City of Brisbane
Agenda Report

TO: Honorable Mayor and City Council

FROM: Community Development Director via City Manager

SUBJECT: **Brisbane Baylands Planning Applications (Concept Plans, Specific Plan Case SP-01-06, General Plan Amendment Cases GP-01-06/GP-01-10) and related Final Environmental Impact Report (SCH##2006022136)- Site Remediation, Title 27 Landfill Closure, and Related Issues**

DATE: Meeting of November 17, 2016

Introduction:

Pursuant to the hearing schedule established by the City Council, this is the first City Council public hearing regarding the Brisbane Baylands Development Program and related Final Environmental Impact Report (FEIR). The City Council previously held a workshop on September 29, 2016 to receive an overview of the project, FEIR, related issues, and Planning Commission recommendations. Tonight's public hearing is focused on issues related to hazards and hazardous materials, site remediation, and Title 27 landfill closure.

Throughout the EIR and project review process to date, the community has demonstrated its concern regarding site contamination and remediation, and there is a clear community expectation that the site be rendered safe for future use prior to any subsequent development. While this goal is clear, there are a number of technical, regulatory, and policy considerations that drive how it would be defined and achieved, and a number of concerns have been raised regarding the practicality or feasibility of ensuring that safety is achieved and maintained on a long term basis.

As the City Council considers this issue, it should be recognized that hazardous site management and remediation are extremely complex technical matters that are highly regulated at both the state and federal levels. The purpose of this staff report and tonight's hearing is not to synthesize the hundreds of technical reports and thousands of pages of data which are available for review in the FEIR. Rather the purpose is to provide a broad overview of relevant site, technical, and regulatory issues to facilitate the City Council's efforts in determining land use policy for the Baylands.

Discussion:

Technical Considerations

As the City Council undertakes its review of this issue, there are a number of words and terms commonly used throughout the FEIR and other technical reports in the record which have specific regulatory and/or technical definitions. Some of these terms are defined below for reference purposes.

Key Terms

- A "**brownfield**" is a property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of one of more hazardous substances, pollutants, or contaminants.

- A "**hazardous material**" is any material that, because of its quantity, concentration, or physical, or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment. Hazardous materials include, but are not limited to, hazardous substances, hazardous waste, and any material that a handler or an administering agency has a reasonable basis for believing would be injurious to the health and safety of persons or harmful to the environment if released into the workplace or the environment (*California Health and Safety Code*, Section 25501).

- A "**hazardous waste**" is a waste substance that, because of its quantity, concentration, or physical, chemical, or infectious characteristics, may either cause, or significantly contribute to an increase in mortality or an increase in serious illness, or pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed (*California Health and Safety Code*, Section 25117).

- "**Remedial action**" or "**remediation**" refers to actions required by federal, state, or local laws, ordinances, or regulations necessary to prevent, minimize, or mitigate damage that may result from the release or threatened release of a hazardous material. These actions include site cleanup, monitoring, testing, and analysis of site conditions, site operation and maintenance, and placing conditions or restrictions on the land use of a site upon completion of remedial actions. The former railyard is subject to remediation due to soils and groundwater contamination.

- "**Landfill closure**" refers to the requirements contained in California Code of Regulations Title 27 for closure and post-closure maintenance plans to ensure that landfill closure and post-closure maintenance and the eventual reuse of disposal sites will conform to state performance standards and substantive requirements to protect human health and the environment. Although operations at the former landfill ceased in the 1960s, formal closure pursuant to the provisions of Title 27, which was adopted after landfill operations ceased, has not occurred.

- "**Constituent of concern**" or "**contaminant of concern**" is a chemical or element that has the potential to cause harm to human health or the environment.

- "**Exposure pathway**" is the course a chemical or element takes from the source to the organism exposed. A "complete" exposure pathway consists of four elements: a chemical source or a release of the source, transport in the environment, an exposure point for contact (i.e., soil, air, or, water); and exposure routes.

- "**Exposure route**" is the way a chemical or element potentially impacts a receptor. Four exposure routes are recognized in risk evaluation methods: ingestion, inhalation, dermal (skin and eye), and injection. Some common exposure pathways include the following:

    - ***Groundwater and Surface Water:*** Exposure will occur if people drink contaminated groundwater or surface water, accidentally ingest it while swimming, or if it comes into contact with their skin.

    - ***Soil and Sediment:*** People will be exposed to hazardous substances in soil and sediment if they accidentally ingest it (e.g., hand to mouth after touching impacted soil or if their skin comes into direct contact with the contaminated materials.

    - ***Air and Fugitive Dust:*** When a constituent of concern is a vapor, such as volatile organic compounds, these compounds can enter enclosed habitable structures and may be inhaled. Fugitive dust that contains constituents of concern may be inhaled by receptor populations.

Historic Site Use

The Baylands is primarily man made, created through filling the margin of San Francisco Bay with a wide variety of materials (including rubble, debris, undifferentiated garbage and fill dirt) over an extended period of time. West of the Caltrain rail line (closer to the historic edge of San Francisco Bay), the site is composed of primarily inert fill, including 1906 earthquake rubble. This portion of the site was used as a Southern Pacific Railyard from 1907 to the 1960s. The area east of the rail corridor was used as a municipal landfill by San Francisco beginning in the 1930s. Starting from the north, dumping continued southward until it was finally stopped in the 1960s at the edge of what is now Brisbane Lagoon. The construction of US Highway 101 in the mid-1950s established the easternmost boundary of the Bay fill. The former landfill area has since been used for soil processing operations since 1977.

When considering contamination and remediation issues affecting the site, the underlying fill characteristics and uses that historically occupied the land are critical factors. In general, contamination issues associated with the westerly former railyard portion of the site stem from uses that were established on that portion of the site, such as the railyard, and heavy industrial uses in San Francisco to the north, such as Schlage Lock. On the east portion the site, the contamination issues are primarily driven by the historic dumping of solid waste that created this portion of the site. While the Baylands is considered to be a single site from a planning perspective, the former railyard and former landfill described above have their own unique

contamination characteristics, remediation and reuse issues, and distinctly different regulatory and oversight requirements for site remediation of the railyard and Title 27 landfill closure for the former landfill.

Existing Site Conditions

For regulatory purposes, the former railyard portion of the Baylands was divided into two regulatory units: Operable Unit 1 (OU-1) north of Geneva Avenue and Operable Unit 2 (OU-2) south of Geneva Avenue, recognizing differences in the source and type of contamination present and potential exposure to hazards resulting from contamination. The California Department of Toxic Substances Control (DTSC) has regulatory authority for remediation of OU-1, while the California Regional Water Quality Control (RWQCB) has regulatory authority for remediation of OU-2. The former landfill portion of the site easterly of the Caltrain line is subject to the regulatory authority of RWQCB and the San Mateo County Health System in its role as the "local enforcement agency" for solid waste management in relation to the closure requirements set forth in Title 27 of the California Code of Regulations.

In general, more is known regarding soils and groundwater contamination affecting OU-1 and OU-2 than is known about the waste materials placed within the former landfill. Because landfill operations ceased in the 1960s, detailed records (such as would now be required to be maintained) of the types of materials placed in the landfill are not available. Nevertheless, a number of waste characterization studies were undertaken over the years on behalf of the landowner. As a result, a general characterization of waste within the landfill is available and is in the FEIR.

Operable Unit 1 (OU-1)

As shown on Attachment 1, OU-1 is located northerly of Geneva Avenue (extended) and extends into the Schlage Lock property within the City and County of San Francisco north of the Baylands Project Site.

Contamination within the Brisbane portion of OU-1 largely originated from industrial activities that historically occurred within the San Francisco portion of OU-1, including the Schlage Lock factory operations. The San Francisco portion of OU-1 is currently undergoing soil and groundwater remediation separately from the Brisbane (Baylands) portion as a precursor to the approved Schlage Lock mixed use development. Groundwater remediation currently underway for Schlage Lock is also remediating groundwater contamination in the Brisbane portion of OU-1.

Soil and groundwater constituents of concern associated with OU-1 include volatile organic compounds (VOCs) (primarily trichloroethylene (TCE), tetrachloroethylene (PCE), cis-1.2-

dichloroethylene [cis-DCE], and vinyl chloride [VC]); and metals in the soils including arsenic, lead, cadmium, and mercury, and chromium in groundwater.

Operable Unit 2 (OU-2)

As shown on Attachment 1, OU-2 includes the area south of Geneva Avenue (extended) westerly of the Caltrain line. Historic railyard operations resulted in soil and groundwater contamination in the form of various petroleum hydrocarbons (including Bunker C fuel oil), VOCs, and metals. In response to known contamination, investigation and sampling activities were commenced as early as March 1984 as a precursor to site remediation.

Former Landfill

The eastern half of the Baylands north of the lagoon served as a landfill from 1932 to 1967. Thus, the landfill operated and was closed before modern waste disposal practices were developed and formal regulatory designs for landfill closure were required. As a result, modern waste disposal design features such as liners, segregation of waste into disposal cells, and leachate collection systems were not provided. Waste placement was consistent with the practices of the time, and wastes were placed directly on native soils

Of the estimated 12.5 million cubic yards of solid waste within the landfill, an estimated 73 percent was produced by residential and commercial/industrial activities, with inert fill accounting for approximately 25 percent, and the remaining 2 percent assumed to be liquid waste. Waste tires were also placed in the landfill. The depth of the waste layer is estimated to range from 20 to 35 feet. Following cessation of landfill operations, the landfill was buried with a soil cover approximately 20–30 feet deep to prevent human contact with waste materials. Some methane gas is still being generated by decomposing solid waste within the landfill. Currently, methane gas emissions are collected through wells and piping, and burned periodically in a flare. Groundwater/leachate and stormwater quality is being monitored by consultants for the landowner at well and outfall locations. Results are reported to the RWQCB. The RWQCB also approved a plan in 2007 providing for interim management of landfill leachate for the current (pre-development) site use.

Regulatory Process and Responsibilities

Prior to future development of the Baylands, OU-1 and OU-2 will need to be remediated to the standards established by the regulatory agencies with jurisdiction over the site (DTSC for OU-1 and RWQCB for OU-2). DTSC and the RWQCB will oversee establishment of remediation goals based on the land uses determined by the City to be appropriate, along with development of remediation techniques and requirements in accordance with the Remedial Action Plans (RAPs) that need be prepared, approved by the regulatory agencies, and implemented prior to any physical development within this portion of the Baylands.

The former landfill site will require landfill closure and capping consistent with requirements of California Code of Regulations Title 27 to the satisfaction of the RWQCB and San Mateo County Health System. The County Health System is designated by the State of California as the "local enforcement agency" for solid waste management. These agencies have regulatory authority over post-closure maintenance plans to ensure that landfill closure post-closure maintenance, and the eventual reuse of former disposal sites will (1) conform to state performance standards and substantive requirements, (2) prevent exposure of wastes within the landfill to the public and the environment, and (3) manage generation of landfill gas and leachates within the landfill so as to protect public health and the environment.

While the City of Brisbane maintains land use authority over the Baylands, the City does not have the authority to approve or to impose requirements on DTSC or the RWQCB in relation to site remediation or Title 27 landfill closure approvals, activities, or monitoring. Remediation and Title 27 landfill closure actions defined by DTSC and the RWQCB will require their own subsequent CEQA review by those agencies prior to approval of proposed remedial action plans or Title 27 landfill closure plans.

Responsibilities of DTSC and the RWQCB for site remediation of OU-1 and OU-2 include:

- Reviewing existing studies to determine whether any additional characterization studies are needed to appropriately characterize the site, i.e., determine the nature and extent of contamination for purposes of setting risk-based clean up goals and developing site remediation plans;
- Setting risk-based cleanup goals through preparation of a human health risk assessment for the land uses determined by the City of Brisbane;
- Reviewing and approving plans for site remediation which would be required to meet risk-based cleanup goals set in the human health risk assessment;
- Undertaking project-level CEQA review for remediation of OU-1 and OU-2;
- Overseeing physical remediation of OU-1 and OU-2;
- Certifying completion of site remediation; and
- Undertaking such post-remediation activities as the regulatory agencies determine are necessary to ensure public health and safety.

Responsibilities of the RWQCB, and San Mateo County Health System for lndfill closure pursuant to Title 27 requrements include:

- Reviewing existing studies to determine whether any additional characterization studies are needed to appropriately characterize wastes within the former landfill;

- Reviewing and approving plans for landfill closure and post-closure maintenance plans to ensure that landfill closure and post-closure maintenance and the eventual reuse of the former landfill will conform to state performance standards and substantive requirements to protect human health and the environment;

- Undertaking project-level CEQA review for closure and post-closure maintenance plans for the former landfill pursuant to Title 27;

- Overseeing closure of the former landfill pursuant to Title 27; and

- Undertaking such post-remediation activities as the regulatory agency determine are necessary to ensure public health and safety.

Pursuant to existing regulations, the RWQCB and the San Mateo County Health System are required to ensure that Title 27 closure of the former Brisbane Landfill provides for:

- A low permeability engineered landfill cap compliant with Title 27;

- Systems to prevent any increases in leachate that exceed any regulatory thresholds, recognizing (1) hydrologic connectivity to groundwater and surface water, primarily the Central Drainage Channel, and (2) ongoing consolidation of refuse and Bay Muds; and

- Control of landfill gases.

To accomplish this, the Final Closure and Post-Closure Plans approved by the regulatory agencies in compliance with Title 27 will include requirements for:

- Installation of a final cover system over the landfill;

- Operation and maintenance of a leachate seep collection and transmission system;

- Operation and maintenance of a landfill gas collection and control system; and

- On-going groundwater, surface water, and leachate quality monitoring and reporting.

Additionally, proposed development within the former landfill area will be subject to land use controls such as deed restrictions, and require notifications to the regulatory agencies in advance of future ground disturbing activities.

Technical Concerns

A number of concerns were expressed in comments on the EIR and at the Planning Commission's public hearings regarding the presence of contamination and waste materials within the Baylands and the safety of the site for future development. Some comments suggested that existing California regulatory processes and standards might not provide an adequate level of safety for residential and other uses proposed within the Baylands. Related concerns included

the adequacy of existing site and waste characterization, the adequacy of California regulatory standards, the ability of California regulatory agencies to enforce standards. Concerns were also raised regarding the potential for "cross-contamination" and long-term liability. These issues are discussed below.

Adequacy of Waste and Site Characterization

The purpose of the waste characterization studies conducted to date for the former landfill included in the record were to (1) address the potential for materials within the landfill to contaminate groundwater or migrate offsite, (2) identify potential pathways of exposure, and (3) provide a basis for future design of the required landfill cap, along with a leachate control system to prevent any increases in leachate in excess of regulatory thresholds, and a landfill gas collection and control system.

The purpose of the studies conducted to characterize contaminants within OU-1 and OU-2 was to provide a basis for future analysis of human health risks for the land uses determined by the City to be appropriate for the Baylands. These site characterization studies also provide an initial basis for understanding what future preparation of remedial action plans will need to address to achieve risk-based remediation goals set by State regulatory agencies.

In 2005 and again in 2013, CDM was retained by the City to review the adequacy of existing characterization studies of the former landfill and railyard. CDM focused on the adequacy of existing characterization studies to support environmental analysis for the City's review of proposed land uses within the Baylands, and concluded that these studies had been prepared in accordance with industry standards and were therefore adequate for use in the Baylands EIR. While CDM concluded in 2005 and again in 2013 that existing characterization studies were adequate for use in the EIR and for the City's land use decision-making, CDM reached no conclusions as to whether those characterization studies contained all of the information that DTSC and the RWQCB would need for approval of RAPs and Title 27 landfill closure plans. Such decisions would be made by State regulatory agencies as part of their review of proposed remedial action plans and Title 27 landfill closure plans, once future land uses have been defined by the City.

Dr. G. Fred Lee's 2010 report[1] has been cited in public hearings and comments on the Draft EIR as indicating that the existing hazardous materials studies prepared for the Baylands are lacking. On page 22 of his report, Dr. Lee states that the "2005 CDM assessment of the degree of human health and ecological risk associated with the contamination at the Baylands area has been conducted in accord with normal hazardous chemical site investigations used today by consulting firms employed by site owners and regulatory agencies." Dr. Lee's primary criticisms are targeted at the limitations of existing environmental science and technology to identify hazardous chemicals, as well as at concerns with the adequacy of existing regulations.

[1] G. Fred Lee & Associates, Inc., "Draft Report on the Adequacy of the Investigation/Remediation of the Brisbane Baylands UPC Property Contamination Relative to Development of this Property," October 19, 2010.

In response to comments received on the Draft EIR, the City retained Susan Mearns, Ph.D.[2], in 2014 to once again review the characterization studies cited in the Draft EIR, all Draft EIR comments critiquing those studies or critiquing the discussion of hazardous materials in the Draft EIR, and Dr. Lee's report. Dr. Mearns concluded that each of the studies cited in the Draft EIR had been prepared consistent with industry standards at the time they were prepared. While these studies were prepared at different times, for different areas of the site, for different purposes, and with different methodologies, she determined that together these studies paint an adequate overall picture of onsite contamination and wastes within the Baylands for use in the Baylands EIR, recognizing that both the land use planning and site remediation processes are in their early stages. Thus, while Dr. Mearns concluded that existing characterization studies were adequate for use in the Draft EIR, she reached no conclusions as to whether Baylands characterization studies contained all of the information that DTSC and the RWQCB would need for development and approval of RAPs and Title 27 landfill closure plans.

Based on (1) recognition that the focus of the programmatic analyses in the Baylands EIR was to address the City's land use determinations and not to provide environmental clearance for site remediation/Title 27 landfill closure, (2) CEQA's requirements for subsequent environmental review once RAPs and Title 27 landfill closure plans are prepared and submitted to DTSC and the RWQCB for review, (3) the planning and remediation/Title 27 landfill closure review processes set forth in the EIR, and (4) the conclusions of CDM and Dr. Susan Mearns regarding the adequacy of characterization studies, City staff and the EIR consultants determined that the landfill and site contamination studies prepared to date were adequate to characterize existing conditions for use in the Baylands EIR to support General Plan level land use determinations by the City.

Use of Risk-Based Remediation Standards for OU-1 and OU-2

The City Council-accepted Sustainability Framework for the Baylands notes that there is community "disagreement over the adequacy of the regulatory standards that would be applied to the determination of safe living environments." As discussed below, the regulatory standards set by the State of California are considered to be highly conservative and stringent.

Rather than applying a single standard for remediation of each potential contaminant to all sites throughout the State, regardless of their intended use and the different ways in which people using any given site could be exposed to onsite contaminants, "risk-based cleanup goals" are used by DTSC and the RWQCB as the basis for their RAPs and follow-up monitoring and reporting efforts. The concept of "risk-based cleanup goals" is to address (1) the nature of and concentrations of "constituents of concern" and (2) the *severity* of harm that would result from exposure to those "constituents of concern."

[2] Dr. Mearns holds a Ph.D. in Environmental Health Engineering, as well as several registrations with Cal EPA and OSHA. She has over 20 years of human health risk assessment, environmental management, and consulting experience.

The "risk-based cleanup goals" that will be established by DTSC and the RWQCB for Operable Units 1 and 2 will be site-specific cleanup standards intended to ensure that the site is safe for the intended future uses determined by the City to be appropriate for the Baylands based on very conservative estimates of how existing site-specific contamination might affect future populations within the site. "Risk-based cleanup goals" for the Baylands will be based on:

- Site-specific information including the types and concentrations of contamination present within OU-1 and OU-2;
- The future intended use of OU-1 and OU-2 as determined by the City;
- Resulting human health risks related to such uses in relation to the types and concentrations of contamination present within OU-1 and OU-2;
- The expected receptor populations that may be exposed to impacted media during construction and operation;
- Anticipated potential exposure pathways; and
- The amount of the time receptor populations would be anticipated to be exposed to the impacted media.

Because the range of potential ingestion pathways, as well as the frequency and length of time of exposure are greater for residential uses than for commercial/industrial uses, residential uses are more sensitive in relation to human health risks. Therefore, risk-based cleanup goals and remediation standards for residential land uses are significantly more stringent than what would be applied to commercial and industrial land uses. Commercial office or industrial workers and landscape maintenance workers would potentially be exposed to impacted media for shorter periods of time than would residents in a residential area since such workers spend less time on site.

Construction workers for various types of residential, commercial, and industrial uses would be typically exposed to impacted media for similar, relatively short periods of time during project construction regardless of the type of land use under construction.

Determinations as to the human health risks associated with contaminated sites are analyzed in a "human health risk assessment," which evaluates the potential adverse health impacts that receptor populations may experience. Human health risk assessments are prepared as part of the remedial action plan preparation process to:

(1) Ensure that sufficient analyses have been completed to properly evaluate human health risks based on a property's future intended use; and

(2) Develop risk-based cleanup goals to protect the health of future site users based on the types and levels of contamination present on the site and the property's intended future use.

Human health risk assessments are prepared following federal (USEPA) and State (DTSC) guidance, and are reviewed and approved by the regulatory agency or agencies responsible for remediation of a site (for the Baylands, DTSC for OU-1 and the RWQCB (OEHHA) for OU-2).

Human health risk assessments are used to evaluate the potential adverse health impacts that receptor populations, i.e., humans, could experience if exposed to a dose of a particular constituent or chemical present in soil, water, air, or food via exposure pathways such as ingestion, inhalation, and dermal contact. Receptor populations usually are site-specific and may include, but are not limited to, construction workers, residential populations, commercial office or industrial workers, and landscape maintenance workers. The constituents or chemicals present on a site are assessed based on their toxicity, whether the constituent is carcinogenic (i.e. cancer-causing) or non-carcinogenic, the exposure pathway(s) by which the receptor population might be exposed to such constituents or chemicals (i.e., through eating, breathing, or skin contact), and the level of the dose to which the receptor population could be exposed. Based on the most recent DTSC guidance, the following exposure parameters are used in human health risk assessments[3]:

- Body weight (adult, child)
- Averaging time of exposure in days (carcinogens, non-carcinogens)
- Exposure duration in years (adult, child)
- Exposure frequency (days/year)
- Exposure duration (hours/day)
- Inhalation rate (adult, child)
- Drinking water ingestion (adult, child)
- Soil ingestion (adult, child)
- Particulate emission factor
- Skin surface area for soil contact (adult, child)
- Soil adherence factor (adult, child)
- Dermal absorption rate (chemical specific)
- Dermal permeability coefficient from water (chemical specific)
- Showering/bathing scenario (skin surface area, exposure time, and exposure frequency for both adults and children)

[3] DTSC guidance provides default exposure parameters for use in risk assessment at California hazardous waste sites. For example, the default parameter for adult body weight is 80 kg (176 pounds) and 15 kg for children (33 pounds).

The residential exposure scenario that would be used by regulatory agencies assumes that an individual is exposed to the "exposure point concentration" of onsite contaminants (defined as either the maximum concentrations detected in the medium assessed, or the 95% upper confidence level of the mean) for the first 30 years of life[4], 24 hours/day, 350 days/year. Essentially, this scenario assumes that an individual on the site would be consuming, inhaling or touching site constituents and contamination from birth for 30 years. For this reason, the resulting estimated risk and hazard values are extremely conservative, which dictates a much more conservative remediation than a commercial exposure scenario.

The commercial exposure scenario is similar to the residential exposure scenario in terms of the dose of contaminants assumed, but the length of exposure reflects commercial use. Specifically, it assumes that an adult is exposed to the exposure point concentration of site constituents or contaminants for 250 days/year for 25 years.

Additionally, the threshold to which the estimated risk values are compared is more conservative for the residential scenario. The residential threshold indicates an incidental increase in the potential for 1 person in a population of 1 million (1×10^{-6}) to have an increased carcinogenic risk due to exposure to the exposure point concentration of the contaminant for 24 hours/day, 350 days/year over 30 years. This exposure frequency and duration is unrealistic and therefore highly conservative to account for the uncertainty inherent in site characterization, exposure and remediation. The threshold for the commercial scenario indicates an incidental increase in the potential for 1 person in a population of 100,000 (1×10^{-5}) to have an increased carcinogenic risk due to exposure to the exposure point concentration of the constituent or contaminant for 250 days/year over 25 years.

To account for exposure to multiple constituents on a site, estimated risk values for individual constituents are added together to provide a summed risk value due to exposure to all detected constituents or contaminants in the medium assessed on a site. This summed risk value for exposure for all constituents onsite is compared to the appropriate threshold value for the exposure scenario.

DTSC's Health and Ecological Risk Office (HERO) reviews risk assessments prepared by consultants on behalf of project applicants and/or developers. HERO's staff includes individuals with medical degrees, as well as advanced toxicology, pharmacology, environmental science, epidemiology, industrial hygiene and biology degrees. The HERO reviewer assigned to a risk assessment will also have his or her work peer-reviewed by another HERO staff member before the comments are disseminated to the project applicant or developer, to be incorporated or addressed directly prior to obtaining State approvals.

The RWQCB uses the State of California Environmental Protection Agency Office of Environmental Health Hazard Assessment (OEHHA) to review risk assessments performed by

[4] Ages 0-6 are assessed as a child exposure and ages 7-24 are assessed as an adult exposure.

consultants on behalf of project applicants and/or developers. OEHHA's staff also prepares the Proposition 65 lists of chemicals and includes individuals with medical degrees, veterinary degrees, advanced toxicology and pharmacology degrees. The OEHHA reviewer assigned to a risk assessment also has his or her work peer-reviewed by another OEHHA staff member before comments are disseminated. OEHHA staff will calculate the estimated risk and hazard values using the exposure point concentrations, exposure scenario, exposure frequency and duration as presented in the risk assessment after first confirming the values are acceptable to OEHHA. In essence, OEHHA checks the calculations to ensure the resulting risk and hazard values have been derived appropriately and no mathematical errors were made. It is not uncommon for HERO and OEHHA staff to require a more stringent risk-based clean up goal than initially presented in the risk assessment.

Liability in Relation to Potential Hazards

Several comments at public hearings and comments on the Draft EIR expressed concern that the City would incur liability for approving development within the former landfill or within OU-1 and OU-2. However, the City has no liability in relation to site remediation or Title 27 landfill closure. The property owner (UPC or its successor) holds the environmental liability under the federal Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended, 42 U.S.C.A. § 9601 *et seq*. (CERCLA). In addition, the Baylands is subject to the regulatory oversight of DTSC and the RWQCB pursuant to Corrective Action Orders enforceable by State law, and non-compliance is punishable by substantive monetary fines.

Following initial development approvals, developers purchasing land for site-specific development within the Baylands would each undertake due diligence before closing any escrow, becoming the landowner of record, and thereby accepting liability for any hazardous conditions that may arise following site remediation. As site-specific development occurs and portions of the site are sold to individual property owners, these new property owners would also undertake due diligence before closing any escrow, becoming the landowner of record, and accepting liability for site contamination. To protect long-term users of the site, the City could require establishment of a property owners' association that would be required to undertake long-term monitoring of soils and groundwater conditions, along with responsibility for any future remediation should it become necessary. Such a requirement for long-term monitoring would be consistent with the requirements placed on landowners within Sierra Point for long-term monitoring of conditions at the former landfill on that site.

Even after a RAP or Title 27 landfill closure plan is approved and implementation has been completed, regulatory agencies reserve the right to require additional assessment, investigation and/or remediation at any time if a contaminant found offsite is determined to be from a source onsite or in the event new toxicological information is discovered for known contaminants onsite.

Potential for Cross-Contamination and Cumulative Effects of Multiple Toxins

Concerns have been also been raised regarding "cross-contamination," presumably related to site remediation activities or pile driving for building foundation piers within the former landfill and the perception that such activities could create exposure pathways for hazardous materials throughout the site. Other comments requested discussion regarding the cumulative effects of multiple toxins within the Baylands.

Any drilling of piers for building foundations within the landfill will be required to comply with the requirements of the RWQCB, and to be conducted within non-permeable casings to avoid permitting the movement of leachates or other contaminants into the groundwater basin. The human health risk assessments that will be prepared for the project site will address risks associated with each of the toxins present within the site, and will account for potential interactions between toxins.

Brisbane Policies Relevant to Remediation and Title 27 Closure Process

As noted above, while regulatory authority for site remediation and Title 27 landfill closure rests with DTSC and the RWQCB, land use authority for the Baylands remains with the City of Brisbane. Site remediation and related cleanup goals are based on the City's determination of appropriate land uses for development within the Baylands. In addition Title 27 landfill closure plans are designed to protect future uses within a fomer landfill. As a result, the City's land use decision needs to precede the development of remedial action plans and landfill closure plans for review by DTSC and the RWQCB. Thus, substantial work on remediation action plans, as well as Title 27 landfill closure plans will, by necessity, follow the City's General Plan level land use decision for the Baylands.

Existing General Plan Policies

The City's adopted General Plan contains a number of policies regarding site remediation within the Baylands, including:

- *Policy 172:* Establish that it is of the highest priority that contaminated lands in Brisbane be remediated.
- *Policy 173:* The City shall not grant approval of a development project on a contaminated site unless a plan for remediation of the site has first been approved and adopted by all Federal, State and local agencies having jurisdiction over the remediation plan.
- *Policy 174:* Include the remediation requirements of Federal, State and local agencies in the process of making determinations on land use designations and development applications.

- *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[5], San Mateo County Health System Environmental Health Division and other responsible agencies regarding the requirements for safe and successful landfill development, utilizing the experience of Sierra Point.*

    - *Program 175b: Require evidence that scientific testing and verification has taken place to the satisfaction of regulatory agencies.*

    - *Program 175c: Encourage property owners of filled lands to complete all testing and related requirements of the Federal, State and local agencies well in advance of requesting land use permits from the City.*

- *Policy 328 (Northeast Bayshore Subarea):* Through the appropriate regulatory agencies, control the handling of toxic materials and the remediation of any contamination.

- *Policy 365 (Baylands Subarea):* Comply with applicable Federal, State and regional standards for development on landfill.

- *Policy 368 (Baylands Subarea):* Comply with the requirements of remediation plans approved by the Department of Toxic Substances Control, the Water Quality Control Board and other responsible agencies in conjunction with development on lands that have been contaminated by toxic substances.

- *Policy 370 (Baylands Subarea):* Provide risk assessment analysis identifying toxic contamination, landfill limitations and other related factors and resultant environmental impacts in order to address, mitigate and disclose the characteristics of the land and its suitability for safe development.

- *Policy 371 (Baylands Subarea):* Disclose the underlying assumptions of all risk analyses for toxic lands and lands that are considered at risk for liquefaction.

- Policy 387 *(Beatty Subarea)*: Development on landfill shall comply with applicable Federal, State and regional standards.

- *Policy 391 (Beatty Subarea):* Work closely with regulatory agencies to encourage ongoing toxic remediation programs and monitoring by those agencies.

Thus, existing General Plan policies place responsibility for oversight of remediation and landfill closure on Federal, State, and local regulatory agencies to ensure the safety of future development. General Plan policies also require (1) approval of remediation plans by Federal, State, and local regulatory agencies prior to City development approvals (e.g., Specific Plan, site-specific development proposals), and (2) completion of remediation to the standards of Federal, State, and local regulatory agencies prior to physical development of the Baylands.

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[5] Now called "CalRecycle."

Baylands Sustainability Framework

While the Sustainability Framework recognizes the regulatory authority of DTSC, the Regional Water Quality Control Board, and the San Mateo County Health System for site remediation and Title 27 landfill closure, the Framework document also recognizes "there will certainly be differences in standards and application; standards and expectations will need to be negotiated with City, developer and agencies."

While the City does not have the authority to set or enforce site remediation or Title 27 landfill closure requirements, the Sustainability Framework sets forth several recommendations for actions that the City could take relevant to site remediation and Title 27 landfill closure, including:

- **Key Performance Indicators**[6]

    1. Determine the highest practical standard for remediation of the site to ensure human health. The developer will be required to consult an independent third-party credible source, acceptable to the City, for recommendations.

    2. Seek regulatory recommendations for best practices for testing, remediating, and monitoring the contamination that exists at the Baylands. Install permanent testing and monitoring stations and engage a third-party testing body to perform regular testing and provide an annual report to the City of Brisbane. A financial mechanism for supporting long term monitoring should be built into the approved plan.

- **Implementation**

    3. To ensure ongoing knowledge of site conditions that impact human health, consult an independent third-party credible source, acceptable to the City, for recommendations to determine appropriate monitoring protocols. Install toxics monitoring equipment and provide annual reporting of levels in locations required to be monitored by Department of Toxic Substances Control (DTSC), Regional Water Quality Control Board and/or San Mateo County Department of Environmental Health. Engage a third-party testing company, to be approved by the City, to provide annual testing and reporting. Demonstrate that there is an enforceable, ongoing financial mechanism to support the annual testing and reporting requirements.

The Sustainability Framework also recognizes a "need for an experienced, citizen respected, independent firm to ensure proper remediation and monitoring of the contamination for the community is critical to the safety and success of this development." Thus, the Sustainability Framework supplements General Plan policy by suggesting that the City become an active participant in the remediation review, approval, and implementation process by independently

[6] Key Performance Indicators are described in the Sustainability Framework as "a general set of indicators and targets that can be established in the planning phase of the project that set a direction and intention. They are not meant as prescriptive requirements, but as alternate methods may be appropriate to achieving the goals of the Principles."

reviewing studies, plans, and recommended remediation standards, and then work with regulatory agencies to seek the highest practical standard for remediation of the site to ensure human health and implementing third party testing and long-term monitoring.

Coordinated Review Process for Site Remediation and Title 27 Landfill Closure

The key determination made in the Draft EIR regarding the relationship between the City's planning process and the regulatory agencies' remediation/landfill closure review processes is that, while sufficient information is available for the City to make a General Plan/Concept Plan level land use decision, there is *not* sufficient information regarding site remediation and Title 27 landfill closure to support adoption of a specific plan at this time. Thus, EIR Mitigation Measure 4.G-2a sets forth the following relationship between the City's planning review and the regulatory agencies' remediation review processes.

- **Identify appropriate lands uses within the Baylands (General Plan/Concept Plan)**. Following certification of the Final EIR for proposed Baylands development, the City would determine the appropriate types, intensities, and location of land uses within the Baylands at the General Plan/Concept Plan level.

- **Complete plans for Title 27 landfill closure and Remedial Action Plans for OU-1 and OU-2**. Based on the land uses determined by the City to be appropriate for the Baylands at a General Plan/Concept Plan level, Remedial Action Plans and Title 27 landfill closure plans[7] would be prepared by the applicant, and submitted to the RWQCB and DTSC. Review by those regulatory agencies would then be undertaken, including reviews of the adequacy of site and waste characterization, human health risk assessments and risk-based cleanup goals, site remediation/landfill closure plans, and post-remediation and post-closure maintenance plans. The studies and plans would be revised as needed to the satisfaction of the RWQCB and DTSC, leading to plan approval.

- **Prepare and adopt development regulations for the Baylands (Specific Plan)**. Following approval of Title 27 landfill closure and remedial action plans for OU-1 and OU-2, the City would consider adoption of a specific plan for the Baylands consistent with the City's General Plan and relevant remediation and landfill closure regulatory requirements. Subsequent environmental documentation under CEQA would be required for adoption of a specific plan by the City.

- **Undertake Title 27 landfill closure and remediation of OU-1 and OU-2**. Following approval of landfill closure and remedial action plans, Title 27 landfill closure and physical remediation of the Baylands would be undertaken. Issuance of grading permits by the City as required for such landfill closure and remediation will likely be needed.

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[7] Remedial action plans would identify the specific remedial technologies to be undertaken to achieve cleanup goals, technical specifications for those cleanup technologies, and requirements for monitoring during and following site remediation. Title 27 landfill closure plans would set forth specifications for preventing human contact with waste materials, and for managing generation of landfill gas and leachates within the landfill so as to protect public health and the environment.

- **Site-specific development plans and development within the Baylands**. Remedial actions required for the former Brisbane Landfill, OU-1 and OU-2 must be completed prior to site development within those areas.

The City should further request that both DTSC and RWQCB include the City on their lists of "interested parties." This will provide a forum for the City to provide written comments to DTSC and the RWQCB. This ensures the City's concerns are brought to the attention of the regulatory agencies during their review. Additionally, the City can participate in the CEQA process undertaken by the regulatory agencies for the RAPs and title 27 landfill closure.

Planning Commission Recommendation

The Planning Commission's overarching policy recommendation is to ensure that the site is safe for the future uses approved for development by the City. The Commission further recommended that the City's existing General Plan policies regarding site remediation and Title 27 landfill closure be supplemented by incorporating the provisions of the Sustainability Framework, as described above, into the General Plan. This would establish a framework within which the City can work with the regulatory agencies, and coordinate regulatory agency review and approval of remedial action plans with the City's land use and development review and process. The policy framework recommended by the Planning Commission includes the City accomplishing the following:

- Defining the types, intensities, and location of land uses to be permitted by the City as the basis for site remediation studies, plans, clean-up standards and actions by regulatory agencies. This represents approving a General Plan level land use concept for the Baylands.

- Working with regulatory agencies to establish the highest practical standard for remediation of the site to ensure human health. While DTSC and the RWQCB would retain regulatory authority, the City would advocate for establishment and implementation of the highest practical standard for remediation of the Baylands;

- Providing City input to regulatory agencies regarding site remediation and landfill closure studies, plans, and actions, including the City engaging third party technical professionals to assist in:

    - Seeking implementation of best practices for testing, remediating, and monitoring onsite contamination;

    - Seeking the highest practical standard for remediation of the Baylands;

    - Reviewing remediation and landfill closure studies, along with proposed remediation and landfill closure plans and actions;

    - Providing comments to regulatory agencies;

- Negotiating any differences in standards, implementation requirements, or expectations for performance between the City, regulatory agencies, and developer;

- Performing regular testing, monitoring, and providing an annual report to the Brisbane City Council; and

- Establishing a financial mechanism to support long term monitoring;

- Ensuring that site remediation and Title 27 landfill closure plans are completed and approved by regulatory agencies prior to City approval of a specific plan for the Baylands. The Planning Commission is thus recommending that adoption of a specific plan for the Baylands not be considered until after site remediation and Title 27 landfill closure plans are approved by regulatory agencies;

- Ensuring that approved specific plan(s) are consistent with General Plan policies and approved site remediation plans;

- Ensuring that site remediation is completed prior to development as follows:

    - For OU-1, before permitting site-specific development within OU-1; and

    - For OU-2, before permitting site-specific development within OU-2; and

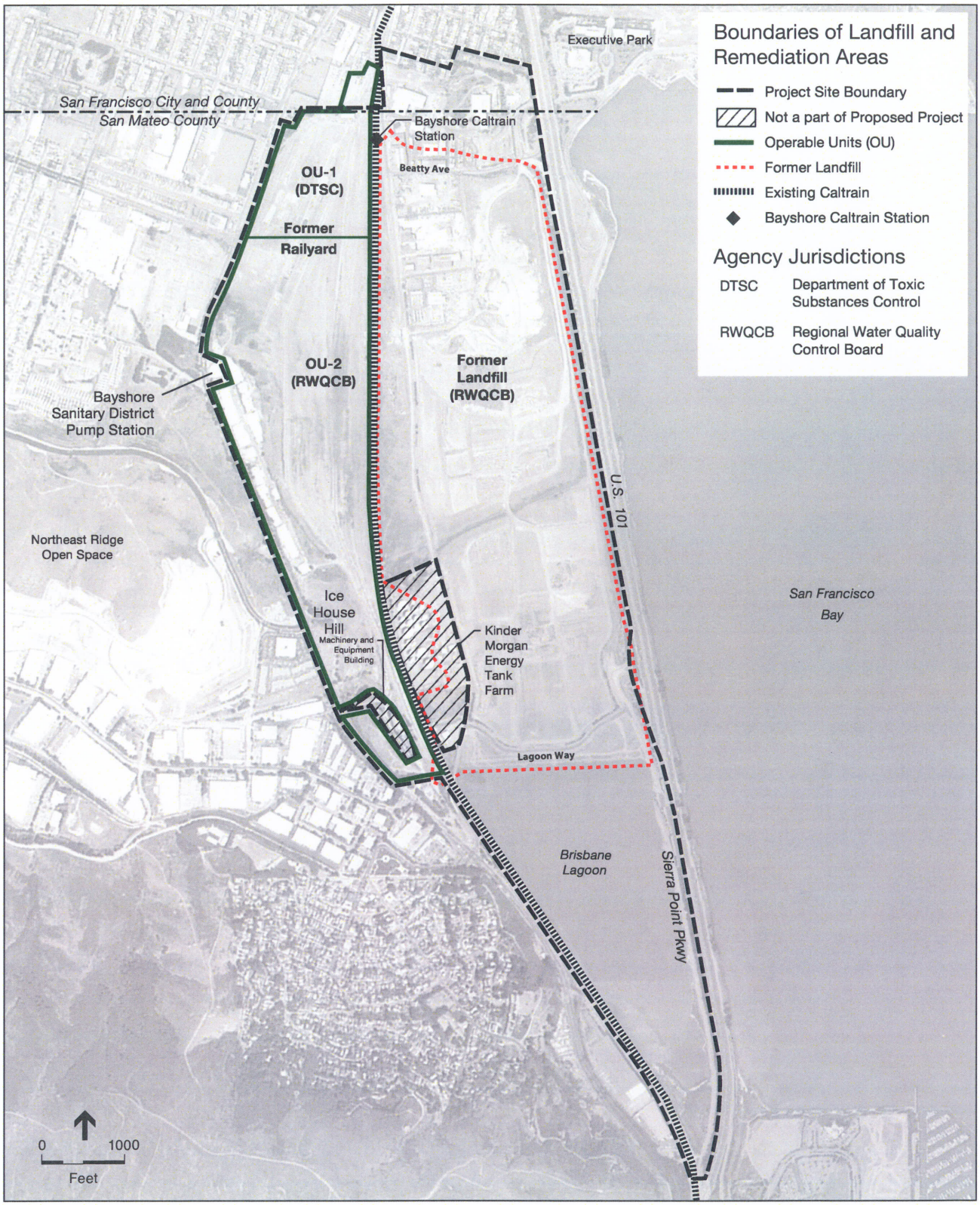
- Ensuring that Title 27 landfill closure is completed prior to development of renewable energy facilities south of the proposed Geneva Avenue extension and prior to development of other uses within the former landfill north of the proposed Geneva

Attachments:

1. Map of areas subject to remediation and Title 27 landfill closure within the Baylands

John Swiecki, Community Development Director

Clay Holstine, City Manager



SOURCE: BFK, et al., 2011

Brisbane Baylands . 206069

Former Landfill Site and Former Railyard Site (Remediation Areas)