant impacts to biological resources associated with the implantation of the project are discussed below.

(1) Wildlife Movement Corridors. Because the project site is composed of landfill and is isolated by urban development and open water of the Bay, it does not support any major wildlife movement corridors. Therefore, the proposed project would not interfere substantially with the movement of native or migratory fish or wildlife species.

(2) Special Status Species. As noted previously, four special status species potentially occur on the site, however only one of these species (burrowing owl) has any potential to be significantly impacted by development of the project (see Impact BIO-1 below). Impacts to the other three species (double-crested cormorants, salt marsh common yellowthroat, and Alameda song sparrow) are less-than-significant because the site does not support nesting or significant foraging habitat and, at most, only occasional transient individuals would be expected to occur on the site.

(3) Other Wildlife and Non-native Vegetation. Potential impacts to vegetation communities and associated wildlife habitat on the site (e.g., ruderal) are considered less than significant because of the common and widespread occurrence of that community and associated animals.

(4) Conflict with Local Policies. The project site currently contains 60 palm trees located along the periphery of the site as follows: along Shoreline Court; along Sierra Point Parkway; clustered at the northwest and northeast corners of the project site; and clustered across from the intersection of Marina Boulevard and Sierra Point Parkway. The proposed project would require the relocation of 13 palm trees and the removal of five palm trees from the project site, in addition to the removal of the trees located around the existing buildings on site (Lombardy poplar and myoporum). Removal of the trees would be considered by the City during the development approval process and would therefore be exempt from the requirement for a tree removal permit.[8] The relocation and removal of the trees would not conflict with Brisbane tree regulations.

[8] Brisbane Municipal Code, 2006. *Chapter 12.12.040, Requirements for Tree Removal Permit-Exceptions.*

(5) Conflict with Conservation Policies or Plans. The San Bruno Mountain Area Habitat Conservation Plan was adopted in 1983. The eastern edge of the Plan area is located approximately 1,200 feet west of the project site on the lower slopes of San Bruno Mountain. The intervening area is occupied by urban development including U.S. Highway 101, Bay Shore Boulevard, and railroad tracks. The proposed project would not conflict with The San Bruno Mountain Area Habitat Conservation Plan.

c. Significant Biological Resources Impacts. The implementation of the proposed project could potentially impact one special-status animal species and could affect marine habitats adjacent to the project site. In addition, the proposed project could impact nesting birds protected under the Migratory Bird Treaty Act. The following discussion describes and evaluates potentially significant impacts to biological resources and proposes measures that would mitigate these impacts to less-than-significant levels.

Impact BIO-1: Grading and construction of the proposed project may harm or adversely impact the burrowing owl. (S)

Although no signs of occurrence by burrowing owl were found during field surveys, they are highly mobile and could occupy the site prior to construction. It is unlikely that the species would nest on the site, but grading and construction activities could potentially affect wintering or transient birds in their burrows.

Implementation of the following mitigation measures would reduce this impact to a less-than-significant level.

> Mitigation Measure BIO-1a: Comprehensive pre-construction surveys for burrowing owl presence shall be conducted no more than 30 days prior to any ground disturbing activities. If ground disturbing activities are delayed or suspended for more than 30 days after the initial pre-construction surveys, the site shall be re-surveyed. All surveys shall be conducted in accordance with current CDFG burrowing owl survey protocol (CDFG, October 17, 1995). A qualified biologist shall conduct surveys for burrowing owls in all suitable habitats on the site. Surveys shall be conducted regardless of season, as suitable habitat on-site may be used at all times of the year. A report shall be prepared at the end of each construction season detailing the results of the preconstruction surveys. The report shall be submitted to the CDFG by November 30 of each year.
>
> Mitigation Measure BIO-1b: If burrowing owls are found on the site, CDFG shall be notified and a qualified biologist shall implement a routine monitoring program in coordination with CDFG and establish an exclusion zone around each occupied burrow in which no construction-related activity shall occur until the burrows are confirmed to be unoccupied. No disturbance shall occur within 160 feet (50 meters) of an occupied burrow during the non-breeding season (September 1 through January 31) and within 250 feet (75 meters) of an occupied burrow during the breeding season (February 1 through August 31). If burrows cannot be avoided, passive relocation methods shall be implemented pursuant to CDFG guidelines. All activities shall be coordinated with the CDFG prior to disturbance of the burrows.

Mitigation Measure BIO-1c: In the unlikely event that burrowing owls are found nesting on the site, 6.5 acres of suitable habitat, as determined by an experienced wildlife biologist and approved by CDFG, shall be preserved as mitigation for each individual or pair of owls found on-site. A management plan shall be developed for the mitigation area and approved by CDFG and the City. Mitigation may include permanent protection of on-site foraging habitat around the burrow of each pair or unpaired burrowing owl, or the permanent protection of habitat at a nearby off-site location acceptable to CDFG if mitigation on-site is not feasible. Any mitigation site shall be dedicated in perpetuity as wildlife habitat either through establishment of a conservation easement on the mitigation site or through transfer of ownership of the lands to an appropriate public agency that shall preserve and manage the lands as wildlife habitat. (LTS)

Impact BIO-2: Grading, construction and post-construction industrial uses associated with the project may alter or degrade marine habitats adjacent to the project site. (S)

Stormwater runoff from impervious surfaces entering storm drain systems and shallow ground water from landscape irrigation and other activities associated with industrial development along the Bay shore may contribute to levels of contaminated freshwater flows into the Bay. Freshwater flows off of urban areas often carry oil and grease from parking lots and roadways, fecal matter from pets and feral animals, and pesticides from urban landscaping. In saltwater communities, additional freshwater and associated contaminant inflow, especially during the summer dry season, can substantially alter the natural species composition and result in the loss of habitat for saltwater marine species. The proposed project has the potential to increase the freshwater and contaminant input to the Bay.

Implementation of the following mitigation measure would reduce this impact to a less-than-significant level.

Mitigation Measure BIO-2: The project shall comply with conditions of the NPDES permit and SWPPP for construction and industrial operations. See Mitigation Measures HYDRO-1 and HYDRO-2 in Section IV.G, Hydrology and Water Quality. (LTS)

Impact BIO-3: Grading, construction and industrial uses associated with the proposed project may result in indirect impacts to Essential Fish Habitat (EFH) in the Bay. (S)

The proposed development could impact EFH habitat through increases in freshwater runoff and accumulation of contaminants and sediments.

Mitigation Measure BIO-3: Implementation of Mitigation Measure BIO-2 would reduce this impact to a less-than-significant level. (LTS)

Impact BIO-4: Grading and construction activities associated with the project have the potential to harm or disturb nesting birds or destroy their nests. (S)

All native resident and migratory birds are protected by the Migratory Bird Treaty Act of 1918 (Act; 16 U.S.C. 703-712), which makes it illegal to intentionally take, harm, or harass any migratory bird or their eggs, except under the authority of an appropriate license or permit. Many common native resident and migratory birds could potentially nest on the ground, in buildings, or in trees or shrubs

on the site. Grading and construction activities during the breeding season would impact those species that are nesting on the site.

Implementation of the following mitigation measure would reduce impacts to native resident and migratory breeding birds to less-than-significant levels.

> Mitigation Measure BIO-4: If demolition, tree removal, or grading will begin within the breeding season for songbirds (March – August), a qualified biologist shall conduct surveys on the project site, including the existing buildings and woody plants, to identify any nesting native bird species. These surveys shall be carried out no sooner than two weeks prior to the start of construction. Impacts to active nests shall be avoided by establishing a 100-foot exclusion zone around all active nests, within which construction-related activities shall be prohibited until nesting is complete or the nest is abandoned. A qualified biologist shall monitor each nest once per week in order to track the status of each nest and inform the project applicant of when a nest area has been cleared for construction. Alternatively, the project applicant shall apply for a federal depredation permit for migratory birds from the USFWS, with notification to the CDFG, if nests are to be disturbed during the nesting season. (LTS)

I. HAZARDS AND HAZARDOUS MATERIALS

This section provides an overview of the potential presence of hazardous materials[1] and other hazards on and near the project site and assesses potential impacts to public health and safety that could result from development of the proposed project. Mitigation measures are recommended as necessary.

Analysis of current conditions at the project site is based on a review of numerous environmental investigations prepared for the site, including a Phase I Environmental Site Assessment (Phase I ESA), communication with regulatory agency staff and persons knowledgeable about the site, and a site reconnaissance.

1. Setting

The following section describes the hazardous materials setting for the project site. This section also describes: the regulatory framework that governs hazardous materials; hazardous materials investigations completed at the project site; worker health and safety regulations; regulations for hazardous building materials; post-closure land use requirements; and development on former landfills.

a. Regulatory Framework. In California, the U.S. Environmental Protection Agency (U.S. EPA) has granted most enforcement authority over federal hazardous materials regulations to the California Environmental Protection Agency (Cal/EPA). Cal/EPA is comprised of six boards, offices and departments, including the California Department of Toxic Substances Control (DTSC), which regulates hazardous materials/hazardous waste and cleanups, the State Water Resources Control Board (SWRCB) (which operates through its nine regional offices, described in greater detail below), the California Integrated Waste Management Board (CIWMB), which jointly regulates closure and post-closure of landfill sites, and the California Air Resources Board (CARB), which regulates stationary and mobile air emission sources.

In turn, a local agency, the San Mateo County Environmental Health Services Division (SMCEHSD) has been granted responsibility for implementation and enforcement of many hazardous materials regulations in San Mateo County under the Certified Unified Program Agency (CUPA) Program (California Health and Safety Code Chapter 6.11). SMCEHSD is also the lead oversight agency for landfill closure and post-closure activities on behalf of the CIWMB. Another local agency, the North County Fire Authority (which serves Brisbane, Daly City, and Pacifica), is responsible for enforcing portions of the Uniform Fire Code relating to hazardous materials storage, performs safety inspections of City businesses, and provides emergency response to hazardous materials incidents within the City.

Regional agencies are responsible for programs regulating emissions to the air and surface water and groundwater. At the project site, the Bay Area Air Quality Management District (BAAQMD) has

[1] The California Health and Safety Code defines a hazardous material as "…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. Hazardous materials include, but are not limited to, hazardous substances, hazardous waste, radioactive materials, and any material which a handler or administering agency has 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." (Health and Safety Code 25501).

oversight over air emissions and the San Francisco Bay Regional Water Quality Control Board (RWQCB) regulates discharges and releases to surface water and groundwater.

b. Hazardous Materials. The findings of environmental investigations, regulatory agency orders, and title insurance reports for the project site are described below. In addition, regulations for worker health and safety, hazardous building materials and hazardous materials (including radioactive materials/biotechnology), and requirements for development activities on former solid waste landfills are also provided.

(1) Phase I Environmental Site Assessment. A Phase I Environmental Site Assessment was prepared for the Sierra Point Biotech Project in October 2006.[2] The Phase I ESA was prepared in accordance with the American Society for Testing and Materials (ASTM) Practice for Environmental Site Assessments, E 1527-05.[3] The findings of that report are summarized below.

Current Land Uses. The project site was observed to be largely unpaved with grassy vegetation during a July 2005 site reconnaissance. The areas of the site that were paved were located near the sheds and the San Francisco Bay Trail on the southern portion of the site. Otherwise the site was not paved. Some debris, including broken concrete, recycled asphalt, a gravel pile, and some traffic barriers were observed on-site. Gravel was also observed to be stockpiled on-site near the sheds (described below). No drums or containers of materials, piping that might indicate underground storage tanks in the subsurface, stained soil or pavement, evidence of stressed vegetation, transformers, or other indications of hazardous materials storage, use, handling, or disposal were observed at the time of the site visit. No odors, pools of standing liquid, or septic systems were noticed during the site visit that was completed in support of the Phase I ESA.

Three single-story wood structures "sheds" were observed on the project site on the eastern-central part of the property. The sheds appeared to be of relatively recent construction, although not used recently. One of these sheds was observed to have been used as an office, as observed through the window of the shed. This shed was labeled as used by "OPUS West Architects, Contractors and Developers." The other two sheds were observed to have been possibly used for storage of construction items.[4]

Historical Land Uses. A detailed history of the former solid waste landfill site was identified in RWQCB Order 96-058 (described in further detail below). A summary of historical land uses, as identified in this Order, and as supplemented by other documents and historical information reviewed during the Phase I ESA is presented below.

The former Sierra Point Solid Waste Disposal Site operated between 1965 and 1972, and was used for the disposal of solid wastes. Prior to 1965, the existing Sierra Point Disposal Site was a mud flat, which extended from the Bay westward to near the present foot of San Bruno Mountain. Develop-

[2] Baseline Environmental Consulting, 2006. *Phase I Environmental Site Assessment, Sierra Point Biotech Project, Brisbane, California*, prepared for LSA Associates. October.

[3] American Society for Testing and Materials (ASTM), 2005. *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*, E 1527-05.

[4] Prior to being used by OPUS West, these sheds were reportedly constructed in approximately 1982 by the City of Brisbane and used for storage of maintenance items.

ment of the landfill began with construction of an earthen dike by the Easley and Brassy Company for the Sunset Scavenger Company between the years of 1965 and 1967.[5] During those years, an earthen dike was built around the north, east, and south borders of the landfill.

The dikes were constructed by successive dumping of large quantities of fill directly on top of the Bay Mud. One source reviewed suggested that the fill may have been from dredged Bay Mud from San Francisco Bay, and could contain elevated concentrations of metals and other environmental contaminants, or Young Bay Mud from beneath Sierra Point.[6] The west border of the site was formed by earlier fill materials and an outcropping of San Bruno Mountain. Once the dikes were constructed, the interior of the site was dewatered prior to any waste placement and waste began to be accepted around 1967-1968.[7] Consistent with landfill practices at the time, no liner was installed at the site, cellular division of wastes did not take place, and the landfill did not include leachate collection systems. Instead, the waste materials, which consisted of a combination of household waste, rubble, and clean soils, were placed directly onto the younger Bay Mud. The landfill was formerly classified as a Class II-2 facility,[8] and pursuant to 1984 revisions of Chapter 15 of the California Code of Regulations, was later reclassified as a Class III facility.[9]

Refuse was reportedly placed in two lifts. Cover material was transported to the site from the Candlestick Park area on a daily basis to cover the refuse. Limited information regarding the composition of the waste is available, but is estimated to have been about 60 percent residential, and approximately 40 percent commercial. No liquids or hazardous wastes are reported to have been disposed of at the landfill. Estimates of volume of waste accepted range from 1.9 to 2.7 million cubic yards and the total area used for disposal of waste disposal was approximately 80 acres of which 70 were subsequently capped. Disposal of waste was terminated in about 1971 (or until as late as 1975).

Sierra Point Development Company purchased the site in 1975 from the landfill operator (Sunset Scavenger, later a wholly-owned subsidiary of Norcal Waste Systems, Inc.). Two potential ponds or low lying areas were reported in the Brisbane portion of Sierra Point in a 1975 aerial photograph, and a 1977 aerial photograph showed evidence of piles of soil in several areas.[10] In about 1980, Sierra

[5] Other sources have indicated that construction began as early as 1962. Environ Corporation, 1998. *Environmental Due Diligence Review of the Sierra Point Associated Two Properties, Brisbane and South San Francisco,* prepared for J. Wactor, Luce, Forward, Hamilton and Scripps, as attorney for the potential purchaser, Opus West Corporation, Pleasanton, California, Attorney Work Product, Privileged and Confidential. 4 February. Permission to cite this report was granted by J. Wactor in an electronic mail correspondence to J. Pettijohn of Baseline Environmental Consulting, 1 August 2006.

[6] Environ Corporation, op. cit.

[7] The dates listed are from the RWQCB Order, referenced below. Other sources indicate that the dike was completed in 1969. Environ Corporation, op. cit.

[8] A Class II facility is defined as a landfill that may accept designated wastes, as defined in Title 27, California Code of Regulations (CCR) Division 2, Section 20250. Designated wastes are defined by the California Water Code, Section 13173, as either of the following: a) hazardous waste that has been granted a variance from hazardous waste management procedures pursuant to Section 25143 of the California Health and Safety Code, or b) non-hazardous waste that consists of, or contains, pollutants that, under ambient environmental conditions at a waste management unit, could be released in concentrations exceeding applicable water quality objectives or could reasonably be expected to affect beneficial uses of the waters of the State as contained in the appropriate State Water Quality Control Plan.

[9] A Class III facility is defined as a landfill that may only accept non-hazardous solid waste as defined in Title 27, CCR Division 2, Section 20260.

[10] Environ Corporation, op. cit.

Point Development Company donated approximately 20 acres of the former landfill to the City of Brisbane for construction of a marina to the east of the project site.

In 1981, a soil-bentonite slurry cut-off wall was installed along the northern portion of the western property boundary for the former landfill. The purpose of the wall was to prevent lateral migration (seepage) of leachate off-site and to minimize water infiltration from runoff from Highway 101 and San Bruno Mountain into the site. The southern end of this cut-off wall was keyed to the basement outcrop of the bedrock (Franciscan Formation). It continued in a northerly direction, along a drainage channel, and was keyed into the dike at the north end of the former landfill site.

In June 1982, the RWQCB adopted Order No. 82-27, which contained the closure requirements for the landfill. Sierra Point Development Company sold portions of the former landfill (including the project site parcels) to Sierra Point Associates Two (SPA2) in November 1983. Since then, SPA2 has sold several parcels to Hitachi America Ltd.; Tuntex Properties Inc.; Argentum International Inc.; Earth Metrics, Inc; and Sierra Point Associates One, but was the majority owner at the time the initial Order was issued. Also in 1982, approximately three to four feet of new fill were placed along the shoreline to raise the perimeter to around eight feet msl. Several small structures (sheds) were constructed on the property (parcel 5) by the City of Brisbane as maintenance sheds around 1982.[11]

As described above, more than 70 acres of the total former landfill were capped as of the date of the 1996 Order. The cap was placed in stages as site development occurred. The cap consisted of three feet of clean soil and included at least one foot of compacted, low permeability, clayey soils. The clay cap was keyed to the dike. Additionally, several feet (up to 10 feet) of soil were placed in some areas to complete grading for surface drainage.

As a result of the RWQCB Order, in the late 1990s and early 2000s, an engineered cap was constructed over undeveloped portions of the landfill and shared parking areas (including the project site) and tied into the cap boundaries.[12] The cap was installed per specifications previously approved by the RWQCB and was constructed to meet CCR Title 27 requirements. Also to further limit the infiltration of water into the landfill, asphalt pavement was installed in the developed areas, and the undeveloped areas were planted with grass. The former landfill engineered fill cap and clay layer are approximately seven to 17 feet thick over the former landfill surface.[13]

A network of deep existing groundwater monitoring wells, shallow groundwater monitoring wells, surface water monitoring points,[14] nested leachate wells, and independent leachate wells are used to monitor groundwater and leachate within the former landfill perimeter in accordance with the Order. A description of the findings of the most recent monitoring is provided below in the subsection entitled "Spring 2006 Semi-annual Monitoring and Inspection Report."

[11] Ibid.

[12] LSA, op. cit.

[13] GeoSyntec Consultants, Inc., 2005. *Sierra Point Geotechnical Review of Parcels 5, 6, and 7,* Job No. PRJ20-03REM/Slough/SierraPoint/Section 7 SP GeoReport 8-19-05. 19 August.

[14] The results and observations of surface water monitoring and storm water discharges are not provided here, in the Hazards and Hazardous Materials section; see Section G. Hydrology and Water Quality for details.

Recognized Environmental Conditions. The Phase I ESA for the project site identified the former solid waste landfill as a recognized environmental condition.[15] The project site was historically operated as a solid waste landfill that is now closed. The property owner(s) are responsible for compliance with RWQCB Order 96-058, described below, that includes requirements for semi-annual monitoring and quarterly site inspections and reporting of these results as part of the post-closure requirements. Any site development activities must comply with applicable CIWMB/ SWRCB post-closure landfill requirements, as well as those of the SMCEHSD, the local enforcement agency for the CIWMB.

Historical Recognized Environmental Conditions. The Phase I ESA for the project site identified construction of dikes with fill of unknown origin as a historical recognized environmental condition.[16] The former landfill site was constructed by the creation of dikes. These dikes were constructed by the dumping of large quantities of fill. Information regarding the chemical quality of the fill is not available. One source reviewed suggested that the fill may be dredged Bay Mud from San Francisco Bay, which could contain metals and other environmental contaminants, or Young Bay Mud from beneath Sierra Point. The site is currently under regulatory oversight for post-closure of the landfill, which includes these dikes, and therefore this is considered a historically recognized environmental condition.

(2) San Francisco Regional Water Quality Control Board, Order 96-058 and Compliance Status. The California Regional Water Quality Control Board, San Francisco Bay Region (RWQCB) issued an Order for the former Sierra Point Solid Waste Disposal Site. An initial Order was issued in 1982 (Order 82-27),[17] but was rescinded with the issuing of a revised Order in 1996 (96-058).[18]

Requirements. The area covered by the Order includes the project site parcels and other immediately adjacent parcels, including developed and undeveloped parcels to the north, Sierra Point Yacht Club and Brisbane Marina to the east, and undeveloped land to the northeast, and developed parcels to the west, northwest, and southwest along Marina Boulevard and Shoreline Court. The parties collectively referred to as the "dischargers" or "owners" who must comply with the Order, included Sierra Development Company, the City of Brisbane, Sierra Point Associates One, Sierra Point Associates Two, Hitachi America Ltd., Tuntex Properties Inc., and Argentum International, Inc.

[15] A "recognized environmental condition" is defined by ASTM as "the presence or likely presence of any hazardous substance or petroleum products on a property under the conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products in structures on the property or into the ground, groundwater, or surface water of the property. The term includes hazardous substances or petroleum products even under conditions in compliance with laws. The term is not intended to include *de minimis* conditions that generally do not represent a material risk of harm to public health and the environment and that generally would not be the subject of enforcement action if brought to the attention of appropriate governmental agencies." ASTM, op. cit.

[16] A "historical recognized environmental condition" refers to an environmental condition which in the past would have been considered to be a recognized environmental condition but has been satisfactorily remediated or addressed in such a way that it is no longer a recognized environmental condition. ASTM, op. cit.

[17] Document not available for review.

[18] San Francisco Regional Water Quality Control Board (RWQCB), 1996. *Order No. 96-058, Updated Waste Discharge Requirements for Sierra Point Development Company, The City of Brisbane, Sierra Point Associates One, Sierra Point Associates Two, Hitatchi American Ltd., Tuntex Properties, Inc., and Argentum International, Inc., Sierra Point Class III Solid Waste Disposal Site, San Mateo County.*

According to the 1996 Order, the current property owners are responsible for discharge of waste from their respective parcels that they own and control, and are jointly responsible for site maintenance. The intent of the Order was for it to "run with the land" and requires compliance by the current property owners and any new owner(s) during subsequent use of the landfill for other purposes.

The primary purposes of the Order included:

- To update the site's groundwater, and leachate monitoring points (including two new leachate wells) and discharge monitoring program;[19]
- To incorporate the requirements of the General Industrial Stormwater Runoff program (including preparation of a Storm Water Pollution Prevention Plan);
- To establish an inward gradient to prevent off-site leachate migration;
- To protect shoreline stability and to prevent waste exposure to the Bay water (by requiring an interim cap over the portion of the landfill not closed or developed);
- To bring the site into full compliance with the current requirements of Chapter 15 of the California Code of Regulations.

The Order also listed other requirements and prohibitions including:

- Monitoring of methane and other landfill gases. If these devices indicate methane build up, vent and removal of the generated gas from the landfill unit would be required to minimize the potential danger of explosion, adverse health effects, nuisance conditions, and impairment of beneficial uses of water;
- Submittal of a Contingency Plan in the event of a leak or spill from the leachate facilities;
- Compliance with a Self Monitoring Program; and,
- The prohibition that groundwater shall not be degraded as a result of the waste maintained at the facility (among other requirements).

Compliance Status. According to a 1998 review of documentation for the former landfill site, it was suggested that the activities required by the Order have been completed or were in progress at the time of the review.[20]

(3) Previous Environmental Investigations. Numerous environmental investigations have been completed at the former landfill, including the project site, since at least 1980 for groundwater, soil, and landfill gas (from decomposition of organic wastes). An investigation in 1993 evaluated the potential for hazardous waste to be present at the site and to determine whether hazardous waste had migrated from the landfill into the groundwater and/or surface water in accordance with the Solid

[19] A partial approval to change the discharge monitoring program, frequency of monitoring and sampling parameters was made in November 2002. RWQCB, 2002, Letter Re: Sierra Point Landfill, San Mateo County-Partial Approval of the Proposal to Change Discharge Monitoring Program at Sierra Point Landfill Dated July 29, 2002, prepared for Sierra Point Landfill (attention: Mr. Jon Wactor), 4 November.

[20] Environ Corporation, op. cit.

Waste Assessment Test (SWAT).[21] The SWAT was prepared, as required, prior to the submittal of development plans for foundation piles that were to be driven through the landfill on properties adjacent to the project site.

The findings from the SWAT and latest semi-annual monitoring and site inspections report for Spring 2006 are summarized briefly below. Note that groundwater monitoring wells in these investigations in the interior portion of Sierra Point are often referred to as "leachate wells" because water in these wells has been in direct contact with landfill materials. The wells located in the perimeter dike materials are often referred to as "perimeter wells" and represent downgradient compliance wells.

In general, organic volatile and semi-volatile compounds (e.g., acetone, benzene, 1,4-dichloro-benzene, chlorobenzene, and naphthalene) and metals (arsenic, barium, nickel, and selenium) have been detected in groundwater wells in and around the former landfill site, including detections within wells located in the project site. Landfill gas monitoring activities (including subsurface gas, monitoring of utility structures, assessment of the potential for off-gas migration, and surface emission monitoring) have indicated that concentrations of methane and organic vapors generated from decomposition of organic wastes are below BAAQMD trigger levels, CARB thresholds, and CIWMB/SWRCB requirements. Methane was reported at the landfill surface well below the lower explosive limit and was also determined not be an explosion hazard in the presence of sparks from equipment or cars.[22]

SWAT Report. Materials in the former landfill were investigated as part of preparation of the 1993 SWAT report[23] and were found not to constitute a hazardous waste and hazardous wastes were not found to be migrating from the site. The results of the SWAT stated that the values of several parameters (chloride, specific conductance, pH, total dissolved solids) in the shallow and deeper water bearing zones indicate that the groundwater underlying the site cannot be considered a source of drinking water. Further, geotechnical testing indicates that the young Bay Mud underyling the site, which is continuous across the entire former landfill site, would create a tight seal around pilings installed, reducing the likelihood of vertical waste migration. Driving piles would also not increase the permeability of the young Bay Mud. Soil borings also did not indicate the presence of sand lenses that might be interconnected. It was therefore concluded that transmission of leachate caused by interconnection of sand lenses via driven piles was therefore considered unlikely.

Spring 2006 Semi-annual Monitoring and Inspection Report. A semi-annual report for the winter and spring 2006 Discharge Monitoring Program (DMP) (required under the RWQCB Order, above) was prepared by CH2MHill, on behalf of Sierra Point Environmental Management Association.[24] The report contained the winter and spring 2006 analytical results and historic monitoring data. Summary tables and figures for this document were provided in the Phase I ESA for the

[21] Kleinfelder, 1993. *Solid Waste Water Quality Assessment Test (SWAT) Report, Sierra Point Landfill, Brisbane and South San Francisco, California*, prepared for the Owners of the Sierra Point Landfill, c/o the Koll Company, Brisbane, California. 25 August.

[22] Baseline Environmental Consulting, op. cit.

[23] Kleinfelder, op. cit.

[24] CH2MHill, 2006. Spring 2006, *Semiannual Monitoring and Inspection Report, Former Sierra Point Landfill, Brisbane and South San Francisco, California*, prepared for Sierra Point Environmental Management Association, Inc. 24 April.

project site.[25] Wells MW-9A, MW-10B, MW-11A, L-2 (abandoned), L-3R (well sampled every five years), and L-7 (abandoned) are reportedly within the proposed project site.

The DMP consists of semi-annual and quarterly activities. The semi-annual program is conducted in March (spring) and September (fall) of each year and includes:

- Measurement of water levels in the network of groundwater and leachate monitoring wells;
- Sampling the monitoring wells for analysis of selected constituents of concern, as required;
- Inspection of the visual and perimeter compliance points for evidence of liquids leaving the facility, odors, indications of daylighted refuse, or other anomalies.

Facility inspections are conducted quarterly in March (spring), June (summer), September (fall), and December (winter), and include:

- Inspection of the condition and accessibility of the monitoring wells and surface water management system (storm water outfalls and catch basins); and
- Inspection of the condition and structural integrity of the perimeter berm surrounding portions of the former landfill site.

There are nine perimeter wells and four interior wells for the semi-annual compliance monitoring. Four additional wells exist at the site that are used for water level monitoring (but not for sampling). As mentioned above, some of the wells are located in the proposed project area. Groundwater samples collected from these wells were analyzed for constituents of concern at the project site. These included volatile organic compounds (VOCs) (acetone, benzene, chloro-benzene, 1,4-dichlorobenzene, and naphthalene) and total dissolved metals (arsenic, barium, nickel, and selenium).

The results of the sampling for the wells within the proposed project area indicated chlorobenzene (max 2.8 µg/L), 1,4-dichlorobenzene (max 8.4 µg/L), and naphthalene reported below laboratory reporting limits (<2.0 µg/L). In addition, arsenic (max 0.0083mg/L), barium (max 0.32 mg/L), and nickel (max 0.220 mg/L) were reported above laboratory reporting limits in samples collected from wells within the project site. Selenium (<0.0050 mg/L) was reported below laboratory reporting limits. These results of the investigation at the former landfill site were reportedly generally consistent with historical data.

Facility Inspections. No evidence of erosion or daylighted refuse was observed as part of the Spring 2006 report. The perimeter berm was observed to be structurally sound with no visible signs of distress or damage, and no evidence of liquids or wastes leaving or entering the landfill. In addition, no odors or sheen were observed in the catch basins inspected or in the vicinity of any outfalls. Overgrown vegetation observed at some locations would be managed as part of routine storm drain catch basin maintenance activities in the fourth quarter of 2006.

Compliance Summary. No corrective actions were undertaken as part of the 2006 Spring Semi-annual Monitoring and Inspection activities and none was planned. The existing site environmental monitoring and control measures would continue to be maintained and inspected as part of the DMP.

[25] Baseline Environmental Consulting, op. cit.

(4) Worker Health and Safety. Worker health and safety is regulated at the federal level by the Department of Industrial Relations. Under this jurisdiction, workers at hazardous waste sites (or as might be encountered during excavation of contaminated soils) must receive specialized training and medical supervision according to the Hazardous Waste Operations and Emergency Response (HAZWOPER) regulations (29 CFR 1910.120).

Worker health and safety in California is regulated by the California Department of Industrial Relations, Division of Occupational Safety and Health (Cal/OSHA). California standards for workers dealing with hazardous materials (including hazardous wastes) are contained in CCR Title 8 and include practices for all industries (General Industrial Safety Orders), and specific practices for construction, and hazardous waste operation and emergency response (CCR Title 8, Section 5192). Cal/OSHA conducts on-site evaluations and issues notices of violation to enforce necessary improvements to health and safety practices.

(5) Hazardous Materials Demolition Issues. The three sheds on the project site planned for demolition/removal were constructed in 1982. Prior to 1978, lead compounds were commonly used in interior and exterior paints. Prior to the 1980s, building materials often contained asbestos fibers, which were used to provide strength and fire resistance. Because of the date of construction of the three on-site sheds, demolition/removal of these structures is not likely to have the potential to release lead particles, asbestos fibers, and/or other hazardous materials into the air, where they may be inhaled by construction workers and the general public. However, other common items, such as electrical transformers, fluorescent lighting, electrical switches, heating/cooling equipment, and thermostats, can contain hazardous materials, which may pose a health and safety risk if not handled and disposed of properly.

Fluorescent lighting tubes and ballasts and computer displays are regulated as "universal wastes" by the State of California. Universal waste regulations allow common, low-hazard wastes to be managed under less stringent requirements than other hazardous wastes. Management of other hazardous wastes is governed under DTSC hazardous waste rules.

(6) Hazardous Materials and Waste Management. As described above, SMCEHSD has been granted responsibility for implementation and enforcement of many hazardous materials regulations in the County under the CUPA Program.

CUPA Plans, Programs, and Permits. CUPA Plans, Programs, and Permits for facilities storing hazardous materials are described below.

Hazardous Waste Generator Requirements. Facilities that generate more than 100 kilograms per month of hazardous waste, or more than 1 kilogram per month of acutely hazardous waste, must be registered in accordance with the Resource Conservation and Recovery Act (RCRA) (Title 42, US Code, Sections 6901 et seq.).

Aboveground (AST) and Underground Storage Tank (UST) Permits. Facilities with ASTs or USTs must be permitted. Other plans, such as a Spill Prevention Control and Countermeasures (SPCC) Program, may be required due to the size and type of hazardous materials stored in the ASTs. The SPCC Program provides a detailed engineering analysis of the potential for

release from oil-filled equipment, and describes the measures, such as secondary containment and emergency response, that will be implemented to reduce the release potential.

Hazardous Materials Business Plan (Business Plan). Facilities that use, store, or handle hazardous materials in quantities greater than 500 pounds, 55 gallons, or 200 cubic feet are required to prepare a Business Plan and comply with Uniform Fire Code requirements for storage of hazardous materials. The Business Plan would contain facility maps, up-to-date inventories of all hazardous materials for each shop/area, product transfer areas, emergency response procedures, equipment, and a description of employee training. For facilities identified as "laboratories" the reporting requirements for hazardous materials that must be disclosed on an inventory may be more stringent than those threshold quantities reported above.

Hazardous Material Release Response Plan (Contingency Plan). All facilities that generate hazardous waste must prepare a Contingency Plan. The Contingency Plan identifies the duties of the facility Emergency Coordinator, identifies and locates emergency equipment, and also includes reporting procedures for the facility Emergency Coordinator to follow after a hazardous materials incident.

California Accidental Release Program (CalARP). Businesses that use significant quantities of acutely hazardous materials must prepare a detailed engineering analysis of the potential accident factors present at a business and the mitigation measures that can be implemented to reduce this accident potential. CalARP requirements typically apply to heavy industrial properties such as factories and refineries.

Non-CUPA Plans, Programs, and Permits. Non-CUPA requirements for facilities storing hazardous materials are described below.

Injury and Illness Prevention Plan. The California General Industry Safety Order requires that all employers in California shall prepare and implement an Injury and Illness Prevention Plan, which should contain a code of safe practice for each job category, methods for informing workers of hazards, and procedures for correcting identified hazards.

Emergency Action Plan. The California General Industry Safety Order requires that all employers in California prepare and implement an Emergency Action Plan. The Emergency Action Plan designates employee responsibilities, evacuation procedures and routes, alarm systems, and training procedures.

Fire Prevention Plan. The California General Industry Safety Order requires that all employers in California prepare and implement a Fire Prevention Plan. The Fire Prevention Plan specifies areas of potential hazard, persons responsible for maintenance of fire prevention equipment or systems, fire prevention housekeeping procedures, and fire hazard training procedures.

Hazard Communication Program. Facilities involved in the use, storage, and handling of hazardous materials are required to prepare a Hazard Communication program. The purpose of the Hazard Communication program is to provide methods on safe handling practices for hazardous materials, ensure proper labeling of hazardous materials containers, and ensure employee access to Material Safety Data Sheets (MSDSs).

(7) Biotechnology R&D Development and Wastes. Wastes generated during the course of biotechnology R&D may include radioactive materials/waste and biohazardous waste. At the federal level, the Food and Drug Administration, U.S. EPA, and the U.S. Department of Agriculture regulate biotechnology research and product development, including genetically modified organisms that could impact the environment upon release. The U.S. Nuclear Regulatory Commission (NRC) has adopted a waste classification system for low level radioactive wastes (LLRW) that could be generated during biotechnology R&D uses and requirements for disposal. The classification of LLRW is found in Title 10, Code of Federal Regulations, Part 61.55. There are also specific requirements for transport of radioactive wastes.

(8) State Requirements for Post-closure Land Use on Former Solid Waste Landfills. In accordance with the combined SWRCB/CIWMB regulations,[26] the following requirements may pertain to the proposed development project on former (closed) landfills.

- All proposed post-closure uses, other than non-irrigated open space, on sites implementing closure or on closed sites shall be submitted to the enforcement agency, RWQCB, local air district, and local land use agency. The enforcement agency shall review and approve proposed post-closure land uses if the project involves structures within 1,000 feet of the disposal area, structures on top of waste, modifications of the low permeability layer, or irrigation over waste.
- Construction on the site shall maintain the integrity of the final cover, drainage and erosion control system, and gas monitoring and control systems. The owner or operator shall demonstrate to the satisfaction of the enforcement agency that the activities will not pose a threat to public health and safety and the environment. Any proposed modifications or replacement of the low permeability layer of the final cover shall begin upon approval by the enforcement agency, and the RWQCB.
- Construction of structural improvements on top of landfilled areas during the postclosure period shall meet the following conditions.

    1. Automatic methane gas sensors, designed to trigger an audible alarm when methane concentrations are detected, shall be installed in all buildings;
    2. Enclosed basement construction is prohibited;
    3. Buildings shall be constructed to mitigate the effects of gas accumulation, which may include an active gas collection or passive vent systems;
    4. 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;
    5. Utilities shall not be installed in or below any low permeability layer of final cover;
    6. Pilings shall not be installed in or through any bottom liner unless approved by the RWQCB;
    7. If pilings are installed in or through the low permeability layer of final cover, then the low permeability layer must be replaced or repaired; and

[26] California Code of Regulations, Division 2, Title 27, Chapter 3, Subchapter 5, Article 2, Section 21190, Post Closure Land Use.

8. Periodic methane gas monitoring shall be conducted inside all buildings and underground utilities in accordance with Section 20933 of Article 6, or Subchapter 4 of this Chapter.

- The enforcement agency may require that an additional soil layer or building pad be placed on the final cover prior to construction to protect the integrity and function of the various layers of final cover.
- All on-site construction within 1,000 feet of the boundary of any disposal area shall be designed and constructed in accordance with the following, or in accordance with an equivalent design which will prevent gas migration into the building, unless an exemption has been issued:

1. A geomembrane or equivalent system with low permeability to landfill gas shall be installed between the concrete floor slab of the building and subgrade;
2. A permeable layer of open graded material of clean aggregate with a minimum thickness of 12 inches shall be installed between the geomembrane and the subgrade or slab;
3. A geotextile filter shall be utilized to prevent the introduction of fines into the permeable layer;
4. Perforated venting pipes shall be installed within the permeable layer, and shall be designed to operated without clogging;
5. The venting pipe shall be constructed with the ability to be connected to an induced draft exhaust system;
6. Automatic methane gas sensors shall be installed within the permeable gas layer, and inside the building to trigger an audible alarm when methane gas concentrations are detected; and
7. Periodic methane gas monitoring shall be conducted inside all building and underground utilities in accordance with Article 6, of Subchapter 4 of this chapter.

Note that as part of the landfill closure/post-closure requirements,[27] the operator shall also maintain a written post-closure emergency response plan at the facility or alternate location, as approved. The emergency response plan shall describe procedures to address the following: vandalism, fires, explosions, earthquakes, floods, dike collapse, surface drainage problems, and other waste releases. The purpose of the plan is to identify occurrences that may exceed the design of the site and endanger public health or the environment. The plan must be approved by the RWQCB and the enforcement agency.

(9) County Requirements for Construction/Excavation Activities on Class III Landfills. San Mateo County requirements, as part of the permit application process for any construction/excavation activities on Class III landfills, are briefly summarized.[28] In general, for any construction/excavation on former Class III solid waste landfills, a Health and Safety Plan must be prepared in accordance with Cal/OSHA requirements, including addressing gas monitoring procedures for methane,

[27] Title 27, California Code of Regulations, Section 21130.

[28] County of San Mateo, Environmental Health Services Division, Solid Waste Program, not dated, Application Procedure for Projects on Landfills; San Mateo County Environmental Health Division, 1994, Procedures for Excavation/Boring on Class III Landfills, 13 September; San Mateo County Health Care Services Agency, 1998, Applicant Checklist for Closure and Postclosure Review, January.

combustible gas, oxygen, and hydrogen sulfide. In addition, procedures for waste characterization, methods to be used to replace the landfill cover/cap (as applicable), and procedures to follow in the event that refuse is encountered, among other items, must be developed prior to work on the site.

(10) Animals in Research. The federal Animal Welfare Act (AWA), passed in 1966 (as updated),[29] is the key law governing research with animals (except rodents, discussed below).[30] The AWA requires appropriate veterinary care, housing, feeding, handling, sanitation, ventilation, and sheltering of all animals used in research, including worker training in these procedures. The AWA also requires that all registered facilities[31] have institutional committees, called Institutional Care and Use Committees, that review and approve of procedures and research projects involving animals. The U.S. Department of Agriculture, Animal and Plant Health Inspection Service is responsible for administering and enforcing the AWA. The Health Research Extension Act of 1985 (1985 Act) also made the Public Health Service Policy the law,[32] which regulates the care and use of all vertebrate animals used in research, testing, and education, and gives rodents the same protection given to other vertebrate animals. According to the 1985 Act, all medical research funded through the National Institutes of Health (NIH)[33] must conform with the Public Health Service *Policy on Humane Care and Use of Laboratory Animals* [34]that provides standards for animal care. A health program for personnel who work in laboratory animal facilities or have frequent contact with animals is a required element. Most other federal funding agencies also require compliance with this policy. Facilities using animals in research following development of the Sierra Point Biotech Project, must comply with the applicable requirements above. Most research facilities also voluntarily seek accreditation from professional associations such as the Association for Assessment and Accreditation of Laboratory Animal Care International (AAALAC International)[35] and the American Association for Laboratory Animal Science (AAALAS),[36] which require additional standards for laboratory animal care.[37]

[29] United States Code, Title 7 (Agriculture), Chapter 54 (Transportation, Sales and Handling of Certain Animals), Sections 2131-2159.

[30] California Biomedical Research Association, not dated, Fact Sheet, Laws Governing the Use of Animals in Research, reviewed on-line http://www.ca-biomed.org, 28 September 2006.

[31] Research facilities must register with and animal dealers must be licensed with the U.S Department of Agriculture, which conducts periodic inspections of these facilities (at least one per year) to ensure compliance with the AWA regulations. Significant or repeated violations may result in fines or other enforcement actions. California Biomedical Research Association, not dated, op. cit.

[32] Health Research Extension Act of 1985, Public Law 99-158, 20 November, Section 495 (Animals in Research).

[33] The NIH reportedly funds more than half of all medical research in the United States and conducts unannounced visits to ensure compliance with their regulations. California Biomedical Research Associated, not dated, op. cit.

[34] Office of Laboratory Animal Welfare, National Institutes of *Health, Public Health Service Policy on the Humane Care and Use of Laboratory Animals*, revised August 2002, reviewed at http://www.grants.nih.gov/grants/olaw/references/PHSPolicyLabAnimals.pdf, 29 September 2006.

[35] Association for the Assessment and Accreditation of Laboratory Animal Care International, http://www.aaalac.org/.

[36] Association for Laboratory Animal Science, http://www.aalas.org.

[37] California Biomedical Research Association, not dated, op. cit.

c. Brisbane General Plan Policies. The City of Brisbane, General Plan, Community Health and Safety Element (1994 and amended 2002)[38] contains policies and programs regarding emergency preparedness, fire hazards, hazardous materials, and land contamination and remediation that apply to the proposed project.

The following policies relate to emergency preparedness:

Policy 148: Maintain the Emergency Management Plan as the central planning and management tool for disaster response.

Program 148a: Update the Plan as necessary and appropriate and train staff and volunteers.

Program 148b: Update and refine the City's evacuation plan, as necessary.[39]

Program 148n: Coordinate with the evacuation plans of surrounding cities affecting U. S. 101 and Bayshore Boulevard to ensure traffic flow through Brisbane in times of emergency.

The following policies relate to fire hazards:

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 Uniform Building Code and the Uniform Fire Code and the Zoning Ordinance to address access, exiting, setbacks, materials and other design factors that contribute to fire safety.

The following policies relate to hazardous materials:

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 166.1a: 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.

Policy 167: Provide information on hazardous materials and non-hazardous substitutes to residents and businesses.

[38] City of Brisbane, 1994, General Plan, adopted by the Brisbane City Council, Resolution 94-24, June 21, 1994, Chapter X, Community Health and Safety.

[39] City of Brisbane, op. cit., SA-1, p. 12.

The following policies relate to land contamination and remediation:

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.

Policy174: Include the remediation requirements of Federal, State and local agencies in the process of making determinations on land use designations and development applications.

> *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 California Integrated Waste Management Board, San Mateo County 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.

2. Impacts and Mitigation Measures

This section presents the criteria of significance for determining whether an impact is significant. Impacts are then presented that are considered less than significant, followed by significant impacts. Mitigation measures are recommended as appropriate.

a. Significance Criteria. A potentially significant impact would result if the construction or operation of the project would:

- Create a significant hazard to the public or environment through the routine transport, use, or disposal of hazardous materials.
- Create a significant hazard to the public or environment through reasonably foreseeable upset or accident conditions involving the release of hazardous materials into the environment.
- Create a significant hazard to the public or environment through exposure to hazardous materials present in soils, surface water, ground water, and/or building materials as a result of historical land uses in the project vicinity.
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 miles of an existing or proposed school.
- Be located on or adjacent to a site that is included on a list of hazardous materials sites compiled pursuant to Government Code section 65962.5 and, as a result, would result in a safety hazard for people residing or working in the area.

- Impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan.
- Result in an increased risk of exposure to wildland or urban fire hazards.

b. Less-than-Significant Impacts. Less-than-significant impacts related to hazards and hazardous materials are discussed below.

(1) Routine Transportation, Use, Storage, or Disposal of Hazardous Materials. Proposed development of the project site as a Research and Development (R&D) facility with landscaping would require the routine use of hazardous materials following building construction. Laboratory chemicals (e.g., acids, bases, reagents, flammable materials, compressed gases, and biohazardous and radioactive substances and wastes) would likely be used on-site for R&D activities including life sciences, biotechnology, diagnostics and medical device assembly, chemistry, computer/automated processes, and small scale (pilot) manufacturing and animal research (small mammal/rodent). Wastes generated from the use of these chemicals would also be expected to occur. The exact types, quantities, and locations of these hazardous materials and wastes would be dependent on the specific uses of each building and tenants. In addition, each building proposed has a generator area, that would likely be fueled with diesel or other petroleum hydrocarbons, and pesticides, herbicides, fuel, lubricants, and oils (for landscape equipment) would be used on landscaped areas for the proposed project.

Any business with hazardous materials storage, use, handling, or disposal would be required to comply with federal, State, and local requirements for managing hazardous materials and wastes, including radioactive materials. These plans include the primary hazardous materials programs administered by the SMCEHSD (see CUPA Plans, Programs, and Permits above). Compliance with the Uniform Fire Code for the storage of hazardous materials and construction of structures containing hazardous materials, as administered by North County Fire Authority, as well as other requirements of State and federal laws and regulations, as described above, would also be required. Additionally, per City Policy 166.1, the facilities and businesses that operate at Sierra Point shall provide the City with a risk analysis that discloses all hazardous materials to be utilized in research and development and biotechnical research and identifies the methods of safe handling and disposal.

Based on the compliance of the proposed project with applicable regulations and policies from the General Plan (Policy 166, 166.1, and 167), the routine, transport, use, storage, and disposal of hazardous materials and waste for the proposed project is considered to have a less-than-significant impact on human health and the environment. The risk of upset and accidental conditions involving the release of hazardous materials into the environment from hazardous materials use is also considered to be less than significant with compliance with these hazardous materials regulations and General Plan policies.

(2) Hazardous Materials Near School Sites. There are no schools or proposed schools within 0.25 miles of the proposed project site. The nearest school is Brisbane Elementary School, located approximately 0.75 miles northwest of the project site. No new school campuses are reportedly being considered and no plans for new schools within the area of the proposed project is

planned.[40] Therefore, no significant impacts to schools in the project vicinity related to hazardous materials would therefore be expected for the proposed project.

(3) Listing on Hazardous Materials Sites Compiled Pursuant to Government Code Section 65962.5 (Cortese). The proposed project was not identified on the Cortese List.[41] The Cortese list is a compilation of hazardous waste and substances release sites designated by the SWRCB under the Leaking Underground Storage Tank program and list of solid waste disposal facilities from which there is a migration of hazardous waste; the CIWMB list of solid waste disposal facilities or landfills from which there is known migration of hazardous waste; and DTSC's Cal-sites list of potential or confirmed state hazardous substances release properties. No hazardous wastes are known to have migrated from the former landfill site, as identified by any of the regulatory agencies above. The significance criteria of being included on a list of hazardous material sites compiled pursuant to Government Code Section 65962.5 and, as a result, creating a significant hazard to the public or the environment is therefore considered less than significant.

(4) Aviation Hazards. The project site is located approximately 3.75 miles north of San Francisco International Airport (SFO). State law requires an airport land use commission to prepare and adopt a comprehensive airport/land use compatibility plan for each public-use airport in San Mateo County. SFO and geographic areas around SFO are within the jurisdiction of the San Mateo County Comprehensive Airport Land Use Plan (CLUP).

The location of the proposed project site is just outside of the mapped height restriction area for SFO.[42] Certain types of land uses are recognized by the Airport Land Use Commission as hazards to air navigation in the vicinity of SFO. The most relevant of these to hazards and hazardous materials is any project site use that would generate smoke or rising columns of air.[43] As stated above, the type, quantities, and exact locations of hazardous materials, and processes in which hazardous materials are used at the proposed R&D buildings would not be available until around the time of site occupancy. However, it is not expected that significant smoke or rising columns of air would be generated as a result of hazardous materials uses, and any air emissions which could generate smoke or rising columns of air would require permitting by the BAAQMD. Potential aviation hazards from implementation of the proposed project are therefore considered less than significant.

(5) Emergency Response and Evacuation Plans. The City of Brisbane has developed an Emergency Management Plan which is regularly updated in accordance with General Plan Policy 148 and Program 148a.[44] The Plan provides procedures and establishes policies for managing any disaster. It provides directions on evacuating the City, and on emergency communications and field responses,

[40] Brisbane School District, 2006. Modernization notice, reviewed online, 21 July, Website: www.brisbane.ca.campusgrid.net;

Healy, Susie, Office Staff, Brisbane School District, 2006, personal communication with R. Russell of Baseline Environmental Consulting. 19 July.

[41] Baseline Environmental Consulting, op. cit.

[42] City/County Association of Governments of County of San Mateo County (C/CAG), 1996. Airport Land Use Plan, San Francisco International Airport, FAR Part 77* Civil Airport, Imaginary Surfaces Height Restrictions, Map V-22.

[43] City/County Associate of Governments of San Mateo County (C/CAG), 1996. *San Mateo County Comprehensive Airport Land Use Plan*, adopted 14 November.

[44] City of Brisbane, op. cit.

among other items. The Emergency Management Plan works in concert with a number of multi-agency mutual aid plans and with local volunteer efforts.

With compliance with requirements of the General Plan for updating the Emergency Management Plan, as necessary, including updating and refining the City's evacuation plan (in accordance with General Plan Program 148b), and coordination of the City's evacuation plan with evacuation plans of surrounding cities (General Plan Program 148n), and coordination of the City's evacuation plan with evacuation plans of surrounding cities, the proposed project is not expected to interfere with established emergency response and evacuation plans. Potential impacts of the proposed project on these existing plans are therefore considered less than significant.

(6) Wildfire Hazards. The proposed project area is located within an area of 'moderate' fire hazard.[45] Fire protection services for the project site are provided by the North County Fire Authority.[46] The identification of fire hazard areas in the Bay Area is from the California Department of Forestry, which considers three primary factors to determine the severity of a wildland fire hazard: fire, weather, and slope in the mapping of fire threat.[47]

The fire hazard map includes a five-step scale ranking, with moderate fire hazard as the second rank, just above 'little or no fire threat' the first rank. The 'moderate' fire hazard ranking is likely indicated based on current conditions of the site with shallow grasses that could act as a fuel source. However, the Brisbane General Plan indicates that the overall wildland fire hazard in Brisbane is generally considered moderate due to the weather pattern of moist winds and fog, which results in increased plant moisture content.[48]

Following the proposed development, buildings with paved surfaces, irrigated landscaping, and fire protection devices would likely reduce the potential for wildland fire to less than the current 'moderate' fire hazard ranking. With compliance with the applicable General Plan policies regarding fire protection and the development proposed, the potential for wildland fire hazards is considered less than significant.

c. Significant Hazards and Hazardous Materials Impacts. Three potentially significant impacts related to hazards and hazardous materials could result from the proposed project.

(1) Construction-related Hazards. Site development and construction activities would require the use and transport of hazardous materials, including fuels, oils, and other chemicals during construction. It is anticipated that these materials would be stored of on-site for the duration of the activities proposed. Improper use, storage, transportation and disposal of hazardous materials and wastes could result in accidental spills or releases, potentially posing health risks to workers, the public and the environment.

[45] Association of Bay Area Governments (ABAG), 2006. Geographic Information System, Map of Fire Threat in the San Francisco Bay Region, Website: www.abag.ca.gov, 24 July; City of Brisbane, op. cit.

[46] Information reviewed on-line, 2006. Website: www.northcountyfire.org/, 19 July.

[47] Information reviewed on-line, 2006. Website: www.fire.ca.gov; www.abag.ca.gov, 19 July.

[48] City of Brisbane, op. cit.

Impact HAZ-1: Improper use, storage, or disposal of hazardous materials or wastes during site development and construction activities could result in releases affecting construction workers, the public, and the environment. (S)

The following two-part mitigation measure would reduce this potential impact to a less-than-significant level.

> Mitigation Measure HAZ-1a. Project construction plans shall include emergency procedures for hazardous materials releases for materials that will be brought onto the site as part of site development and construction activities. The emergency procedures for hazardous materials releases shall include the necessary personal protective equipment, spill containment procedures, and training of workers to respond to accidental spills/releases. All use, storage, transport and disposal of hazardous materials (including any hazardous wastes) during construction activities shall be performed in accordance with existing local, state, and federal hazardous materials regulations.
>
> Mitigation Measure HAZ-1b: The Storm Water Pollution Prevention Plan (SWPPP) required for the proposed project (see Mitigation HYDRO-2) shall include requirements for storage of hazardous materials during construction to minimize the potential for releases. All use, storage, transport and disposal of hazardous materials during construction activities shall be performed in accordance with existing local, state, and federal hazardous materials regulations. (LTS)

(2) Site Preparation and Development Activities on a Former (Closed) Landfill.

Approximately 21,100 cubic yards of soil would be graded and re-used on site as part of the proposed development. Worker health and safety measures implemented for site preparation and construction workers would be implemented commensurate with work on a former municipal landfill that has been capped[49] and in accordance with the health and safety plan requirements of SMCEHSD (described above). The majority of excavation and backfilling of soils to be moved on-site would reportedly take place above the existing clay cap and would comply with all applicable regulations, as described in more detail below.[50] No remediation is proposed as part of the earthwork activities.

The engineered fill cap and clay layer are approximately 7 to 17 feet thick, as noted in a 2005 geo-technical investigation of the project site. The "clean fill" layer currently on the site was placed as part of previous RWQCB Orders with regulatory oversight. Shallow groundwater was encountered in the refuse layer of 16 to 30 feet below ground surface (bgs), located below the fill cap and clay layer and is not considered a potential drinking water source.[51,52] The proposed site grades have been designed to avoid disturbance of the clay cap and clean fill layers. Minimal disturbance of these layers is anticipated; however, penetration of the clay cap for pile foundations using a pile driver and possibly for connections to some of the existing utilities may occur under the proposed project.[53]

[49] Smith, Diane Floresca, 2006. Project Manager, Project Management Advisors, Inc., Consultant to Slough Estates International (Applicant). Personal communication with LSA Associates, Inc. July 21.

[50] Ibid.

[51] GeoSyntec, op. cit.

[52] Kleinfelder, op. cit.

[53] Bergschneider, Jonathan, Senior Vice President, Slough Estates USA, Incorporated, 2006. Letter to Ms. Judith Malamut, LSA Associates, *Re: Sierra Point-Comments on Phase I Environmental Site Assessment August 2006*. October 4.

Potential contact of construction workers with any potentially contaminated materials, refuse, hazardous waste, or groundwater during the proposed development activities (with perhaps the exception of any connection to existing utilities and pile driving) is therefore not expected to occur. Any disturbances to the clay cap would be repaired according to City standards and all applicable regulations (including requirements for worker health and safety protection), and standards proposed in other Sierra Point developments, specifically, the Sierra Point Business Center Development Standards would be followed.[54,55]

As described above, there are approximately 21,100 cubic yards of excavation, as "cut and fill' to achieve the proposed site grades for the proposed project. As shown in Figure III-15, the maximum amount of cut would be approximately 10 feet and the maximum amount of fill to be placed would be 8 feet. A total of 68,500 cubic yards of fill is required to meet the project site design; the source of this material will be from on-site grading (described above) and off-site sources. All fill re-used on-site must meet geotechnical specifications. The source of any additional fill that would be required for the proposed development has not been determined to date. However, any soils brought onto the site would be tested for compliance with geotechnical specifications prior to placement and shall satisfy all applicable environmental regulations for the entitled uses by prior testing or current testing.[56]

As part of the site preparation, the three sheds constructed in 1982 would be demolished/removed from the site, and debris, concrete, asphalt, gravel and other material observed during the site reconnaissance would also be re-used or require off-site transport disposal. Any hazardous materials or universal wastes (e.g., fluorescent lighting tubes and ballasts, computer displays) which may be located in the sheds would also require off-site transport and disposal in accordance with applicable local, State, and federal regulations.

According to the representative for the project applicant, the commercial buildings would likely be constructed with a methane monitoring and migration system beneath each building to detect and divert combustible methane gas from entering any buildings. This system would be located above the clay cap.[57] The piles to support the building would extend into the clay and alluvium underlying the site beneath the young Bay Mud and possibly to the top of the bedrock. The SWAT report (1993) indicated that the driving of piles into the young Bay Mud would not increase the permeability of the unit nor would it contribute to a downward migration of contaminants.

A 1998 review of documentation for the former landfill site suggested that all activities required by the RWQCB Order have been completed or were in progress at the time of the review.[58] Other postclosure requirements including preparation of an emergency response plan with procedures to address fires, explosions, earthquakes, floods, dike collapse, surface drainage problems and other

[54] Kangas Foulk, Brian 1998, *Sierra Point Business Center, Development Standards*, prepared for OPUS West Corporation, Pleasanton, California, 15 April. Worker health and safety procedures are addressed in Site Preparation and Demolition, Trenching and Backfilling, Grading and Earthwork, Requirements for Utilities on or Near a Landfill, and Post-Closure Construction-Foundations.

[55] Bergschneider, 2006, op. cit.

[56] Bergschneider, Jonathan,2006, op. cit.

[57] Smith, Diane Floresca, 2006, op. cit.

[58] ENVIRON, op. cit.

waste releases and maintenance plans (including site security) are required.[59] Any site development activities must comply with the requirements of this Order, applicable postclosure requirements (including those identified above), and the joint SRWCB/CIWMB requirements for proposed development on former landfills.[60] The proposed development must also comply with applicable General Plan policies for Land Contamination and Remediation, and 1998 Declaration of CC&Rs, as identified above.

Further, compliance with other requirements of local, State and federal regulatory agencies during construction of the proposed project would also be required. DTSC requirements where soil excavation will take place include: 1) an assessment of air and public health impacts associated with excavation activities (addressed under the other sections of the DEIR), 2) identification of any applicable local standards which may be exceeded by the excavation activities, including dust levels and noise (addressed under other sections of the DEIR), and 3) risk of public upset should there be an accident at the site, described above.[61] Compliance with the County requirements, as part of the permit application process for any construction/excavation activities on Class III landfills would also be required, including preparation of an appropriate health and safety plan for construction/excavation workers, as described above.

Impact HAZ-2: Project development and operations could result in hazardous conditions by virtue of its location on a former closed landfill site. (S)

In addition to the implementation of the following mitigation measure, the applicant's compliance and in turn the compliance of any contractors, developers, or subcontractors to the applicant, with the myriad of local, state, and federal requirements, RWQCB Order 96-058, CC&Rs, the Sierra Point Business Center Development Standards and the General Plan for the proposed development project on the former (closed) solid waste landfill would result in a less-than-significant impact to public health and safety.

> Mitigation Measure HAZ-2. Prior to grading and/or building permit issuance, the applicant shall obtain Department of Health Services approval for Title 27 compliance, including but not limited to ensuring: landfill cover integrity; drainage and erosion control systems; a means to address differential settlement; and gas control and monitoring. (LTS)

(3) Use of Animals in Research. The proposed project development as a R&D facility may include animal research (small mammal/rodent). The exact types, quantities, and location of the animal research activities would be dependent on the specific uses of each building and tenants. Any facilities that use animals in research would be required to comply with the federal AWA, which requires appropriate veterinary care, housing, feeding, handling, sanitation, ventilation and sheltering of animals. The facility would also be required to comply with the Health Research Extension Act of 1986 which extended the requirements for protection of rodents. Worker training in programs

[59] California Code of Regulations, Title 27 Section 21130.

[60] California Code of Regulations, Division 2, Title 27, Chapter 3, Subchapter 5, Article 2, Section 21190, Post Closure Land Use.

[61] DTSC, 2006. Letter to Mr. J. Swiecki, City of Brisbane, Re: Comments on the Notice of Preparation and Initial Study for the Sierra Point Research and Development complex Draft Environmental Impact Report, prepared by D. Tsuji, Chief, Northern California-Coastal Cleanup, Operations Branch. 30 January.

developed pursuant to these regulations is required. Additional requirements may also apply depending on the source of any research funding, if applicable, and any research facilities may also choose to voluntarily seek accreditation from professional associations such as AAALAC International or AAALAS, which require additional standards for laboratory animal care. These requirements are discussed above. Section IV.A, Land Use, addresses the consistency of animal testing with land use policies. As described above, any business with hazardous materials storage, use, handling, or disposal would be required to comply with federal, State, and local requirements for managing hazardous materials and wastes, including radioactive and biohazardous materials. These plans include the primary hazardous materials programs administered by the SMCEHSD. The proposed project must comply with all applicable federal, State and local requirements.

Impact HAZ-3: Operation of the project could result in hazardous conditions related to the introduction of facilities that may use animals in research. (S)

The following mitigation measure would reduce this potential impact to a less-than-significant level.

> Mitigation Measure HAZ-3. Following development of the project, any facility using animals in research shall, at the City of Brisbane's request, furnish to the City documentation demonstrating their compliance with applicable standards for laboratory animal care, such as a copy of their license with the USDA and a copy of the results of the USDA inspections (that occur on at least an annual basis) to ensure compliance with the ongoing requirements of the federal Animal Welfare Act and the Health Research Extension Act of 1985. (LTS)

J. PUBLIC SERVICES AND RECREATION

This section analyzes the proposed project's potential impacts on the following public services: fire protection, police services, and schools. It also evaluates parks and recreation. Potential impacts to public services that could result from the proposed project are identified, and mitigation measures are recommended, as appropriate.

1. Setting

In this setting section, current services and capacities are discussed, as well as the City's General Plan policies relating to public services.

a. Fire Protection. The North County Fire Authority provides fire protection services to over 185,000 people within an approximately 60 square mile area, including Brisbane, Daly City and Pacifica.[1] This Authority was established in 2003 and maintains 10 fire companies, which provide emergency and non-emergency fire, medical, and hazardous response services. The Authority has a total of 150 employees, two battalion chiefs and one deputy chief and has a minimum of 32 personnel on duty every day. The Authority has eight engine companies, one truck company, and one ambulance/transport.

The fire station nearest to the project site is Station 81, located at 3445 Bayshore Boulevard, approximately 2.3 miles northwest of Sierra Point. This station supports one engine company with a minimum of three personnel (one of whom is a paramedic). The second closest station is Station 93, located at 464 Martin Street in Daly City, approximately 4.3 miles northwest of Sierra Point. Station 93 is also staffed with a minimum of three personnel.[2]

The Authority has an average response time throughout its service area of 4 minutes or less for 90 percent of service requests. Non-emergency response times are typically within 30 minutes or less. There is no direct route to the project site from Station 81 due to the location of Highway 101, which separates the Sierra Point peninsula from central Brisbane. As a result, the standard response time to the project site is approximately 6 minutes.

Using standards set forth in the California Fire and Building Codes as amended by the Municipal Codes of each community that it serves, the Authority enforces standards for access for emergency vehicles, building addresses, fire alarm systems, fire hydrants, extinguishing systems, sprinkler systems, and water systems. The Authority's Fire Prevention Bureau reviews plans and inspects construction for compliance with applicable fire and safety requirements.

The City of Brisbane has adopted the 2000 Uniform Fire Code and the 2001 Edition of the California Fire Code. Brisbane Municipal Code section 12.24.010 establishes standards for street widths, secondary access roads, cul-de-sac requirements, and fire apparatus access roads. New roadways are required to have a minimum unobstructed width of 20 feet and a vertical clearance of 13 feet 6 inches. Access roads with a length of 150 feet or more are required to have turnarounds for fire department

[1] North County Fire Authority, 2006. North County Fire Authority Overview. Online: www.northcountyfire.org /index.htm. June.

[2] Brandvold, Steve, 2006. Deputy Fire Chief/Fire Marshal, North County Fire Authority. Personal communication with LSA Associates, Inc. July 3.

vehicles. For commercial development, fire hydrant spacing must not be greater than 250 feet and sprinkler systems must be installed in accordance with City standards.

The General Plan contains maps of areas within the City having moderate-to-high and extreme wild-land fire hazard based on factors determined by the California Department of Forestry to be related to the severity of wildfire hazard. The three primary factors are: fuel loading (the amount of flammable vegetation and other fuel); fire weather (incidence of dry, hot and windy weather); and steep slopes. Although areas of Brisbane are mapped as moderate-to-high wildfire risk, the presence of fog and moist winds generally reduces the risk to a moderate level. The project site is located in an area with a lower-than-moderate wildland fire risk.

The following General Plan policies relate to fire protection services:

Policy 156: Take advantage of technology to require built-in fire safety systems using appropriate materials and technology.

Policy 158: Provide a level of fire protection proportional to the size, risks and service demands for 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 208a*: 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.

b. Police Services. Police protection services are provided by the City of Brisbane Police Department. The Police Department headquarters are located in City Hall at 50 Park Place, approximately 2.5 miles northwest of the project site. The Department is staffed by 18 sworn officers including several specialty officers: two K9 officers; a school resource officer; two traffic officers; and a North County SWAT officer. The Department does not identify an officer-to-resident ratio or goal. The Department has seven patrol cars and two motorcycles.[3]

Law enforcement concerns in the project area are primarily auto burglaries and dumping of stolen cars. The Department has a 5 minute response time for emergencies and a 15 minute response time for non-emergency calls to the project site.[4]

The following General Plan policies relate to law enforcement services:

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 106a*. 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.

[3] Hitchcock, Thomas, 2006. Police Chief, City of Brisbane. Personal communication with LSA Associates, Inc. July 19.

[4] Ibid.

Policy 163: Continue to ensure a 3 minute emergency response average and a 10 minute average response to other calls for service.

As part of the General Plan update process, the Brisbane Police Department has requested a revision to Policy 163 as follows: "Continue to ensure a 5 minute emergency response average and a 15 minute average response to other calls for service."[5]

c. Schools. Brisbane is served by two school districts that provide public elementary and secondary education. The Brisbane Elementary School District (BESD) serves approximately 600 kindergarten through eighth grade students from the City of Brisbane, the Southern Hills portion of Daly City, and the northeastern portion of South San Francisco. The Jefferson Union High School District (JUHSD) serves approximately 5,500 students from the cities of Brisbane, Colma, Daly City and Pacifica.[6]

The BESD operates three schools: two elementary schools and one middle school. Student enrollment in the District reached a peak of 673 students in the 2002-2003 school year. However, enrollment declined to 609 students during the 2004-2005 school year.

Brisbane Elementary School is located at 500 San Bruno Avenue. The school served approximately 211 kindergarten through fifth grade students during the 2004-2005 school year. Average class size was less than 20 students per classroom for kindergarten through third grade and 31 students per classroom for fourth and fifth grades.

Panorama Elementary School is located at 25 Bellevue Avenue in Daly City and serves kindergarten through fifth grade students. During the 2004 to 2005 school year, approximately 186 students were enrolled and the average class size was 19.0 students. The school will undergo large-scale facilities remodeling during the 2006-2007 school year through bond financing.

Lipman Middle School is located at One Solano Street in Brisbane and serves students in grades six to eight. Total enrollment for the 2004-2005 school year was 212 students and the average class size was 25.2 students. The school will undergo modernization and facility upgrades financed by a bond measure beginning in the summer of 2006.

The JUHSD has an open enrollment policy which allows Brisbane students to attend any of the District's schools. The District has four high schools serving grades nine through 12: Jefferson (Daly City); Westmoor (Daly City); Terra Nova (Pacifica); and Oceana (Pacifica). JUHSD also has an adult school and a continuation high school. The majority of graduates from Lipman Middle School attend either Terra Nova or Oceana High School.[7] The student-teacher ratio is restricted to a maximum of 35 students per teacher but is lower for specialty classes.

[5] Macias, Lisa, 2006. Commander, Brisbane Police Department. Personal communication with LSA Associates, Inc. October 12.

[6] Jefferson Union High School District, 2006. *Jefferson Union High School Homepage*. Online: www.juhsd.k12.ca.us/. June.

[7] Brisbane School District, 2006. *High Schools*. Online: http://brisbane.ca.campusgrid.net/home. June.

Table IV.J-1 shows current enrollment and capacity for each school in the district. Jefferson, Oceana, and Terra Nova High Schools are below capacity and Westmoor is above capacity and is not accepting new enrollees.

Table IV.J-1: JUHSD Projected School Enrollment and Capacity

School	Projected Enrollment [a]	Capacity
Jefferson High School	1,274	1,400
Oceana High School	625	900
Terra Nova High School	1,395	1,500
Westmoor High School	1,820	1,700

[a] Enrollment numbers are estimated for the 2006 to 2007 school year.

Source: Cook, Sue, 2006. Assistant to the Superintendent, Jefferson Union High School District. Personal communication with LSA Associates, Inc. June 28.

Senate Bill 50 (SB50), which provided a $9.3 billion bond measure for school construction, and revised the existing limitation on developer fees for school facilities, was enacted as urgency legislation that became effective on November 4, 1998. The legislation derived from voter approval of a bond measure (Proposition 1A). SB50 established a 1998 base amount of allowable developer fees (Level One fee) for residential construction (subject to adjustment) and prohibits school districts, cities and counties from imposing school impact mitigation fees or other requirements in excess or in addition to those provided in the statute.

JUHSD collects impact fees for new development and shares the fees with the BESD. As of June 2006, the District collects $0.34 per square foot for commercial/industrial uses and $0.004 per square foot for parking structures.[8]

d. Parks and Recreation. The City of Brisbane Parks and Recreation Department is responsible for the City's parks and recreation services. There are nine recreational facilities which include a community pool, ballfields, gym, community centers and activity rooms. Additionally, the Parks and Recreation Department provides various recreational programs for youths, teens, adults, and seniors. The City owns few facilities that support active recreation but has a joint use agreement with the Brisbane Elementary School District to use the youth baseball and multi-purpose playing fields and junior high school gymnasium.

There are approximately 73 acres of public parks in the City including mini parks, neighborhood parks, community parks, linear parks, and special recreational use structures.[9] Open Space resources available in Brisbane include Owl and Buckeye Canyon, Sierra Point Canyon, Costaños Canyon and Firth Canyon which together provide approximately 85 acres of open space. The San Francisco Bay, Brisbane Lagoon, and the marsh in the Northwest Bayshore sub-area are designated as aquatic resource areas. San Bruno Mountain State and County Park, a 3,600-acre open space area approximately 0.25 mile from the project site along the southern and western borders of Brisbane, provides multiple hiking and picnicking opportunities.

Other recreational opportunities near the project site include the San Francisco Bay Trail and the Sierra Point Marina. The Bay Trail traverses the project site along the shoreline and connects the Sierra Point area with portions of the Bay Trail along Oyster Point to the south. The trail is paved

[8] Cook, Sue, 2006. Assistant to the Superintendent, Jefferson Union High School District. Personal communication with LSA Associates, Inc. June 28.

[9] Skeels, Jim, 2006. Director, Parks and Recreation Department, City of Brisbane. Personal communication with LSA Associates, Inc. June 30.

from the northwest corner of Sierra Point through the project site, and although there are no trail amenities on the project site currently, there are benches and landscaping along the trail to the north and south of the site. As of August 2006, the planned portion of the trail connecting the Sierra Point area with the northern section of the Bay Trail at Candlestick Point State Recreation Area has not been completed.

The San Francisco Bay Conservation and Development Commission (BCDC) regulates development and modification of natural features along the first 100 feet inland from the shoreline, and therefore, the proposed improvements to the Bay Trail would be subject to permitting and approval by BCDC, as well as the City of Brisbane. See Section IV.A, Land Use, for a more detailed description of BCDC policies.

The City owns and operates the Brisbane Marina located to the east of the project site along the eastern shoreline of Sierra Point peninsula. Facilities include a public fishing pier, a picnic area, two restroom buildings and the Harbormaster's building, as well as 580 berths ranging from 30 to 66 feet in length and a guest dock that can accommodate vessels up to 100 feet long. There are 822 City-owned parking spaces at the Marina.[10]

The General Plan advises the use of National Recreation and Parks Association (NRPA) standards as guidelines. NRPA standards have been tailored to the City's specific conditions but have not been amended to account for the needs of the non-residential population. Park standards from the General Plan are as follows:

- 10.5 acres per 1,000 residents for mini parks, neighborhood parks and linear parks (combined);
- 8 acres per 1,000 residents for community parks; and
- 66 acres per 1,000 residents for conservancies.

A joint committee of the City Parks, Beaches and Recreation and Planning Commissions determined that Brisbane meets or exceeds the NRPA standards for acreage of parks and open space per resident, as stated in the 1994 General Plan.[11] The following General Plan policies relate to parks and recreation facilities:

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.

[10] Warburton, Ted, 2006. Harbormaster, Sierra Point Marina. Personal communication with LSA Associates, Inc. October 10.

[11] Brisbane, City of, 1994. *General Plan, Chapter VII, Open Space*, p. 111. June 21.

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 96: Condition, as appropriate, new developments to construct, maintain or provide for new recreational facilities, amenities and opportunities.

Policy 100: Investigate opportunities for joint public-private development of commercial recreational facilities.

> *Program 100c*: Encourage new commercial development and renovation to include shower and locker room facilities in order to promote employees' physical fitness, encourage use of public and private recreational opportunities in the community, and reduce dependence on the automobile for transportation.

Policy 104: Provide all businesses and residents, especially youth and seniors, with a variety of enjoyable social, leisure, recreational, cultural and artistic opportunities that are accessible, affordable, safe, uncrowded and physically attractive.

Policy 113: Enhance and promote the recreational opportunities of the Marina facilities and the shoreline.

> *Program 113a*: Consider new recreational and educational programs to encourage and enhance opportunities for residents to more fully utilize the amenities of the Marina and shoreline.

Policy 233: Enhance recreational opportunities at Sierra Point for Brisbane residents.

2. Impacts and Mitigation Measures

This section discusses potential impacts to public services that could result from the proposed project. The section begins with the significance criteria, which establish the thresholds used to determine whether an impact is significant. The latter part of this section presents the impacts associated with the proposed project and identifies mitigation measures, if appropriate. Less-than-significant impacts are discussed first, followed by significant impacts.

a. Significance Criteria. The project would have a significant impact on the environment related to public services if it would:

- Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the following public services:
  a) Fire protection;
  b) Police protection; or
  c) Schools.
- 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.
- Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment.

b. Less-than-Significant Public Services Impacts. The following less-than-significant impacts for each of the following public services could result from implementation of the proposed project.

(1) Fire Protection. The proposed project would create a small increase in demand for fire and emergency services within the City of Brisbane. However, the increase in demand for these services would not exceed the physical and financial capabilities of the providers.[12] The project applicant would be required to meet the North County Fire Authority standards related to fire hydrants, water fire flow requirements, spacing of hydrants, and other fire code requirements. See Section K., Utilities and Infrastructure, for a discussion of water supply for fire protection.

The emergency response time of 6 minutes to the project site from Fire Station 81 would not change as a result of the project.

Special fire hazards associated with research and development would require additional review by the Authority as part of the plan approval process. Fire and hazardous materials on the project site are described in detail in Section IV.I, Hazards and Hazardous Materials.

(2) Police. The proposed project would result in a less-than-significant police services impact. The Police Department currently has a 5 minute response time for emergencies and a 15 minute response time for non-emergency calls to the Sierra Point area. The police response time will not be adversely affected by this project.[13] The current response time is consistent with the existing goal of maintaining a 3 minute *average* emergency response time by police to locations in Brisbane. Additionally, this response time is consistent with the response time average of 5 minutes proposed by the Police Department to be included in the General Plan update.

Current primary law enforcement concerns in the area are auto-related theft and dumping of stolen cars, and with the introduction of more employees to the general area, the composition of calls for police services would probably shift somewhat. The animal testing and research land uses that would be permitted as a result of the General Plan and Zoning Ordinance amendments proposed as part of this project may attract the attention of special interest groups. The protest activities of groups opposing these types of R & D practices could be a law enforcement concern. However, predicting the potential occurrence and extent of these protest activities would be speculative at this time. Generally, the proposed project would not create additional demand for police services, and the Police Department currently has an adequate number of police officers to serve the proposed project.[14]

(3) Schools. The Sierra Point Biotech project would generate approximately 1,800 employees associated with the proposed office and research and development space. Because the project would not have a residential component, it would not directly increase enrollment in schools. However, the proposed project may have an indirect effect on schools as a result of employees moving to the City of Brisbane to work at the project once built. The Jefferson Union High School District (JUHSD) provides a formula to assist with this calculation.

[12] Brandvold, Steve, 2006. Deputy Fire Chief/Fire Marshal, North County Fire Authority. Personal communication with LSA Associates, Inc. July 3.

[13] Hitchcock, Thomas, 2006. Police Chief, City of Brisbane. Personal communication with LSA Associates, Inc. July 19.

[14] Ibid.

The JUHSD estimates one new high school student would be generated for every 36,129 square feet of new commercial space for research and development. Based on this formula, the project would generate approximately 15 new high school students. The District currently has enough capacity to accommodate these students at any of the three schools accepting new enrollees (Jefferson, Oceana, or Terra Nova), as shown in Table IV.J-1.

The Brisbane Elementary School District (BESD) does not provide a formula for indirect student generation from commercial development. However, the BESD currently has capacity to accommodate new elementary school students. Declining enrollment across the District leaves schools with additional capacity, beyond what would be required to accommodate the few elementary students generated indirectly from the project.

In order to address the additional demand placed on both school Districts by the project, the project applicant would pay the required school development fee to the District. JUHSD collects impact fees for new development and shares the fees with the BESD. The project applicant would pay the District school development impact fees of approximately $183,663 for the office uses and approximately $1,350 for the parking structure.

The proposed project would not have significant impacts on the provision of school services.[15] The project does not include residential development, and any new students generated can be accommodated by the existing school facilities.

(4) Parks and Recreation. The Sierra Point peninsula is geographically separated from the parks and recreational facilities in Central Brisbane due to the location of Highway 101. Therefore, the Parks and Recreation Department suggests construction of additional facilities to serve the office population on the peninsula, such as outdoor employee gathering areas, an amphitheater, and an indoor public meeting area.[16] The proposed project incorporates several suggested elements including: an employee gathering area for passive uses and small events near the center of the project site; outdoor paved seating areas at each building; and paved pathways throughout the site.

The proposed project would also include improvements to the existing Bay Trail along the shoreline on the project site that would be subject to BCDC and City review and approval. The proposed trail would be a 10-feet wide paved pathway with pedestrian amenities including benches, picnic tables, public access signage, trash cans. Installation of landscaping along the south shoreline was established as a condition of building occupancy under previous project approval documents and would be completed as part of the proposed project.[17] Although the trail would be accessible during the construction phase for the proposed buildings, it would be temporarily closed during the construction period for the improvements to the trail and installation of amenities and landscaping

[15] Cook, Sue, 2006. Assistant to the Superintendent, Jefferson Union High School District. Personal communication with LSA Associates, Inc. June 28.

[16] Skeels, Jim, 2006. Director, Parks and Recreation Department, City of Brisbane. Personal communication with LSA Associates, Inc. June 30.

[17] The Agreement Concerning Project Approval Documents was adopted December 22, 1997 by the City Council as Resolution No. 97-69. The Second Amendment to the Agreement Concerning Project Approval Documents (November 17, 2003) established the above condition.

associated with the project (estimated to be approximately 6 weeks).[18] Existing sidewalks along Shoreline Court and Sierra Point Parkway would provide a detour route for trail users during this short-term disruption. The proposed trail improvements are consistent with applicable BCDC policies, as described in Section IV.A, Land Use.

As discussed in Section IV.K, Utilities and Infrastructure, storm drainage outfalls for runoff from the project site are located along the southern boundary of the site adjacent to Oyster Bay. Stormwater outfalls for nearby runoff catch basins empty directly into the Marina. Stormwater runoff carrying sediment from the project site during construction grading and ongoing operations could empty into the Marina and result in accumulation and a shoaling threat in navigable water, especially during the rainy season. Implementation of mitigation measures HYDRO-1a, HYDRO-1b, HYDRO-1c and HYDRO-2 would ensure that stormwater runoff does not carry sediment into navigable waters and does not create a shoaling threat to Marina users.

The City has an adequate supply of parks to meet the existing demand but anticipates that planned residential projects may increase demand in the near-term. The Parks and Recreation Department is currently conducting a public survey of facilities to determine recreational needs.[19] The proposed project would contain office and research and development uses, which would result in an incremental increase in demand for parks and recreational facilities for use by employees. However, because the project does not contain a residential component, its impact on parks and recreation facilities is anticipated to be minimal. The employees associated with the proposed project may periodically use existing parks and recreational facilities, including the Bay Trail and private park space on-site, but the project would not create a shortage of parks or result in or accelerate the substantial physical deterioration of facilities.[20] Therefore, the proposed project would result in a less-than-significant impact on parks and recreation facilities.

c. Significant Impacts to Public Services and Recreation. Implementation of the proposed project would not result in adverse significant impacts to the provision of fire, police, schools and recreation services.

[18] Smith, Diane, 2006. Project Manager, Project Management Advisors, Inc, Consultant to Slough Estates International (Applicant). Personal communication with LSA Associates, Inc. October 4.

[19] Ibid.

[20] Ibid.

K. UTILITIES AND INFRASTRUCTURE

This section describes major utility systems serving the project site and evaluates the effects of the proposed project on utilities and infrastructure. Potential impacts to utilities that could result from implementation of the proposed project are identified, and mitigation measures are recommended, as appropriate.

1. Setting

The following types of utilities and infrastructure are addressed: water supply, wastewater collection and treatment, stormwater, solid waste, telecommunications, electricity and natural gas. The utilities analyzed here were selected on the basis of discussions with City staff and utility systems staff.

a. Water Supply. The following discussion provides background information on the City's sources of water, water treatment facilities, and water distribution system. It also summarizes the City's General Plan policies related to water supply.

(1) Water Sources. The City of Brisbane receives 100 percent of its water from the San Francisco Public Utilities Commission (SFPUC) through five turnouts along the 44-inch Crystal Springs #1 pipeline and the 60-inch Crystal Springs #2 pipeline. Under normal conditions, water comes directly from the Hetch Hetchy Reservoir in Yosemite National Park. Occasionally the water may be supplemented or come directly from the East Bay or Peninsula reservoirs.

The wholesale water relationship between the City of Brisbane and the SFPUC is largely defined by the *Settlement Agreement and Master Water Sales Contract* (Master Contract) executed in 1984.[1] The Master Contract provides for a 184 mgd "Supply Assurance" to the SFPUC's wholesale customers, subject to reduction in the event of drought, water shortage, earthquake, or rehabilitation and maintenance of the system. The Master Contract does not guarantee that the SFPUC will meet peak daily or hourly customer demands when their annual usage exceeds the Supply Assurance. The SPFUC's wholesale customers have agreed to the allocation of 184 mgd Supply Assurance amongst themselves, with each entity's share of the Supply Assurance set forth on a schedule adopted in 1993. The SFPUC can meet the demand of its retail and wholesale customers in years of average and above-average precipitation. The Master Contract allows the SFPUC to reduce water deliveries during droughts, emergencies and for scheduled maintenance activities. The SFPUC and all wholesale customers adopted an Interim Water Shortage Allocation Plan (IWSAP) in 2000 to address the allocation of water between the SFPUC and wholesale customers during water shortages of up to 20 percent of average system-wide use.

The City of Brisbane operates two separate water districts providing water to the local residents and businesses. The Brisbane Water District serves Central Brisbane, Sierra Point and the Baylands. The Guadalupe Valley Municipal Improvement District (GVMID) serves Crocker Park and the North East Ridge residential development. The City of Brisbane currently has approximately 2.7 million gallons of storage capacity.[2] The water districts are interconnected and are operated together to maximize circulation and flow within the system which allows the City to move water freely across the districts to address varying levels of demands.

[1] City of Brisbane, 2006. *Water Supply Assessment for the proposed Sierra Point Biotech project.* July.

[2] City of Brisbane, 2003. *Water Master Plan.* Prepared by Brown and Caldwell. June.

The City water system serves about 3,600 residents within a 4-square mile area. In 2001, the average daily demand was approximately 0.8 million gallons per day (mgd) and the maximum daily demand was approximately 1.9 mgd.[3] It is projected that the maximum-day water demand will increase from 1.9 mgd to about 2.6 mgd in the year 2020.[4]

(2) Water Treatment Facilities. Water currently supplied to the City of Brisbane from the SFPUC Hetch-Hetchy Aqueduct System comes primarily from impounded High Sierra snowmelt, and, as a result, is of very high quality. The SFPUC treats all water it sells to the City to meet all State and federal primary and secondary drinking standards. The SFPUC periodically assesses its ability to met newly promulgated regulations and upgrades its facilities to maintain compliance. To reduce the formation of regulated compounds collectively referred to as disinfection byproducts (DBP) the SFPUC converted its system from free chlorine to chloramines as it residual disinfectant. Chloramine is a combination of chlorine and ammonia that is considered a better disinfectant than chlorine alone because it lasts longer in water to more effectively remove pathogens such as bacteria and viruses and produces lower levels of byproducts such as trihalomethanes (THMs). Chloraminated water is safe for general uses, however, as with chlorine, precautions must be taken to remove or neutralize chloramine for sensitive users. Sensitive users include three groups: (1) fish, amphibian, and reptile owners; (2) dialysis facilities and home dialysis patients; and (3) businesses requiring highly processed water.[5]

In general, the lower disinfectant levels in the distribution system (including tanks and water mains) may result from low turnover in the water storage tanks and reduced circulation in the water distribution pipelines due to low water demands and dead-end mains (no system looping). The City of Brisbane currently addresses such problems by continuously monitoring water quality parameters at the water storage tanks and at various points within the water distribution system, conducting routine dead-end flushing and annual unidirectional flushing, and establishing procedures to maximize system circulation and to respond to changes in water quality parameters. The City has also installed a special water circulation and mixing manifold inside each water storage tank that maximizes the mixing of the full volume of each tank and minimizes the short circuiting and water age that can lead to decreased disinfectant levels and disinfectant by-products.[6]

The City of Brisbane conducts a comprehensive water quality assurance program. The water quality program ensures that water is safe to drink and is in compliance with the U.S Environmental Protection Agency (EPA) and California Department of Health Services (DHS) regulations to limit the amount of contaminants in the water supply system.[7]

In recent years, the City of Brisbane has added additional security measures at each of existing water supply facilities. A detailed inspection of each facility is conducted daily and any sign of unauthorized access is immediately reported and appropriate action is taken to ensure the distribution system remains secure.[8]

[3] City of Brisbane, 2003. *Water Master Plan.* Prepared by Brown and Caldwell. June.

[4] Ibid.

[5] Ibid.

[6] Ibid.

[7] City of Brisbane, 2004. *Water Quality Report.* Website: www.ci.brisbane.ca.us/html/pdf/WaterQualityReport.pdf

[8] City of Brisbane, 2004. Public Works. Website: www.ci.brisbane.ca.us/html/cityDept/pw/index.asp

(3) Water Distribution System. The Brisbane Water District consists of three turnouts, two booster pump stations and two storage tanks to supply water across three pressure zones. Nine pressure reducing stations are located throughout the two districts to allow water to move across different pressure zones. In addition, two interconnections with neighboring water districts give Brisbane the capability to utilize water in emergencies (if available). The project site is located within the Brisbane 4 water pressure zone.

The City of Brisbane distribution system includes 25 miles of water mains ranging in diameter from 4 to 16 inches. The distribution system is generally in good condition.[9] As shown in Figure III-13, water supply infrastructure in the vicinity of the project site includes a 12-inch diameter water main beneath Sierra Point Parkway and a 16-inch diameter water main that runs along an easement on the shore within the southern portion of the project site.

(4) Local Policies and Regulations. The following water supply related policies from the Brisbane General Plan are relevant to the proposed project:

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 130c*: Consult with responsible agencies for design parameters and potential mitigation measures for the conservation of all water resources, especially pertaining to wetland 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 138e*: As a part of the land use planning process, consider how water conserving features are incorporated into project design.

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.

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 208a*: 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 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 213: If new development occurs, require trunk and lateral lines to be installed to City standards.

[9] City of Brisbane, 2003. *Water Master Plan.* Prepared by Brown and Caldwell. June.

b. Wastewater System (Sanitary Sewer). The City of Brisbane provides sanitary sewer services to the residents and businesses in its service area. The service area consists of approximately 3,600 residents, several commercial areas and some light industrial development.[10]

(1) Collection System. The sewer collection system consists of more than 80,000 feet of laterals, mains, trunks and 20,000 feet of forcemains, ranging in size from 6 to 24 inches in diameter.[11] Additionally, there are approximately 4,350 feet of private sewers consisting of 4- and 6-inch diameter pipelines.[12] A series of gravity collection system mains and smaller pumping stations convey most of the wastewater flow to the Valley Drive Pump Station. The wastewater is then delivered to the 78-inch diameter City of San Francisco interceptor and ultimately conveyed to the Southeast Water Quality Control treatment facility located in San Francisco.[13]

The City completed a Sanitary Sewer Master Plan in July 2003 that includes a condition assessment, flow projections, capacity evaluation, and a recommended capital improvement program. The projects within the capital improvement program are assigned four priority levels based on degree of hydraulic and/or structural deficiencies. Sewer maintenance personnel are responsible for maintaining the collection system (pipelines and manholes), responding to service calls for backups/blockages, and maintaining/operating the City's four pump stations.

Sanitary sewer lines in the vicinity of the project site include 10-inch diameter gravity flow lines beneath Shoreline Court and Sierra Point Parkway, as shown in Figure III-13. An approximately 30-feet wide sanitary sewer easement runs through the northwestern corner of the site. Sanitary sewer lines adjacent to the project site gravity flow into the Sierra Point Lift Station, which has a capacity of 0.46 millions gallons per day (mgd). The Sierra Point Lift Station transfers sewage to the City's Valley Drive Lift Station, which has a capacity of 3.2 mgd and eventually to the Southeast Water Quality Control treatment facility.[14] The projected future average sewage flow for the entire Sierra Point area and adjacent South San Francisco area is approximately 0.153 mgd.[15]

(2) Wastewater Treatment. The City of Brisbane contracts with the City of San Francisco to treat wastewater. Wastewater from the City of Brisbane is conveyed to the Southeast Treatment Plant, located on Phelps near Evans Street in the Bayview District of San Francisco. The Southeast Treatment Plant was built in 1952 and has been expanded several times since the original construction. In addition to the City of Brisbane, the treatment plant provides wastewater treatment service for the east side of San Francisco and currently treats an average dry weather flow of about 67 million gallons per day (mgd) and has the capacity to treat up to 250 mgd during wet weather flows.[16] The

[10] City of Brisbane, 2004. Public Works Website: www.ci.brisbane.ca.us/html/cityDept/pw/index.asp

[11] City of Brisbane, 2003. *Sewer Master Plan.* Prepared by Brown and Caldwell, May.

[12] Ibid.

[13] Ibid.

[14] Thomas Birmingham, 2006. Project Manager, Brown and Caldwell. Personal Communications with LSA Associates, Inc. August 25.

[15] Ibid.

[16] San Francisco Public Utilities Commission, 2006. Southeast Treatment Plant Website: www.sfsewers.org/southeast_treatment.asp

Southeast Treatment Plant has a design capacity of 85 mgd.[17] Treated wastewater from dry weather flows is discharged into the San Francisco Bay through a pipe reaching 800-feet into the Bay.

During dry weather, wastewater flows to the Southeast Treatment Plant consist mainly of municipal and industrial sanitary sewage and wastewater and all dry weather flow is treated to a secondary level at the treatment facility. During wet weather (typically October to April), the combined sewerage system collects large volumes of stormwater runoff in addition to municipal and industrial wastewater, and the combined wastewater and stormwater flows are conveyed to the treatment facilities before eventual discharge to the Bay. Due to the wide variation in volume of wet weather flow from the addition of stormwater, the combined sewer system is operated under a wet weather mode different from dry weather operations. The volume of wet weather flow is directly related to the rainfall intensity, and treatment of the wet weather flows varies depending on the characteristics of any individual rainstorm. The City and County of San Francisco currently holds an NPDES permit adopted by the RWQCB in June 2002 that covers the Southeast Treatment Plant and includes combined sewage outfall (CSO) discharges into the Bay.[18] The permit prohibits overflows from the CSO structures during dry weather and requires that wet-weather overflows comply with nine minimum controls specified in the federal Combined Sewer Overflow Control Policy established to provide minimum requirements for primary treatment of combined sewer flows. The combined system is designed and permitted to handle a wide range of wet weather flows. During periods of intense rainfall, the combined sewer system is designed to provide primary treatment to discharge overflows through the combined sewer outfall (CSO) structures to the Bay.

A 5-Year Wastewater Capital Improvement Program approved in 2005 by the SFPUC includes plans to upgrade aging infrastructure at the facility to reduce odors. The SFPUC is currently in the process of updating the Sewer Master Plan, which will include additional measures to upgrade facilities at the Southeast Treatment plant to reduce odors and CSO releases.[19]

(3) Local Policies and Regulations. The following sanitary sewer related policies from the Brisbane General Plan are relevant to the proposed project:

Policy 213: If new development occurs, require trunk and lateral lines to be installed to City standards.

Policy 214: Require, as feasible, that all sanitary sewer lines will be installed within dedicated public streets.

c. Stormwater. Within the City of Brisbane there are primarily two main watersheds, the Bayshore Basin and the GVMID Basin. The project site is located on a peninsula which extends into the Bay and is outside of the two main watershed areas within Brisbane. The Storm Drainage Master Plan defines the project site as within the Sierra Point (other) subwatershed, which drains directly into the Bay and is independent of the two main watershed areas.[20] The City of Brisbane currently

[17] Kerwin Chan, 2006. Superintendent of Bayside Operations, SFPUC. Personal communications with LSA Associates, Inc. July 11.

[18] Regional Water Quality Control Board, 2002. NPDES Permit No. CA0037664, Order No. 2002-0073, for the City and County of San Francisco Southeast Water Pollution Control Plant, North Point Wet Weather Facility, and Bayside Wet Weather Facilities. Adopted, June 19.

[19] San Francisco Public Utilities Commission, 2006. Southeast Treatment Plant Website: www.sfsewers.org/southeast_treatment.asp.

[20] City of Brisbane, 2003. *Storm Drainage Master Plan*. Prepared by RBF Consulting, November.

operates a system of storm drains to catch and divert surface water. Most of the storm drain facilities within the City are made of concrete. With few exceptions, the facilities are in fair to good conditions.[21] In compliance with the National Pollutant Discharge Elimination System (NPDES), the City of Brisbane participates in the San Mateo Countywide Stormwater Pollution Prevention Program (STOPPP). A more detailed discussion of stormwater runoff and water quality is located in Section IV.G, Hydrology and Water Quality.

(1) Stormwater Drainage Facilities. The existing project site is generally bare land. However, there are four existing 24-inch diameter stormwater outfalls from the site that discharge into the San Francisco Bay, as shown in Figure III-13. These outfalls previously had received runoff from portions of Shoreline Court and Sierra Point Parkway, and portions of the properties north and west of from the project site, but these outfalls no longer receive offsite flows. The existing site topography indicates: a swale east of Shoreline Court that discharges from the site into the existing outfall at southwest corner of the project site; a surface swale that discharges through a culvert onto the surface near the southern middle of the site, and some overland surface drainage along the southeastern portion of the project site.

(2) Local Policies and Regulations. The Brisbane General Plan contains information about stormwater services in the Community Health, Safety and Conservation Elements. The following policies are relevant to the project:

Policy 134: Reduce the amount of pollutants entering waterways.

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.

Policy 153: Require the construction of new improvements and the upgrade of existing stormwater infrastructure to mitigate flood hazard.

Policy 208: If new development occurs, require infrastructure to be installed to City standards.

Policy 221: If new development occurs, require storm drain systems to be installed to City standards.

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.

d. Solid Waste. The South San Francisco Scavenger Company, Inc. provides recycling and solid waste collection and disposal services in Brisbane. Blue Line Transfer, Inc. operates the Blue Line Public Disposal and Recycling Facility, located 2 miles south of the project site at 500 East Jamie Court in South San Francisco.

Solid waste from Brisbane is disposed at the Altamont Landfill, Ox Mountain Sanitary Landfill and the Hillside Class III Disposal Site.[22] The Altamont Landfill is permitted to dispose of mixed municipal waste, construction debris and contaminated soils and has a remaining capacity of 124,400,000

[21] Ibid.

[22] California Integrated Waste Management Board (CIWMB), 2006. Jurisdiction Profiles: Brisbane. Website: www.ciwmb.ca.gov/Profiles/Juris/Default.asp

cubic yards with an estimated closure date in 2025.[23] The Ox Mountain Sanitary Landfill is permitted to dispose of mixed municipal waste and construction debris and has remaining capacity of 44,646,000 cubic yards with an estimated closure date in 2018.[24] The Hillside Class III Disposal Site is permitted to dispose of construction materials and has a remaining capacity of 139,331 cubic yards and an estimated closure date in 2010.[25]

California Integrated Waste Management Act (AB 939). The City relies on a broad mix of waste stream diversion programs to meet State mandated diversion goals, established in the California Integrated Waste Management Act (AB 939), including source reduction, composting, and recycling. AB 939 required all municipalities in the State have diverted at least 50 percent of their waste streams by 2000. Source reduction, which is given the highest priority, is defined as the act of reducing the amount of solid waste generated initially. Recycling and composting are given the next highest priority. AB 939 specifies that all other waste that is not diverted be properly and safely disposed of in a landfill or through incineration.

Source Reduction and Recycling Element. The California Integrated Waste Management Act also mandates that each jurisdiction adopt a Source Reduction and Recycling Element (SRRE) to specify how the community will meet the 50 percent waste diversion goal set forth in AB 939. Each jurisdiction is also required to take measures to reduce solid waste generation and to provide for the safe disposal of special and hazardous wastes. Certain special and hazardous wastes are included within the purview of the SRRE, but communities are also required to adopt a separate Household Hazardous Waste Element (HHWE) to address hazardous wastes generated by households. The SRRE for the City of Brisbane was adopted in 1994 and the HHWE was adopted in 1996 and both the SRRE and HHWE have been implemented since their respective adoption dates.[26]

Since 1989, County of San Mateo and its cities have implemented a variety of programs to address solid waste including curbside recycling, commercial recycling programs, organics collection, backyard composting, electronics recycling, construction and demolition recycling ordinances and green building programs. In 2002, the City of Brisbane achieved a 51 percent waste diversion rate.[27] In 2003 and 2004, the City of Brisbane preliminary diversion rates increased to 62 and 72 percent respectively.[28]

In July 2004, the City of Brisbane passed Ordinance 493, adding Chapter 15.75 to the Brisbane Municipal Code relating to recycling and diversion of construction and demolition debris.[29] Ordinance 439 requires the creation of a Recycling and Waste Reduction Plan for construction and demo-

[23] California Integrated Waste Management Board (CIWMB), 2006. Solid Waste Information System. Website: www.ciwmb.ca.gov/swis/Search.asp

[24] Ibid.

[25] Ibid.

[26] California Integrated Waste Management Board (CIWMB), 2006. Jurisdiction Profiles: Brisbane. Website: www.ciwmb.ca.gov/Profiles/Juris/Default.asp

[27] San Mateo County RecycleWorks, 2006. RecycleWorks website: www.recycleworks.org/div_rates.html

[28] The 2003 and 2004 diversion rates are preliminary and are in the process of being reviewed by the California Integrated Waste Management Board (CIWMB) in the biennial review process.

[29] Brisbane Municipal Code, 2006. Chapter 15.75. Recycling and diversion of debris from construction and demolition.

lition activities to ensure that 100 percent of inert solids and 50 percent of other debris are diverted from the waste stream during demolition activities and 50 percent of waste is diverted from construction activities. In order to obtain a building or demolition permit, an applicant is required to provide a cash deposit and a Recycling and Waste Reduction Plan for review and approval by the building official.

e. Telecommunications, Electricity and Natural Gas. Pacific Gas and Electric (PG&E) provides natural gas and electricity services to the City of Brisbane. Cable services within the City of Brisbane are provided by Comcast and telephone services are provided by AT&T. Existing telephone, cable, natural gas and electricity service lines connecting to nearby developments on Sierra Point would be available to serve the project site. An existing 10-feet wide PG&E easement connects to the existing maintenance buildings on the northeastern portion of the project site.

(1) Electricity. In the State of California, the baseload electricity supply is provided by baseload plants which use coal, nuclear and large hydropower facilities for electricity generation.[30] When statewide electricity demand exceeds the baseload supply, load-following plants (natural gas and some large hydropower facilities) provide the additional generation capacity to meet elevated demand levels. Load-following energy generation plays an important intermediate capacity role by allowing the system to respond to swings in the availability of hydroelectric and imported electric power. Natural gas plants provide the major portions of the State's 'swing' capacity. Peak electricity demand typically occurs in the summer (May to September) during the afternoon (from 1:00 p.m. to 6:00 p.m.). Peak electricity demand can exceed the generation capacity of base and load-following plants, resulting in either supply disruptions (rolling blackouts) or requiring the construction of 'peaker plants' to provide additional power generation capacity to meet peak demand loads. Most peaker plants only run a small number of hours per year during peak demand periods. Technologies that reduce demand or shift demand from peak to off-peak can also be utilized to reduce the need for new peaker plants.[31]

During peak demand, California has periodically experienced energy supply shortages and rolling blackouts in various locations. California electricity market fluctuations are the result of a complex combination of factors including the California electricity market restructuring in 1996, electricity market price volatility, the structure of the national wholesale market and weather conditions.[32]

In 1996, the California legislature created the California Independent System Operator (CAISO) to manage power transmission and to facilitate electricity market reliability. In 1998, the CAISO assumed control of the PG&E transmission system and the responsibility to schedule generation to match expected demands.

The CAISO oversees the path, routing and sale of energy across 80 percent of the grid in California. The power grid, a transmission system made up of high-voltage power lines, delivers power to serve the annual energy needs of over 30 million current utility customers. The CAISO also assumed the

[30] Wetherall, Ron, 2004. Electricity Analysis Office, California Energy Commission. *California Electricity System Overview.* November 15, 2004.

[31] Wetherall, Ron, 2004. Electricity Analysis Office, California Energy Commission. *California Electricity System Overview.* November 15, 2004.

[32] California Energy Commission (CEC), 2002. *2002-2012 Electricity Outlook Report.* February.

responsibility to initiate the energy curtailment programs if a statewide or local operating condition exists which may impair the ability of the CAISO to meet the demands of all electricity customers. The CAISO has established a non-firm[33] service notification process to advise customers of potential curtailment operations when peak electricity demand exceeds the system's capacity.[34]

The California Public Utilities Commission (CPUC) provides direction to PG&E in an ongoing effort to ensure adequate electricity through the adoption of a Long-Term Procurement Plan (LTPP) for the PG&E service area. In order to meet the growing regional and statewide demand for energy, a demand forecast is developed which considers growth rates and weather multipliers to determine the adequacy of statewide energy resources. The CPUC approved the PG&E LTPP to ensure adequate energy supply area available for the PG&E service areas.[35] In accordance with the adopted LTPP, the CPUC approved the procurement of 2,250 megawatts (MW) of additional power generation capacity to meet expected long term and peak energy needs within the PG&E service areas.[36]

Title 24, California's Energy Efficiency Standards for Residential and Nonresidential Buildings, was established in 1978 in response to a legislative mandate to reduce California's energy consumption. Title 24 provides the requirements to achieve the minimum energy efficiency standards of the State of California. The California Energy Commission periodically updates the Title 24 standards to reflect the State's changing energy needs and to allow consideration and possible incorporation of new energy efficiency technologies and methods. The latest revisions went into effect October 1, 2005 and focus on reducing peak energy use, in addition to reducing overall energy use. The 2005 changes to Title 24 were adopted in response to California's recent energy crisis and are designed to: reduce energy bills; increase energy delivery system reliability; emphasize energy efficiency measures to save energy during peak periods and seasons; provide updated and cost-effective building energy efficiency standards; and provide new efficiency standards for outdoor lighting.[37] The standards apply to new construction of both residential and nonresidential buildings, and regulate energy consumed for heating, cooling, ventilation, water heating and lighting. Compliance with these standards is verified and enforced through the local building permit process.

In addition to compliance with Title 24 requirements, the City of Brisbane is in the process of developing an ordinance for consideration which would require commercial and industrial projects of at least 10,000 gross square feet to incorporate green building practices to further reduce energy use in accordance with Leadership in Energy and Environmental Design (LEED) Silver standards. The project could be subject to such an ordinance, depending on the final ordinance language and timing relative to the project.

[33] Non-firm service is defined as an optional service in which electricity supplies are curtailed by electricity distributors, upon request by the wholesale supplier, to a predetermined firm service level in consideration for a prearranged reduction in electric service charges.

[34] California Independent System Operator (CAISO), 2006. Website: www.caiso.com/

[35] California Public Utilities Commission, 2004. *PUC adopts Long-Term Power Purchase Plans for utilities to ensure adequate energy supply for State*. December 16, R.04-04-003.

[36] Sean Gallagher, 2006. *Status Report: Resource Adequacy (RA) and Long Term Procurement Planning (LTPP).* CPUC Energy Division, April 24.

[37] California Energy Commission (CEC), 2006. Title 24, California's Energy Efficiency Standards for Residential and Nonresidential Buildings. Website: www.energy.ca.gov/title24/index.html

(2) Local Policies and Regulations. The following energy related policies from the Brisbane General Plan are relevant to the proposed project:

Policy 139: Promote the conservation of non-renewable energy resources.

Policy 140: Encourage energy-efficient building design and site planning.

Policy 141: Encourage the installation of energy-efficient appliances.

2. Impacts and Mitigation Measures

This section discusses potential impacts to utility systems that could result from implementation of the proposed project. The section begins with the criteria of significance, which establish the thresholds used to determine whether an impact is significant. The latter part of this section presents the impacts associated with the proposed project and identifies mitigation measures, if appropriate. Less-than-significant impacts to infrastructure and utilities are discussed first, followed by significant impacts. Water quality (as opposed to water supply) impacts related to stormwater runoff are discussed in Section IV.G, Hydrology and Water Quality.

a. Significance Criteria. The proposed project would result in a significant impact if it would have any of the following effects:

Water Supply and Infrastructure:

- Not have sufficient water supplies available to serve the project from existing entitlements and resources, requiring new and/or expanded entitlements to serve the project.
- Create substantial demand for water beyond the existing or planned City water supply, requiring additional water storage capacity.
- Conflict with the use, operation, or maintenance of an existing utility line, or increase the risk of accidental damage to an existing utility line.
- Require or result in construction of new water lines, or expansion of existing facilities, the construction of which could cause significant environmental effects.

Wastewater:

- Result in the need for extension of new wastewater service into a currently un-serviced area.
- Require or result in construction of new wastewater conveyance or treatment facilities, or expansion of existing facilities, the construction of which could cause significant environmental effects.
- Conflict with current infrastructure plans of wastewater service providers.
- Exceed wastewater treatment requirements of the San Francisco Bay Regional Water Quality Control Board.

Storm Drainage:

- Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.

- Generate additional storm water runoff that would exceed the existing or planned capacity of the City's storm drain system and require the construction or substantial expansion of existing facilities.
- Conflict with the use, operation, or maintenance of an existing utility line, or increase risk of accidental damage to an existing utility line.

Other Services:

- Violate applicable federal, state, and local statutes and regulations related to solid waste.
- Be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs.
- Use fuel or energy in a wasteful manner.
- Result in a substantial increase in peak and base period demand for electricity and other forms of energy requiring the construction of additional energy supply facilities.

b. Less-Than-Significant Utilities and Infrastructure Impacts. The following discussion describes less-than-significant impacts to infrastructure and utilities systems that would result from implementation of the proposed project.

(1) Wastewater Treatment. The City of Brisbane has a contract with the SFPUC for treatment of 6.0 mgd total daily dry weather sewage flow.[38] Base sanitary sewer flow for existing conditions in the 2003 Sewer Master Plan was projected to be 0.334 mgd for the City's service area.[39] Base sanitary sewer flow levels for build-out conditions outlined in the General Plan for 2020 are projected to increase to 0.454 mgd, with the majority of future flow increases expected to come from new office districts and planned developments.[40] Average sewer flow from the proposed project would be approximately 0.112 mgd and, with a peaking factor of 5 to 1, the project could have peak flows levels of up to 0.560 mgd.[41]

Brisbane's sewage is conveyed to the Southeast Water Pollution Control Facility, which has a total design capacity of 85 mgd.[42] The Southeast Water Pollution Control Facility currently has an average daily dry weather flow of 67 mgd, [43] with a remaining average daily dry weather treatment capacity of approximately 18 mgd. Additional base flows of 0.112 mgd and peak flows of up to 0.560 mgd generated by the proposed project would be less than one percent of the remaining dry weather treatment capacity of 18 mgd and would therefore be within the Southeast Water Pollution Control

[38] City of Brisbane, 2002. *1999-2006 Housing Element.* Adopted October 15.

[39] City of Brisbane, 2003. *Sewer Master Plan.* Prepared by Brown and Caldwell, May.

[40] Ibid.

[41] Thomas Birmingham, 2006. Project Manager, Brown and Caldwell. Personal communications with LSA Associates, Inc. August 25.

[42] Kerwin Chan, 2006. Superintendent of Bayside Operations, SFPUC. Personal communications with LSA Associates, Inc. July 11.

[43] San Francisco Public Utilities Commission, 2006. Southeast Treatment Plant Website: www.sfsewers.org/southeast_treatment.asp

Facility's remaining treatment capacity and within the projected flow levels for build-out under the General Plan.

The Southeast Water Pollution Control Facility operates in compliance with the wastewater treatment requirements of the RQWCB for both dry weather and wet weather conditions.[44]

The SFPUC requires a waste discharge permit for all commercial and industrial sewer system users. Depending on the volume and content of the sewer to be discharged to the SFPUC Southeast Water Pollution Control Facility from the project site, the discharge permit will be formulated in accordance with the SFPUC Sewer Use Ordinance and the Significant Industrial User (SUI) or a Categorical Industrial User (CIU) designation. SFPUC discharge permit application process will consider the volume and content of wastewater from the proposed project and may require monthly monitoring by the Bureau of Environmental Management (BERM) to ensure that the sewage discharge from the biotech research and development facility does not impact the ability of the Southeast Water Pollution Control Facility to meet wastewater treatment objectives and requirements.[45]

(2) Storm Drainage. Implementation of the proposed project would increase the impervious surface coverage on the site from close to zero percent to approximately 40 percent. Considering the entire 22.8-acre site, the peak 10-year discharge could increase from 16 cubic feet per second to 26 cubic feet per second. This rate should be well within the combined capacity of the four existing 24-inch diameter outfalls serving the project site.[46] Implementation of the proposed project would alter the existing drainage patterns on the site by directing additional runoff into existing outfalls, which could result in increased discharges from the site. However, the proposed project would discharge directly into San Francisco Bay and would not exceed the capacity of the City's storm drain system.

(3) Solid Waste. Implementation of the proposed project would generate solid waste during the demolition, construction and operational phases of the project. Compliance with Brisbane Municipal Code Chapter 15.75 requiring the implementation of a Recycling and Waste Reduction Plan for construction and demolition activities would reduce the amount of waste generated during the demolition and construction activities associated with the project. [47]

According the CIWMB, commercial office and research uses typically generate 10 to 13 pounds of solid waste per 1,000 square feet.[48] The approximately 540,000 square foot biotech research space and 2,500 square feet of retail space would be expected to generate approximately 5,450 to 7,070 pounds of trash per day. The combined capacity of the Altamont Landfill, Ox Mountain Sanitary Landfill and the Hillside Class III Disposal Site is approximately 169,000,000 cubic yards, which is

[44] Regional Water Quality Control Board, 2002. NPDES Permit No. CA0037664, Order No. 2002-0073, for the City and County of San Francisco Southeast Water Pollution Control Plant, North Point Wet Weather Facility, and Bayside Wet Weather Facilities. Adopted, June 19.

[45] Dr. John Gregson, 2006. Senior Chemist, SFPUC Bureau of Environmental Management (BERM). Personal communications with LSA Associates, Inc. October 5.

[46] Harvey Oslick, 2006. RBF Consultants. Personal communications with LSA Associates, Inc. June 29.

[47] Brisbane Municipal Code, 2006. Chapter 15.75. Recycling and diversion of debris from construction and demolition.

[48] California Integrated Waste Management Board, 2004. Estimated Solid Waste Generation Rates for Institutions. Website: www.ciwmb.ca.gov/WasteChar/WasteGenRates/Commercial.htm

adequate to accommodate the solid waste projected to be generated by the proposed project.[49] Refer to Section IV.I, Hazards and Hazardous Materials for further analysis of the disposal of hazardous materials from the proposed project.

(4) Telecommunications, Electricity and Natural Gas. Development of the proposed project would incrementally increase demand for electricity, gas, cable and telecommunication services in order to service the additional 540,000 square feet of biotech research space and 2,500 square feet of retail space. However, the new construction associated with the project would take place adjacent to developed areas currently serviced by telephone, cable, natural gas and electrical lines. The existing PG&E easement for service to the existing maintenance buildings currently on the site will be abandoned and the appropriate documentation will be filed and recorded.

The proposed project would increase electricity and natural gas consumption. The PG&E LTTP was established to meet the anticipated regional growth in energy demand within the PG&E service area. The CPUC approved the PG&E LTPP to ensure adequate energy supply area available for the PG&E service area, including the procurement of 2,250 megawatts (MW) of additional power generation capacity to meet expected long term and peak energy needs within the PG&E service areas.[50]

The project would be subject to the standards of Title 24, California's Energy Efficiency Standards for Residential and Nonresidential Buildings, which would ensure that energy is not used in a wasteful manner. In addition to Title 24 standards, the CAISO uses the *Flex Your Power Now!* and the *Save a Watt Voluntary Load Reduction Program* as demand management programs to reduce peak hour demand to balance system-wide electricity supply and demand. The project shall also be required to comply with any LEED ordinance in effect prior to the issuance of any building permits or tenant improvements.

The project would include dual glazing and roof insulation as energy conservation measures.[51]

c. Significant Utilities and Infrastructure Impacts. The implementation of the proposed project would result in the following significant impacts related to utilities and infrastructure.

(1) Water Supply. Implementation of the proposed project would increase City-wide water supply demand by an average daily demand of 0.124 mgd. The projected employment population from the proposed project has been accounted for in the City's 2030 Water Demand Projections based on employment estimates for the project site in the General Plan.[52]

In accordance with Senate Bill 610 and 221, the agency supplying water for projects which would demand an amount of water equal to or greater than the amount of water needed to serve a 500-dwelling unit residential project are required to prepare a Water Supply Assessment (WSA) for the proposed project. This requirement includes commercial office buildings that would employ more

[49] California Integrated Waste Management Board (CIWMB), 2006. Jurisdiction Profiles: Brisbane. Website: www.ciwmb.ca.gov/Profiles/Juris/Default.asp

[50] Sean Gallagher, 2006. *Status Report: Resource Adequacy (RA) and Long Term Procurement Planning (LTPP).* CPUC Energy Division, April 24.

[51] Smith, Diane Floresca, 2006. Project Manager, Project Management Advisors, Inc., Consultant to Slough Estates International (Applicant). Personal communication with LSA Associates, Inc. October 10.

[52] City of Brisbane, 2006. *Water Supply Assessment for the proposed Sierra Point Biotech project.* July.

than 1,000 people or have more than 250,000 square feet of floor space. SB 610 requires a 20-year WSA for normal, single-dry, and multi-dry year scenarios. Since the proposed project meets this requirement, a WSA was prepared for the proposed project by the City of Brisbane and is included as Appendix F.

The City of Brisbane Water District's contracted Supply Assurance is 0.46 mgd (515 acre-feet per year). The City currently consumes approximately 0.32 mgd (360 acre-feet per year).[53] The projected employment population for the proposed project has been accounted for in the 2030 Water Demand Projections. Based on the implementation of the SFPUC Water System Improvement Program (WSIP) by 2010, the City will have sufficient water supply during single dry years between 2010 and 2030 to meet projected water demands. However, the City does not currently have sufficient water supplies to meet the projected water demands of the proposed project during multiple dry years and single dry years between 2005 and 2010.[54] Water conservation measures included in the proposed project would include drought tolerant landscape planting and low-flow irrigation systems.[55]

Impact UTL-1: The City of Brisbane would have inadequate water supplies to meet system-wide demand during multiple dry years. (S)

In years two, three and beyond of multi-year droughts, water supplies would not meet demand, and system-wide reductions of 10 to 20 percent would be needed.[56] For the City of Brisbane, this would result in cutbacks ranging from 38 percent in 2010 to 56 percent in 2025. In accordance with the Interim Water Shortage Allocation Plan (IWSAP), the City of Brisbane will be required to make relatively large water use cutbacks when the SFPUC declares a water shortage. Brisbane currently has limited opportunity to develop alternative sources to supplement water supplies. Implementation of the following two-part mitigation measure would reduce the project-related impact to water supplies during multiple dry years to a less than significant level.

> Mitigation Measure UTL-1a: Future water supply shortages would be managed through water conservation and rationing programs and increased demand management. In accordance with previously adopted Water Conservation Programs, the project site and all other water users in the Brisbane Water Service Area could be subject to mandatory reductions in consumption on a system-wide basis, mandatory reductions in consumption for outside irrigation, restrictions on various types of water use, excess use charges and flow restrictions and termination of water service for non-compliance with the program elements.
>
> Mitigation Measure UTL-1b: As a condition of approval and prior to the issuance of any building permits for the project, the applicant shall confirm that water conservation and effective demand management measures are incorporated into project design per a detailed program prepared by a LEED Accredited Professional. The project water conservation program shall quantify water demand reduction and efficiency and shall be reviewed and approved by the City Engineer. The specific LEED water conservation measures shall be incorporated in the

[53] Ibid.

[54] Ibid.

[55] Smith, Diane Floresca, 2006. Project Manager, Project Management Advisors, Inc., Consultant to Slough Estates International (Applicant). Personal communication with LSA Associates, Inc. October 10.

[56] Ibid.

final building design. These measures may include, but are not limited to, the use of water efficient fixtures, faucet aerators and low-flow toilets and showerheads. (LTS)

(2) Water Supply Infrastructure. Water would be supplied to the project through the existing 12-inch diameter water main on Sierra Point Parkway and the existing 16-inch diameter water main that runs along an easement on the southern shore of the project site. A 10-inch diameter water line would connect to Building A from the south. The rest of the buildings on the project site would be serviced through a 10-inch diameter water main loop that would run from the 16-inch water main in the easement to the 10-inch diameter water line in Sierra Point Parkway, as shown in Figure III-13. A water and sewer system evaluation of the proposed project, completed by Brown and Caldwell, is included as Appendix G.

The required fire flow for the project will be established based on Division III of the 2001 California Fire Code (CFC) and with approval of the North County Fire Authority. Based on the Brisbane Water Master Plan, the Sierra Point Biotech project would require a fire flow of 2,750 gpm for two hours.[57] The 10-inch diameter loop would deliver an adequate maximum daily water demand coincident with the required fire flow.[58] Fire flow storage requirements would be approximately 0.33 million gallons.[59]

Impact UTL-2: Existing water storage capacity would be inadequate to meet fire flow requirements for the project site. (S)

The City of Brisbane currently has no off-line water storage directly available to the lower pressure zone on Sierra Point, which includes the proposed project site.[60] Water supplies for fire flow demand on Sierra Point draw directly from SFPUC aqueducts, and no water storage is available for fire flow requirements for the existing or proposed development on Sierra Point.[61] While the City has future plans to build a water storage tank to directly provide fire flow demand to the lower pressures zones, including Sierra Point, funding has not been identified, nor has a schedule for construction been developed.[62]

An off-line water supply interconnection with CalWater exists on Shoreline Court that directly feeds the 16-inch diameter water supply loop on Sierra Point. The interconnection is currently controlled by manually opening and closing large butterfly valves on both sides of the metered connection. The CalWater system operates at a lower pressure (approximately 80 psi) than the Brisbane water system on Sierra Point (approximately 120 psi). The interconnection could be modified from an off-line facility to an on-line facility by maintaining the isolation valves in the normally open position and installing a pressure reducing/pressure sustaining valve between the two districts to supply and

[57] Thomas Birmingham, 2006. Project Manager, Brown and Caldwell. Personal communications with LSA Associates, Inc. August 25.

[58] Ibid

[59] Ibid

[60] City of Brisbane, 2006. Department of Public Works Comment letter on Brown and Caldwell's June 30, 2006 Letter on the Sierra Point Biotech Project.

[61] Ibid.

[62] Randy Breault, 2006. City of Brisbane, Director of Public Works. Personal communications with LSA Associates. July 13.

regulate bi-directional flow. The pressure reducing/pressure sustaining valve could be set to open when the pressure from either water system dropped to a pre-set level due to a fire or other emergency. In this condition, the open valve could sustain backpressure at a pre-set level in order to ensure that pressure from the District water supply does not decrease to unacceptable levels. Implementation of the following mitigation measure will ensure that fire flow levels are adequate to meet fire flow requirements for surrounding areas and for the proposed project.

> Mitigation Measure UTL-2a: As a condition of approval and prior to issuance of building permits, the proposed project shall incorporate a pressure reducing/ pressure sustaining valve on the 16-inch interconnection between CalWater and the City of Brisbane Water Districts in a valve box located in the center median of Shoreline Court. The valve shall be properly sized and have the ability to provide bidirectional fire flow to Sierra Point and the proposed project while concurrently maintaining the capacity to provide the required fire flow and pressure to the CalWater District. The new interconnection assembly shall comply with the City of Brisbane Public Works Department, CalWater and North County Fire Department specifications.
>
> Mitigation Measure UTL-2b: As a condition of approval and prior to issuance of building permits, an agreement must be made between CalWater and the City of Brisbane Water District and a program prepared that identifies and establishes responsibilities and operating ranges for the pressure reducing/pressure sustaining valve and the routine maintenance and testing of the facility. The applicant shall be responsible for the costs associated with preparation and implementation of the program.
>
> Mitigation Measure UTL-2c: The project proponent shall pay a fair share, as determined by the City of Brisbane Public Works Department, for the future development of a fire storage water tank to serve Sierra Point. (LTS)

No specific plans for the future development of a fire storage tank to serve the project site were available at the time of publication of this Draft EIR, and the potential environmental impacts of the storage tank construction and operation will be required to undergo separate CEQA analysis when a specific project is proposed.

Impact UTL-3: The joint potable water and fire flow water distribution system could result in contamination in the potable water distribution system. (S)

The current use of chloramines as the primary disinfectant in the potable water distribution system has increased the importance of minimizing water age and increasing system circulation and water turnover. Chloramines naturally degrade as water age increases and release free ammonia into the potable water system. Naturally occurring nitrifying bacteria oxidize free ammonia to nitrite and nitrate, which is a drinking water pollutant at high concentrations. This process of nitrification is non-reversible once it begins. In order to prevent nitrification of potable water within the distribution system, water that will remain stagnant under normal conditions (such as water in fire protection systems) must be kept separate from the potable water system. Implementation of the following mitigation measure would ensure that no impacts to the potable water system from stagnant water in the fire protection system occur as a result of the proposed project.

Mitigation Measure UTL-3: The proposed project shall include a dedicated fire flow supply loop separate from the potable water system properly sized to handle project fire flow requirements and connected, through a double detector check valve assembly, directly into the street main at two separate locations in accordance with Public Works Department and Fire Authority specifications. Each fire supply loop connection to the street main shall include a double detector check valve. A fire loop system separated from the potable water system will allow for smaller water mains to serve the peak daily demand for the project, thereby allowing for quicker water turnover in the potable water system. Separate potable and fire supply systems will also allow for maintenance on either looped system without affecting the other. (LTS)

(3) Wastewater Conveyance. The existing 10-inch sewer lines in the vicinity of the project site beneath Shoreline Court and Sierra Point Parkway would provide sanitary service for the proposed project. In accordance with the 2003 City of Brisbane Sewer Master Plan, the projected sewer flow from the proposed project would be approximately 90 percent of the water demand.[63] Based on a water demand of 0.124 million gallons per day for the proposed project, the projected average sewer flow from the project would be approximately 0.112 mgd with a peak flow of up to 0.56 mgd.[64] Estimated average flows for other areas of Sierra Point are 0.134 mgd, and combined with the proposed project, would result in an average flow of 0.246 mgd.[65] The firm capacity of the Sierra Point Lift Station in currently about 0.46 mgd and would be adequate to handle the average flow of 0.246 mgd from all of Sierra Point, including the proposed project.[66] Other development on Sierra Point may produce peak sewage flows of about 0.67 mgd, and combined with the potential peak flow of 0.56 mgd from the proposed project, could result in total peak flows of 1.23 mgd to the Sierra Point Lift Station.[67] During peak flow conditions on Sierra Point, the potential 1.23 mgd flow levels could exceed the 0.46 mgd capacity of the Sierra Point Lift Station.

Impact UTL-4: During peak flow conditions, wastewater flow from the project could exceed the capacity of the Sierra Point Lift Station. (S)

Mitigation Measure UTL-4: The project applicant shall pay for the installation of larger pumps or a complete replacement of the Sierra Point Lift Station, as determined by the Public Works Department, to accommodate the increase in peak sewer flows from the project site. Additional required improvements to the lift station may include replacement of the electrical system and a larger standby generator. (LTS)

With a projected wastewater peak flow of 0.56 mgd from the proposed project contributing to a combined peak flow of 1.23 mgd in the existing downstream 10-inch diameter gravity line, the 10-inch line would flow at approximately 90 full during peak flow periods.[68] The 2003 City of Brisbane Sewer Master Plan states that when the peak flow depth exceeds 50 percent of pipelines that are 10-

[63] City of Brisbane, 2003. *Sewer Master Plan.* Prepared by Brown and Caldwell, May.

[64] Thomas Birmingham, 2006. op. cit.

[65] Ibid.

[66] Ibid.

[67] Ibid.

[68] Ibid.

inches in diameter or less, the 10-inch pipeline will need to be upgraded and replaced. The 12-inch diameter pipe directly downstream from the 10-inch line would flow at about 65 percent of the capacity of the pipeline. During peak flow periods, the 12-inch diameter pipeline would comply with the 66 percent capacity limit established in the 2003 City of Brisbane Sewer Master Plan, but any increase above this level would require replacement.

Impact UTL-5: At peak sewer flow conditions, the project could exceed the capacity of the downstream 10-inch gravity sewer line in Sierra Point Parkway. (S)

> Mitigation Measure UTL-5: The project applicant shall fund the replacement of the downstream 10-inch gravity line in Sierra Point Parkway with a pipeline capable of accommodating peak flow levels in accordance with the 2003 City of Brisbane Sewer Master Plan pipe capacity requirements. The Public Works Department shall ensure that the replacement pipe is adequately sized to comply with the 2003 City of Brisbane Sewer Master Plan requirements and meets all specifications. (LTS)

The 6-inch diameter force main leaving the Sierra Point Lift Station, with a capacity of 2.54 mgd, is appropriately sized to accommodate the combined peak flow levels of 1.23 mgd. The Valley Drive Lift Station has a capacity of 3.2 mgd. According to the Sewer Master Plan, the estimated future flows at the Valley Drive Lift Station are 2.3 mgd, and would be adequate to accommodate the additional 0.465 mgd[69] of peak flow levels not anticipated in the 2003 City of Brisbane Sewer Master Plan. The 8-inch diameter discharge force main from the Valley Drive Lift Station to the Bayshore Boulevard gravity line has a capacity of about 3.3 mgd, which would be adequate to accommodate the combined peak flows of about 2.8 mgd. The force main flows into a 16-inch diameter gravity main in Bayshore Boulevard. The 2.8 mgd flows from the force main would result in the 16-inch diameter line flowing at 80 percent which is above the 66 percent threshold established in the 2003 City of Brisbane Sewer Master Plan.

Impact UTL-6: At peak sewer flow conditions, the project could exceed the capacity of the 16-inch diameter gravity line in Bayshore Boulevard. (S)

> Mitigation Measure UTL-6: The project applicant shall pay a fair share of the cost as determined by the Public Works Department to upgrade the existing downstream 16-inch gravity line in Bayshore Boulevard with a pipeline capable of accommodating peak flow levels in accordance with the 2003 City of Brisbane Sewer Master Plan pipe capacity requirements. The Public Works Department shall ensure that the replacement pipeline is adequately sized to comply with the 2003 City of Brisbane Sewer Master Plan requirements and meets all specifications. (LTS)

Impact UTL-7: The construction of new water, sewer and storm drain lines could potentially cause significant environmental effects. (S)

The proposed project includes the construction of new water, sewer and storm drain infrastructure which could potentially cause significant environmental effects related to below ground hazards, dif-

[69] The Sewer Master Plan originally anticipated a total peak flow of 0.095 from the project site and the proposed project could result in unanticipated net peak flow of 0.465 mgd. (0.560 mgd – 0.095 = 0.465 mgd net increase)

ferential ground settlement, water quality, air quality and could increase the risk of damage to existing utility lines.

Implementation of the following two-part mitigation measure would reduce this impact to a less-than-significant level.

> Mitigation Measure UTL-7a: The construction of new water, wastewater and stormwater infrastructure shall incorporate mitigation measures GEO-1a, GEO-1b, GEO-1c, GEO-2a, GEO-2b, GEO-2c, GEO-3, GEO-4, HYDRO-1a, HYDRO-1b, HYDRO-1c, HYDRO-2a, HYDRO-2b, HAZ-1a and HAZ-1b.
>
> Mitigation Measure UTL-7b: To address the potential of differential ground settlement, the construction of water, sewer and storm drain lines shall include flexible utility connections at buildings and provide support for the utilities under buildings on the structures themselves. (LTS)

Impact UTL-8: Stormwater runoff from the project site could exceed the capacity of the stormwater system in the northwest portion of the site. (S)

The City of Brisbane Storm Drainage Master Plan identified a drainage deficiency at the intersection of Sierra Point Parkway and Marina Boulevard, at the northwest corner of the project site. The cause of this deficiency, noted by City staff, was not determined and the Master Plan recommended that video inspection should be performed to investigate the problem.[70] Implementation of the following mitigation measure will ensure that drainage from the project site does not exceed the capacity of the City's storm drain system in the event that the drainage deficiency is not corrected.

> Mitigation Measure UTL-8: Stormwater drainage on the project site should be directed away from the intersection of Sierra Point Parkway and Marina Boulevard at the northwest corner of the site. The City of Brisbane Public Works Department and/or Building Division shall review and approve final project design and drainage plans prior to approval of the grading plan. (LTS)

[70] Harvey Oslick, 2006. RBF Consultants. Personal communications with LSA Associates, Inc. June 29.

L. VISUAL RESOURCES

This section assesses the effects of the proposed project on public views of the project site and its visual character and surroundings. The analysis considers the visual quality of the site, and views from and of the project site. Public views are defined as views from public locations such as roadways, scenic vista areas, parks, waterways, schools or other public buildings.

This section is based on: 1) field surveys of the project site that were conducted in June 2006; 2) a review of data provided by the City and the applicant, including aerial photographs, site plans and planning documents related to the existing site and proposed project; and 3) visual simulations that show "before" and "after" representations of the site prepared by Environmental Vision.

1. Setting

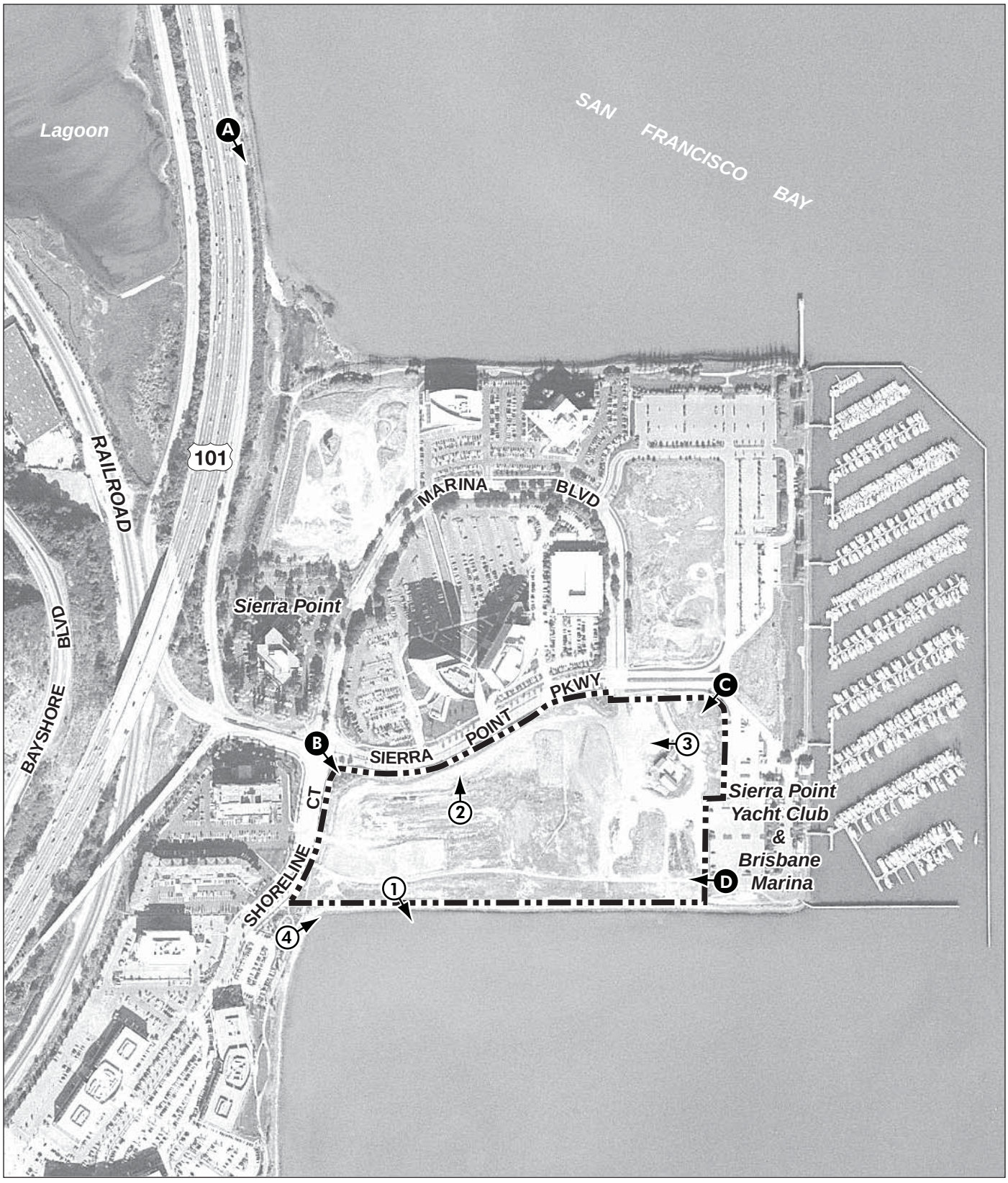
This section describes the current visual characteristics of the site, views from the site, and views of the site.

a. Visual Characteristics of the Site and Vicinity. The City of Brisbane is situated between San Bruno Mountain to the west and the San Francisco Bay to the east. Most of the land within the City lies west of the Highway 101 corridor, near the base of San Bruno Mountain. The mountain's natural landscape forms a scenic backdrop for the City's urban development.

Sierra Point is within the southeastern portion of the City of Brisbane, east of Highway 101, and is a predominantly flat peninsula of land that extends from the natural shoreline into the Bay. The northern portion of Sierra Point is developed with 3 to 12-story office and commercial buildings, and 3 to 6-story buildings are located along Highway 101 to the west of the site. The Sierra Point Yacht Club and Brisbane Marina are located to the east of the site, and the San Francisco Bay lies to the east beyond the marina and yacht club.

The palm trees lining Sierra Point Parkway and Shoreline Court provide a visual accent to the site and are the most dominant visual feature of the site, as the project site is generally flat and predominantly covered with grass and gravel. Three small sheds are located on the eastern portion of the site. There are currently large piles of gravel and dirt on the site, in addition to small piles of construction materials. A portion of the San Francisco Bay Trail runs along the southern shoreline of the site.

b. Views from the Project Site. Panoramic views of the San Francisco Bay are provided from the project site. Figure IV.L-1 provides a map of the viewpoint locations. Foreground views to the south are of the San Francisco Bay with distant views of the urban skyline on Oyster Point in South San Francisco, as shown in Figure IV.L-2. Views towards the east consist of foreground views of the marina and Bay, with distant views of the East Bay urban development and hillsides and ridgelines across the Bay. Views towards the north are dominated by the 6 to 12-story office and commercial buildings, parking areas and landscaping on the northern portion of Sierra Point, as shown in Figure IV.L-2. Views towards the west consist of foreground views of the 3 to 12-story hotel and office commercial buildings along Highway 101. Large hills covered by grass and trees within the San Bruno Mountain State Park rise up west of Highway 101 and are prominently visible from the project site and surrounding vicinity, as shown in Figure IV.L-3.



LSA

N

0 275 550

FEET

LEGEND

PROJECT SITE

PHOTO LOCATIONS

VISUAL SIMULATION LOCATIONS

FIGURE IV.L-1

Sierra Point Biotech Project EIR

View Locations Map

SOURCE: GLOBEXPLORER, 2005.

I:\BRI0601 sierra point\figures\Fig_IVL1.ai (8/02/06)

Photo 1: View from the project site towards Oyster Point to the south.

Photo 2: View from the project site of Sierra Point development towards the north.

LSA

FIGURE IV.L-2

Sierra Point Biotech Project EIR
Views from the Project Site

SOURCE: LSA ASSOCIATES, INC., JUNE 2006.

I:\BRI0601 sierra point\figures\Figs_IVL2-IVL3.indd (8/23/06)

Photo 3: View from Highway 101 off-ramp towards the east. The project site can be seen in the background.

Photo 4: View of the project site toward the northeast from the Bay Trail.

LSA

FIGURE IV.L-3

Sierra Point Biotech Project EIR
Views of the Project Site

SOURCE: ENVIRONMENTAL VISION, MAY 2006; LSA ASSOCIATES, INC., JUNE 2006.

I:\BRI0601 sierra point\figures\Figs_IVL2-IVL3.indd (8/23/06)

c. Views of the Project Site. The visual resources analysis included in this EIR focuses on views of the project site from public locations such as roadways, public buildings, waterways and parks. The project site is visible from many public viewpoints including: Highway 101, Shoreline Court, Sierra Point Parkway, sections of the San Francisco Bay Trail in the vicinity of the site, the Brisbane Marina, and portions of the San Francisco Bay.

Travelers along Highway 101 are afforded glimpses of the project site looking out towards the east, as shown in Figure IV.L-3. Foreground views from Highway 101 include views of the hotel, office and commercial buildings along the Highway and distant views of the project site and the Marina beyond Sierra Point.

The flat and open site is easily seen by visitors and travelers on Shoreline Court and Sierra Point Parkway which border the site on the west and north. The palm trees along these roadways provide a visual accent to site views.

The San Francisco Bay Trail runs along the southern portion of the project site, and the Brisbane Marina and public shoreline is located to the east of the project site. Views of the project site from the public open space to the east and the Bay Trail consist of foreground views of the flat undeveloped site with the palms lining Sierra Point Parkway and the 6 to 12-story buildings north of the site providing background views, as shown in Figure IV.L-3. From the Bay Trail, distant views of the Bay across the project site are obscured by the existing commercial buildings north of the site on Sierra Point.

d. Relevant Policies. Policies relevant to the visual resources of the project site are drawn from the City of Brisbane General Plan,[1] the San Francisco Bay Plan,[2] the San Francisco Bay Trail Plan,[3] the San Mateo County Comprehensive Airport Land Use Plan (CLUP)[4] and the Combined Site and Architectural Design Guidelines for Sierra Point.[5]

(1) City of Brisbane General Plan. The City of Brisbane General Plan provides policies which address visual resources related to both the natural and the built environment. With respect to the natural environment, the General Plan acknowledges the importance of the City's unique Bay and Mountain setting. The General Plan also contains policies designed to retain and encourage diversity and individual expression in the built environment, while encouraging quality new construction. Policies relevant to the proposed project include:

Policy 19: In the context of respecting private property rights, make every effort to preserve and enhance public views of the Mountain and the Bay.

[1] City of Brisbane, 1994. *General Plan*. Adopted June.

[2] San Francisco Bay Conservation and Development Commission (SFBCDC), 2005. *San Francisco Bay Plan.* Adopted in 1968, amended through December 2005.

[3] Association of Bay Area Governments (ABAG), 1989. *San Francisco Bay Trail Plan.* Adopted July.

[4] City/County Association of Governments of San Mateo County (C/CAG), 1996. *San Mateo County Comprehensive Airport Land Use Plan.* Adopted November 14.

[5] OPUS West Corporation, 2001. *Combined Site and Architectural Design Guidelines, Sierra Point.* March 12.

Policy 30: Retain sufficient distances between development and designated open space and natural areas to enhance and respect the amenity and value of the resource.

Policy 33: Keep open areas and opportunities for landscaping along arterial and collector streets by establishing setbacks from the right-of-way.

Policy 35: Design new streets to be attractive and comfortable for pedestrians and bicyclists, and to safely accommodate vehicular traffic. Street configuration, landscape and signage should all be considered as they contribute to community character.

(2) San Francisco Bay Plan. The San Francisco Bay Pan (Bay Plan) is a policy tool that, under the provisions of the McAteer-Petris Act, allows the San Francisco Bay Conservation and Development Commission (BCDC) to "exercise its authority to issue or deny permit applications for placing fill, extracting materials, or changing the use of any land, water, or structure within the area of its jurisdiction," an area that includes all of the San Francisco Bay, a shoreline band of 100 feet from the water, and salt ponds, managed wetlands and certain waterways associated with the Bay. The Bay Plan stipulates: "Any public agency or private owner holding shoreline land is required to obtain a permit from the Commission before proceeding with (shoreline) development."

Previous BCDC review of development on the project site includes a 1998 public hearing of the Design Review Board for the review of a previous conceptual development master plan for Sierra Point. The Design Review Board expressed interest regarding the following key issues associated with development on the site: view corridors from the peninsula to the Bay; setbacks between buildings to allow access to views; "moments" or points of arrival; access from buildings to the shoreline; and the location of access nodes for the Bay Trail.[6] BCDC reviewed a proposed development for Parcel 10, located to the southwest of the project site, as part of the Sierra Point Master Plan and issued a permit for this project on May 26, 1999.[7] No previous BCDC permits have been issued for the project site.

The Bay Plan is the guiding document for BCDC and includes policies applicable to the project site. In general, the Bay Plan recommends that urban development be clustered so as to maximize Bay views and conserve natural landscape features, and that new development maximize shoreline access while protecting biological resources.

The following polices from the Appearance, Design and Scenic Views Chapter of the San Francisco Bay Plan[8] are relevant to visual quality of the proposed project.

Policy 1: To enhance the visual quality of development around the Bay and to take maximum advantage of the attractive setting it provides, the shores of the Bay should be developed in accordance with the Public Access Design Guidelines.

Policy 2: 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 devel-

[6] San Francisco Bay Conservation and Development Commission (BCDC), 1999. *Approved Minutes of Design Review Board Meeting of October 5, 1998.*

[7] San Francisco Bay Conservation and Development Commission (BCDC), 2000. *Permit No. M99-3*. Issued May 26, 1999, as amended through June 22, 2000.

[8] San Francisco Bay Conservation and Development Commission, 2005. op. cit.

opment 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.

Policy 4: 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.

Policy 8: Shoreline developments should be built in clusters, leaving open area around them to permit more frequent views of the Bay. Developments along the shores of tributary waterways should be Bay-related and should be designed to preserve and enhance views along the waterway, so as to provide maximum visual contact with the Bay.

Policy 14: 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.

(3) San Francisco Bay Trail Plan. In 1989, the Association of Bay Area Governments (ABAG) adopted the San Francisco Bay Trail Plan, which proposes the development of a regional hiking and bicycling trail around the perimeter of San Francisco and San Pablo Bays.[9] North of the project site, the Bay Trail runs along Sierra Point Parkway (on-street) next to the Brisbane Lagoon; connects to the off-street trail that runs along the perimeter of the Sierra Point peninsula, and to the Oyster Point and San Bruno Point Park segments of the trail to the south. The trail is generally off-street and paved through this area.

Visual policies in the Bay Trail Plan related to the proposed project are listed below:

Trail Alignment Policy 4: Provide a wide variety of views along the Bay and recognize exceptional landscapes.

Trail Design Policy 15: Highlight the interpretive potential of certain trail segments, including opportunities for interpretation, education, rest and view enjoyment.

(4) San Mateo County Comprehensive Airport Land Use Plan (CLUP). Certain types of land use and visual characteristics are recognized by the Airport Land Use Commission as hazardous to air navigation in the vicinity of the San Francisco International Airport. These land uses include any of the following:

- Any use that would direct a steady or flashing light toward an aircraft engaged in an initial straight climb following takeoff or toward and aircraft engaged in straight final approach toward a landing.
- Any use that would cause sunlight to be reflected toward an aircraft initial straight climb following takeoff or toward and aircraft engaged in straight final approach toward a landing.

(5) Sierra Point Site and Architectural Design Guidelines. The Combined Site and Architectural Design Guidelines for Sierra Point[10] (Design Guidelines) provide design standards to create a

[9] Association of Bay Area Governments (ABAG), 1989. op. cit.

[10] OPUS West Corporation, 2001. op. cit.

pleasant and functional working environment for Sierra Point. The Design Guidelines include guidelines for building architecture related to building mass, scale, form, colors, entrance locations, and materials. In relation to site design and landscaping, the guidelines provide elements for public access, view corridors, landscaping at the waters edge and other open space areas and landscaping for parking areas and roadways. Due to the close proximity of the Bay, the Design Guidelines include special provisions to maintain corridors to allow for views of the Bay from prominent viewpoints in the street loop system and from public vantage points along the Bay Trail.

2. Impacts and Mitigation Measures

This section discusses potential impacts to visual resources that could result from the proposed project. The section begins with the significance criteria, which establish the thresholds used to determine whether an impact is significant. The latter part of this section presents the impacts associated with the proposed project and identifies mitigation measures, if appropriate. Less-than-significant impacts are discussed first, followed by significant impacts.

a. Criteria of Significance. The project would have a significant impact on visual resources if it would:

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

b. Less-than-Significant Visual Resources Impacts. The following discussion describes visual resource impacts associated with implementation of the Sierra Point Biotech project and the proposed Zoning Ordinance/General Plan amendments.

(1) Aesthetic Effects on Scenic Views. The City of Brisbane General Plan identifies scenic views of San Francisco, San Bruno Mountain and the surrounding Bay area as an enhancement of the facilities (such as the Marina and Bay Trail) on Sierra Point. Identified scenic views include views from the Bay and Marina, the Bay Trail and other public places.

Views of San Bruno Mountain from the Marina and Bay Trail would be altered by the development of the proposed project. In accordance with San Francisco Bay Plan Policy 4, areas adjacent to the Bay shoreline and Bay Trail would be maintained as landscaped open space with the buildings set back from the shoreline. While views of San Bruno Mountain would be altered from various perspectives along the Bay Trail and from the Marina, the buildings would be consistent with the visual character of the surrounding development existing on Sierra Point, while providing open space areas with distant views of San Bruno Mountain towards the west.

While views of the site from the Bay Trail would be altered, the project would not impact views of the Bay from the Bay Trail. Special provisions in the Design Guidelines for the project require devel-

opment on the site to maintain corridors to allow for views of the Bay from prominent viewpoints in the street loop system and from prominent public vantage points along the Bay Trail.

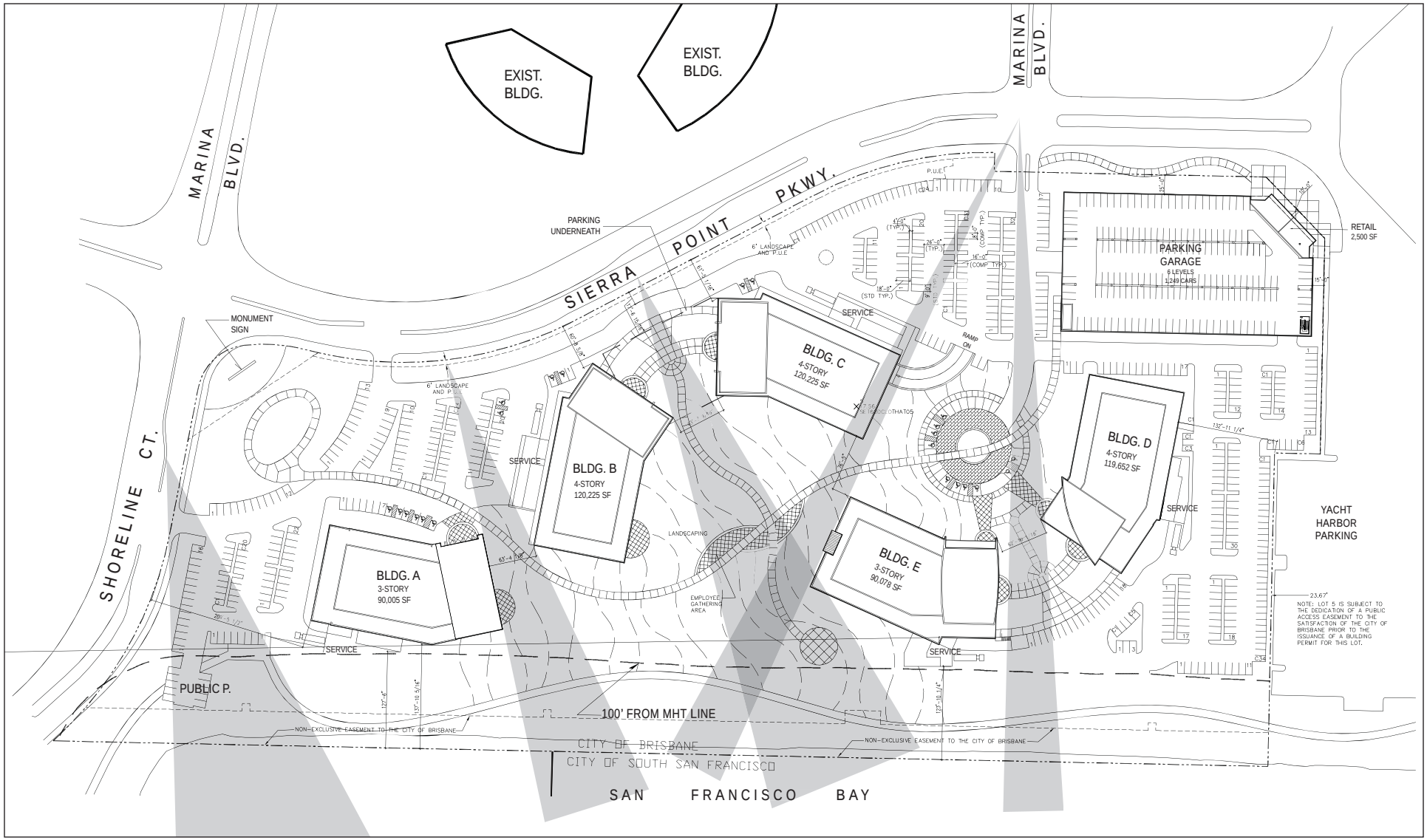
The project would change views of the shoreline from San Bruno Mountain. However, development of the proposed project would be similar to existing development on Sierra Point and would have a less than significant effect on scenic vistas from San Bruno Mountain. Therefore the project would not have a significant impact on scenic views.

(2) Scenic Resources along a State Scenic Highway. The nearest State Scenic Highway is Interstate 280, approximately 4 miles west of the project site. The proposed project is not within view from any designated State Scenic Highways within the vicinity of the project site and would not affect scenic resources along a State Scenic Highway.[11] Therefore the project would not have a significant impact on scenic resources along a State Scenic Highway.

(3) Obstruct Public Scenic Vistas or Views. Due to the close proximity of the Bay, the Sierra Point Design Guidelines include special provisions to maintain corridors to allow for views of the Bay from prominent viewpoints in the street loop system and from public vantage points along the Bay Trail. Consistent with General Plan Policy 19, the proposed project would preserve and enhance views of the Bay through the inclusion of visual corridors, as shown in Figure IV. L-4. Compared to the Sierra Point Master Plan, the proposed project would include the development of five office/ research buildings with fewer floors and larger footprints instead of three taller office buildings, as originally approved (see Figure IV.A-4). The proposed parking garage, however, would be two levels taller and have a larger footprint than the four-level parking garage approved in the Master Plan. The project would result in slightly narrower visual corridors through the site from vantage points along Shoreline Court and Sierra Point Parkway. However, views through the site would be available from Shoreline Court, along Sierra Point Parkway (including the views from access driveways onto Sierra Point Parkway to properties to the north) and from the intersection of Marina Boulevard and Sierra Point Parkway. Consistent with the San Francisco Bay Plan Policy 14, vistas and views would be maintained to provide various views to waterfront locations through the project site from surrounding roadways. While the proposed project would include the construction of buildings which would obstruct the existing open views of the Bay from various vantage points along Sierra Point Parkway, the project would include visual corridors to maintain some of the views of the Bay from public roadways in the vicinity of the site.

Building setbacks from the shoreline would maintain open views of San Bruno Mountain from locations at the Marina and along the Bay Trail. Depending on the vantage point at the Marina, some portions of San Bruno Mountain would be slightly obstructed; however, expansive views of the Mountain would be maintained.

[11] California Department of Transportation, California Scenic Highway Program, San Francisco and San Mateo County. Website: www.dot.ca.gov/hq/LandArch/scenic_highways/.



LSA

FIGURE IV.L-4

Sierra Biotech Project EIR
View Corridors

N

0 120 240
FEET

VIEW CORRIDORS

SOURCE: DES ARCHITECTS ENGINEERS, JANUARY, 2006.

I:\BRI0601 sierra point\figures\Fig_IVL4.ai (8/23/06)

c. Potentially Significant Visual Resources Impacts. Implementation of the project could result in the following significant impacts to visual resources, as described below.

The proposed project would be visible from locations along public roadways, parks, waterways and other public areas, and this analysis of impacts focuses on views of the project site from public locations. Visual simulations showing the proposed project's scale, massing and conceptual appearance as seen from four representative public viewing locations are presented in Figures IV.L-5 through IV.L-8; Figure IV.L-1 shows the visual simulation viewpoint locations. Landscaping shown in the visual simulations assumes 5 to 10 years of growth.

- *View from Highway 101 towards the southeast.* The project site can be seen from Highway 101, the most prominent roadway in the vicinity of the project site. Northbound and southbound travelers on Highway 101 are afforded glimpses of the project site from the Highway looking towards the east. As shown in Figure IV.L-5, the view from Highway 101 consists of foreground views of the existing multi-story office buildings on Sierra Point north of the project site and along the eastern side of Highway 101. Implementation of the proposed project would change the visual character of the project site with the addition of the proposed 3 to 6-story office buildings, which would be noticeable through the gaps between the existing multi-story buildings on Sierra Point. From this vantage point, the new buildings would appear lower on the horizon and would be consistent with the existing visual character of the existing development on Sierra Point.
- *View from Sierra Point Parkway towards the east.* Views of the project site from the intersection of Sierra Point Parkway and Shoreline Court towards the east consist of foreground views of the palm trees lining Sierra Point Parkway with distant views of the hillsides and ridgelines across the Bay, 14 miles east of the project site. As shown in Figure IV.L-6, implementation of the proposed project would alter the character of the site from open flat land to 3 to 6-story buildings interspersed across the site with landscaped parking and open space areas separating the proposed buildings. The proposed project would incorporate the majority of the existing palm trees along Sierra Point Parkway as part of the landscape plan, including those on the northwestern corner of the site (see Figures III-11 and III-12). Two of the existing palm trees along Sierra Point Parkway would be relocated to the southern portion of the site to make way for the proposed access road. The new entrance sign and new landscape plantings along the adjacent streets would enhance the visual themes of the Sierra Point gateway and the grand boulevard provided by the existing palm trees. The wide setbacks associated with the building locations would reduce the mass of the building as perceived from the street and intersection at this vantage point. The buildings would include architectural treatments and styles typical of office and commercial buildings and would appear similar to the other office and commercial buildings on Sierra Point. The landscaped setbacks, parking areas and entrance feature would ensure that the project provide for an attractive entrance to the project site.
- *View from eastern Sierra Point Parkway towards the southwest.* Views of the project site from the eastern portion of Sierra Point Parkway looking towards the southwest consist of foreground views of the flat site and the small structures currently on the northeastern portion of the site. Across the flat project site are distant views of the palm trees, hotel, and multi-story office buildings along Highway 101 with San Bruno Mountain rising up behind the existing buildings. As shown in Figure IV.L-7, implementation of the proposed project would include removal of the existing small buildings and some existing palm trees and the construction of parking garage with ground level retail facing Sierra Point Parkway. The parking garage would be prominently visible

from Sierra Point Parkway and southbound roadways intersecting with Sierra Point Parkway on the northeastern corner of the site. The retail façade on the northeastern corner would provide some visual variation in the garage architecture from this vantage point. The northern façade of the parking garage would be located close to Sierra Point Parkway and the building mass, height and appearance would be readily visible from Sierra Point Parkway, the marina and public open space to the east.

- *View from Brisbane Marina towards the west.* Views of the project site from the Marina looking towards the west consist of foreground views of the flat, grass-covered site with the Bay Trail continuing towards the west. Distant views across the site consist of the existing multi-story hotel and office buildings along Highway 101 at the foot of San Bruno Mountain, west of Highway 101. As shown in Figure IV.L-8, implementation of the proposed project would maintain the open space on the southern portion of the site (along the Bay Shoreline) and provide a transition area of landscaped open space areas and pathways between the Bay Trail and the new 3 to 6-story buildings. Some of the new buildings would obstruct portions of the views of San Bruno Mountain from this vantage point, but the majority of the views of the Mountain would be maintained due to the proposed building heights and location of the buildings on the site. The landscaped open spaces and low building heights would ensure that the building massing would not degrade the visual character of the site from this vantage point. This view is representative of Bay Trail users and illustrates how the wide landscape setback from the shoreline would provide a visual corridor and would maintain open views of San Bruno Mountain from the Marina and this portion of the Bay Trail.

(1) Degrade Existing Visual Character of the Site and its Surroundings. The implementation of the proposed project would alter the visual character of the project site. The landscaped northwest corner and monument sign would provide an enhanced foreground view of the site for travelers on Sierra Point Parkway. Consistent with General Plan Policy 33, landscaping would be provided along Sierra Point Parkway and Shoreline Court to improve the visual character of the site. Additionally, the existing palms would be retained at this corner.

In accordance with the Design Guidelines, the project would include landscaping for roadways, parking areas and internal open space areas. Consistent with General Plan Policy 30, the buildings would be set back from the shoreline open space areas and the Bay Trail and would provide landscaped areas between the Bay Trail and the proposed buildings.

In accordance with the San Francisco Bay Plan Policy 4, the proposed project would locate parking areas away from the Bay and provide landscaped areas along the edge of the Bay. The proposed project includes new landscaping and trail facilities for the Bay Trail and interior pathways and landscaping within the Biotech campus, which would provide appealing areas for pedestrians and cyclists along the Bay. The inclusion of the Bay Trail along the shoreline with adequate building setbacks would provide a variety of open views of San Bruno Mountain from the Bay Trail along the Bay.

The proposed project would modify the Sierra Point Design Guidelines to allow for five 3 to 4-story buildings instead of three 6 to 10-story buildings.[12] The proposed project with reduced heights would

[12] OPUS West Corporation, 2001. op. cit.

Existing view from Highway 101 looking south.

Visual simulation of proposed project.

LSA

FIGURE IV.L-5

Sierra Biotech Project EIR

Visual Simulation A

SOURCE: ENVIRONMENTAL VISION, 2006.

I:\BRI0601 sierra point\figures\Fig_IVL5.ai (10/23/06)

Existing view from the intersection of Sierra Point Parkway and Shoreline Court towards the east.

Visual simulation of proposed project.

LSA

FIGURE IV.L-6

Sierra Biotech Project EIR

Visual Simulation B

SOURCE: ENVIRONMENTAL VISION, 2006.

I:\BRI0601 sierra point\figures\Fig_IVL6.ai (10/23/06)

Existing view from eastern Sierra Point Parkway towards the southwest.

Visual simulation of proposed project.

LSA

FIGURE IV.L-7

Sierra Biotech Project EIR

Visual Simulation C

SOURCE: ENVIRONMENTAL VISION, 2006.

I:\BRI0601 sierra point\figures\Fig_IVL7.ai (10/23/06)

Existing view from Brisbane Marina towards the west.

Visual simulation of proposed project.

LSA

FIGURE IV.L-8

Sierra Biotech Project EIR

Visual Simulation D

SOURCE: ENVIRONMENTAL VISION, 2006.

I:\BRI0601 sierra point\figures\Fig_IVL8.ai (10/23/06)

distribute the newly constructed space across the site and would reduce the maximum height of the buildings on the site. While this change would not be consistent with the current design guidelines, inconsistency with the design guidelines is not necessarily an impact to visual resources. The lower building heights, landscaped open space area and wide setbacks from the shoreline would ensure that the impacts to the visual character of the site from the Marina and shoreline Bay Trail would be less than significant.

Impact VIS-1: Construction of the proposed parking garage at the northeast corner of the project site adjacent to Sierra Point Parkway would degrade existing public views and the visual quality of the site. (S)

As shown in Figure IV.L-7, the side of the parking garage along Sierra Point Parkway would not only obstruct views of the Bay, but could potentially create a long, monotonous façade along this portion of Sierra Point Parkway. The location of the garage adjacent to Sierra Point Parkway would create a building mass along the streetscape which would have a recognizable parking garage façade visually screened with widely spaced street trees. From this vantage point, the visual character of the project site would be dominated by the relatively large and imposing parking garage, which would degrade the visual character of the site. As discussed in the Section IV.A, Land Use, the imposition of such a large "inactive" structure at this key location could limit the options for development of the remaining nearby parcels.

> Mitigation Measure VIS-1: During the Design Review process, the City of Brisbane shall ensure that the parking garage façade along Sierra Point Parkway provides adequate architectural treatments and landscaping to ensure that the parking structure does not degrade the visual quality of the site. These treatments may include the use of decorative building materials, fenestration, landscaping or other treatments designed to provide a visually appealing building façade and streetscape along Sierra Point Parkway. The City shall require the applicant to provide a final design to the City for final approval prior to approval of a building permit.
>
> While implementation of this mitigation measure would reduce the degradation of the public views and visual quality of the site the impact would remain significant and unavoidable. (SU)

(2) Create a new source of light and glare affecting day or nighttime views in the area.
Implementation of the proposed project would result in increased lighting and glare.

Impact VIS-2: Implementation of the proposed project would create a new source of light and glare. (S)

In accordance with the Combined Site and Architectural Design Guidelines for Sierra Point,[13] lighting on the project site should be adequate for nighttime activity in order to provide adequate illumination and visibility on the site. The Design Guidelines recommend color corrected high-pressure sodium lamps for the roads and parking lots and metal halide lamps in pedestrian areas, especially along the Bay edge.

[13] OPUS West Corporation, 2001. op. cit.

New light and glare from the proposed project could potentially impact water vessel navigation and pose a hazard to airplane navigation in the vicinity of the San Francisco International Airport. The 90-degree angle of the building surfaces and windows would not reflect light or glare upwards and would instead reflect glare from the sun downwards and away from the sight of airplanes engaged in final approaches to the airport. Implementation of the following mitigation measure would reduce potential impacts associated with new light sources from the proposed project to a less than significant level.

> Mitigation Measure VIS-2: As a condition of project approval, a photometric analysis and lighting plan shall be prepared for the proposed project. This analysis shall include an assessment of potential lighting impacts based on the height, location, light fixtures, direction and illumination intensity and hours of operation. This analysis shall identify any potential light spill beyond the site boundaries, including light that could impact water vessel or aircraft navigation. The lighting plan 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 off-site light spillage and reduce impacts to water vessel and aircraft navigation. The lighting plan shall be submitted to the Community Development Department and City Engineer for final approval prior to approval of a building permit. (LTS)

V. ALTERNATIVES

The *CEQA Guidelines* require the analysis of a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the project's basic objectives and avoid or substantially lessen any of the significant effects of the project. The range of alternatives required in an EIR is governed by a "rule of reason" that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice.[1] CEQA states that an EIR should not consider alternatives "whose effect cannot be ascertained and whose implementation is remote and speculative."

This chapter describes the alternatives to the project, evaluates the significant environmental impacts associated with each alternative relative to those resulting from the proposed project, and discusses the ability of each alternative to meet the project objectives. A discussion of the environmentally superior alternative is also included in this chapter as required by CEQA.

The following objectives were initially listed in Chapter III, Project Description, of this EIR and are repeated here to help inform this evaluation of alternatives:

- Develop an underutilized brownfield site with research and development facilities which are safe and attractive.
- Design a project which enhances the sense of place and the identity of Sierra Point.
- Implement the objectives of the Sierra Point Design Guidelines.
- Maximize public views of the San Francisco Bay.
- Improve the public's access to and enjoyment of the San Francisco Bay by improving the on-site portion of the regional San Francisco Bay Trail, and providing landscaping and other amenities within those portions of the site under the jurisdiction of the San Francisco Bay Conservation and Development Commission.
- Build a project that creates desirable jobs for Brisbane.
- Generate net property tax, sales tax and other fees from the development project, and enhance property values.
- Build a project that is economically viable based upon market conditions and projected service requirements for the area.

The proposed project has been described and analyzed in the previous chapters, with an emphasis on significant impacts resulting from the proposed Sierra Point Biotech project, and mitigation measures have been recommended to avoid these impacts. After mitigation, three significant unavoidable impacts were identified for the project, as follows:

[1] *CEQA Guidelines*, 2006, Section 15126.6.

- The proposed project would contribute to an existing significant impact at the intersection of Sierra Point Parkway and the US 101 northbound ramp under Cumulative Plus Project Conditions (year 2030).
- The proposed project would contribute to a significant level of service cumulative impact on the following three freeway segments: US 101 southbound between Harney Way and Sierra Point Parkway in the AM Peak hour, US 101 southbound between Sierra Point Parkway and Oyster Point Boulevard in the PM Peak hour, and US 101 northbound between Oyster Point Boulevard and Sierra Point Parkway in the AM Peak hour.
- Construction of the proposed parking garage at the northeast corner of Sierra Point Parkway would degrade existing public views and the visual quality of the site.

The following discussion is intended to inform the public and decision-makers of the relative impacts of two potentially feasible alternatives to the project that are described below.

- The **No Project alternative**, assumes the development of 630,000 square feet office park on the project site as currently approved under the Sierra Point Master Plan.[2] This alternative would not require General Plan or Zoning Ordinance amendments and was conceptually approved by the City in the 1984 Development Agreement.[3]
- The **Revised Site Plan alternative**, assumes that there would be two parking garages, one 412-space garage at the northeast corner of the site would be two levels lower in height than the proposed garage and set back an additional 63 feet from Sierra Point Parkway, and the other 678-space garage would be located in the southwest corner of the site adjacent to Shoreline Court.

A. ALTERNATIVES CONSIDERED BUT REJECTED FROM FURTHER ANALYSIS

The following section describes two alternatives to the proposed project that were considered but rejected from further analysis for the reason(s) provided.

1. No Build Alternative

Under the No Build alternative, the existing conditions of the project site would remain as they are. The site would not be developed and would remain vacant. The existing conditions on the project site have been described in the setting sections for each topic in this EIR. While this alterative avoids the majority of the impacts that would result from implementation of the proposed project, it would not meet any of the project objectives. Additionally, this alternative is not considered for further analysis, given that development of the project site has been planned for and supported by the City's guiding policy documents and Project Approval Documents including: the Brisbane General Plan; the Redevelopment Plan for the Brisbane Community Redevelopment Area Number One; the Combined Site and Architectural Design Guidelines for Sierra Point; and the 1984 Development Agreement.

[2] OPUS West Corporation, 2001. Combined Site and Architectural Design Guidelines, Sierra Point. March 12.

[3] The City Council adopted Ordinance No. 299 approving the 1984 Development Agreement on March 26, 1984.

2. Alternative Locations

An alternative location for the project was considered but not further evaluated as an alternative location could not be identified that would achieve key project objectives and/or avoid or reduce project impacts. While constructing the project on alternative locations on Sierra Point would achieve key project objectives, development of the project on any of the Sierra Point vacant sites would result in virtually similar impacts to the proposed project. As a result, an alternative location for the project was considered, but is not further evaluated in this section.

B. NO PROJECT ALTERNATIVE

1. Principal Characteristics

Under the No Project alternative, the existing General Plan designations and Zoning designations would apply. The Master Plan would be implemented as approved by the 1984 Development Agreement between the City and Sierra Point Associates One and Two. This No Project alternative would result in a 630,000 square feet office park which would be approximately 89,815 square feet larger than the proposed project. An estimated 2,100 persons would work in the office park.

Three office buildings would be constructed on the project site as approved by the Master Plan: a six-story building, an eight-story building, and a 10-story building. A parking structure with up to four-stories above grade would be built in the northeast corner of the lot and surface parking would cover the remaining site, aside from the 100-foot shoreline band under BCDC jurisdiction (see Figure IV.A-4, Sierra Point Master Plan).

The Sierra Point Commercial/Retail/Office (SPCRO) subarea of the General Plan and the Sierra Point Commercial (SP-CRO) zoning district would not be amended to allow research and development uses. Therefore, implementation of this alternative would result in construction of office uses but not research and development uses.

While the No Project alternative would generally achieve most of the project objectives; the large amount of surface and structured parking associated with this alternative would not contribute to an attractive development that would enhance the sense of place or identity of Sierra Point, or make it an attractive destination for Brisbane residents.

2. Analysis of the No Project Alternative

The No Project alternative is evaluated for each environmental topic below.

a. Land Use and Planning Policy. Similar to the proposed project, this alternative would not result in any significant land use impacts. Implementation of the No Project alternative would not physically divide an established community but could enhance community integrity through redeveloping a vacant parcel. This alternative would be consistent with surrounding land uses and with land use-related policies in the General Plan and supporting documents, which encourage the development of office uses within the project site. Unlike the proposed project, no amendments to the General Plan or Zoning Ordinance would be required.

b. Population, Employment and Housing. The No Project alternative would not result in significant population, employment or housing impacts. This alternative would add approximately 2,100 jobs to the City, approximately 300 more jobs than would be created under the proposed project. The jobs and the indirect increase in population which may result from implementation of the No Project alternative are within the City's anticipated growth under the existing land use designations. The No Project alternative would not displace existing houses or existing residential population, as neither exists within the project site.

c. Transportation, Circulation and Parking. The amount of traffic generated by the No Project alternative was estimated by applying the appropriate trip generation rates to 630,000 square feet of office space that could be constructed under this alternative. Based on the trip generation rates for office parks in the ITE Trip Generation Manual,[4] the No Project alternative would generate an estimated 1,096 AM peak hour trips and 945 PM peak hour trips (312 and 256 more trips than the project). Using the inbound/outbound splits recommended by ITE, this alternative would produce 975 inbound and 121 outbound trips during the AM peak hour and 132 inbound and 813 outbound trips during the PM peak hour. The No Project trip distribution was the same as that used for the proposed project.

Similar to the proposed project, the results of the No Project alternative analysis show that three of the study intersections would operate at an unacceptable LOS measured against the City of Brisbane level of service guidelines in the Background Plus Project Condition:

- The unsignalized intersection of Sierra Point Parkway/US 101 northbound ramp would operate at LOS F during the AM peak hour.
- The unsignalized intersection of Sierra Point Parkway/Lagoon Way would operate at LOS F during both the AM and PM peak hours.
- The unsignalized intersection of Sierra Point Parkway/Shoreline Court would operate at LOS F during the PM peak hour.

The remaining study intersections would operate at an acceptable LOS. Implementation of the mitigation measures provided in Section IV.C, Transportation, Circulation and Parking would mitigate the impacted intersections to a less-than-significant level under the No Project alternative.

Similar to the proposed project, the results of the No Project alternative analysis show that four of the study intersections would operate at an unacceptable LOS measured against the City of Brisbane level of service guidelines in the Cumulative Plus Project Condition (2030):

- The unsignalized intersection of Sierra Point Parkway/US 101 northbound ramp would operate at LOS F during the AM peak hour.
- The unsignalized intersection of Sierra Point Parkway/Lagoon Way would operate at LOS F during the PM peak hour.
- The unsignalized intersection of Sierra Point Parkway/Shoreline Court would operate at LOS F during the PM peak hour.

[4] Institute of Transportation Engineers, 2003. *Trip Generation Manual. 7th ed.*

- The signalized intersection of Bayshore Boulevard/Old Country Road would operate at LOS D during both the AM and PM peak hours, which exceeds the City of Brisbane level of service guidelines for this intersection.

Similar to the proposed project, the traffic impact to Sierra Point Parkway and the US 101 northbound ramp in the Cumulative Condition (2030) would remain significant and unavoidable with development under the No Project alternative. Implementation of the mitigation measures provided in Section IV.C, Transportation, Circulation and Parking would mitigate the remaining three impacted intersections to a less-than-significant level under the No Project alternative.

Traffic volumes from the No Project alternative on freeway segments were established by adding the estimated project trips on study area freeway segments to the existing freeway volumes. Similar to the project, the results of the freeway segment analysis show that none of the directional freeway segments analyzed would operate at an unacceptable LOS F during peak hours in the Background Plus Project Condition. All of the analyzed freeway segments would operate at an acceptable LOS E or better during the AM and PM peak hours under the No Project alternative in the Background Plus Project Condition.

Similar to the proposed project, seven of the directional freeway segments analyzed would operate at an unacceptable LOS F during at least one of the peak hours under Cumulative Plus Project Conditions (2030). However, per the C/CAG's Policy on Traffic Impact Analysis and the relevant significance criterion, a significant impact associated with project-related traffic that contributes to an increase of 1 percent or more of freeway segment capacity would result on only three of the LOS F freeway segments studied:

- US 101 southbound between Harney Way and Sierra Point Parkway in the AM Peak hour.
- US 101 southbound between Sierra Point Parkway and Oyster Point Boulevard in the PM Peak hour.
- US 101 northbound between Oyster Point Boulevard and Sierra Point Parkway in the AM Peak hour.

Similar to the proposed project, the traffic impact to three of the LOS F freeway segments in the Cumulative Condition (2030) would remain significant and unavoidable with development under the No Project alternative. While implementation of the mitigation measure provided in Section IV.C, Transportation, Circulation and Parking would reduce the impact, mitigation measures, involving implementation of TDM measures are typically designed to achieve a 10 to 20 percent traffic reduction. Even if these reductions could be achieved, the freeway segments could continue to operate above the CMP threshold for significant impacts. The measure would not reduce impacts to a less-than-significant level in the cumulative condition and this impact would remain significant and unavoidable under the No Project alternative.

Transit service in the project vicinity would be provided via Caltrain and several Samtrans-operated bus routes. Assuming a transit mode share of up to 3 percent for the project equates to approximately 33 new transit riders during the AM peak commute period and 28 new transit riders during the PM peak period. These new riders can easily be accommodated because there is sufficient available ridership capacity on the nearby bus and rail lines. Therefore, no major improvements to the existing

transit facilities would be necessary. However, Samtrans may consider adjusting the schedules for bus routes near the project site to accommodate any shift in ridership patterns.

Similar to the proposed project, the new transit riders from the No Project alternative could be accommodated by the available ridership capacity of the nearby Samtrans bus and rail lines. However, Samtrans may consider adjusting the schedules for bus routes near the project site to accommodate any shift in ridership patterns. Caltrain operates a shuttle service from its South San Francisco station to the Sierra Point area office buildings during the commute hours. Similar to the proposed project, implementation of Mitigation Measure TRANS-8 would ensure that the No Project alternative includes a shuttle stop and provisions for the Caltrain shuttle service to increase the frequency of the existing shuttle service.

Additionally, impacts related to construction traffic, on-site circulation, driveway alignments, and site access would be similar to the proposed project and could be mitigated to a less-than-significant level with implementation of the mitigation measures provided in Section IV.C, Transportation.

d. Air Quality. Implementation of the No Project alternative would result in construction activity within the project site and would result in more vehicular trips (312 AM and 256 PM peak hour) in Brisbane compared to the proposed project. However, the construction activities associated with implementation of this alternative would be very similar to the proposed project, and the increase in trips would not cause a significant environmental impact or substantially increase emissions or odor concentrations. Therefore, local and regional air quality impacts would be the same or slightly more than those identified for the project, and can be mitigated to a less-than-significant level.

e. Noise. Construction activities for this alternative would be similar to those of the project, and associated noise could be mitigated through the measures identified in Section IV.E, Noise. Although the No Project alternative would result in the development of 89,815 square feet of additional building space and would accommodate approximately 300 more people than the proposed project, no significant increase in noise would result. Similar to the proposed project, the No Project alternative would not result in significant off-site noise impacts.

f. Geology, Soils and Seismicity. Any development on the site would be subject to seismic hazards, ground settlement, and dike instability. Because the No Project alternative would also develop the site with multi-story office buildings, the impacts would be similar to the proposed project. However, implementation of mitigation measures contained in Section IV.F, Geology, Soils, Seismicity, would reduce potential impacts to a less-than-significant level.

g. Hydrology and Water Quality. Similar to the proposed project, construction period activities and project operation could result in impacts to water quality. However, the No Project alternative would result in increased site coverage by impervious surfaces and would cause a corresponding increase in the amount of stormwater runoff from the site. While stormwater flows would be greater under this alternative, mitigation measures identified in Section IV.G, Hydrology and Water Quality, could reduce these impacts to a less-than-significant level.

h. Biological Resources. The project site consists of "new land" built from imported soil and has never supported any natural terrestrial upland vegetation communities. The site supports relatively sparse vegetation with small patches of dense weeds and shrubs, particularly in areas adjacent to

irrigated landscaping. Similar to the proposed project, the No Project alternative could result in impacts to the burrowing owl, degradation of marine habitat, and impacts to nesting birds. However, with implementation of the mitigation measures in Section IV.H, Biological Resources, potential impacts would be reduced to a less-than-significant level.

i. Hazards and Hazardous Materials. The project site was formerly a solid waste landfill that has been closed and capped. Impacts associated with development of the site could include improper use, storage, or disposal of hazardous materials or wastes during site development and construction activities resulting in releases affecting construction workers, the public, and the environment. Similar to the project, implementation of mitigation measures for development under the No Project alternative would reduce potential impacts to less-than-significant levels.

j. Public Services and Recreation. Implementation of the No Project alternative would result in a greater number of jobs than the proposed project and would incrementally increase demand for police services, fire and emergency services, schools, parks and recreational facilities. However, the small increase in office development under this alternative would not result in physical environmental impacts to services or parks and recreation facilities.

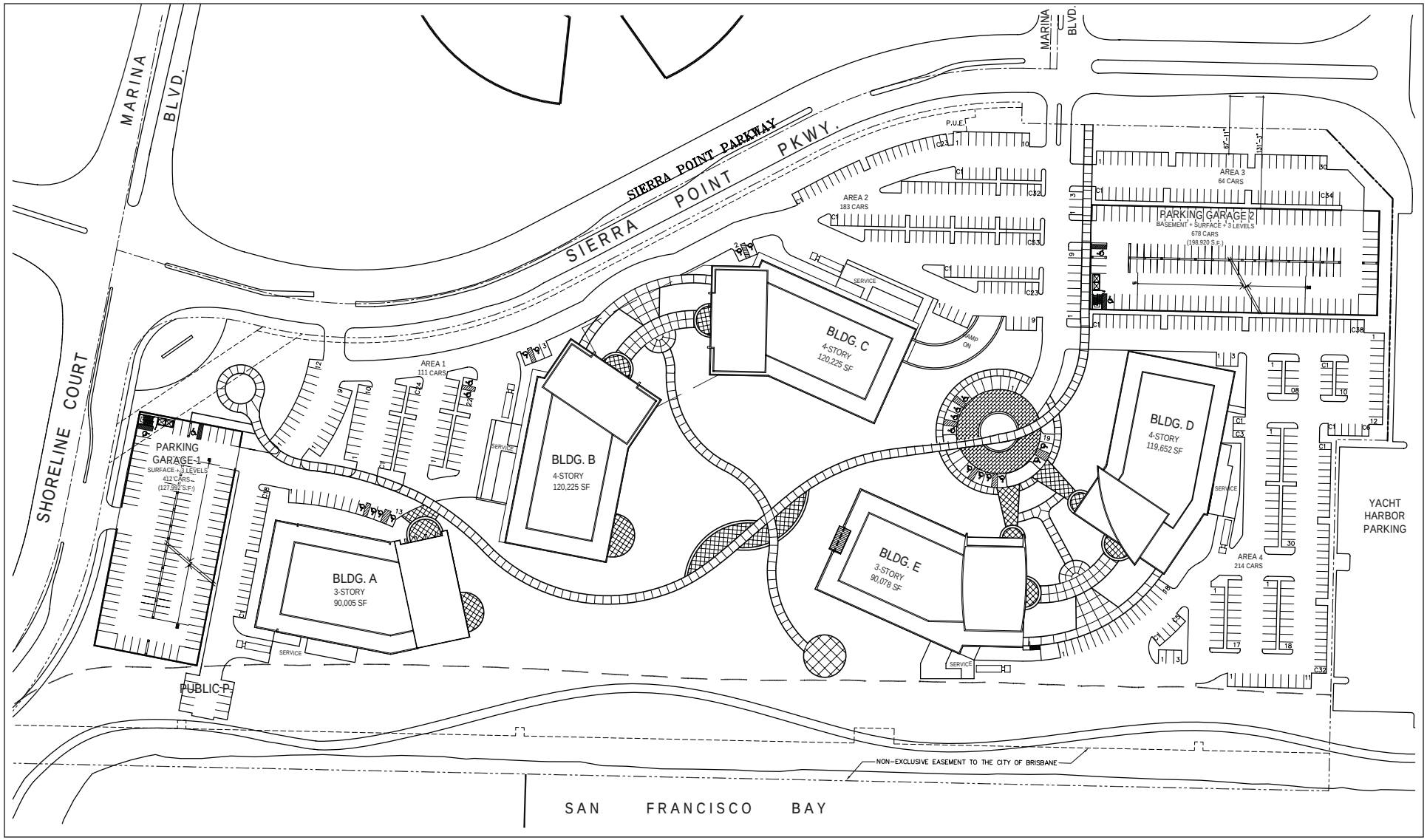
k. Utilities and Infrastructure. Implementation of the No Project alternative would result in a 300 more jobs and an additional 89,815 gross square feet of office space and would demand a slightly greater amount of water, wastewater, solid waste collection and disposal, telecommunications, cable, natural gas and electricity than those described in Section IV.K, Utilities and Infrastructure. However similar to the project, implementation of the mitigation measures identified in section IV.K, would reduce these impacts to a less-than-significant level.

l. Visual Resources. Implementation of the No Project Alternative would result in fewer buildings on the project site than the proposed project. The greater height of the buildings in the No Project alternative would result in increased visibility of the new buildings from surrounding public vantage points. Landscape improvements along the Bay Trail, within the parking areas, and along the streets would be similar to the proposed project. Because this alternative includes more surface parking, there would generally be much less landscaping in the center of the site and around the buildings than for the proposed project, and the developed site under this alternative would be less attractive. The parking garage, under this alternative, would be limited to four-stories of above-grade parking and could potentially be set further back from Sierra Point Parkway than in the proposed project. Therefore, the visual impacts associated with the parking garage would be less than those described in Section IV.L, Visual Resources.

C. REVISED SITE PLAN ALTERNATIVE

1. Principal Characteristics

In an effort to reduce the significant visual impact associated with the project, implementation of the Revised Site Plan alternative would result in two parking garages rather than one parking garage as proposed under the project. As shown in Figure V-1, a new four-story parking garage (#1) would be located adjacent to Shoreline Court in the southwest corner of the site. The second parking garage (#2) would be a five-level parking garage (basement and four above-ground levels) located at the northeast corner of the site adjacent to Sierra Point Parkway. Compared to the proposed project,



LSA

FIGURE V-1

Sierra Biotech Project EIR

Revised Site Plan Alternative

N

0 120 240

FEET

SOURCE: DES ARCHITECTS ENGINEERS, SEPTEMBER, 2006.

I:\BRI0601 sierra point\figures\Fig_V1.ai (10/18/06)

parking garage #1 would replace a surface parking lot, and parking garage #2 would be in the same general location as the proposed garage, but would be two stories lower and set back an additional 64 feet from Sierra Point Parkway, for a total setback of approximately 131 feet from the curb. Two rows of surface parking would be provided in the setback area between the garage and Sierra Point Parkway. Unlike the garage proposed for the project, parking garage #2 would not contain or provide retail space and associated outdoor uses, such as seating. Parking garage #1 would provide 412 parking spaces and would be 127,992 square feet in size. Parking garage #2 would provide 678 parking spaces and would be 198,920 square feet in size. The combined square footage of the two garages would be smaller (by approximately 10,675 square feet) than the single garage proposed under the project.

There would be fewer structured parking spaces provided (159 less spaces), but, as shown in Table V-1, the total number of parking spaces provided on-site (1,799 spaces) would remain the same as under the proposed project as a result of increasing. the amount of surface parking by (153 additional spaces) and increasing the amount of parking in Building C.

Table V-1: Revised Site Plan Alternative Parking

Parking	# of Spaces
Parking Garage #1	412
Parking Garage #2	678
Building C	137
Surface Lots	572
Total	**1,799**

Source: DES Architects Engineers, 2006.

Similar to the proposed project, the Revised Site Plan alternative would require General Plan and Zoning amendments for the proposed research and development (R&D) uses.

The Revised Site Plan alternative would achieve all of the project objectives, as it would: develop the site with an attractive office and research park, maximize public views, improve access to the Bay, create jobs, and enhance property and economic values.

2. Analysis of Revised Site Plan Alternative

The Revised Site Plan alternative is evaluated for each environmental topic below.

a. Land Use and Planning Policy. Similar to the proposed project, the Revised Site Plan alternative would not result in any significant land use impacts. This alternative would not physically divide an established community. The increased set back and smaller scale parking garage proposed in this alternative for the northeast corner of the site could assist in providing opportunities for increasing active or public uses in the vicinity of the terminus of Sierra Point Parkway. However, under this alternative the proposed garage would not contain any retail uses (such as a café). The new garage (#1) proposed in this alternative would be located adjacent to Shoreline Court and across from a hotel and associated parking lots. The uses proposed in this alternative would generally be the same as for the proposed project and would be compatible with surrounding uses. Similar to the proposed project, this alternative would require General Plan and Zoning Ordinance amendments to allow R&D uses, including live animal testing.

b. Population, Employment and Housing. Similar to the proposed project, the Revised Site Plan alternative would not result in significant population, employment or housing impacts. This alternative would add approximately 1,800 jobs to the City. These jobs and the indirect increase in population which may result from implementation of this alternative have been planned for by the City. Existing houses or existing residential populations would not be displaced by the Revised Site Plan alternative as neither exists within the project site.

c. Transportation, Circulation and Parking. Similar to the proposed project, the Revised Site Plan alternative would result in the same amount of trips that would be generated by the proposed project. Under the Revised Site Plan alternative, traffic volumes would be redistributed at the intersection of Sierra Point Parkway and Shoreline Court. The proposed project would have 90 percent of the project site traffic accessing the site from Sierra Point Parkway driveways and 10 percent accessing the project site via Shoreline Court. Under this alternative, 75 percent of the project site traffic would access the site via the Sierra Point Parkway driveways and 25 percent would access the site via Shoreline Court. The redistribution of the traffic volumes at the intersection of Sierra Point Parkway and Shoreline Court would result in the level of service remaining at LOS B during the AM peak hour and LOS F during the PM peak hour. The average delay at the intersection would remain unchanged during the AM peak hour and would increase by 12 seconds during the PM peak hour. Implementation of mitigation measure TRANS-3 would result in the intersection operating at LOS B during the AM peak hour and LOS D during the PM peak hour, which is within the City of Brisbane guidelines and would reduce this impact to a less-than-significant level.

Impacts to other study intersections would remain the same as for the proposed project and could be mitigated to a less-than-significant level with the implementation of the mitigation measures provided in Section IV.C, Transportation, Circulation and Parking. Similar to the proposed project, the intersection of Sierra Point Parkway and the US 101 northbound ramp would operate at LOS F in the AM peak hour in the Cumulative Condition, and this impact would remain significant and unavoidable under the Revised Site Plan alternative.

Similar to the proposed project, seven of the directional freeway segments analyzed would operate at an unacceptable LOS F during at least one of the peak hours under Cumulative Plus Project Conditions (2030). However, per the C/CAG's Policy on Traffic Impact Analysis and the relevant significance criterion, a significant impact associated with project-related traffic that contributes to an increase of 1 percent or more of freeway segment capacity would result on only three of the LOS F freeway segments studied:

- US 101 southbound between Harney Way and Sierra Point Parkway in the AM Peak hour.
- US 101 southbound between Sierra Point Parkway and Oyster Point Boulevard in the PM Peak hour.
- US 101 northbound between Oyster Point Boulevard and Sierra Point Parkway in the AM Peak hour.

Similar to the proposed project, the traffic impact to three of the LOS F freeway segments in the Cumulative Condition (2030) would remain significant and unavoidable with development under the Revised Site Plan alternative even with implementation of TDM measures.

Similar to the proposed project, the new transit riders from the Revised Site Plan alternative could be accommodated by the available ridership capacity of the nearby Samtrans bus and rail lines. Similar to the proposed project, implementation of Mitigation Measure TRANS-8 would ensure that the Revised Site Plan alternative includes a shuttle stop and provisions for the Caltrain shuttle service to increase the frequency of the existing shuttle service.

As mentioned above, the total number of parking spaces provided on-site would remain the same for the Revised Site Plan alternative as under the proposed project with the increased surface parking (153 additional spaces) and slight increase in parking in Building C (six additional spaces). The Revised Site Plan alternative would provide 1,799 on-site parking spaces, which is less than the 1,809 on-site parking spaces that would be required based on the City of Brisbane parking code. Similar to the proposed project, the Revised Site Plan alternative would not meet the parking requirement, however, this condition does not constitute a significant impact as the approximately 10 spaces that would be required for the 2,500 retail space are not necessary due to the fact that the retail is attached to a parking garage and is directly adjacent to an underutilized City parking lot associated with the marina.

The impacts related to construction traffic, on-site circulation, driveway alignments, and site access would remain the same as the proposed project and could be mitigated to a less-than-significant level with the implementation of the mitigation measures provided in Section IV.C, Transportation, Circulation and Parking. The Bay Trail alignment under this alternative would not go through the public parking area, and, the mobility and safety of trail users would be ensured and Impact TRANS-9 would not be necessary for this alternative.

d. Air Quality. Air quality impacts associated with implementation of the Revised Site Plan alternative would be very similar to the proposed project as the level of construction activity and the amount of vehicular trips would be the same. The Revised Site Plan alternative would not substantially increase pollutant or odors concentrations, and would not conflict with the Bay Area 2005 Ozone Strategy or the Bay Area Air Quality Management District standards. Air quality impacts associated with the Revised Site Plan alternative could be mitigated to a less-than-significant level with the same mitigation measures as the project.

e. Noise. Construction activity would take place as a part of the Revised Site Plan alternative and surrounding land uses would be exposed to short-term increases in noise levels. The Revised Site Plan alternative would result in the development of the same amount of building square footage and add the same amount of employees (1,800) as the proposed project. The Revised Site Plan alternative would result in more traffic using Shoreline Court to access the parking garage on the western portion of the parcel compared to the proposed project. However, these noise impacts could be mitigated to a less-than-significant level with implementation of the mitigation measure identified in Section IV.E, Noise. The Revised Site Plan alternative would not result in significant off-site noise impacts.

f. Geology, Soils and Seismicity. Similar to the proposed project, the Revised Site Plan alternative would be constrained by the geologic conditions associated with the redevelopment of a former landfill site. Development on the site would be subject to seismic hazards, ground settlement, and dike instability. Implementation of mitigation measures contained in Section IV.F, Geology, Soils, Seismicity, would reduce potential impacts to a less-than-significant level.

g. Hydrology and Water Quality. Under the Revised Site Plan alternative, construction period activities and project operation could result in impacts to water quality. However, similar to the proposed project, mitigation measures for stormwater treatment and control, would reduce these impacts to a less-than-significant level.

h. Biological Resources. Like the proposed project, the Revised Site Plan alternative could result in impacts to burrowing owl, degradation of marine habitat, and impacts to nesting birds due to site development. These potential impacts would be reduced to a less-than-significant level with implementation of mitigation measures in Section IV.H, Biological Resources.

i. Hazards and Hazardous Materials. The Revised Site Plan alternative may result in improper use, storage, or disposal of hazardous materials or wastes potentially affecting construction workers, the public, and the environment. Similar to the proposed project, these potential impacts could be reduced to less-than-significant levels through implementation of mitigation measures contained in Section IV.I, Hazards and Hazardous Materials.

j. Public Services and Recreation. Similar to the proposed project, the Revised Site Plan alternative would increase demand for police services, fire and emergency services, schools, parks and recreational facilities. This increase can be accommodated by existing service providers and facilities and would not result in physical environmental impacts.

k. Utilities and Infrastructure. Similar to the proposed project, the Revised Site Plan alternative would increase demand for water, wastewater conveyance and treatment, solid waste collection and disposal, telecommunications, cable, natural gas and electricity as those described in Section IV.K, Utilities and Infrastructure. However, these potential impacts could be mitigated to a less-than significant levels by the mitigation measures identified in Section IV.K, Utilities and Infrastructure for the proposed project.

l. Visual Resources. Under the Revised Site Plan alternative, the proposed parking garage on the northeastern corner of the site would be two levels lower in height and set back an additional 64 feet from Sierra Point Parkway (for a total of 131 feet) than the proposed project. A surface parking lot (64 feet wide) and a landscaping strip (67 feet wide) would separate the garage from Sierra Point Parkway. The increased setback and lower height of the garage would improve southerly views of the site from the Parkway and the public shoreline and would reduce the visual impact of the garage. However, the placement of surface parking north of the garage could detract from the Sierra Point Parkway streetscape amenities and limit opportunities to visually screen the face of the garage. Although the four-level parking garage would continue to remain visible when viewed from Sierra Point Parkway, implementation of this alternative, in addition to the removal or relocation of the surface parking along Sierra Point Parkway to allow for more landscaping, a physical buffer or development of a public-oriented use, and implementation of Mitigation Measure VIS-1 in Section IV.L, Visual Resources, would reduce the significant and unavoidable visual impact of the garage to a less-than-significant level.

The new four-level parking garage (#1) proposed under this alternative would be constructed on the western portion of the site and would be visible from Shoreline Court and the intersection of Shoreline Court and Sierra Point Parkway. The new parking garage would have a mass and height comparable to Building A (a three-story building on the western portion of the site). The reader should note that the existing hotel to the west of the project site, and views from the majority of the hotel windows, are generally oriented in a north-south direction.[5] Although the new parking garage

[5] The urban design firm of Freedman Tung and Bottomley prepared an assessment of views from existing buildings at Sierra Point, September of 2006 for the City of Brisbane as part of an urban design update for Sierra Point.

would be visible from public viewpoints and surrounding buildings, no new significant visual impacts would be associated with construction of the new garage.

Similar to the proposed project, the Revised Site Plan alternative would maintain the majority of the existing palm trees along Sierra Point Parkway and the visual character of Sierra Point Parkway. Implementation of the mitigation measures in Section IV.L, Visual Resources, would further reduce visual impacts associated with this alternative. This alternative would reduce visual impacts associated with the proposed project.

D. ENVIRONMENTALLY SUPERIOR ALTERNATIVE

CEQA requires the identification of the environmentally superior alternative in an EIR. Because the Revised Site Plan alternative would achieve all of the project objectives and would reduce the potential significant and unavoidable visual impact associated with construction of the parking garage in the northeast corner of the site, it is considered the environmentally superior alternative. Other potential impacts associated with the proposed project and the Revised Site Plan alternative (with the exception of the one significant and unavoidable traffic impact) can be mitigated to a less-than-significant level with the mitigation measures identified in this EIR.

VI. CEQA REQUIRED ASSESSMENT CONCLUSIONS

As required by the California Environmental Quality Act (CEQA), this chapter discusses the following types of impacts that could result from implementation of the proposed Sierra Point Biotech project: effects found not to be significant; growth-inducing impacts; unavoidable significant environmental impacts; significant irreversible changes; and cumulative impacts.

A. EFFECTS FOUND NOT TO BE SIGNIFICANT

Meetings among representatives of City of Brisbane departments involved in the project planning and review, consultants for the City, and the project applicant were held to preliminarily determine the scope of the Sierra Point Biotech Project EIR. In addition to these meetings, a Notice of Preparation (NOP) was circulated on January 4, 2006 and a public scoping meeting was held on January 12, 2006 to solicit comments from the public about the scope of this EIR. Written comments received on the NOP and public comments received during the scoping meeting were considered in the preparation of the final scope for this document and evaluation of the proposed project. The environmental topics analyzed in Chapter IV, Setting, Impacts, and Mitigation Measures, represent those topics which generated the greatest potential controversy and expectation of adverse impacts.

Based on correspondence with City staff, visits to the project site, and preliminary research, the proposed project is not expected to result in significant impacts related to the following topics, which are not further evaluated in the EIR.

1. Agricultural Resources

The project site is located on a former sanitary landfill created in the Bay by a series of dikes. When the landfill was closed, clay and soil were brought to the site to cover the landfill. The site is not classified by the State of California Department of Conservation as farmland and no agricultural uses or farmland are present within or adjacent to the project site.

2. Cultural Resources

The project site is located on a former landfill that operated from 1968 to 1972. The site does not contain cultural resources, given that 23 to 47 feet of artificial fill and municipal refuse overlie the Bay Mud below the site. However, paleontological resources could potentially be found in the soils that underlay the landfill. Because the clay cap which seals the landfill must remain intact in order to ensure public safety, minimal grading of the site would occur. Therefore, potential paleontological resources would not be disturbed by the project.

3. Mineral Resources

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.

B. GROWTH-INDUCING IMPACTS

This section summarizes the project's growth-inducing impacts on the surrounding community. According to CEQA, a project is typically considered growth-inducing if it would foster economic or population growth. Examples of projects likely to have significant growth-inducing impacts include extensions or expansions of infrastructure systems beyond what is needed to serve project-specific demand, and development of new residential subdivisions or industrial parks in areas that are currently only sparsely developed or are undeveloped.

The proposed project would result in construction of five office/research and development (R&D) buildings and a parking garage and would accommodate approximately 1,800 employees. Development of Sierra Point, including the project site, has been planned for development since the mid-1970s but has not been fully implemented. As of July 2006, four parcels, including the project site, remain vacant. Implementation of the proposed project would not induce unplanned development adjacent to the proposed site as the adjacent parcels are developed or have been planned for development. Furthermore, development of the site and surrounding parcels has been envisioned by the Brisbane General Plan, the area Redevelopment Plan,[1] the 1978 Use Permit, the 1982 Architectural Design Guidelines for Sierra Point and the 1984 Development Agreement.[2]

C. UNAVOIDABLE SIGNIFICANT ENVIRONMENTAL IMPACTS

After mitigation, the revised project would result in three significant unavoidable impacts:

- *Transportation*: The proposed project would contribute to an existing significant impact at the intersection of Sierra Point Parkway and the US 101 northbound ramp under Cumulative Plus Project Conditions (year 2030).
- *Transportation*: The proposed project would contribute to a significant level of service cumulative impact on the following three freeway segments: US 101 southbound between Harney Way and Sierra Point Parkway in the AM Peak hour, US 101 southbound between Sierra Point Parkway and Oyster Point Boulevard in the PM Peak hour, and US 101 northbound between Oyster Point Boulevard and Sierra Point Parkway in the AM Peak hour.
- *Visual:* Construction of the proposed parking garage at the northeast corner of Sierra Point Parkway would degrade existing public views and the visual quality of the site.

D. SIGNIFICANT IRREVERSIBLE CHANGES

CEQA requires that EIRs assess whether the proposed project would result in significant irreversible changes to the physical environment. The *CEQA Guidelines* discuss three categories of significant irreversible changes that should be considered. Each is discussed below.

1 Brisbane, City of, 1976. *Brisbane Bayfront Plan, Redevelopment Plan for Project Area Number One*. December. Last amended April 17, 2006.

[2] The 1982 Architectural Design Guidelines for Sierra Point were amended as the Combined Site and Architectural Design Guidelines for Sierra Point in March 2001.

1. Changes In Land Use Which Commit Future Generations

The project would commit future generations to develop an approximately 22.8-acre site on a former landfill. While site preparation, construction and operation of the proposed project would commit several generations to campus-like office/R&D park, it would be in no way irreversible in the technical sense of the word. Future generations could eventually redevelop the site with other land uses if the proposed uses were to become obsolete.

2. Irreversible Damage From Environmental Accidents

No significant environmental damage, such as accidental spills or explosion of a hazardous material, is anticipated with implementation of the proposed office/R&D project. The research and development uses would require the use of certain hazardous materials which would be regulated and would be stored, used and disposed of in compliance with safe operations protocols. Such uses would not be of a scale that would risk an environmental accident of irreversible proportions. No other potential environmental effect of the project (e.g., traffic, air quality, water quality) would reach the point of creating irreversible damage from foreseeable accidents given the land uses proposed.

3. Consumption of Nonrenewable Resources

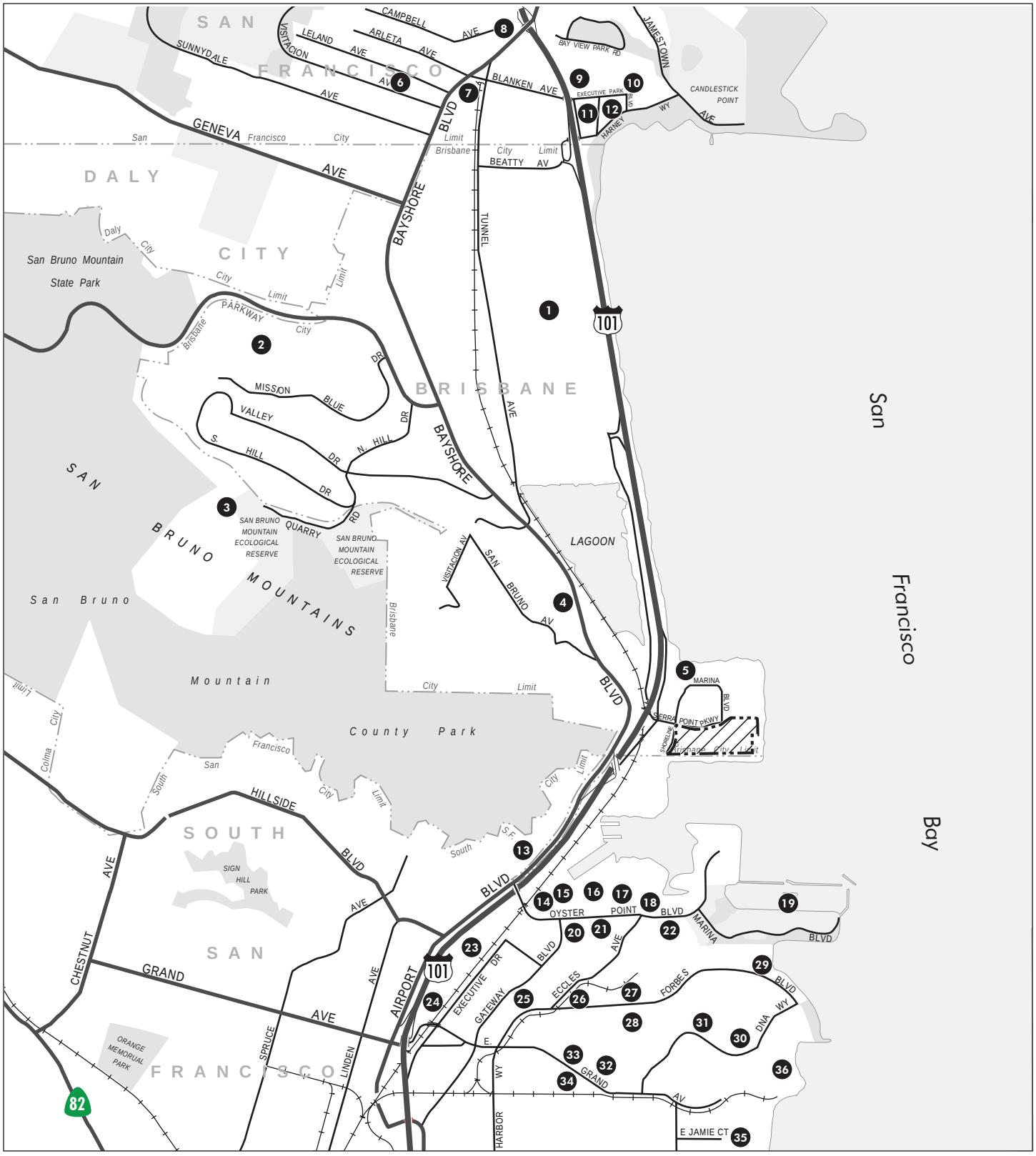
Consumption of nonrenewable resources includes increased energy use, conversion of agricultural lands, and lost access to mining reserves. Because the site is a former landfill in the Bay, development of the site would not result in conversion of agricultural land or loss of access to mining resources. The demolition, construction and ongoing operation of the proposed project would require the consumption of nonrenewable resources including fossil fuels, electricity and natural gas. However, the scale of such consumption for the proposed project would be typical for an office/R&D development of this size. Incorporation of energy efficiency elements in the designs for the buildings would ensure that the consumption of nonrenewable resources during the ongoing operation of the project is minimized and that resources are not used in a wasteful manner

E. CUMULATIVE IMPACTS

CEQA defines cumulative impacts as “two or more individual effects which, when considered together, are considerable, or which can compound or increase other environmental impacts.” Section 15130 of the *CEQA Guidelines* requires that an EIR evaluate potential environmental impacts that are individually limited, but cumulatively significant. These impacts can result from the proposed project alone or together with other projects.

1. Methodology

When evaluating cumulative impacts, CEQA allows the use of either a list of past, present, or reasonably anticipated relevant projects, including projects outside the control of the lead agency, a summary of the projections in an adopted planning document, or a thoughtful mix of the two. This cumulative impacts analysis includes reasonably foreseeable development projects in the cities of Brisbane, San Francisco and South San Francisco through the year 2030. Cumulative development considered for this analysis is listed in Tables VI-1, VI-2, and VI-3 and the location of these developments is shown in Figure VI-1. Each of the environmental topic areas analyzed in Chapter IV is considered below for cumulative impacts.



LSA

FIGURE VI-1

Sierra Point Biotech Project EIR

Cumulative Project Locations

N

0 .25 .50

MILES

PROJECT SITE

3 CUMULATIVE PROJECT LOCATIONS

[NOTE: LOCATIONS ARE APPROXIMATE]

SOURCE: CALIFORNIA STATE AUTOMOBILE ASSOCIATION, 2000.

I:\BRI0601 sierra point\figures\Fig_VI1.ai (07/31/06)

Table VI-1: City of Brisbane Cumulative Projects – Year 2030

Project # (See Figure VI-I)	Project Title	Location	Status	Description
1	Baylands Phase I Specific Plan	Bound by Tunnel Ave., Frontage Rd., and Geneva Ave., and Brisbane Lagoon	Pending, EIR to be prepared	• 650,000 sf retail • 400,000 sf exhibition space • 1,500,000 sf hotel • 2,000,000 sf office/R&D • 200,000 sf auto park • 250,000 sf warehouse • Total 5 million sf
2	Northeast Ridge Unit II, Neighborhood II	Guadalupe Canyon Pkwy	Pending Revised Application	• 88 residential units
3	One Quarry Rd. Residential Project	Quarry Rd.	EIR Certified, Pending Approval	• 129 single-family units and 54 townhomes
4	Charles Ng Condominium Project	3710-3760 Bayshore Blvd.	Approved	• 30 residential units
5	Sierra Point Master Plan	Sierra Point Peninsula	Master Plan Approved	• Parcel 3 - 360,000 sf office • Parcel R - 50,000 sf retail • 700 unit hotel

Source: Swiecki, John, Principal Planner, Brisbane Department of Planning and Development, 2006.

Table VI-2: City of San Francisco Cumulative Projects – Year 2030

Project # (See Figure VI-I)	Project Title	Location	Status	Description
6	Visitacion Valley Pipeline Projects	Visitacion Valley	Under Review	• (-2,547 sf cultural, institutional, and educational land uses) • 28 residential units • 40,475 sf retail
7	Visitacion Valley Redevelopment Plan (includes rezoning and Schlage Lock site)	Bounded by Bayshore Blvd., Tunnel Ave., Arleta Ave., and Sunnydale Ave (rezoning includes Leland Ave. from Bayshore Blvd. to Cora St.)	Pending, EIR in Preparation	• (-73,252 sf industrial) • 1,200 residential units[(a)] • 41,667 sf cultural, institutional, educational facilities • 16,667 sf medical facilities • 16,667 sf office • 218,852 sf retail
8	2011 Bayshore Blvd.	West of Hwy. 101	Approved	• 120 residential units
9	Signature/Future Plex	Executive Park North	Approved	• 450 residential units • 17,500 sf commercial
10	Saint Francis Bay Phase III Condominiums	601 Crescent Way	Townhomes Approved/ Residential Units Pending	• 180 townhomes • 470 residential units
11	The Yerby Corporation Project	5 Thomas Mellon Circle	Pending, EIR in Preparation	• (-100,000 sf office demolition) • 500 residential units • 14,600 sf commercial
12	Executive Park Housing	150 & 250 Executive Park Blvd.	Pending, EIR in Preparation	• (-220,000 sf office demolition) • 1,200 residential units • 15,000 sf commercial

[(a)] The southeast portion of the Schlage Lock site may be completed by 2011 with approximately 260 residential units. It is anticipated that other development projects covered in the EIR would be completed after 2011.

Source: Navarrete, Joy. Environmental Planner, San Francisco Planning Department. 2006.
Evans, Tom. Lead Planner, San Francisco Planning Department. 2006.
Rich, Ken. Vistitacion Valley/Schlage Lock Plan Manager, San Francisco Planning Department. 2006.
Ferracane, Christina. Associate Planner, San Francisco Planning Department. 2006.

Table VI-3: City of South San Francisco Cumulative Projects – Year 2030

Project # (See Figure VI-I)	Project Title	Location	Status	Description
13	Terrabay Phase III Project Specific Plan	Bound by Bayshore Blvd. from Sister Cities Blvd. to Hwy. 101	Under Review	• 657,170 sf office • 23,647 sf retail • 150-seat performing arts auditorium • 100-person childcare facility
14	Oyster Point Marriott	195 Oyster Point Blvd.	Approved	• 350 hotel rooms
15	Amgen	1130 Veterans Blvd.	Under Construction	• 96,500 sf office/R&D
16	Amgen	1190 Veterans Blvd.	Under Review	• 7,850 sf retail
17	Bay West Cove Specific Plan (remaining projects)	Oyster Point Blvd./East of Hwy. 101	Approved	• 600,000 sf office/R&D • 30,000 sf retail/restaurant • 100-person childcare facility • 350 hotel rooms
18	Slough Estates	333 Oyster Point Blvd.	Approved	• 315,444 sf office/R&D
19	South San Francisco Ferry Terminal	East Basin of Oyster Point Marina Park	Approved	• Ferry terminal and area improvements
20	Stuhlmuller Property Co.	180 Oyster Point Blvd.	Approved	• 40,000 sf office
21	Malcolm Building	200 Oyster Point Blvd.	Under Review	• 56,300 sf office or R&D
22	Kaiser Medical Facility	230 Oyster Point Blvd.	Approved	• 19,200 sf medical facility
23	Home Depot	900 Dubuque Ave.	Under Review	• (-156,637 sf demolition) • 101,272 sf warehouse • 24,522 sf garden center
24	Lowe's Home Improvement	700 Dubuque Ave.	Under Review	• (-228,559 sf demolition) • 124,051 sf warehouse • 24,698 sf garden center
25	681 Gateway	681 Gateway Blvd.	Under Construction	• 121,098 sf R&D
26	Fitness Center	435 Forbes Blvd.	Approved	• 35,000 sf fitness center
27	Slough Estates	494 Forbes Blvd.	Under Review	• 326,020 sf office/R&D
28	Genentech Childcare Center	444 Allerton Ave.	Under Review	• Demolition • 51,000 sf childcare facility
29	Genentech Bldg. 51	642 Forbes Blvd.	Under Construction	• 35,709 sf manufacturing
30	Genentech Bldg. 31	1631 Grandview Dr.	Under Review	• 152,000 sf office
31	Genentech Master Plan Expansion	Bound by Allerton Ave., Forbes Blvd., East Grand Ave. and the Bay	Pending, EIR in preparation	This information is not available as of June 2006.
32	285 East Grand Office/R&D	285 East Grand Ave.	Under Construction	• 61,770 sf office/R&D
33	249 East Grand Ave. Office/ R&D Project	249 East Grand Ave.	Under Review	• 540,000 sf office/R&D
34	Britannia Point Grand Development	250-270 East Grand Ave.	Under Review	• (-177,633 sf demolition) • 461,500 sf office/R&D
35	Alexandria Real Estate Equities	East Jamie Court/ Haskins Way	Under Review	• 162,000 sf R&D
36	Britannia East Grand	Easterly terminus of East Grand Ave.	Under Construction	• 785,000 sf office/R&D • 8,000 sf childcare • 5,000 sf fitness • 8,000 sf residential/retail

Source: Lappen, Michael, Senior Planner, South San Francisco Planning Department, 2006. Economic and Community Development, Planning Documents. Website:www.ci.ssf.ca.us/depts/ecd/planning/planning_documents.asp. June 1.

The reader should note that this cumulative analysis does not include proposals for permanent residential development on Sierra Point because residential development has neither been allowed nor considered for Sierra Point under the Brisbane General Plan, Zoning Ordinance, 1978 Use Permit, the 1982 Architectural Design Guidelines for Sierra Point and the 1984 Development Agreement. While the City is aware of proposals to add residential units to Sierra Point, there are no City land use policies or regulatory authorities that permit residential uses. As such, it would not be accurate to characterize residential projects as "reasonably foreseeable" for purposes of this EIR analysis. Therefore, residential development at Sierra Point was not included in this cumulative impact analysis as attempts to analyze the potential cumulative impacts of residential development at Sierra Point in this EIR would be speculative and premature at this time.

2. Cumulative Impacts

The following analysis examines the cumulative effects of the proposed project. Cumulative effects are summarized below for each of the topics that are analyzed in Chapter IV of this EIR.

a. Land Use and Planning Policy. Implementation of the cumulative projects, in combination with the proposed project, would result in the redevelopment of numerous infill sites throughout the San Francisco mid-peninsula area. Infill projects in an urban setting generally represent environmentally-sound development to the extent that such projects capitalize on existing transit systems and infrastructure, and minimize impacts on sensitive resources, such as wetlands and farmlands, that are frequently degraded with greenfield site development. Anticipated development in Brisbane is expected to intensify the uses of underutilized parcels, provide greater neighborhood cohesion and linkages with downtown, and accommodate an increasing population. Additionally, the development of Sierra Point, including the project site, has been planned since the mid-1970s. For all these reasons, the project would not contribute to any significant cumulative land use impacts.

b. Population, Employment, and Housing. The proposed project would increase the number of jobs in Brisbane by approximately 1,800 and would have an indirect effect on population growth, which is not expected to be substantial. This population and employment increase is consistent with projections for the City and would not be considered unanticipated growth. Implementation of the cumulative projects would represent a moderate population and employment increase within the region. This growth would have several beneficial effects, including the provision of housing and employment within an already urbanized area. Therefore, implementation of the proposed project and anticipated projects would not contribute to any significant cumulative population, employment or housing impacts.

c. Transportation, Circulation and Parking. Section IV.C, Transportation, Circulation and Parking, includes a detailed analysis of the cumulative conditions related to transportation. Please refer to that discussion for cumulative transportation impacts resulting from the implementation of the proposed project.

d. Air Quality. Section IV.D, Air Quality, includes a detailed analysis of the cumulative conditions related to air quality. Please refer to that discussion for cumulative air quality impacts resulting from the implementation of the proposed project.

e. Noise. Section IV.E, Noise, includes a detailed analysis of the cumulative conditions related to noise. Please refer to that discussion for cumulative noise impacts resulting from the implementation of the proposed project.

f. Geology, Soils and Seismicity. Construction of the proposed project would result in site-specific impacts affecting only the structures and users of the project site. Impacts associated with the proposed project would not result in cumulative impacts with other projects. Therefore, cumulative geology and soils impacts would be less than significant.

g. Hydrology and Water Quality. It is not expected that the proposed project would contribute to cumulative impacts associated with surface water quality because surface water runoff from the site would be processed by Best Management Practices (BMPs) before discharge. It is not expected that the proposed project would contribute to cumulative impacts associated with groundwater quality because the project would not draw upon or deliver water to the local groundwater. The proposed project would receive water from a commercial water utility and would not have an individual or cumulative impact on aquifer water levels, as no water would be withdrawn. Construction of the proposed project would result in an increase in the area of impervious surface and an increase in runoff. However, no cumulative effects are expected, as the existing and proposed storm water drainage systems would be able to accommodate increases in runoff and BMPs and specific design standards would be required for all major improvements to ensure retention/detention of surface water on-site. The proposed project would not be expected to exacerbate any downstream flooding problems, as discharge from the site flows directly to the terminal receiving water body. Therefore, cumulative hydrology and water quality impacts would be less than significant.

h. Biological Resources. Implementation of the proposed project would not contribute to impacts on biological resources. Given that the majority of planned future area development is located within highly urbanized areas and these projects would implement mitigation measures as required to minimize impacts on biological resources, the proposed project, in conjunction with future development, would not have a significant impact on biological resources.

i. Hazards and Hazardous Materials. Development of the proposed project, in conjunction with planned future area development, would cumulatively increase the demand for emergency response capabilities. The City of Brisbane has developed an Emergency Response Management Plan, which is regularly updated and includes evacuation procedures and routes. The Emergency Response Management Plan was prepared in concert with a number of multi-agency mutual aid plans. Given continued updates to the Emergency Management Plan and multi-agency coordination, the proposed project, in conjunction with planned future area development, would not result in significant cumulative impacts to established emergency response plans or evacuation plans.

Planned future development in the greater area, particularly, R&D, auto park, warehouse, industrial/ commercial, medical, institutional and educational uses, would result in increased routine transport, use, storage and disposal of hazardous materials. During construction of the proposed project, no off-site disposal of soils would occur. The only wastes that would be generated would be from demolition/removal of the three small sheds on the property. During project operation, any businesses with hazardous materials storage, use, handling or disposal would be required to comply with applicable federal, state, and local requirements. The risk of upset and accident conditions involving the release of hazardous materials into the environment would be minimized through compliance with

these regulations. Therefore, the proposed project, in conjunction with the planned development in the area, would not result in significant cumulative impacts associated with the transport, use, storage, and disposal of hazardous materials, or accidents associated with these uses.

j. Public Services and Recreation. Development of the proposed project, in conjunction with planned future area development, would cumulatively increase demand for public facilities and services in the project area. None of the public facilities or services analyzed would experience significant impacts. Buildout of the cumulative projects should not result in cumulative impacts related to physical capacities, service levels or funding availability, particularly because the increased demand for services has, in many cases, been anticipated in planning and policy documents and would be shared across various cities. As a result, no significant cumulative impacts would result.

k. Utilities and Infrastructure. Development of the proposed project, in addition to other future development in the area, would cumulatively increase the demand on the utility providers and infrastructure in the project area. The proposed project would require the construction of additional water, sewer and storm drain lines within the project site, as well as require new water storage infrastructure to meet fire flow requirements. Currently, the Southeast Treatment Plant is experiencing combined sewage outfall during peak flow levels. However, the Southeast Treatment Plant provides minimum primary treatment for combined sewer flows during peak flow periods, in compliance with federal Combined Sewer Overflow Control Policies. Increased water supply demands from the proposed project, in addition to other future development, could potentially exceed the available water supplies during multiple dry years.[3] Energy demands from the proposed project and other future development in the area could potentially result in the need for additional peaker plant capacity in order to meet increased energy demands, despite demand reduction and demand shifting programs. Implementation of the Mitigation Measures outlined in Section IV.K, Utilities and Infrastructure, would reduce the potential cumulative impacts to a less-than-significant level.

l. Visual Resources. The proposed project would transform an open space area to graded land with built structures and landscaping. However, the proposed project is similar to existing commercial development that surrounds the project site to the west and to the north. Landscaping of open areas and surface parking lots would cover approximately 47 percent of the project site and would provide attractive streetscapes and open space areas. Improvements and landscaping associated with the Bay Trail would maintain the open views of the Bay and San Bruno Mountain. Views of San Bruno Mountain from the Marina towards the west of the project site would remain undeveloped and unobstructed from most vantage points. Visual corridors from public streets surrounding the project site would maintain views of the Bay through the project site. Mitigation Measures outlined in Section IV.L, Visual Resources, would reduce the potential cumulative impacts to a less-than-significant level.

[3] City of Brisbane, 2006. *Water Supply Assessment for the Proposed Sierra Point Biotech Project.* July.

VII. REPORT PREPARATION

A. REPORT PREPARERS

Prime Consultant

LSA Associates, Inc.
Land Use and Planning Policy; Population, Housing and Employment; Noise; Air Quality; Public Facilities and Services; Utilities; and *Visual Resources*
2215 Fifth Street
Berkeley, CA 94710
David Clore, AICP, Principal-in-Charge
Judith Malamut, AICP, Associate, Project Manager
Amy Fischer, Senior Planner
Jason Burke, Assistant Planner
Hannah Young, Assistant Planner
Patty Linder, Graphics/Document Production
Jennifer Morris, Word Processing

Biological Resources
157 Park Place
Pt. Richmond, CA 94801
Richard Nichols, Biological Resources Manager
Eric Lichtwardt, Biologist

Noise and *Air Quality*
20 Executive Park, Suite 200
Irvine, CA 92614
Tony Chung, Principal, Director of Acoustical and Air Quality Services

Subconsultants

Hexagon: *Transportation, Circulation and Parking*
40 South Market Street, Suite 600
San Jose, CA 95113
Jill Hough, Principal Associate
Matt Nelson, Planner

Baseline Environmental Consulting: *Geology, Soils, and Seismicity; Hydrology and Water Quality;* and *Hazards and Hazardous Materials*
101 H Street, Suite C
Petaluma, CA 94953
Yane Nordhav, Principal
Bruce Abelli-Amen, Hydrogeologist

Julie Pettijohn, Hazards Analyst
Ralph Russell, Environmental Specialist

Brown and Caldwell: *Water and Sewer*
201 N. Civic Drive, Suite 115
Walnut Creek, CA 94596
William Faisst, Principal-In-Charge
Thomas Birmingham, Engineer

RBF Consulting: *Storm Drainage*
2101 Arena Boulevard, #250
Sacramento, CA 95834
Harvey Oslick, Senior Engineer

Environmental Vision: *Visual Resources*
2550 Ninth Street, Suite 205
Berkeley, CA 94710
Marsha Gale, Managing Principal
Chuck Cornwall, Principal

B. REFERENCES

American Society for Testing and Materials (ASTM), 2005. *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*, E 1527-05.

Association of Bay Area Governments (ABAG), 1989. *San Francisco Bay Trail Plan*. Adopted July.

Association of Bay Area Governments (ABAG), 2001. *Liquefaction Hazard Map, Entire San Andreas (1906 Quake) - Magnitude 7.9*. Website: www.quake.abag.ca.gov. July 26, 2006.

Association of Bay Area Governments (ABAG), 2003. *Earthquake Hazard Map for South San Francisco/Brisbane/San Bruno. Scenario, Peninsula Segment of the San Andreas Fault System*. Website: www.quake.abag.ca.gov. July 6, 2006.

Association of Bay Area Governments (ABAG), 2005. *2005 Projections*.

Association of Bay Area Governments (ABAG), 2005. *Interactive ABAG (GIS) Maps Showing Dam Failure Inundation*, Website: www.abag.ca.gov/bayarea/eqmaps/damfailure/damfail.html.

Association of Bay Area Governments (ABAG), 2006. ABAG Home page. Website: http://www.abag.ca.gov/. July 6.

Association of Bay Area Governments (ABAG), 2006. *Geographic Information System, Map of Fire Threat in the San Francisco Bay Region*, Website: www.abag.ca.gov. City of Brisbane. July 24.

Association for Laboratory Animal Science, Website: http://www.aalas.org.

Association for the Assessment and Accreditation of Laboratory Animal Care International, Website: http://www.aaalac.org/.

Baseline Environmental Consulting, 2006. *Phase I Environmental Site Assessment, Sierra Point Biotech Project, Brisbane, California*, prepared for LSA Associates, Inc. October.

Bay Area Air Quality Management District, 1966. *BAAQMD CEQA Guidelines Assessing the Air Quality Impacts of Projects and Plans.* April. (Amended in December 1999.)

Bay Area Air Quality Management District, 1999. *BAAQMD CEQA Guidelines.*

Bay Area Stormwater Management Agencies Association, 1999. *Start at the Source, Design Guidance Manual for Stormwater Quality Protection*. Website: www.basmaa.org.

Bergschneider, Jonathan, Senior Vice President, Slough Estates USA, Incorporated, 2006. Letter to Ms. Judith Malamut, LSA Associates, *Re: Sierra Point-Comments on Phase I Environmental Site Assessment August 2006.* October 4.

Bolt, Beranek & Newman. 1998. Noise Control for Buildings and Manufacturing Plants.

Borcherdt, R.D., and others, 1975. *Response of Local Geologic Units to Ground Shaking, in: Studies for Seismic Zonation of the San Francisco Bay Region*, U.S. Geological Survey *Professional Paper 941-A.*

Brabb, E.E. and Pampeyan, E.H, 1983, *Geologic Map of San Mateo County, California: U.S. Geological Survey, Miscellaneous Investigations Series MAP I-1257-A.*

Brisbane School District, 2006. High Schools. Website: www.brisbane.ca.campusgrid.net/home. June.

Brisbane School District, 2006. Modernization notice, reviewed online. Website: www.brisbane.ca.campusgrid.net. July 21.

Brisbane, City of, 1976. *Brisbane Bayfront Plan, Redevelopment Plan for Project Area Number One*. December. Last amended April 17, 2006.

Brisbane, City of, 1984. *Ordinance No. 299 Approving the 1984 Development Agreement*. March 26.

Brisbane, City of, 1994. *General Plan Environmental Impact Report, Comments and Responses to Comments, Appendix to the Final EIR*. May.

Brisbane, City of, 1994. *General Plan*. June.

Brisbane, City of, 1997. *The Agreement Concerning Project Approval Documents*. Adopted December 22, 1997 by the City Council as Resolution No. 97-69. Modified by the First, Second and Third Amendments (September 15, 1998, November 17, 2003, and November 7, 2005).

Brisbane, City of, 1998. *Landscaping Requirements and Guidelines.*

Brisbane, City of, 2002. *1999-2006 Housing Element.* Adopted October 15.

Brisbane, City of, 2003. *Sewer Master Plan.* Prepared by Brown and Caldwell. May.

Brisbane, City of, 2003. *Storm Drainage Master Plan*. Prepared by RBF Consulting, November.

Brisbane, City of, 2003. *Water Master Plan*. Prepared by Brown and Caldwell. June.

Brisbane, City of, 2003. *Zoning Ordinance, Chapter 17.18 SP-CRO: Sierra Point Commercial District*. Website: www.ci.brisbane.ca.us/Upload/Document/D240001012/SP-CRO%20Sierra%20Point%20Commercial.pdf.

Brisbane, City of, 2004. Public Works. Website: www.ci.brisbane.ca.us/html/cityDept/pw/index.asp.

Brisbane, City of, 2004. Water Quality Report. Website: www.ci.brisbane.ca.us/html/pdf/WaterQualityReport.pdf.

Brisbane, City of, 2006. *Community Development, In Progress (Projects)*. Website: www.ci.brisbane.ca.us/html/cityDept/pw/index.asp. June 13.

Brisbane, City of, 2006. *Water Supply Assessment for the proposed Sierra Point Biotech project*. July.

Brisbane, City of, Department of Public Works, 2006. Department of Public Works comments on Brown and Caldwell's June 30, 2006 letter on Sierra Point Project.

Brisbane, City of, Municipal Code, 2006. *Chapter 8.28. Noise Control.*

Brisbane, City of, Municipal Code, 2006. *Chapter 12.12. Tree Regulations.*

Brisbane, City of, Municipal Code, 2006. *Chapter 15.01. Grading.*

Brisbane, City of, Municipal Code, 2006. *Chapter 15.75. Recycling and diversion of debris from construction and demolition.*

California Biomedical Research Association, not dated. *Fact Sheet, Laws Governing the Use of Animals in Research.* Website: http://www.ca-biomed.org. September 28, 2006.

California Code of Regulations, Division 2, Title 27, Chapter 3, Subchapter 5, Article 2, Section 21190, *Post Closure Land Use*.

California Code of Regulations, Title 27 Section 21130.

California, State of, Department of Conservation, 1998. *Maps of Known Active Faults near-Source Zones in California and Adjacent Portions of Nevada*, International Conference of Building Officials.

California Department of Conservation, 2006. *A Sampling of California's Largest Earthquakes*. Website: www.consrv.ca.gov/index/Earthquakes/qh_earthquakes_Calbigones.htm.

California Department of Conservation, Division of Oil and Gas and Geothermal Resources, 2002. Map W6-3. November 1.

California Department of Finance, 2006. E: 1 *City/County/State Population Estimates with Annual Percent Change, January 1, 2005 and 2006*.

California Department of Finance, 2006. E:4 *Population Estimates for Cities, Counties and State, 2001 – 2006 with 2000 DRU Benchmark*.

California Department of Forestry and Fire Protection (CDF), 2006. CDF Home Page. Website: www.fire.ca.gov/php/.

California Department of Transportation, California Scenic Highway Program, San Francisco and San Mateo County. Website: www.dot.ca.gov/hq/LandArch/scenic_highways.

California Energy Commission (CEC), 2002. *2002-2012 Electricity Outlook Report.* February.

California Energy Commission (CEC), 2005. *Map of Geothermal Resources in California*. Website: www.energy.ca.gov/maps/geothermal_areas.html.

California Energy Commission (CEC), 2006. *Recently On-line, Approved, Current and Expected Power Plant Licensing Cases (Peakers and Non peakers).* June 22.

California Energy Commission (CEC), 2006. *Title 24, California's Energy Efficiency Standards for Residential and Nonresidential Buildings.* Website: www.energy.ca.gov/title24/index.html.

California Geological Survey (CGS), 2005. *Probabilistic Seismic Hazards Mapping Ground Motion Page.* Website: www.consrv.ca.gov/cgs/rghm/pshamap/pshamain.html. July 27, 2006

California Geological Survey (CGS), 2006. *Alquist-Priolo Earthquake Fault Zones*. Website: www.consrv.ca.gov/CGS/rghm/ap/.May 18.

California Independent System Operator (CAISO), 2006. Website: www.caison.com.

California Integrated Waste Management Board (CIWMB), 2004. *Estimated Solid Waste Generation Rates for Institutions*. Website: www.ciwmb.ca.gov/WasteChar/WasteGenRates/-Commercial.htm.

California Integrated Waste Management Board (CIWMB), 2006. Jurisdiction Profiles: Brisbane. Website: www.ciwmb.ca.gov/Profiles/Juris/Default.asp.

California Integrated Waste Management Board (CIWMB), 2006. Solid Waste Information System. Website: www.ciwmb.ca.gov/swis/Search.asp.

California Native Plant Society (CNPS), 2001. *Inventory of Rare and Endangered Vascular Plants of California*. 6th Ed. Rare Plant Scientific Advisory Committee, David P. Tibor, editor. CNPS, Sacramento, CA. 388 pp.

California Natural Diversity Data Base (CNDDB), 2006. Rarefind search results for the San Francisco South U.S.G.S. 7.5 minute quad and surrounding quads. California Department of Fish and Game. Sacramento.

California Public Utilities Code Section 21675(a).

California Public Utilities Commission, 2004. *PUC Adopts Long-Term Power Purchase Plans for Utilities to Ensure Adequate Energy Supply for State*. December 16, R.04-04-003.

California Regional Water Quality Control Board, San Francisco Bay Region (RWQCB), 1996. *Updated Waste Discharge Requirements, WDR Order No. 96-058*.

CH2MHill, 2005. *Semiannual Monitoring and Inspection Report for the Former Sierra Point Landfill, Brisbane and South San Francisco, California*. April 21.

CH2MHill, 2006. *Facility Inspection, First Quarter 2006. Former Sierra Point Landfill, Brisbane and South San Francisco.* Letter report to Sierra Point Environmental Management Association, Inc. August.

CH2MHill, 2006. *Spring 2006, Semiannual Monitoring and Inspection Report, Former Sierra Point Landfill, Brisbane and South San Francisco, California*, prepared for Sierra Point Environmental Management Association, Inc. April 24.

City of South San Francisco, Economic and Community Development, 2006. *Major Project List-June 06*. Website: www.ci.ssf.ca.us/depts/ecd/planning/major_plans.asp. June.

City of South San Francisco, Economic and Community Development, 2006. *Planning Documents, Environmental Impact Reports, Archives*. Website: www.ci.ssf.ca.us/depts/ecd/planning/planning_documents.asp. June 1.

City/County Association of Governments of San Mateo County (C/CAG), 1996. *San Mateo County Comprehensive Airport Land Use Plan*. Adopted November 14.

City/County Association of Governments of San Mateo County (C/CAG), 2006. *Policy on Traffic Impact Analysis (TIA) To Determine Traffic Impacts on the Congestion Management Program (CMP) Roadway Network Resulting from Roadway Changes, General Plan Updates, and Land Use Development Projects*. Adopted August 10.

County of San Mateo, Environmental Health Services Division, Solid Waste Program, not dated, *Application Procedure for Projects on Landfills; San Mateo County Environmental Health Division*, 1994, *Procedures for Excavation/Boring on Class III Landfills*, September 13; San Mateo County Health Care Services Agency, 1998, *Applicant Checklist for Closure and Postclosure Review*, January.

Department of Toxic Substances Control (DTSC), 2006. Letter to Mr. J. Swiecki, City of Brisbane, Re: Comments on the Notice of Preparation and Initial Study for the Sierra Point Research and Development complex Draft Environmental Impact Report, prepared by D. Tsuji, Chief, Northern California-Coastal Cleanup, Operations Branch. January 30.

EDAW, 2002. *Visitacion Valley Schlage Lock Community Planning Workshop, Strategic Concept Plan and Workshop Summary*. July.

Environ Corporation, 1998. *Environmental Due Diligence Review of the Sierra Point Associated Two Properties, Brisbane and South San Francisco*, prepared for J. Wactor, Luce, Forward, Hamilton and Scripps, as attorney for the potential purchaser, Opus West Corporation, Pleasanton, California, Attorney Work Product, Privileged and Confidential. 4 February. Permission to cite this report was granted by J. Wactor in an electronic mail correspondence to J. Pettijohn of Baseline Environmental Consulting, 1 August 2006.

Federal Emergency Management Agency (FEMA), 1983. *Flood Insurance Rate Map (FIRM), Brisbane, California, San Mateo County, Community Panel Numbers 0603140001B*. March 29.

Fehr & Peers Associates, Inc., 2000. *Sierra Point Improvement Phasing Analysis Update*. Prepared for Opus West, April 24.

Fehr & Peers Associates, Inc., 2001. *Updated Sierra Point Phasing Analysis*. Prepared for Opus West, October 10.

Gallagher, Sean, 2006. *Status Report: Resource Adequacy (RA) and Long Term Procurement Planning (LTPP)*. CPUC Energy Division, April 24.

Garcia, A.W. and Houston, J.R., 1975. *Type 16 Flood Insurance Study: Tsunami Predictions for Monterey and San Francisco Bays and Puget Sound, United States Army Corps of Engineers Technical Report H-75-17*.

GeoSyntec Consultants, Inc., 2005. *Sierra Point Geotechnical Review of Parcels 5, 6, and 7*. Job No: PRJ2003REM\Slough\Sierra Point\Section 7 SP GeoReport 8-19-05. August 19.

Gouchon, John, 2002. *Letter to Josh Roden (Opus West Construction) regarding Sierra Point Clay Cap Installation.* July 10.

Health Research Extension Act of 1985, Public Law 99-158, 20 November, Section 495 (Animals in Research).

Helley, E.J., and LaJoie, K.R., 1979. *Flatland Deposits of the San Francisco Bay Region, California – their geology and engineering properties, and their importance to comprehensive planning, U.S. Geological Survey Professional Paper 943*.

Hexagon Transportation Consultants, Inc., 2006. *Sierra Point Biotech Project Transportation Impact Analysis*. Prepared for LSA Associates, Inc., November 6.

Institute of Transportation Engineers (ITE), 2003. Trip Generation, 7th Edition.

Jefferson Union High School District, 2006. *Jefferson Union High School Homepage*. Website: www.juhsd.k12.ca.us/. June.

Jesionek, Krzysztof S., P.E., Dunn, Jeffery R., Dr, 1997. *Post-Earthquake Inspection and Corrective Action Plan, Sierra Point Landfill*, GeoSyntec Consultants, Inc., March 12.

Kangas Foulk, Brian 1998. *Sierra Point Business Center, Development Standards*, prepared for OPUS West Corporation, Pleasanton, California. April 15.

Kleinfelder, 1993. *Solid Waste Water Quality Assessment Test (SWAT) Report, Sierra Point Landfill, Brisbane and South San Francisco, California*. Prepared for the Owners of the Sierra Point Landfill, c/o the Koll Company, Brisbane, California. August 25.

Martin, Billy, 2002. *Letter to Josh Roden (Opus West Construction) regarding Sierra Point Clay Cap Installation.* June 26.

North County Fire Authority, 2006. North County Fire Authority Overview. Website: www.northcountyfire.org/index.htm. June.

Oakshott, Gordon B., and Goldman, H.B., 1969. *Geologic and Engineering Aspects of the San Francisco Bay Fill, California Division of Mines and Geology Special Report 97*.

Office of Laboratory Animal Welfare, 2002. *National Institutes of Health, Public Health Service Policy on the Humane Care and Use of Laboratory Animals*, revised August 2002. Website http://www.grants.nih.gov/grants/olaw/references/PHSPolicyLabAnimals.pdf. September 29 2006.

OPUS West Corporation, 2001. *Combined Site and Architectural Design Guidelines, Sierra Point*. March 12.

Project for Public Spaces, 2005. *Brisbane is Awesome! Defining the Core Places in Downtown Brisbane, Place Evaluation Workshop Results*. December.

Public Resources Code Section 21068.

San Francisco Bay Area Wetlands Ecosystem Goals Project, 1999. *Bay Lands Ecosystem Habitat Goals: A Report of Habitat Recommendation. San Francisco Bay Regional Water Control Board, Oakland, California*.

San Francisco Bay Conservation and Development Commission (BCDC), 1968. *San Francisco Bay Plan*. Amended December 2005.

San Francisco Bay Conservation and Development Commission (BCDC), 1987. *Sea Level Rise: Predictions and Implications for San Francisco Bay*. December.

San Francisco Bay Conservation and Development Commission (BCDC), 1999. Approved Minutes of Design Review Board Meeting of October 5, 1998.

San Francisco Bay Conservation and Development Commission (BCDC), 2000. *Permit No. M99-3*. Issued May 26, 1999, as amended through June 22, 2000.

San Francisco Bay Conservation and Development Commission (BCDC), 2005. *Shoreline Space*. Website: www.bcdc.ca.gov/index.php?p=83&more=1page=].

San Francisco Bay Regional Water Quality Control Board (RWQCB), 1999. *Bay Lands Ecosystem Habitat Goals: A Report of Habitat Recommendations*. Prepared by the San Francisco Bay Area Wetlands Ecosystem Goals Project.

San Francisco Planning Department, 2006. *The Pipeline: A Quarterly Report on Proposed Development in the City of San Francisco (4th Quarter, 2005)*. February.

San Francisco Public Utilities Commission (SFPUC), 2006. Southeast Treatment Plant Website: www.sfsewers.org/southeast_treatment.asp.

San Francisco Regional Water Quality Control Board (RWQCB), 1996. *Order No. 96-058, Updated Waste Discharge Requirements for Sierra Point Development Company, The City of Brisbane, Sierra Point Associates One, Sierra Point Associates Two, Hitatchi American Ltd., Tuntex Properties, Inc., and Argentum International, Inc., Sierra Point Class III Solid Waste Disposal Site, San Mateo County*.

San Francisco Regional Water Quality Control Board (RWQCB), 2002. *Letter Re: Sierra Point Landfill, San Mateo County-Partial Approval of the Proposal to Change Discharge Monitoring Program at Sierra Point Landfill*. Dated July 29, 2002, prepared for Sierra Point Landfill (attention: Mr. Jon Wactor). November 4.

San Francisco Regional Water Quality Control Board (RWQCB), 2002. NPDES Permit No. CA0037664, Order No. 2002-0073, for the City and County of San Francisco Southeast Water Pollution Control Plant, North Point Wet Weather Facility, and Bayside Wet Weather Facilities. Adopted, June 19.

San Mateo County RecycleWorks, 2006. RecycleWorks. Website: www.recycleworks.org/div_rates.html.

Schlocker, Julius, 1974. *Geology of the San Francisco North Quadrangle, U.S. Geological Survey Professional Paper 782*.

Sequoia Audubon Society, 2001. *San Mateo County Breeding Bird Atlas*. Sequoia Audubon Society.

Sloan, Doris, 2006. *Geology of the San Francisco Bay Region*. University of California Press.

State of California, Governor's Office of Planning and Research, *General Plan Guidelines, 1998* (Appendix A, Figure 2).

Terzaghi, Karl, Peck, Ralph B., and Mesri, Gholamreza, 1996. *Soil Mechanics in Engineering Practice*. John Wiley & Sons.

Thomas Reid Associates, 1993. *City of Brisbane 1993 General Plan Environmental Impact Report, Volume1: Environmental Setting*. December.

Thomas Reid Associates, 1994. *City of Brisbane 1993 General Plan Environmental Impact Report, Volume I1: Draft EIR*. January.

Transportation Research Board, 2000. *Highway Capacity Manual*.

Treadwell and Rollo, 2003. *Earthwork As-Built Report for Sierra Point Development, Brisbane and South San Francisco, California*. February 18.

Tung, Gregory, 2006. Principal, Freedman, Tung and Bottomley. *Existing Buildings and View Assessment of Sierra Point.* September 2006.

U.S. Census, 2000. Census 2000 Summary File 1 (SF 1) and Summary File 3 (SF 3) Brisbane, California.

U. S. Geological Survey, 2000. National Assessment of Coastal Vulnerability to Sea-Level Rise: Preliminary Results for the U.S. Pacific Coast, USGS Open-File Report 00-178, accessed at pubs.usgs.gov on September 28, 2006.

U.S. Geological Survey, 2000. News release: *The Demise of The San Bruno Fault, or the Fault that Never Was.* Website: www.usgs.gov/newsroom/. March 15.

United States Army Corps of Engineers (USCOE), 1984. *San Francisco Bay Tidal Stage vs. Frequency Study*.

United States Code, Title 7 (Agriculture), Chapter 54 (Transportation, Sales and Handling of Certain Animals), Sections 2131-2159.

Universal Paragon Corporation and Wallace Roberts & Todd, LLC/Solomon E.T.C., 2006. *Brisbane Baylands Phase I Specific Plan*. February 21.

Wactor, Jon, 2002. *Letter to Thomas Butler (CA Regional Water Quality Control Board) regarding Sierra Point Clay Cap Installation Report Letters*. November 4.

Wactor, Jon, 2006. *2005-2006 SWRCB Annual Report for Stormwater Discharges Associated with Industrial Activities, Former Sierra Point Landfill*. Sierra Point Environmental Management Association.

Western Regional Climate Center, 2004. Website: www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca6826.

Wetherall, Ron, 2004. Electricity Analysis Office, California Energy Commission. *California Electricity System Overview*. November 15, 2004.

Wilsey Ham Engineering, Planning, Surveying, 2005. Topographic Survey, Sierra Point Project, Brisbane, California, for Slough SSF, LLC, Figure C-1. August 23.

Wilsey Ham, Engineering Planning, Surveying, 2005, Grading Plan, Sierra Point Project, Brisbane, California, for Slough SSF, LLC, Figure C-2. August 23.

C. COMMUNICATIONS

Ackerman, Randall, 2006. Vice President, Real Estate Development, OPUS West Corporation. Personal communication with LSA Associates, Inc.

Breault, Randy, 2006. City of Brisbane, Director of Public Works. Personal communications with LSA Associates. July 13.

Bergschneider, Johnathan, 2006. Vice President, Development, Sought Estates International. Personal communication with LSA Associates, Inc.

Birmingham, Thomas, 2006. Project Manager, Brown and Caldwell. Personal communications with LSA Associates, Inc. August 25.

Brandvold, Steve, 2006. Deputy Fire Chief/Fire Marshal. North County Fire Authority. Personal communications with LSA Associates, Inc. July.

Chan, Kerwin, 2006. Superintendent of Bayside Operations, SFPUC. Personal communications with LSA Associates, Inc. July 11.

Cook, Sue, 2006. Assistant to the Superintendent, Jefferson Union High School District. Personal communication with LSA Associates, Inc. June 28.

Evans, Tom, 2006. Lead Planner, San Francisco Redevelopment Agency. Personal communications with LSA Associates, Inc. May .

Ferracane, Christina, 2006. Associate Planner, San Francisco Redevelopment Agency. Personal communications with LSA Associates, Inc. June.

Gaut, Andrea M., 2006. Coastal Program Analyst, San Francisco Bay Conservation and Development Commission. Personal communication with LSA Associates, Inc. October 10.

Gregson, John, 2006. Senior Chemist, SFPUC Bureau of Environmental Management (BERM). Personal communications with LSA Associates, Inc. October 5.

Healy, Susie, 2006. Office Staff, Brisbane School District, 2006. Personal communication with Baseline Environmental Consulting. July 19.

Hitchcock, Thomas, 2006. Police Chief, City of Brisbane. Personal communication with LSA Associates, Inc. July 19.

Lappen, Michael, 2006. Senior Planner, South San Francisco Planning Department. Personal communications with LSA Associates, Inc. June.

Macias, Lisa, 2006. Commander, Brisbane Police Department. Personal communication with LSA Associates, Inc. October 12.

Navarrete, Joy, 2006. Environmental Planner, San Francisco Planning Department. Personal communications with LSA Associates, Inc. June.

Oslick, Harvey, 2006. RBF Consultants. Personal communications with LSA Associates, Inc. June 29.

Rich, Ken, 2006. Visitacion Valley/Schalge Lock Plan Manager, San Francisco Planning Department. Personal communications with LSA Associates, Inc. June.

Skeels, Jim, 2006. Director, Parks and Recreation Department, City of Brisbane. Personal communication with LSA Associates, Inc. June 30.

Smith, Diane Floresca, 2006. Project Manager, Project Management Advisors, Inc., Consultant to Slough Estates International (Applicant). Personal communication with LSA Associates, Inc. July through October.

Swiecki, John, 2006. Principal Planner, City of Brisbane. Personal correspondence with LSA Associates, Inc. May through October.

Warburton, Ted, 2006. Harbormaster, Sierra Point Marina. Personal communication with LSA Associates, Inc. October 10.

D. PRIMARY CITY CONTACTS

City of Brisbane
50 Park Place
Brisbane, CA 94005-1310
William Prince, Director, Planning Department
John Swiecki, Principal Planner
Randy Breault, Director of Public Works