Volume 1

OUTFALL LAND SECTION AND OOBS PIPING REHABILITATION

Draft Environmental Impact Report

Prepared for
Orange County
Sanitation District

December 2011

ESA

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EXECUTIVE SUMMARY

ES.1 Introduction

The Orange County Sanitation District (Sanitation District) has prepared this Draft Environmental Impact Report (Draft EIR) to provide the public, responsible agencies and trustee agencies information about the potential adverse effects on the local and regional environment associated with inspection, condition assessment, and rehabilitation of the Outfall Land Section and Ocean Outfall Booster Pump Station Piping (proposed Project). This Draft EIR has been prepared pursuant to the California Environmental Quality Act (CEQA). As Lead Agency, the Sanitation District may use this Draft EIR to approve the proposed Project, make Findings regarding identified impacts, and if necessary, adopt a Statement of Overriding Considerations regarding these impacts.

This document is being circulated to local, state and federal agencies, and to interested organizations and individuals who may wish to review and comment on the Draft EIR. Publication of this Draft EIR marks the beginning of a 45-day public review period, during which written comments may be directed to the address below. During the 45-day review period, the Sanitation District will hold a formal public hearing on the Draft EIR. Inquiries about the proposed project should be directed to:

Rob Thompson
c/o Jim Burror
Orange County Sanitation District
Engineering Planning
10844 Ellis Avenue
Fountain Valley, CA 92708

ES.2 Background

The Sanitation District is responsible for collecting, treating, disposing, and recycling wastewater from residential, commercial, and industrial sources for more than 2.6 million residents within a 470-square mile service area located in northern and central Orange County. The Sanitation District's service area includes 21 cities and three special districts governed by a 25 member board of directors consisting of elected offices from each sewer agency located in the Sanitation District service area. The Sanitation District facilities include over 560 miles of sewer lines, 15 off-site pumping stations, and two treatment plants.

The Sanitation District was created in 1946 under the County Sanitation District Act of 1923 and began full operation in 1954 with a network of trunk sewers, two treatment plants, and a 78-inch

diameter 1 mile ocean outfall (Short Outfall). In 1971, the 120 inch diameter 5 mile ocean outfall (Long Outfall) was installed and the Short Outfall was retained for emergency use only. Currently, the Sanitation District treats approximately 210 million gallons of wastewater each day (mgd) through the two connected treatment plants, Plant 1 in Fountain Valley and Plant 2 in Huntington Beach.

The Sanitation District currently operates two outfall pump stations at Plant 2, the Ocean Outfall Booster Station (OOBS) and the Effluent Pump Station Annex (EPSA). Approximately, 150 mgd is discharged through the Long Outfall system at Plant 2 to the Pacific Ocean on a regular basis, with the remaining net flow of 60 mgd conveyed to the Groundwater Replenishment System (GWRS) for advanced treatment and recycling.

The Short Outfall and Long Outfall run parallel underground from the OOBS, under Pacific Coast Highway (PCH) through a Beach Box located on the Huntington State Beach out to the ocean. The Beach Box serves as an access point and interconnection or both outfalls. Both outfalls lie on the ocean floor beyond the surf zone. The Short Outfall has a diffuser that begins approximately 1 mile from the shore line. The 5-mile Long Outfall has a 1 mile long diffuser that begins approximately 4 miles beyond the shoreline.

In 2009 an engineering report[1] revealed that the external walls on the east and west sides of the Beach Box may be experiencing severe corrosion, resulting in structural deficiency. The internal plates/bulkheads within the Beach Box require inspection and repair. The engineering report recommended that the Beach Box be rehabilitated as soon as possible to avoid any potential risk of Beach Box failure.

The Long Outfall compartment must be taken out of service to allow for access, proper inspection, and rehabilitation. Until this can be done, it will be difficult to assess the condition of these plates/bulkheads or conduct the necessary rehabilitation. If the Beach Box remains in its current condition, it could experience an uncontrolled failure, where treated wastewater (effluent) would leak through the plates/bulkheads, flow through the sand and discharge directly into the Santa Ana River (SAR). This would create substantial water quality impacts and potential beach closures in Huntington Beach and Newport Beach.

ES.3 Project Description

The proposed Project would consist of inspection, condition assessment, and rehabilitation of corroded elements of the land section of the existing Long Outfall System extending from Surge Tower 2 within the Sanitation District's Plant 2 to the Beach Box located on Huntington State Beach. The Sanitation District has identified four rehabilitation project elements to implement while the Long Outfall is out of service. The elements include: rehabilitation of Surge Tower 2; inspection and rehabilitation of the land section of the long outfall; abandonment of the long outfall metering ports and vaults; and replacement of the existing effluent flow meter on the long outfall. The rehabilitation elements would be conducted within Plant 2, near the Air Vac Station 12+05, and on the beach near the Beach Box. The land portion of the Long Outfall would be out

[1] Carollo Engineers, Orange County Sanitation District, Maintenance Repairs at the 120-inch and 78-inch Ocean Outfall Beach Junction Boxes Final Report, August 2009

of service for 4 to 6 weeks while each of these components is implemented. **Table ES-1** lists the Project components and location.

- Alternative 1: Bypass – *No Use of Short Outfall.* This alternative would install a temporary bypass structure downstream of the Beach Box to convey the flow from the Short Outfall to the Long Outfall prior to ocean discharge. Once the outfall is isolated and dewatered, five rehabilitation elements described below would be conducted over a period of 4 to 6 weeks. Construction would begin in September 2014 and concluded by March 2015.
  - Rehabilitation of Surge Tower 2
  - Inspection and Rehabilitation of the Land Section of the Long Outfall
  - Abandonment of the Long Outfall Metering Ports and Vaults
  - Replacement of the Existing Effluent Flow Meter on the Long Outfall
  - Rehabilitation of the Beach Box.

- Alternative 2: Non-Bypass – *Use of the Short Outfall*. This alternative would discharge the full flow from the Sanitation District's treatment facilities through the Short Outfall while the Long Outfall system is being rehabilitated. This alternative would conduct the same five rehabilitation project elements described in Alternative 1 during a 4 to 6 week period while the Long Outfall is out of service. Construction would begin in September 2012 and conclude by the end of October 2012.

TABLE ES-1
PROPOSED PROJECT ELEMENTS AND REHABILITATION LOCATION FOR EACH ALTERNATIVE

Project Element Activity	Rehabilitation Location	Alternative 1	Alternative 2
Rehabilitation of Surge Tower 2	On Plant 2	X	X
Inspection and Rehabilitation of the Land Section of the Long Outfall	Within the Long Outfall Pipeline. Access points are on Plant 2 and the Air Vac Station 12+05 adjacent to Talbert Marsh	X	X
Abandonment of the Long Outfall Metering Ports and Vaults	On Plant 2	X	X
Replacement of the Existing Effluent Flow Meter on the Long Outfall	On Plant 2	X	X
Rehabilitation of the Beach Box.	On Huntington State Beach	X	X
Bypass Structure [a]	On Huntington State Beach	X	

[a] The bypass structure is only constructed in Alternative 1.

ES.4 Analysis of Alternatives

CEQA requires that an EIR evaluate a reasonable range of alternatives to the proposed Project that could attain the basic objectives of the project, but would avoid or reduce significant environmental effects of the project. Two alternatives are considered for the proposed Project and are analyzed in equal detail for their environmental impacts throughout the Draft EIR. Alternative 1, Bypass – No Discharge to the Short Outfall, would install a temporary bypass structure downstream of the Beach Box to convey the flow from the Short Outfall to the Long Outfall prior to ocean discharge. Alternative 2, No-Bypass – Use of the Short Outfall Discharge, would discharge effluent through the Short Outfall while the Long Outfall System is being rehabilitated.

As required under CEQA Guidelines Section 15126.6(e)(2), Chapter 7, Alternatives Analysis, of this Draft EIR includes a comparison of the environmental impacts of a No Project Alternative. Chapter 7 includes a comparison of the Project Alternatives. The Draft EIR concludes that Alternative 2, the proposed Project is the environmentally superior alternative and the preferred alternative as it would have the least environmental impacts and meet each of the proposed Project objectives.

ES.5 Areas of Controversy

During the public comment period and during the scoping session held for the proposed Project, concerns were raised regarding the following potential adverse impacts. They are generally described as follows: biological resources, hydrology and water quality, recreational uses and facilities, construction traffic, parking, marine environment and habitat, hazardous materials and site contamination, bus service and facility impacts, and air quality. These concerns have been addressed in Chapter 4, Environmental Setting, Impacts, and Mitigation Measures of this Draft EIR.

ES.6 Summary of Impacts

Table ES-2, presented below, summarizes the impacts and mitigation measures identified for the proposed Project. The complete impact statements and mitigation measures are presented in Chapter 4, Environmental Setting, Impacts, and Mitigation Measures. The level of significance for each impact was determined using significance criteria (thresholds) developed for each category of impacts; these criteria are presented in the appropriate sections of Chapter 4. Significant impacts are those adverse environmental impacts that meet or exceed the significance thresholds; less than significant impacts would not exceed the thresholds. **Table ES-2** indicates the measures that will be implemented to avoid, minimize, or otherwise reduce significant impacts to a less than significant level.

The Draft EIR finds that the proposed Project under Alternative 1 would result in temporary significant and unavoidable impacts after mitigation to aesthetic resources due to the construction of the bypass structure. In addition, the restriction of beach access for 7 months is a significant and unavoidable impact to Recreation. Nighttime noise impacts would also be a temporary significant and unavoidable impact after mitigation as a result of the 24-hour, 7 days per week construction schedule at the Beach Box. The proposed Project under Alternative 2 would result in significant and unavoidable impacts after mitigation in relation to nighttime noise at the Beach Box only. All other potentially significant impacts identified would be reduced to less than significant levels with proposed mitigation measures.

TABLE ES-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Applicable to Which Alternative	Level of Significance after Mitigation
Aesthetics			
Impact 4.1-1: The proposed Project would alter a scenic vista.	**Mitigation Measure 4.1-1**: A visual screen shall be installed along the eastern and southeastern edge of the Beach Box construction area to reduce the impact of construction activities along PCH and to residents east of the SAR in the City of Newport Beach.	Alternative 1 Alternative 2	Significant and Unavoidable Less than Significant
Impact 4.1-2: The proposed Project could substantially degrade the existing visual character or quality of the site and its surroundings.	**Implement Mitigation Measure 4.1-1**	Alternative 1 Alternative 2	Significant and unavoidable Less than significant
Impact 4.1-3: The proposed Project could create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.	**Implement Mitigation Measure 4.1-1** **Mitigation Measure 4.1-3a:** All construction-related lighting associated with the rehabilitation of the Beach shall be directed downward and away from adjacent sensitive receptors, including residences, the California Least Tern Natural Preserve Area and other sensitive wildlife areas. Lighting shall use the minimum wattage necessary to provide safety at the construction sites. **Mitigation Measure 4.1-3b:** Prior to the commencement of rehabilitation activities, the Sanitation District shall coordinate with the City of Huntington Beach concerning nighttime activities.	Alternative 1 Alternative 2	Less than significant Less than significant
Biological Resources			
Impact 4.3-1: The proposed Project could have a substantial adverse effect, either directly or through habitat modifications, 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.	**Mitigation Measure 4.3-1a:** Prior to the commencement of any construction activities, all construction areas outside Plant 2 will be staked in the field and silt fencing will be installed. No debris, supplies or soils will be placed outside of the marked areas. The installation of staking and fencing will be overseen by a qualified biologist. **Mitigation Measure 4.3-1b:** All construction areas outside Plant 2 will be surveyed by a qualified biologist prior to rehabilitation and construction activities to document and map preconstruction conditions. **Mitigation Measure 4.3-1c**: A qualified biologist will be present during rehabilitation activities adjacent to Talbert Marsh to ensure that no rehabilitation and maintenance activities occur outside of the marked work areas. **Mitigation Measure 4.3-1d:** A qualified biologist will be present during construction activities within Huntington State Beach to ensure that no construction activities occur outside of the marked construction area.	Alternative 1 Alternative 2	Less than significant Less than significant

Environmental Impact	Mitigation Measures	Applicable to Which Alternative	Level of Significance after Mitigation
	Mitigation Measure 4.3-1e: In order to avoid direct and indirect impacts to nesting birds, project activities adjacent to Air Vac Station 12+05 will occur outside the typical breeding period of the Belding savannah sparrow which generally runs from March 1 through September 1. Project activities near the California Least Tern Natural Preserve Area will occur outside of the peak breeding season which generally runs from April 1 through September 1. **Mitigation Measure 4.3-1f**: Work areas outside Plant 2 will be restored to pre-construction contours and all fencing will be re-installed with oversight from a qualified biologist. **Mitigation Measure 4.3-1g:** The top 6 inches of sand supporting vegetation in the impact area at Huntington State Beach will be grubbed and stockpiled adjacent to the construction zone. Following construction, the material will be re-spread over the affected area. **Mitigation Measure 4.3-1h**: Coast woolly-heads seed within the temporary construction areas at Huntington State Beach will be salvaged and replanted within the temporary impact areas when work is completed as feasible and in consultation with State Parks.		
Impact 4.3-2: The proposed Project could have a substantial adverse effect on any riparian habitat or sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFG or USFWS.	**Implement Mitigation Measures 4.3-1f** through **4.3-1h.**	Alternative 1 Alternative 2	Less than significant Less than significant
Cultural and Paleontological Resources			
Impact 4.4-1: Project construction could adversely affect known or unknown cultural resources, including unique archaeological resources and historical resources.	**Mitigation Measure 4.4-1a:** Prior to the start of any earth-moving activity, an archaeological monitor shall be retained by the Sanitation District to monitor ground-disturbing activities associated with Alternative 1 of the proposed beach activities, including but not limited to grading, excavation, brush clearance and grubbing. The archaeological monitor shall conduct pre-construction cultural resources worker sensitivity training to bring awareness to personnel of actions to be taken in the event of a cultural resources discovery. The archaeological monitor shall be, or shall work under the supervision of, a qualified archaeologist, defined as an archaeologist meeting the Secretary of the Interior's Standards for professional archaeology (U.S. Department of the Interior, 2010). The duration and timing of monitoring shall be determined by the qualified archaeologist in consultation with the Sanitation District and based on the grading plans. Initially, all ground-disturbing activities associated with Alternative 1 shall be monitored. However, the qualified archaeologist, based on	Alternative 1	Less than significant

Environmental Impact	Mitigation Measures	Applicable to Which Alternative	Level of Significance after Mitigation
	observations of soil stratigraphy or other factors, and in consultation with the Sanitation District, may reduce the level of monitoring as warranted. In the event that cultural resources are unearthed during ground-disturbing activities, the archaeological monitor shall have the authority to halt or redirect ground-disturbing activities away from the vicinity of the find so that the find can be evaluated. **Mitigation Measure 4.4-1b:** Under Alternative 1, during construction of the bypass structure, if a cultural resource is encountered, construction activities shall be redirected away from the immediate vicinity of the find until it can be evaluated by a qualified archaeologist. If the find is determined to be potentially significant, the archaeologist, in consultation with the Sanitation District and appropriate Native American group(s) (if the find is a prehistoric or Native American resource), shall develop a treatment plan. Construction activities shall be redirected to other work areas until the treatment plan has been implemented or the qualified archaeologist determines that work can resume in the vicinity of the find.		
Impact 4.4-2: The proposed Project could adversely affect unidentified paleontological resources.	**Mitigation Measure 4.4-2:** Prior to the start of any earth moving activities, an Orange County Certified (OCC) Paleontologist shall be retained. Based on geotechnical findings and the construction design plans for proposed Alternative 1 beach activities, the OCC Paleontologist shall develop a Paleontological Resources Mitigation and Monitoring Plan. The mitigation and monitoring plan shall address pre-construction salvage and reporting; pre-construction contractor sensitivity training; procedures for paleontological resources monitoring; microscopic examination of samples where applicable; the evaluation, recovery, identification, and curation of fossils, and the preparation of a final mitigation report. Initially, all ground-disturbing activities associated with Alternative 1, occurring in older Quaternary Alluvial matrix shall be subject to paleontological monitoring. However, the OCC Paleontologist, based on observations of soil stratigraphy or other factors, and in consultation with the Sanitation District, may reduce the level of monitoring as warranted. In the event fossils are exposed during earth moving, the monitor shall have the authority to halt or redirect construction activities to other work areas until the procedures outlined in the Paleontological Mitigation and Monitoring Plan have been implemented or the OCC Paleontologist determines that work can resume in the vicinity of the find.	Alternative 1	Less than significant

Environmental Impact	Mitigation Measures	Applicable to Which Alternative	Level of Significance after Mitigation
Impact 4.4-3: Project construction could result in the disturbance of human remains.	**Mitigation Measure 4.4-3:** In the event of accidental discovery of any human remains, the County Coroner shall be notified immediately and construction activities shall be halted in accordance with Section 15064.4 (e)(1) of the CEQA Guidelines and Health and Safety Code Section 7050.5. If the remains are found to be Native American, Health and Safety Code Section 7050.5, subdivision (c), and Public Resources Code 5097.98 (as amended by AB 2641) shall be followed.	Alternative 1	Less than significant
Geology, Soils, and Seismicity			
Impact 4.5-1: The proposed Project could expose people or structures to potential adverse effects of fault rupture, strong seismic ground shaking or seismic related ground failure, including liquefaction.	**Mitigation Measure 4.5-1:** For Alternative 1, prior to the approval of construction plans for the bypass structure under Alternative 1, a design-level geotechnical investigation, including collection of site-specific subsurface data shall be completed. The geotechnical evaluation shall further characterize the underlying soils and assess the maximum loads to which the shoring system would be subject, and shall include seismic loads in the calculations. The geotechnical investigation shall be prepared by a licensed geotechnical engineer, shall reflect current industry standards, and shall provide recommendations necessary to ensure that planned shoring, bulkheads, and sheet piles are designed in a manner to withstand maximum loads that would occur during a large regional earthquake. These recommendations shall be incorporated into the design of Alternative 1.	Alternative 1	Less than significant
Impact 4.5-2: Construction of the proposed Project could result in substantial soil erosion or the loss of topsoil.	**Implement Mitigation Measure 4.8-1a**	Alternative 1 Alternative 2	Less than significant Less than significant
Impact 4.5-3: The proposed Project could be located on a geologic unit or soil that is expansive or unstable, or that would become unstable as a result of the project, and potentially result in onsite or offsite lateral spreading, subsidence or collapse.	**Implement Mitigation Measure 4.5-1**	Alternative 1	Less than significant
Hazards and Hazardous Materials			
Impact 4.7-3: Discharge to the SAR could create a hazard to the public.	**Mitigation Measure 4.7-3:** For Alternative 1, during discharges from the dewatering system into the SAR, the Sanitation District shall post signs on the beach near the mouth of the SAR on either side of the river that warns the public, including surfers and swimmers that the high flows in the SAR may cause hazardous currents in the ocean. In addition, the Sanitation District shall install a fence along both sides of the river in the cities of Huntington Beach and Newport Beach preventing beach goers from crossing the	Alternative 1	Less than significant

Environmental Impact	Mitigation Measures	Applicable to Which Alternative	Level of Significance after Mitigation
	river for the duration of the seven month construction period. Installation of the fence and notification to the public shall be coordinated with State Parks, County of Orange, and affected cities.		
Hydrology and Water Quality			
Impact 4.8-1: The proposed Project could violate water quality standards or waste discharge requirements or increase polluted runoff.	**Mitigation Measure 4.8-1a:** Under Alternative 1 and 2, for activities at Air Vac Station 12+05 and at the beach, a SWPCP shall be prepared prior to the initiation of any maintenance or rehabilitation activity. BMPs within the SWPCP shall control erosion, sedimentation, and other construction-related pollutants. The BMPs shall be maintained at the site for the duration of construction. The objectives of the BMPs are to identify pollutant sources that may affect the quality of stormwater discharges and to implement measures to reduce pollutants in stormwater discharges. The SWPCP shall contain the following: • Using structural controls such as gravel bags or fiber roles retain sediment to avoid draining toward receiving waters; • Stabilize slopes of stockpiled sand/soil to eliminate or reduce sediment dispersal from construction site to surrounding areas and surface waters; • Store all reserve fuel supplies only within the confines of a designated construction staging area; • The use or storage of petroleum-powered equipment shall be accomplished in a manner to prevent the potential release of petroleum materials into receiving waters; • Oil absorbent and spill containment materials shall be located on site when mechanical equipment is in operation within 100 feet of receiving waters. If a spill occurs, no additional work shall commence until (1) the mechanical equipment is inspected by the contractor, and the leak has been repaired, (2) the spill has been contained, and (3) all appropriate agencies have been contacted and have evaluated the impacts of the spill; • Vehicle parking areas would be established with drip pans to prevent oil drips onto the sand; • If heavy –duty construction equipment is stored overnight adjacent to potential receiving water, drip pans will be placed beneath the machinery engine block and hydraulic systems; • Fuel storage needed for dewatering pumps will be provided within secondary containment;	Alternative 1 Alternative 2	Less than significant Less than significant

Environmental Impact	Mitigation Measures	Applicable to Which Alternative	Level of Significance after Mitigation
	• Refueling will occur only within designated fueling zones that are equipped with secondary containment and spill clean up equipment. **Mitigation Measure 4.8-1b:** Under Alternative 1, prior to discharge, the Sanitation District shall install velocity dissipators at the dewatering discharge point if necessary to ensure that scour and turbidity are minimized. Design of the dewatering system (i.e.velocity dissipators, dewatering pipelines, baffles, weirs or any other structures) to be placed in the SAR, shall be approved by the Orange County Flood Control District. Once construction is completed, the velocity dissipators and any other structures shall be removed from the SAR mouth.		
Marine Environment			
Impact 4.10-4: Discharge through the Short Outfall for a period of up to six weeks could induce phytoplankton blooms that could be harmful to fish, shellfish marine mammals, shellfish, and via shellfish, consumption impacts to human health	**Mitigation Measure 4.10-4:** The Sanitation District shall conduct augmented ocean monitoring before, during, and after use of the Short Outfall to detect and quantify changes to phytoplankton from baseline conditions as a result of the Project. Monitoring shall include continuous sampling of the water using water quality moorings and autonomous underwater vehicles. Weekly samples from the Newport Beach and Huntington Beach Piers will be analyzed for nutrients and phytoplankton, including the presence of harmful algal species. The monitoring results will be provided to the CDPH the Orange County Health Care Agency and will be posted on a publically accessible web page. If harmful algal species are detected, the Sanitation District shall coordinate with CDPH, NMFS, and local marine mammal rescue groups to monitor for affected animals. The Sanitation District shall develop a mitigation plan with the marine mammal stranding network to monitor and rehabilitate animals in the event that a harmful algal bloom occurs during the 4 to 6 week discharge to the Short Outfall.	Alternative 2	Less than significant
Impact 4.10-5: Discharge through the Short Outfall for a period of 4 to 6 weeks would not result in significant impacts to benthos, fish, shellfish, macroinvertebrates, and marine mammals.	**Implement Mitigation Measure 4.10-4**	Alternative 2	Less than significant
Impact 4.10-6: Discharge through the Short Outfall for a period of 4 to 6 weeks could elevate pathogen concentrations in near shore waters used for water-contact activities and shellfish harvesting which could adversely affect public health.	**4.10-6a**: For the duration of the use of the Short Outfall, the Sanitation District shall implement enhanced treatment methods for effluent discharge, including full secondary and enhanced chlorination treatment. **4.10-6b**: The Sanitation District shall conduct augmented ocean monitoring before, during, and after use of the Short	Alternative 2	Less than significant

Environmental Impact	Mitigation Measures	Applicable to Which Alternative	Level of Significance after Mitigation
	Outfall to detect and quantify changes to indicator organisms and water quality from baseline conditions as a result of the Project. The monitoring shall include the following elements: • Real-time tracking of discharge plume with automated underwater vehicles (AUV) • Predictive modeling (ROMS) to provide real-time ("nowcast") and 72-hour forecast of plume movement • Surfzone and offshore water quality sampling for FIB – Surfzone water quality sampling would be conducted 7 days/week – Offshore water quality sampling would be conducted 1 day/week – Additional surfzone and offshore water quality sampling would be adaptive based on modeled and/or measured plume transport direction • Weekly water quality sampling for nutrients and phytoplankton at the Newport and Huntington Beach piers • Offshore real-time water quality analysis at two water quality moorings for temperature, salinity, chlorophyll, DO, and turbidity • Real-time surface current measurements • Sediment sampling (up to 24 samples) The monitoring results shall be presented along with ocean conditions on a publically-accessible web page updated daily and provided to OCHCA, the RWQCB, the City of Huntington Beach, the City of Newport Beach, the USACE, CDFG, CDPH, NMFS, the Pacific Marine Mammal Center, and State Parks. The OCHCA shall be responsible to restrict access to beaches and offshore recreational activities as necessary to protect public health based on sampling results provided by the enhanced monitoring program. CDFG shall be responsible for posting notices regarding shellfish beds and offshore fishing areas. The Sanitation District shall fund efforts to ensure these protective measures are implemented effectively as requested by OCHCA.		
Impact 4.10-7: Discharge through the Short Outfall for a period of 4 to 6 weeks could adversely affect beneficial uses of the ocean defined in the California Ocean Plan.	**Implement Mitigation Measure 4.10-6a and 4.10-6b**	Alternative 2	Less than significant

Environmental Impact	Mitigation Measures	Applicable to Which Alternative	Level of Significance after Mitigation
Noise			
Impact 4.11-1: The proposed Project could result in generated noise levels in excess of standards established in the local General Plan or noise ordinance, or applicable standards of other agencies;	**Mitigation Measure 4.11-1a:** For Alternatives 1 and 2, prior to the commencement of rehabilitation activities at Air Vac Station 12+05 and Beach Box, the Sanitation District shall file an application for a noise variance with the Health Officer of the City of Huntington Beach for nighttime construction activities. The variance shall set forth in detail the approved method of achieving maximum compliance and a construction schedule. **Mitigation Measure 4.11-1b**: For Alternatives 1 and 2, prior to and during construction activities, the Sanitation District shall require construction contractors to implement the following measures to reduce construction-related noise impacts: • All equipment used during construction shall be muffled and maintained in good operating condition. All internal combustion engines shall be equipped with intake and exhaust mufflers that are in good condition. • During nighttime construction, stationary construction equipment that generates excessive noise levels shall be located as far away from residences as possible. • No sheet driving shall be conducted during nighttime construction. • During nighttime construction, noise monitoring at the closest sensitive receptors shall be conducted. Reports of noise monitoring shall be submitted to the City of Huntington Beach and the City of Newport Beach. • A sound curtain shall be installed along the southeastern edge of the construction activities at Huntington State Beach to reduce the noise impacts of construction activities on residents to the south of PCH and the SAR. The generator shall be placed as far away from residences as possible. • Impact tools (e.g., jack hammers, pavement breakers, and rock drills) used for construction shall be hydraulically or electrically powered wherever possible to avoid noise associated with compressed air exhaust from pneumatically powered tools. **Mitigation Measure 4.11-1c:** For Alternatives 1 and 2, prior to the beginning of construction activities, the Sanitation District in coordination with the construction contractors shall contact interested parties and neighboring properties affected by the proposed Project through the following methods: • Construction Notification: Nearby sensitive receptors affected by construction shall be notified concerning the project timing and construction schedule including	Alternative 1 Alternative 2	Significant and Unavoidable Significant and Unavoidable

Environmental Impact	Mitigation Measures	Applicable to Which Alternative	Level of Significance after Mitigation
	nighttime work and shall be provided a contact phone number to call for questions or complaints regarding work. **Mitigation Measure 4.11-1d:** For Alternatives 1 and 2, during construction activities that require the use of percussive construction methods, such as jack hammers, shall occur only during permitted daytime construction hours between 7:00 a.m. and 6:00 p.m. on weekdays, and 9:00 a.m. and 5:00 p.m. on Saturdays. **Mitigation Measure 4.11-1e:** For Alternative 1, OCSD shall ensure that the discharge to the SAR from the dewatering system does not increase ambient noise levels by more than 5 dBA at night at the nearest residence. To reach this standard, the dissipator design must minimize noise, and a noise shield may be needed at the end of the discharge pipe. OCSD shall conduct noise measurements to ensure noise levels do not exceed 50 dBA at the nearest residences due to the dewatering discharge.		
Recreation			
Impact 4.12-1: The proposed Project could cause or accelerate substantial physical deterioration of an existing neighborhood, regional park, or other recreational facility.	**Mitigation Measure 4.12-1:** Prior to the commencement of any construction activities, the Sanitation District and the construction contractor shall coordinate with California State Parks, Orange County Parks Department, City of Huntington Beach, and the City of Newport Beach to prepare and implement a bicycle/pedestrian detour plan for the duration of construction. The plan shall identify alternative routes, construction schedules, and signage for the detour plan and applicable closures dates clearly identified.	Alternative 1 Alternative 2	Significant and unavoidable Less than significant
Traffic Circulation			
Impact 4.13-3: The proposed Project could conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities	**Implement Mitigation Measure 4.12-1**	Alternative 1 Alternative 2	Less than significant Less than significant

CHAPTER 1
Introduction

1.1 Purpose of the EIR

The Orange County Sanitation District (Sanitation District) has prepared this Draft Environmental Impact Report (Draft EIR) to provide the public and responsible agencies information about the potential adverse effects on the local and regional environment associated with the construction and rehabilitation of the Outfall Land Section and Ocean Outfall Booster Pump Station Piping Rehabilitation Project (proposed Project). This Draft EIR has been prepared pursuant to the California Environmental Quality Act (CEQA) of 1970 (as amended), codified at California Public Resources Code Sections 21000 et. seq., and the CEQA Guidelines in the California Code of Regulations, Title 14, Division 6, Chapter 3.

This Draft EIR describes the environmental impacts of the proposed Project and suggests mitigation measures to reduce impacts to a less than significant level. The impact analyses are based on a variety of sources, including agency consultation, technical studies and field surveys. The Sanitation District will use this Draft EIR to consider implementation of the proposed Project. As Lead Agency, the Sanitation District may use this Draft EIR to approve the proposed Project, make Findings regarding identified impacts, and if necessary, adopt a Statement of Overriding Considerations regarding these impacts.

1.2 CEQA EIR Process

1.2.1 Notice of Preparation (NOP)

In accordance with Sections 15063 and 15082 of *CEQA Guidelines,* the Sanitation District, as Lead Agency, prepared a Notice of Preparation (NOP) (see **Appendix A**. Beginning on August 8, 2011, the NOP was circulated for 30 days and mailed to approximately 200 interested parties, including local, State, and federal agencies. [A Notice of Completion (NOC) along with the NOP was also submitted to the State Clearinghouse.] Copies of the NOP were also made available for public review in the newspaper and at the Sanitation District Administrative Office Building, Huntington Beach Central Library, Huntington Beach Banning Library, and the Sanitation District's web site: www.ocsd.com.

The NOP provided a general description of the facilities associated with the proposed Project, a summary of the probable environmental effects of the proposed Project to be addressed in the Draft EIR, and figures of the proposed Project location and proposed Project components. The NOP

provided the public agencies and interested parties with the opportunity to review the proposed Project and provide comments or concerns on the scope and content of the environmental review document. The NOP comment period ended on September 8, 2011. A total of 18 comment letters were received. The NOP comment letters received are presented in **Appendix A** of this Draft EIR. This Draft EIR addresses all of the issues received in the comments.

1.2.2 Public Scoping Meeting

CEQA recommends conducting early coordination with the general public, appropriate public agencies, and local jurisdictions to assist in developing the scope of the environmental document. Pursuant to *CEQA Guidelines* §15083, a public scoping meeting was held on August 25, 2011, at the Orange County Sanitation District Administrative Office Building, Board Room. A public notice was placed in the Orange County Register on August 7 and August 12, 2011, informing the general public availability of the NOP and the scoping meeting. Attendees were provided an opportunity to voice comments or concerns regarding potential effects of the proposed Project and the issues to be included in the Draft EIR.

The comments received during the NOP review period were considered during preparation of this Draft EIR (Appendix A). Issues not related to the scope of the proposed Project or environmental effects (e.g., financing or economic factors) are not addressed in the Draft EIR but may be considered by the Sanitation District before making a final decision on the proposed Project. Please refer to **Appendix A** for comments received during the scoping period, scoping meeting, and information related to the circulation of the NOP. These issues were considered during preparation of the Draft EIR.

1.2.3 Significance Determination

This Draft EIR also considers the feasibility of the proposed Project, and Project Alternatives. The Draft EIR addresses the potential significant environmental effects of the proposed Project.

Significance criteria indicating what constitutes a significant impact have been developed for each environmental resource analyzed in this Draft EIR, and are defined at the beginning of each impact analysis chapter. Impacts are categorized as follows:

- **Significant and Unavoidable:** mitigation might be recommended but impacts are still significant;
- **Less than Significant with Mitigation:** potentially significant impact but mitigated to a less than significant level;
- **Less than Significant:** mitigation is not required under CEQA but may be recommended; or
- **No Impact.**

CEQA requires a lead agency neither approve nor carry out a project as proposed unless it finds that significant environmental effects have been eliminated, avoided or substantially lessened. (CEQA Guidelines §15091 and §15092). If such a reduction is not possible, a lead agency must

adopt Findings and a Statement of Overriding Considerations. CEQA Guidelines §15093, provides that any lead agency may allow significant environmental impacts to occur if it finds that the "benefits" of a project outweigh project impacts. In order to make this finding the lead agency will adopt a Statement of Overriding Considerations. This Statement of Overriding Considerations must be included in the record of the proposed Project approval.

1.2.4 Public Review of the Draft EIR

This document is being circulated to local, State and federal agencies, and to interested organizations and individuals who wish to review and comment on the Draft EIR. Publication of the Draft EIR marks the beginning of a 45 day public review period, during which written comments may be submitted to:

Rob Thompson
c/o Jim Burror
Orange County Sanitation District
Engineering Planning
10844 Ellis Avenue
Fountain Valley, CA 92708

The Sanitation District will hold a public hearing to receive comments on the Draft EIR during the 45 day review period. Comments should be focused on the adequacy and accuracy of the content of the EIR. The meeting will be held at the following:

DATE:	January 12, 2012
TIME:	**6:30 – 8:30 p.m.**
LOCATION:	Orange County Sanitation District Administrative Office Building – Board Room, 10844 Ellis Avenue Fountain Valley, CA 92708.

1.2.5 Final EIR

Written and public hearing comments received in response to the Draft EIR will be addressed in a Response to Comments chapter, which would be contained in the Final EIR. The Response to Comments chapter addresses comments raised during the public review comment period. The Final EIR will also contain any revisions that may be required to the Draft EIR based on the comments received or any other information that may be added by the Sanitation District. Prior to approving the proposed Project, the Sanitation District must make written findings with respect to each significant environmental effect identified in the Draft EIR. The Sanitation District will then consider a resolution certifying the Final EIR certification (*CEQA Guidelines* §15090). Following certification, the Sanitation District may proceed with consideration of project approval and the adoption of a Mitigation Monitoring and Reporting Program (MMRP).

1.2.6 Mitigation Monitoring and Reporting Program

CEQA requires lead agencies to adopt a MMRP for those changes to the proposed Project that have been adopted or made a condition of project approval in order to mitigate or avoid significant effects on the environment. The *CEQA Guidelines* do not require that the specific reporting or monitoring program be included in the Draft EIR. Nonetheless, proposed mitigation measures have been clearly identified in the Draft EIR that will facilitate creating a monitoring program. All adopted mitigation measures will be included in a MMRP to verify compliance. The MMRP may be included as an attachment to the Final EIR.

1.2.7 Organization of this EIR

The chapter organization of this Draft EIR is as follows:

ES. Executive Summary. This chapter summarizes the contents of the Draft EIR and presents a summary of the impacts and mitigation measures identified in the Draft EIR.

1. **Introduction.** This chapter discusses the CEQA process and the purpose of the Draft EIR.
2. **Project Background.** This chapter provides the relevant background information for the proposed Project
3. **Project Description.** This chapter provides an overview of the proposed Project, describes the need for and objectives of the proposed Project, and provides detail on the characteristics of the proposed Project.
4. **Environmental Setting, Impacts and Mitigation Measures.** This chapter describes the environmental setting and identifies impacts of the proposed Project under Alternative 1 Bypass- No Direct Use of the Short Outfall and Alternative 2 Non-Bypass- Use of the Short Outfall for each of the following environmental resource areas: Aesthetics; Air Quality; Biological Resources; Cultural Resources and Paleontological Resources; Geology, Soils and Seismicity; Greenhouse Gas Emissions; Hazards and Hazardous Materials, Hydrology and Water Quality, Land Use and Planning; Marine Environment; Noise and Vibration; Recreation; Transportation and Traffic; and Utilities and Service Systems. Mitigation measures to lessen potential significant impacts of the proposed Project are presented for each resource area.
5. **Cumulative Impacts.** This chapter describes the potential impacts of the proposed Project when considered together with other related projects in the Project area.
6. **Growth Inducement and Other CEQA Considerations.** This chapter evaluates the potential for the proposed Project to induce population growth and result in secondary environmental effects due to such growth.

7. **Alternatives Analysis.** This chapter summarizes the findings of Section 4.1 through 4.14 and compares the project with the No Project Alternative. The environmentally superior alternative is identified in this chapter.

8. **Report Preparers.** This chapter identifies those involved in preparing this Draft EIR, including persons and organizations consulted.

9. **Acronyms.**

CHAPTER 2
Project Background

2.1 District Overview

The Sanitation District is located in northwestern Orange County, California. (**Figure 2-1**) The Sanitation District was created in 1946 under the County Sanitation District Act of 1923 and began full operation in 1954 with a network of sewers, two treatment plants, and a 78 inch diameter 1 mile ocean outfall (Short Outfall). In 1971, the 120 inch diameter 5 mile ocean outfall (Long Outfall) was installed and the Short Outfall was retained for emergency use only. Currently, the Sanitation District treats approximately 210 million gallons of wastewater each day through two connected treatment plants located adjacent to the Santa Ana River (SAR), Plant 1 in Fountain Valley and Plant 2 in the City of Huntington Beach (the City). **Figure 2-2** shows Treatment Plant 2 and the approximate locations of the two ocean outfalls.

The Sanitation District is responsible for collecting, treating, disposing, and recycling wastewater from residential, commercial, and industrial sources for more than 2.6 million residents within a 470 square mile service area located in northern and central Orange County. The Sanitation District's service area includes 21 cities and 3 special districts governed by a 25 member board of directors consisting of elected officials from each sewer agency located in the Sanitation District service area. The Sanitation District facilities include over 560 miles of sewer lines, 15 offsite pumping stations, and 2 treatment plants.

2.2 Outfall System

The Sanitation District currently operates 2 outfall pump stations, the Ocean Outfall Booster Station (OOBS) and the Effluent Pump Station Annex (EPSA). (Pump stations are needed to lift flow from a low point to high point when the lay of the land is not suitable to rely on gravity.) Approximately, 150 million gallons a day (mgd) of treated wastewater (effluent) is discharged through the Long Outfall system at Plant 2 to the Pacific Ocean, with the remaining net flow of 60 mgd conveyed to the Groundwater Replenishment System (GWRS) for advanced treatment and recycling. (**Figure 2-3**)

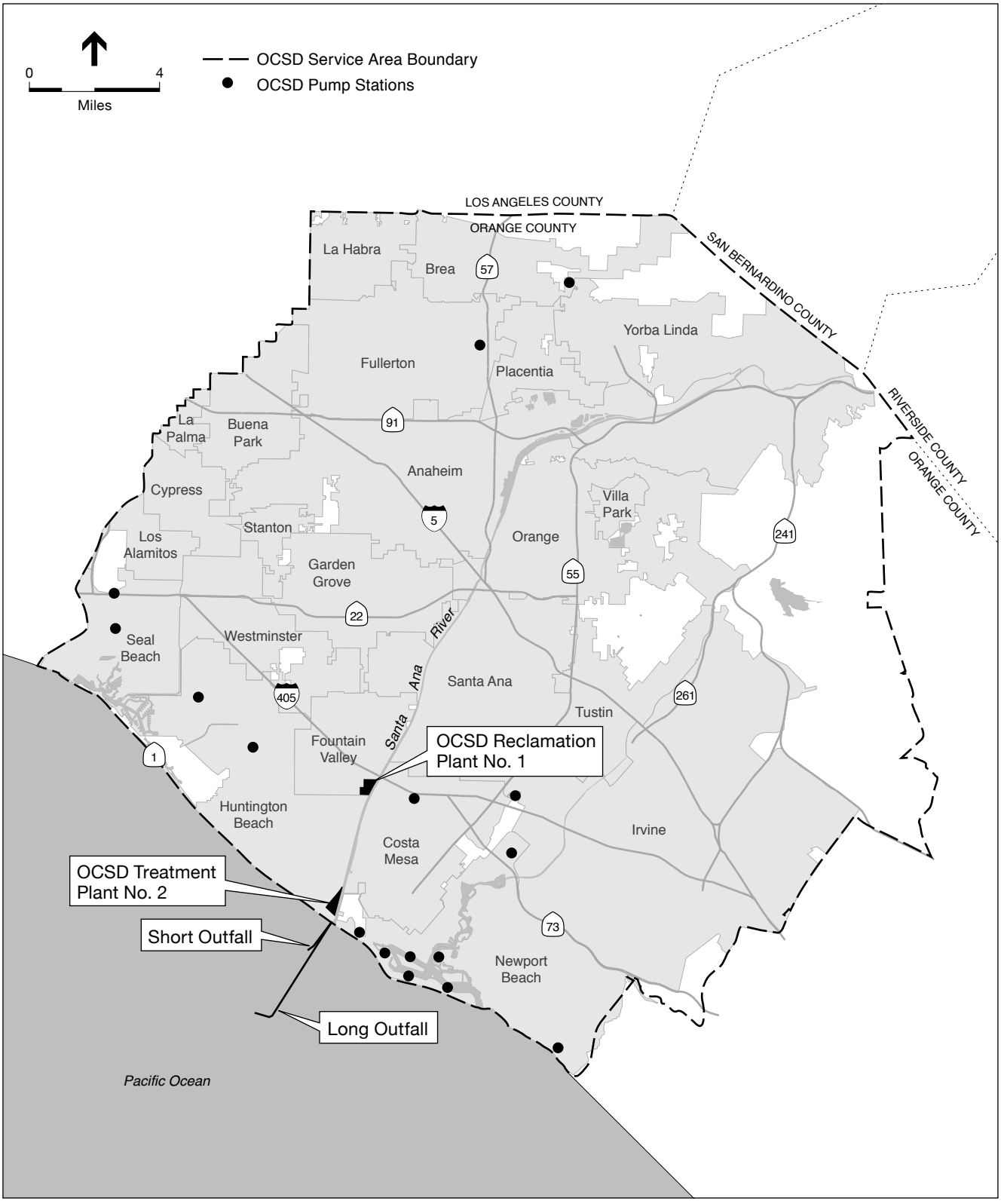
The Short Outfall and Long Outfall run parallel underground from the OOBS, continue under Pacific Coast Highway (PCH) through a Beach Box located on the Huntington State Beach, and out to the Pacific Ocean. Both the Short Outfall and the Long Outfall lie on the ocean floor beyond the surf zone. The Short Outfall has a diffuser that begins approximately 1 mile from the shore line. The Long Outfall has a 1 mile long diffuser that begins approximately 4 miles beyond the shoreline. (The diffuser section contains 503 portholes through which effluent is released.)

SOURCE: Bing Maps; ESA, 2011.

Outfall Land Section and OOBS Piping Rehabilitation. 211261

Figure 2-1

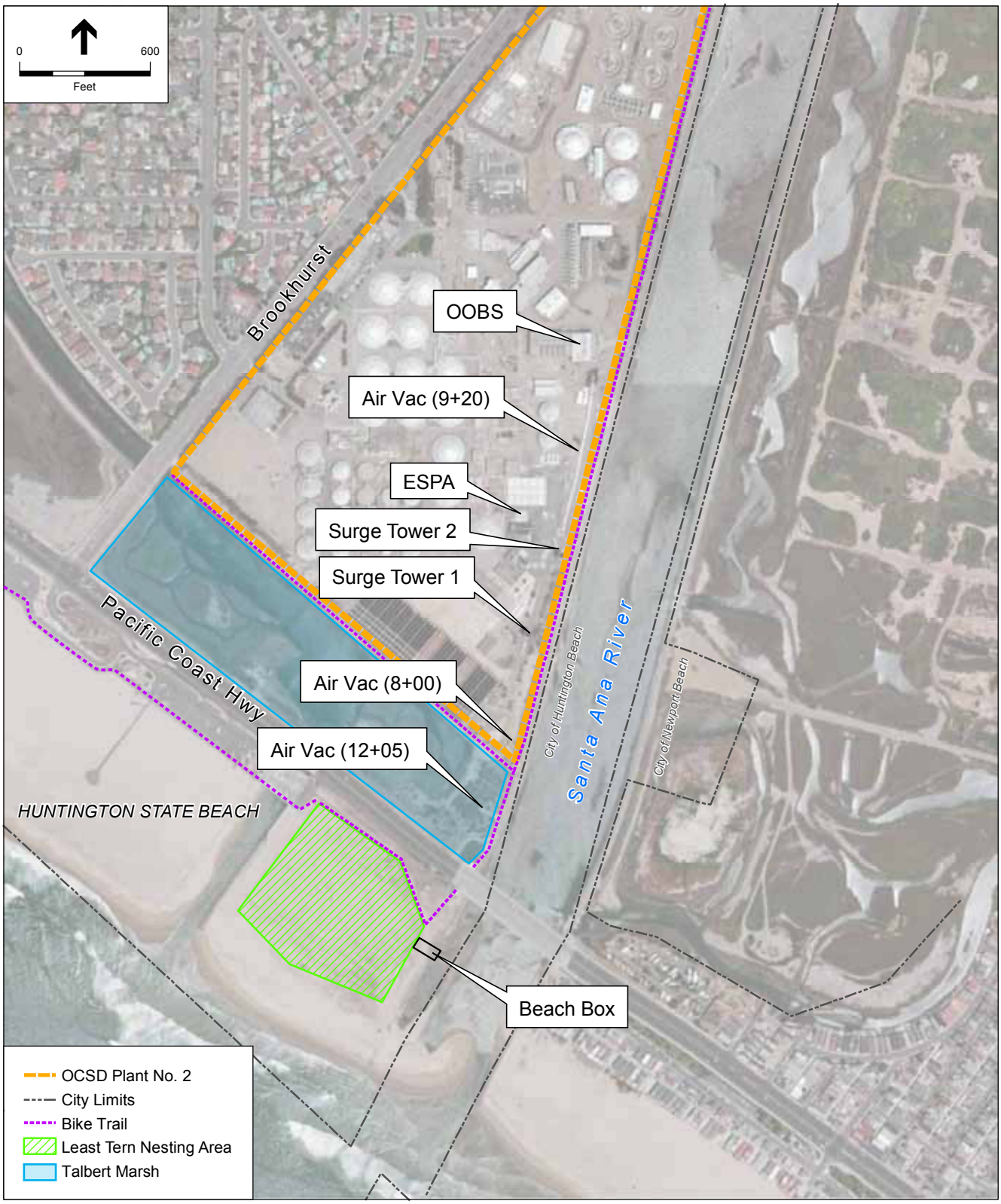
Regional Location Map



SOURCE: Orange County Sanitation District, 2011.

Outfall Land Section and OOBS Piping Rehabilitation . 211261

Figure 2-2
Orange County Sanitation District
Service Area and Major Facilities



SOURCE: Bing Maps; ESA, 2011.

Outfall Land Section and OOBS Piping Rehabilitation. 211261

Figure 2-3

Proposed Project Activity Locations

Both the Short Outfall and the Long Outfall utilize surge towers located at Plant 2. Surge Tower 1 is connected to the Short Outfall and Surge Tower 2 is connected to the Long Outfall. Once wastewater is treated, the effluent is conveyed from the OOBS pump station through the Long Outfall to the ocean. The Surge Towers assist with maintaining hydraulic pressure on the effluent against ocean tidal surges. The pipe for the land section of the Long Outfall extends 1,900 feet south from Surge Tower 2 to Huntington State Beach which contains the Ocean Outfall Beach Junction Box (Beach Box). The Beach Box serves as an open channel in which effluent passes through to discharge to the Pacific Ocean. The Beach Box provides access for Sanitation District employees to isolate the Long Outfall and block the tidal flow of the OOBS prior to manned entry for inspection, maintenance and rehabilitation of the land section of the Long Outfall.

2.3 NPDES Permit

The Sanitation District discharges effluent to the Pacific Ocean under the authority of a National Pollution Discharge Elimination System (NPDES) permit (No. CA 0110604, Order No. R8-2204-0062) issued by the US Environmental Protection Agency (USEPA) and Santa Ana Regional Water Quality Control Board (RWQCB). The Sanitation District has historically discharged a mixture of primary and secondary treated water. However, in 2002, the Sanitation District Board of Directors made the decision to upgrade the level of treatment to meet the secondary treatment requirements. The Sanitation District negotiated with the regulators to develop a plan to achieve these requirements as quickly as possible. This resulted in consent decree providing until December 31, 2012 to meet the new treatment requirements. Since 2002, the Sanitation District has initiated an ambitious (or $538 million-dollar) construction program at both treatment plants that will provide secondary treatment and disinfection for the full discharge volume. The treatment upgrades will be complete and brought on line in the summer of 2012.

The Sanitation District currently treats approximately 210 million gallons a day (mgd) of wastewater at two treatment plants. Secondary treatment capabilities at Plant 1, in Fountain Valley, are provided by a trickling filter plant and a conventional air activated sludge plant. Secondary treatment at Plant 2, in Huntington Beach, is provided by a trickling filter plant and an oxygen activated sludge plant. . The last secondary treatment process to be built in accordance with the Consent Decree is a conventional activated sludge plant at Plant 1 which would allow the Sanitation District to achieve 100% secondary treatment capacity.

During the regular 5-year renewal cycle, the Sanitation District is applying for updated NPDES permit conditions to more accurately reflect the changes in treatment and treatment technology the Sanitation District has employed. Additionally, the increased effluent quality has improved the quality of the receiving waters and ocean conditions and the Sanitation District is requesting changes to the NPDES monitoring program to reflect the changed conditions. Further, in the Sanitation District's 2009 NPDES Permit Application to USEPA and RWQCB, the Sanitation District requested that conditions be added to the NPDES Permit expressly allowing the Sanitation District to conduct planned diversion and discharge effluent from the Short Outfall up to two times during the next permit period to perform maintenance activities on the Long Outfall. These activities would include inspection and repairs to the Long Outfall, the Long Outfall risers, and the Beach Box. The Sanitation District would try to consolidate activities and minimize the

duration of time that flow would need to be routed to the Short Outfall, when possible. The Sanitation District's 2009 NPDES Permit Application is still pending. For these planned diversions, the Sanitation District will submit a notification letter in advance to the RWQCB and EPA. The Sanitation District would also coordinate with the Orange County Health Care Agency (OCHCA) and other local officials prior to conducting maintenance activities that would require use of the Short Outfall.

2.4 Marine Monitoring Program

The Sanitation District has maintained an extensive ocean monitoring program for nearly 40 years. The core monitoring program collects and reports data on an annual basis to the US Environmental Protection Agency and the RWQCB. The program assesses the condition of the following marine resources along the Orange County coastline:

- Coastal water quality;
- Sediment quality;
- Benthic infaunal community health;
- Fish and macroinvertebrate community health;
- Fish tissue contaminant analyses; and
- Fish health (including external and internal examinations and pathologies).

Sampling locations include 29 offshore and 17 surfzone water quality stations, 49 stations to assess benthic (bottom-dwelling) organisms and sediment chemistry, and 9 trawl stations to evaluate fish and epibenthic invertebrate communities. Current monitoring mooring stations located near the Long Outfall diffuser collect long term (up to 1 year) of continuous data of currents, temperature, and conductivity to get a more comprehensive look at oceanographic conditions at a fixed location. This long term data is used to complement the temporal water quality data collected as part of the core-monitoring program.

The 29 offshore water quality sampling includes 3 days per quarter sample collection of both discrete seawater samples and continuous oceanographic parameters at 17 stations ranging from 0.25 miles from shore to 6 miles offshore. Continuous data is collected through the entire water column including, data on depth, temperature, conductivity, pH, dissolved oxygen, water clarity, chlorophyll-a, and photosynthetically active radiation. The discrete samples are analyzed for ammonia and bacteria. Surfzone samples are collected in ankle deep water at 17 stations along the shoreline in Newport Beach and Huntington Beach. These samples are analyzed for three indicator bacteria that the Orange County Health Care Agency uses to determine the presence of harmful pathogens.

2.5 Relationship to the 1999 Strategic Plan Program EIR (PEIR or 1999 PEIR)

In 1999, the Sanitation District adopted the Strategic Plan (Sanitation District Master Plan) and the Strategic Plan Program EIR (1999 PEIR). The purpose of the Strategic Plan was to identify projects needed to accommodate projected population growth in the service area and to comply with changing future regulations that affect treatment facilities and effluent quality. The Strategic

Plan addressed all aspects of the Sanitation District's system facilities and operations. The plan identified projects to replace and rehabilitate sewer collection systems, expand and upgrade the Sanitation District's two wastewater treatment plants, provide adequate discharge capacity for projected peak flows, provide additional treated wastewater to the Orange County Water District (OCWD) for expanded water reuse, and study the feasibility of other improvements. The 1999 PEIR evaluated several treatment alternatives including a full secondary alternative. The Strategic Plan identified the need to use the Short Outfall periodically to accommodate peak winter storms. The 1999 PEIR evaluated impacts to the marine environment and concluded that use of the Short Outfall for short periods of time would not significantly impact water quality. A Strategic Plan update was prepared in 2006. The 1999 Strategic Plan, PEIR, and 2006 Strategic Plan Update are incorporated by reference in this Draft EIR. Additionally, the Sanitation District has prepared a Facilities Master Plan 2009 to plan for those years following secondary treatment expansion up to year 2030.

2.6 Items Not Analyzed in the Impact Discussion

The following environmental factors have been analyzed and were determined to have no significant impact as a result of the proposed Project implementation. The following environmental factors will not be evaluated further in this Draft EIR:

- Agriculture and Forestry Resources
- Mineral Resources
- Population and Housing
- Public Services

2.6.1 Agriculture and Forestry Resources

The proposed Project site is highly disturbed and does not contain active agricultural or forestry lands. A review of the Department of Conservation 2006 maps prepared for the Farmland Mapping and Monitoring Program revealed that there is no Prime Farmland, Unique Farmland, or Farmland of Statewide Importance located near the proposed Project site (CDC, 2010). Furthermore, the Project site and its adjacent uses are not zoned for agricultural uses, forest land, timberland, or timerberland production. No part of the proposed Project is located on land that is under a Williamson Act contract (ESA, 2010). The proposed Project is located in areas zoned as IL (Industrial Limited), CC (Coastal Conservation), OS-S (Shoreline Subdistrict), OS-WR (Water Recreation Subdistrict). Additionally, the proposed Project site has land use designations of P (Public), OS-C (Open Space Conservation) OS-S (Open Space – Shore). Because the proposed Project site does not contain any of the aforementioned agricultural or forest indicators, no impacts would occur with proposed Project implementation to Prime, Unique, or Important Farmland; forest land, timerberland, or farmland would not be lost or converted to non-forest or non-agricultural uses; and no overall impacts to agriculture and forestry resources would occur.

2.6.2 Mineral Resources

The proposed Project site is mostly located on land that is developed and is not used for mineral extraction. The City of Huntington Beach General Plan does not identify the proposed Project site

as located within an active well field or as having locally important mineral resources. Therefore, no impacts on regional minerals or minerals of State importance would occur. Additionally, implementation of the proposed Project would not reduce the availability of locally important mineral resources and no impact would occur.

2.6.3 Population and Housing

The proposed Project would not directly induce population growth in the region as it does not involve construction of new homes or businesses. Because the proposed Project is an inspection, condition assessment, and rehabilitation project and it is required to accommodate existing effluent flows and is not an upgrade of the existing system, the proposed Project would not indirectly induce population growth in the region by removing an obstacle to growth, such as wastewater treatment capacity. Furthermore, the proposed Project is located within the Sanitation District's Plant 2, at Air Vac Station 12+05 and at the Huntington State Beach. No residences or people would be displaced by the proposed Project implementation, therefore no impacts to population and housing would occur.

2.6.4 Public Services

Although, approximately 68 construction workers would be required during rehabilitation activities, it is anticipated most of these workers would commute to the proposed Project site from surrounding communities. Therefore, proposed Project implementation would not require new or expanded facilities in order to provide adequate police services, fire suppression or emergency medical services. It would not generate a new population of school age children and would not impact local schools. Therefore, the proposed project is not expected to result in impacts to the aforementioned public facilities. No impacts to aforementioned public services would occur.

CHAPTER 3
Project Description

3.1 Introduction

The Orange County Sanitation District (Sanitation District) proposes to rehabilitate aging components of the land portion of the ocean outfall system. The proposed Project would consist of inspection, condition assessment, and rehabilitation of corroded areas within the land section of the 120-inch diameter primary, 5-mile outfall (Long Outfall) System extending from the Surge Tower No. 2 (Surge Tower 2) in Treatment Plant No. 2 (Plant 2) to the Ocean Outfall Beach Junction Box (Beach Box) located on Huntington State Beach (**Figure 3-1)**.

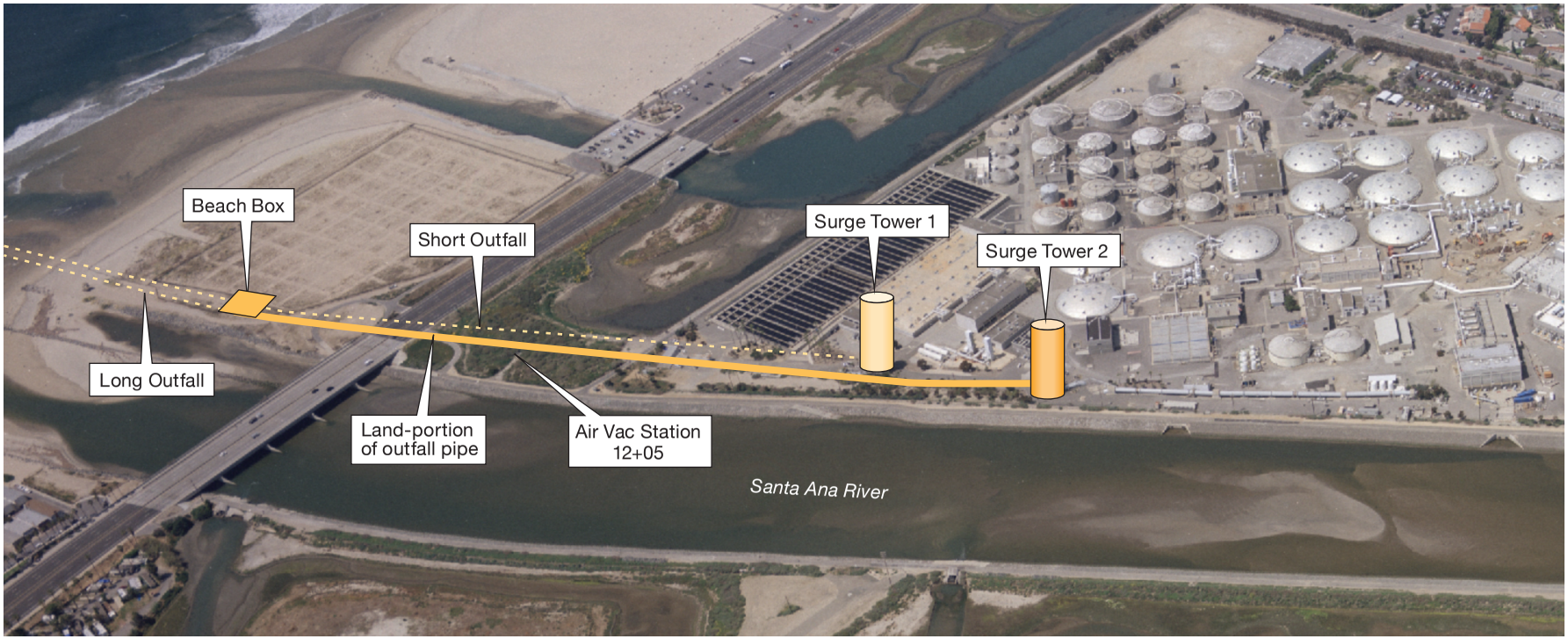
3.2 Project Location

The Project site is located in Orange County in the City of Huntington Beach (the City). A portion of the proposed Project is located within the Sanitation District's Treatment Plant 2 located at 22212 Brookhurst Street. Plant 2 is bounded by Hamilton Avenue to the north, the Santa Ana River (SAR) to the east, Pacific Coast Highway (PCH) to the south, and Brookhurst Street to the west. A paved bikeway separates the southern boundary of Plant 2 from the Talbert Marsh. The proposed Project would also conduct rehabilitation activities at an Air Vacuum (Air Vac) Station 12+05 adjacent to Talbert Marsh and on the Huntington State Beach adjacent to the California Least Tern Natural Preserve Area. **Figure 2-3** depicts an aerial view of the proposed Project activity areas and the surrounding vicinity.

3.3 Purpose and Objectives

The Sanitation District's outfall facilities are over 40 years old. Over the years, the Sanitation District has conducted several studies on the condition of its outfall systems and performed necessary repairs. The Long Outfall provides an essential function for the entire service area by conveying treated wastewater (effluent) from the Sanitation District facilities to the ocean for discharge. To date, the Long Outfall system has only required minimal maintenance. However, a 2009 engineering report[1] suggested that the steel plates on the east and west sides of the Beach Box may be experiencing severe corrosion, resulting in structural deficiency. The engineering report recommended that the Beach Box be rehabilitated as soon as possible to avoid any potential risk of Beach Box failure.

[1] Carollo Engineers, *Orange County Sanitation District, Maintenance Repairs at the 120-inch and 78-inch Ocean Outfall Beach Junction Boxes Final Report,* August 2009.



SOURCE: Orange County Sanitation District, 2011.

Outfall Land Section and OOBS Piping Rehabilitation . 211261

Figure 3-1
Land Section of the
Long Outfall System

The steel plates that separate the Long Outfall and the Short Outfall compartments in the Beach Box and a second plate at the east end of the Long Outfall compartment of the Beach Box require inspection and repair.

If the Beach Box remains in its current condition, it could experience a structural failure, where effluent could leak through the plates, flow through the sand, and discharge directly into the SAR. The purpose of the proposed Project is to rehabilitate the Beach Box before structural failure occurs.

The Sanitation District objectives for the proposed Project include the following:

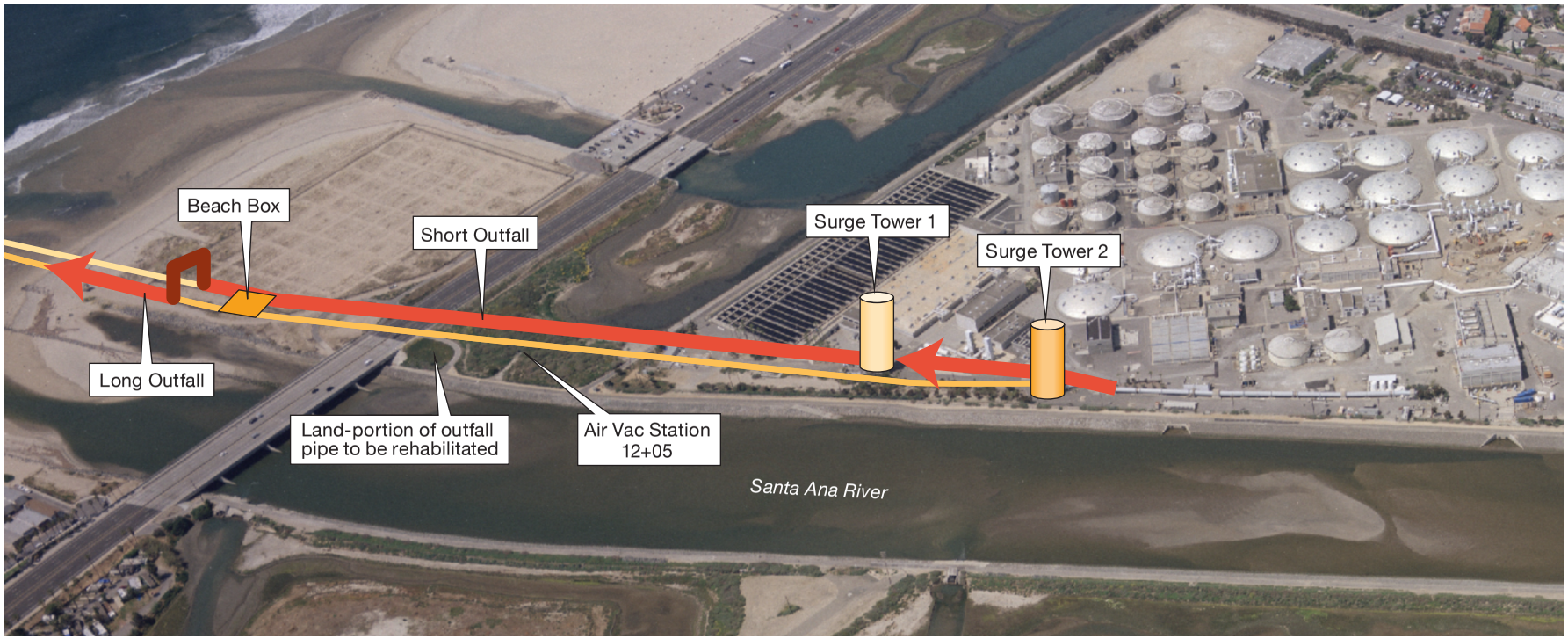
- Rehabilitate the Beach Box as soon as possible to minimize the possibility of system failure and minimize potential spills;
- Minimize disruption to residential communities and commercial areas;
- Minimize disruption to recreational users during construction;
- Maintain compliance with the Sanitation District's National Pollutant Discharge Elimination System (NPDES) permit;
- Maintain the highest quality effluent possible during construction to minimize beach closures;
- Minimize disruption to biological resources on the beach; and
- Minimize impacts to marine environment.

3.4 Description of Proposed Project

The Long Outfall is a key component of the Plant 2 facilities. Please refer to Chapter 2.0, Project Background for a detailed discussion of the Sanitation District's facilities and proposed Project purpose and need.

The proposed Project would consist of inspection, condition assessment, and rehabilitation of corroded elements of the land section of the existing Long Outfall system extending from Surge Tower 2 within the Sanitation District's Plant 2 to the Beach Box located on Huntington State Beach. The Long Outfall system must be taken out of service for access, additional inspection, and rehabilitation. Two proposed Project Alternatives have been developed to isolate the work area, while continuing discharge of treated effluent to the ocean. **Figures 3-2** and **3-3** illustrate use of the Long Outfall and 78-inch emergency 1-mile outfall (Short Outfall) under each Alternative.

- Alternative 1: Bypass – *No Use of Short Outfall.* This alternative would install a temporary bypass structure downstream of the Beach Box to convey the flow from the Short Outfall to the Long Outfall prior to ocean discharge. Once the outfall is isolated and dewatered, five rehabilitation elements described below would be conducted over a period of 4 to 6 weeks.
  - Rehabilitation of Surge Tower 2
  - Inspection and Rehabilitation of the Land Section of the Long Outfall
  - Abandonment of the Long Outfall Metering Ports and Vaults



SOURCE: Orange County Sanitation District, 2011.

Figure 3-2
Alternative 1 – Bypass
No Use of Short Outfall

SOURCE: Orange County Sanitation District, 2011.

Outfall Land Section and OOBS Piping Rehabilitation . 211261

Figure 3-3
Alternative 2 – Non-Bypass
Use of Short Outfall

  - Replacement of the Existing Effluent Flow Meter on the Long Outfall
  - Rehabilitation of the Beach Box.

- Alternative 2: Non-Bypass – *Use of the Short Outfall*. This alternative would discharge the full flow from the Sanitation District's treatment facilities through the Short Outfall while the Long Outfall system is being rehabilitated. This alternative would conduct the same five rehabilitation project elements described in Alternative 1 during a 4 to 6 week period while the Long Outfall is out of service.

Table 3-1 depicts the proposed Project elements and location under each Alternative.

TABLE 3-1
PROPOSED PROJECT ELEMENTS AND REHABILITATION LOCATION FOR EACH ALTERNATIVE

Project Element Activity	Rehabilitation Location	Alternative 1	Alternative 2
Rehabilitation of Surge Tower 2	On Plant 2	X	X
Inspection and Rehabilitation of the Land Section of the Long Outfall	Within the Long Outfall Pipeline. Access points are on Plant 2 and the Air Vac Station 12+05 adjacent to Talbert Marsh	X	X
Abandonment of the Long Outfall Metering Ports and Vaults	On Plant 2	X	X
Replacement of the Existing Effluent Flow Meter on the Long Outfall	On Plant 2	X	X
Rehabilitation of the Beach Box.	On Huntington State Beach	X	X
Bypass Structure [a]	On Huntington State Beach	X	

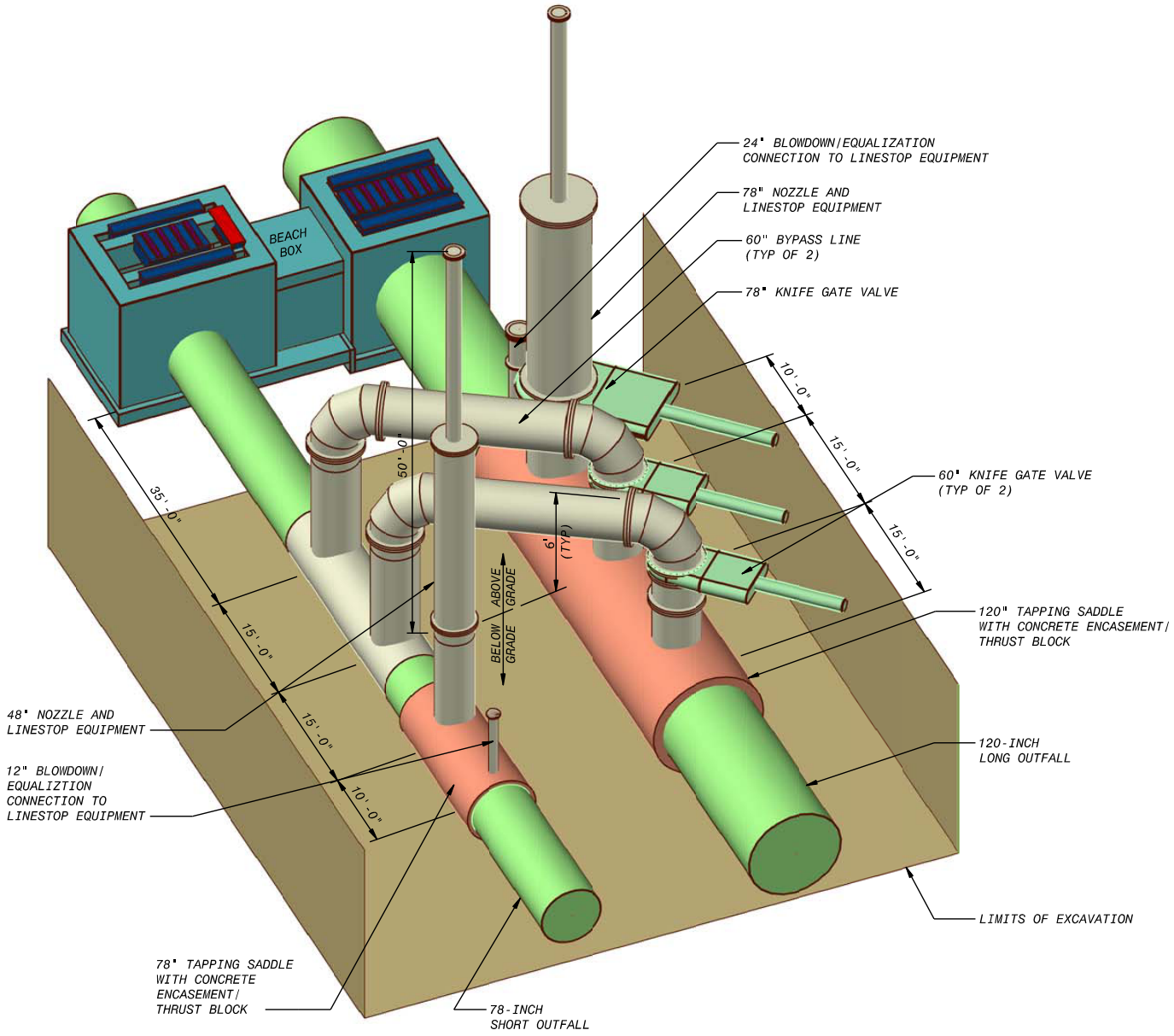
[a] The bypass structure is only constructed in Alternative 1.

3.4.1 Alternative 1: Bypass - No Use of the Short Outfall

Bypass Structure

Alternative 1 would install a bypass structure downstream of the Beach Box to allow for the diversion of flow from the land portion of the Short Outfall to the Long Outfall prior to discharge to the ocean (Figure 3-2). The bypass structure would allow the Long Outfall system to be taken out of service for rehabilitation without discharging effluent through the Short Outfall. **Figure 3-4** provides a schematic illustration of the proposed bypass structure.

Construction of the bypass structure would require excavation to access both buried Short and Long Outfalls. Approximately 4,350 cubic yards of beach sand would be excavated and stockpiled within the construction zone as shown in **Figure 3-5**. The excavation would be approximately 65 feet wide by 80 feet long and 20 to 25 feet deep. Groundwater is anticipated to be within 5 feet below ground surface.



SOURCE: Orange County Sanitation District, 2011.

Figure 3-4
Alternative 1 Bypass Structure

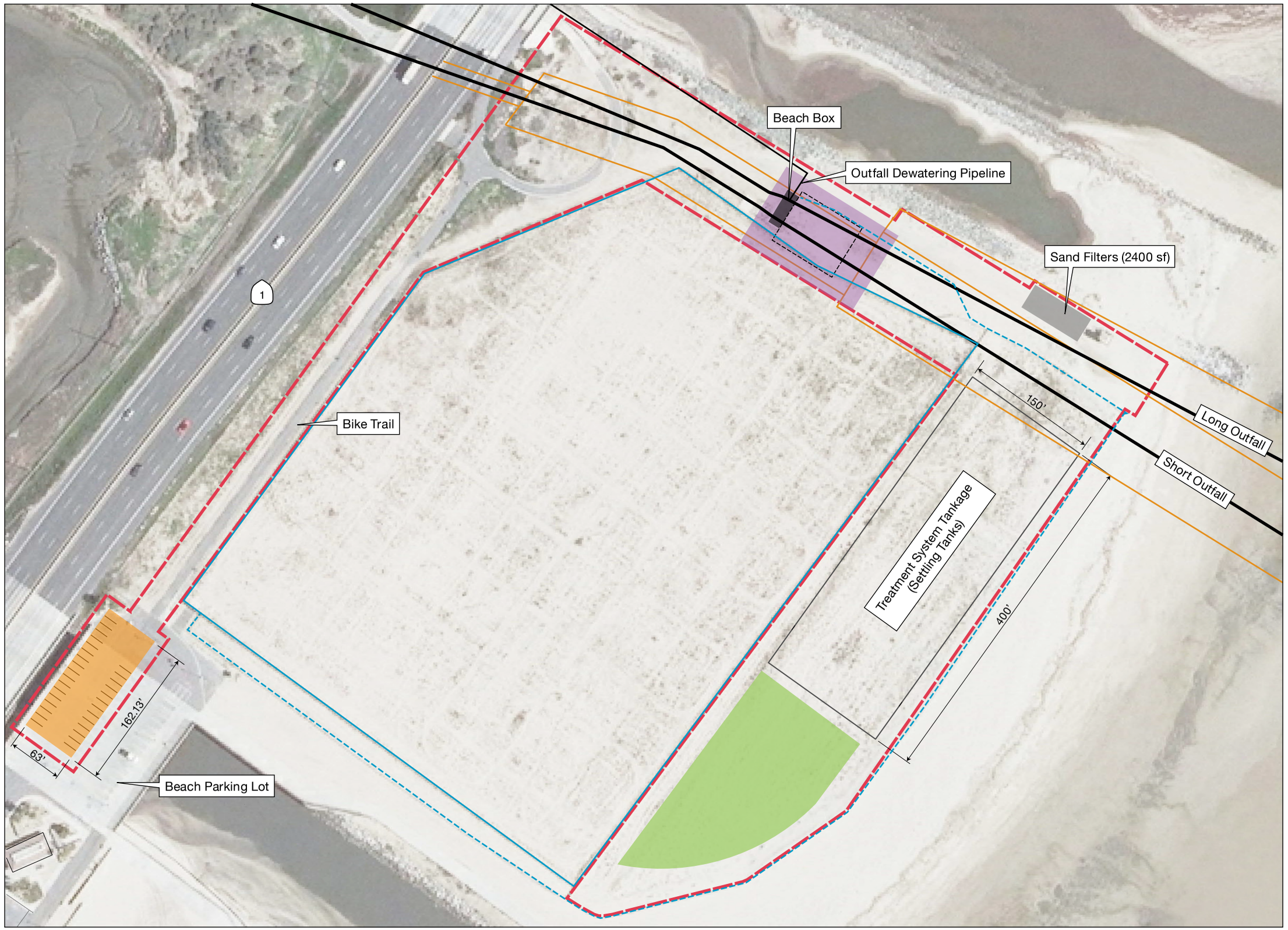
The total construction area would be approximately 6.56 acres. The storage area for the excavated sand/soil would be approximately 150 feet in width by 400 feet long (60,000 square feet). The stockpiled material would be located west of the excavation pit south of the California Least Tern Natural Preserve Area on the beach. The area would be fenced off to prevent access from the beach. Following construction, the existing stockpiled material would be used to backfill the excavation. No soil or sand would be exported from the construction site.

Because groundwater is anticipated to be within 5 feet below ground surface, the dewatering of the excavation zone could require approximately 30 dewatering wells producing up to 30 million gallon per day (mgd). The dewatering wells would operate continuously while the bypass structure is being constructed and in operation. During the dewatering process, treatment systems consisting of settling tanks and filters would also be installed to treat the recovered groundwater. Figure 3-5 shows the location of these tanks and filters south of the excavation area on the beach. The treatment system would remove sand and sediments. The pumped water would be discharged into the mouth of the SAR. The dewatering system would include velocity dissipators within the SAR to avoid scour within the SAR.

The Sanitation District would apply for a permit from the Regional Water Quality Control Board (RWQCB) to discharge groundwater from the dewatering wells adjacent to the bypass structure area into the SAR. The Sanitation District would also be required to obtain a non-objection letter from the Orange County Flood Control District (OCFCD) for the dewatering system components within the OCFCD jurisdiction. After the construction area has been sufficiently dewatered, shoring would be installed around the Short and Long Outfalls downstream of the Beach Box, and the sandy soils would be excavated to expose the Short and Long Outfall that are buried below the sand.

Prior to the rehabilitation work, the inside of the Long Outfall would be dewatered, cleaned, and dried. This process would require one or two temporary dewatering pipeline(s) measuring approximately 8 to 12 inches in diameter placed aboveground along the western edge of the SAR Bikeway between the Beach Box and Plant 2. The pipeline(s) would be routed north from the Beach Box, along the SAR Bikeway under the PCH bridge, along the SAR trails to Plant 2 for treatment prior to being discharged to the ocean. The pipeline would be installed in a buried trench to cross the bikeway into Plant 2.

Once the excavation work has exposed the Short Outfall and Long Outfall, a construction plug would be installed on the Short Outfall. After the plug is in place, a portion of the Short Outfall would be cut. The section of the pipe would be replaced with a 20 to 30 foot prefabricated section of pipe that has two 60-inch diameter tees located atop the pipe section (see Figure 3-4). Reinforced concrete collars would be constructed to connect the ends of the new pipe section to the existing pipe. As shown on Figure 3-5, two specialized flow isolation gates (line stops) would be installed, one within the Short Outfall and the other within the Long Outfall. Special machinery hoisted up by a crane would be used to position and operate the line stops.



Work Areas (Limits of Construction) (6.56 ac)
Least Tern Natural Preserve Boundary
State Park Picket Fence
Excavation Pit
OCSD Easement
Stockpile Area (29,970 sf)
Construction Staging Area
Contractor Temporary Staging Area
(60,000 sf; 32 parking spaces)

0 120
Feet

SOURCE: Black & Veatch; ESA, 2011.

Figure 3-5
Alternative 1 Construction Footprint

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Upon installation of the line stops on the Short Outfall and Long Outfall, two new 60-inch flanges would be installed on the Long Outfall while it remains in full operation. To accomplish this, a "hot-tapping" procedure would be employed. A hot tapping machine would be attached to the exposed portion of the live 120-inch diameter Long Outfall and two 60-inch holes would be cut into the top of the Long Outfall, after which a flange and valve would be installed. **Figure 3-6** provides a schematic view of the hot tapping.

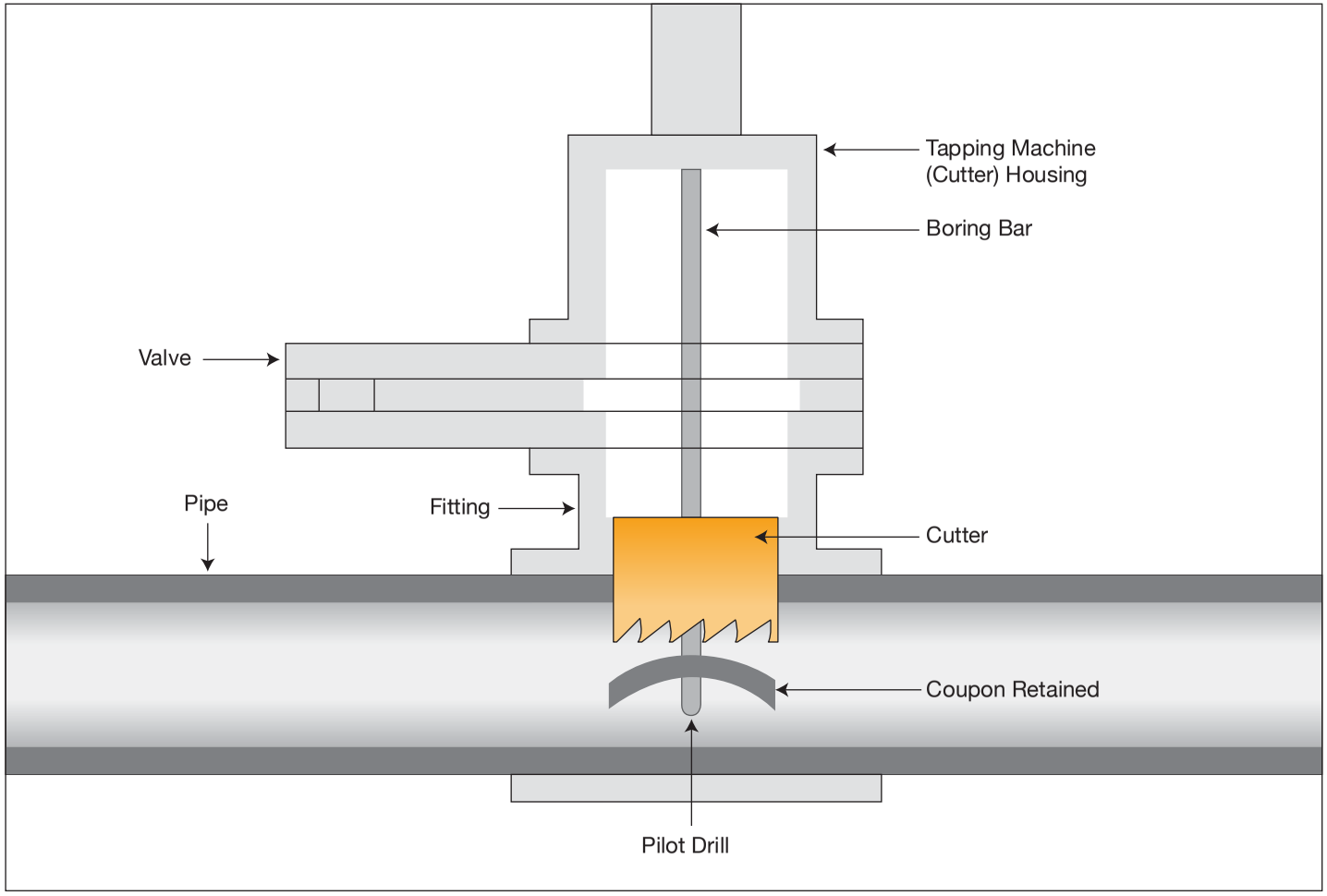
Two 60-inch (5 foot diameter) aboveground pipes would connect the Short Outfall with the Long Outfall when the line stops and flanges would be in place on the Short and Long Outfalls. The aboveground pipes would be connected to gate valves mounted to flanges on the Long and Short Outfalls. The height of the bypass piping is anticipated to be approximately 6 feet above ground. The top elevation of the machinery used to install the line stops is approximately 55 feet above ground.

The construction footprint for the bypass structure is shown in Figure 3-5. In order to maneuver heavy equipment around the Beach Box at the Short Outfall and provide sufficient access for excavation, the construction area would extend approximately 26 feet west into the fenced California Least Tern Natural Preserve Area. This would require a right of entry permit by the State Parks and would likely trigger formal consultation with the US Fish and Wildlife Service (USFWS) under Section 7 of the federal Endangered Species Act.

The excavation zone would occur within the Sanitation District's easement. As shown in Figure 3-5, equipment and material storage would occur at the Huntington State Beach parking lot. The equipment and storage area would occupy approximately 10,214 square feet and parking and would be temporarily reduced by approximately 32 parking spaces. A sound curtain would be installed along the eastern edge of the construction zone to reduce construction noise impacts on the nearby Newport Beach residents. The sound curtain would also act as a visual screen to reduce the visual impacts of some of the construction equipment and activities on the nearby residents.

The Coastal Bikeway, located south of PCH and parallel to the coast, is within the limits of the construction and would be temporarily closed. Equipment needed for the construction would be transported to the construction site via the Coastal Bikeway between the parking lot and the SAR Bikeway. In addition, during construction activities at Air Vac Station 12+05, the SAR Bikeway on the west levee of the SAR would be closed for a period of one week. Prior to any construction activities, the Sanitation District would coordinate with the California State Parks, Orange County Parks Department, Orange County Flood Control District and cities of Huntington Beach and Newport Beach to prepare and implement a bicycle/pedestrian detour plan for the duration of construction. The plan would identify alternative routes, construction schedules, and signage for the detour plan with applicable closures dates clearly identified.

Bikeway users heading south on PCH from Huntington Beach would be detoured across PCH at Brookhurst Street to the Talbert Marsh bike trail. This provides access to the SAR Bikeway. The detour would continue up river to the Victoria Street Bridge, cross the river and proceed southward on the eastern side of the SAR to PCH.



SOURCE: Black & Veatch; ESA, 2011.

Figure 3-6
Schematic of Hot Tapping

Bike traffic coming north from Newport Beach would likewise be detoured to the Victoria Street bridge to cross the SAR and then proceed southward on the west side of the SAR.

Once the bypass structure is installed, effluent would be diverted from the Long Outfall to the Short Outfall upstream of Surge Tower 2 by redirecting the effluent from Surge Tower 2 to Surge Tower 1. As shown in Figure 3-2, effluent would flow through the bypass structure back to the Long Outfall for discharge to the ocean.

The capacity of the bypass structure would be approximately 352 mgd, based on a maximum velocity of 14 cubic feet per second through the Short Outfall upstream of the bypass structure. In the event a rain event occurs during the construction period, the Sanitation District would store excess flow in available storage facilities at Plant 1, Plant 2, and within the collection system. The excess flow would be reintroduced when the rain event ends. The District conducted an analysis of the available storage capacity and determined that an extreme rain event would not cause the Sanitation District to exceed capacity (refer to Appendix E).

After the Long Outfall system rehabilitation project elements discussed below are completed, the temporary aboveground bypass piping and line stops would be removed, and completion plugs and blind flanges installed. The exposed sections of the two outfalls would be backfilled with the existing stockpiled soil and sand. Construction dewatering pumps and other equipment would also be removed, but sheet piling installed around the pipes during construction would be left in place. All areas that were disturbed by construction activities would be restored to pre-construction conditions.

Construction of the bypass structure is expected to occur over a 4 month period between September to January. The bypass structure would be in use for approximately 4 to 6 weeks in January and February. The bypass structure would be removed over a period of 1.5 to 2 months in February and March.

The proposed Project elements to rehabilitate the land portion of the Long Outfall once it is placed out of service are explained in more detail below.

Rehabilitation of Surge Tower 2

Surge Tower 2 is located adjacent to the SAR, within Plant 2 boundaries and downstream of the Sanitation District's Ocean Outfall Booster Station (OOBS). Surge Tower 2 is 84.5 feet high and 26 feet in diameter and provides a tidal surge storage capacity of 318,000 gallons. **Figure 3-7** provides a photograph of Surge Tower 2.The lower portion of Surge Tower 2 is made of concrete and the upper portion is steel. This structure is open to the atmosphere at the top. Effluent is pumped from one of the two existing ocean outfall pump stations, the OOBS or Effluent Pump Station Annex (EPSA), through Surge Tower 2 into the Long Outfall. Surge Tower 2 provides the necessary head pressure to convey effluent through the Long Outfall under varying flow volume and tide conditions.

SOURCE: Black & Veatch; ESA, 2011.

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Figure 3-7
Surge Tower Photo

During a June 2010 inspection of Surge Tower 2, corrosion was observed along the upper edge top lip of the steel portion of the structure and on the exterior surfaces of the spiral staircase support structure. In order to protect Surge Tower 2 from further corrosion, exterior and interior steel surfaces would be repaired, abrasively blasted, and recoated with paint to match the existing color. In addition, the stairs attached to the exterior of the building leading to the top of Surge Tower 2 would be upgraded to meet current industry standards. During this process, the electrical, bubbler panel instrumentation, a 96-inch butterfly valve would be replaced and low glare type lighting upgrades would also be performed.

The work on the upper interior steel portions of Surge Tower 2 would occur during the dry season prior to taking the Long Outfall system out of service. This work would involve rehabilitation of corroded steel areas followed by abrasive blasting and recoating of the interior of Surge Tower 2. In order to rehabilitate the interior steel surfaces while Surge Tower 2 is in operation, a work platform would be installed in Surge Tower 2 across concrete bottom ring to support interior scaffolding and prevent any abrasive blasted coating material from entering the effluent. Upon completion of the interior work, the exterior would also be abrasively blasted and recoated. The interior concrete portion of Surge Tower 2 and the replacement of the bubbler panel instrumentation would be performed when the Long Outfall is taken out of service.

During work on the exterior of Surge Tower 2, scaffolding with external containment would be built around Surge Tower 2 that would serve to contain sand blast material and reduce noise generation. Staging areas and a work trailer would all be located on Plant 2. Safety measures would also be completed including the replacement of the exterior stairs and installation of low glare type lighting at various locations around Surge Tower 2 when the Long Outfall System is in operation.

Replacement of the Effluent Meter

An ultrasonic flow meter is located on the Long Outfall within Plant 2 boundaries and is used to measure the effluent flow as required by the Sanitation District's NPDES permit. The current metering technology is out-of-date, and replacement parts for repairs are not available. Installation of the new meter would make it possible for the Sanitation District to provide continuous flow monitoring in conformance with NPDES requirements. The Sanitation District is currently evaluating metering technologies which may simplify repair and maintenance requirements. The new meter would be installed in the same location as the existing effluent meter. This activity would be located entirely on the plant site and would require taking the land section of the Long Outfall out of service to complete the work.

Inspection and Rehabilitation of Long Outfall

The land portion of the Long Outfall is approximately 1,930 feet long, 120 inches in diameter, and is constructed of reinforced concrete pipe (RCP). The piping system has been in service since it was constructed in 1971 without a major rehabilitation. There are three steel risers on the land portion of the Long Outfall, two that are 24 inches in diameter each and one that is 42 inches in

diameter. **Figure 3-8** shows the location of the Long Outfall pipe risers at Stations 8+00, 9+20 and 12+05. The risers are welded to an internal steel cage within the Long Outfall. The risers at Stations 8+00 and 12+05 are lined and coated with a cement mortar. The riser at Station 9+20 is ductile iron pipe that is lined but not coated. At ground level, the risers at Station 8+00 connects to the effluent sampler and the risers at Stations 9+20 and 12+05 connect to Air Vacuum release valves (i.e., Air Vac at Station 9+20 and Air Vac at Station 12+05).

These valves function to release pockets of air that collect at high points of the pressurized pipeline, thereby preventing water hammer and damage to the pipeline system. The effluent sampler and riser at Station 8+00 and Air Vac Station 9+20, are located within Plant 2 boundaries. The second Air Vac Station 12+05 is located outside of the Plant 2 boundaries east of Talbert Marsh inland of the western edge of the SAR Bikeway, between the south side of Plant 2 and PCH on property owned and managed by the Huntington Beach Wetland Conservancy.

During previous inspections of the Long Outfall, corrosion was observed downstream of Surge Tower 2 within Plant 2 and the valve Air Vac Station 12+05 valve outside of Plant 2. Although the Sanitation District anticipates other repairs to the land section of the Long Outfall would be minimal, a more thorough pipe inspection of the land section of the Long Outfall would be completed as part of the Project.

The weld joints of the risers to the steel cage of the Long Outfall have likely experienced severe corrosion due to long term exposure to effluent and wastewater gases. These connections require inspection, condition assessment and structural rehabilitation. Part of the proposed Project includes rehabilitation and internal structural strengthening of the riser connections using a carbon fiber reinforced polymer (CFRP) liner.

Prior to rehabilitation, the land portion of the Long Outfall would be taken out of service, dewatered, cleaned, and then dried out with ventilation air. Workers would enter the Long Outfall to perform the inspection. Corrosion identified in the Long Outfall would be repaired using carbon-fiber lining and/or polymer grout techniques. Carbon fiber application crews would set up a staging area on the southwest corner of Plant 2. The Long Outfall surface would be prepared with hand-held grinders. Carbon wrap material would be applied in sheets as a liner. The wrap would adhere to the prepared surface of the Long Outfall and dry. Polymer grout would be applied by hand to corroded areas on the Long Outfall following surface preparation. If significant corrosion has occurred down to the rebar in the Long Outfall, the affected rebar would need to be replaced first, followed by the application of polymer grout. For the Long Outfall Air Vacs an inspection would be conducted to determine the condition of the cement mortar lining and metal steel Air Vacs. If the cement mortar lining is in poor condition, it would be removed and replaced with either carbon fiber or cement mortar lining following surface preparation of the metal surfaces of the risers. If corrosion is observed on the Air Vacs, it would be repaired prior to the application of a new liner, if required.

SOURCE: Black & Veatch, 2011.

Figure 3-8
Location of Long Outfall Pipe Risers

Access and egress from the Long Outfall rehabilitation including the Long Outfall risers at Stations 8+00 and 9+20 would be from Plant 2. The offsite Air Vac Station 12+05 site is located adjacent to the SAR Bikeway and is at the edge of adjacent to the Talbert Marsh, on property owned and managed by the Huntington Beach Wetland Conservancy. **Figure 3-9** shows the Air Vac Station 12+05. The structure would be accessed from the bikeway and existing cleared access road. No excavation or construction would occur at this location adjacent to the Talbert Marsh and temporary fencing would be installed to prevent inadvertent disturbance of onsite vegetation. The dirt access road from the SAR Bikeway to the Air Vac Station 12+05 varies in width t. The total area of construction required for this element of the proposed Project is approximately 2,000 square feet.

Any rehabilitation work on the Air Vac 12+05 would be done from this location. Nighttime lighting would be required at Air Vac Station 12+05 during nighttime work.

Abandonment of Long Outfall Metering Ports/Vaults

The outfall meter ports are located within two meter vaults that straddle the Long Outfall within Plant 2 boundaries. These vaults/ports are no longer used and would be abandoned in-place. The abandonment of the meter ports would include removing the existing flow meter transducer probes and sealing penetrations through the interior surfaces with a CRFP liner or steel plate. In addition, steel plates would be welded over the tee sections of the exterior manholes on the outside of the pipe. The vaults would be filled with grout and lightweight cellular concrete. These activities would all occur on Plant 2 and would require taking the land section of the Long Outfall out of service. Because most work would be performed inside the Outfall, any lighting would not be directed towards the Talbert Marsh and any lighting outside the Outfall would be directed away from Talbert Marsh.

Rehabilitation of the Beach Box

The Beach Box is located on Huntington State Beach as shown on **Figure 3-10**. **Figure 3-11** provides some photographs of the current condition of the Beach Box. The top of the Beach Box is visible on the sand within an area enclosed by a chain-link fence. The Beach Box consists of a Long Outfall compartment and a Short Outfall compartment. The Long Outfall compartment is associated with the Long Outfall and includes both concrete and steel bulkhead/plates sections. The Short Outfall compartment is attached to the Short Outfall and only has concrete sections. **Figure 3-12** depicts the compartments of the Beach Box.

The Long Outfall compartment of the Beach Box consists of three levels: ground, intermediate and bottom. At ground or beach level, a concrete cover has been placed over the Beach Box to prevent unauthorized persons from entering. At the intermediate level, there is a concrete floor/deck that has three openings covered by steel frames and covers. Removal of the 5 foot by 10 foot steel cover, provides access to the interior of the Long Outfall. The Long Outfall enters and exits the Beach Box at the bottom level. The floor/deck and metal covers at the intermediate level are under pressure from the effluent discharge.

SOURCE: Black & Veatch, 2011.

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Figure 3-9
Air Vac Photo

❶ Outfall Junction Box

❷ Junction Box (STA 19+29) and Transition Structure No. 1

SOURCE: Carollo, 2011.

Figure 3-10
Location of Beach Box

Figure 1

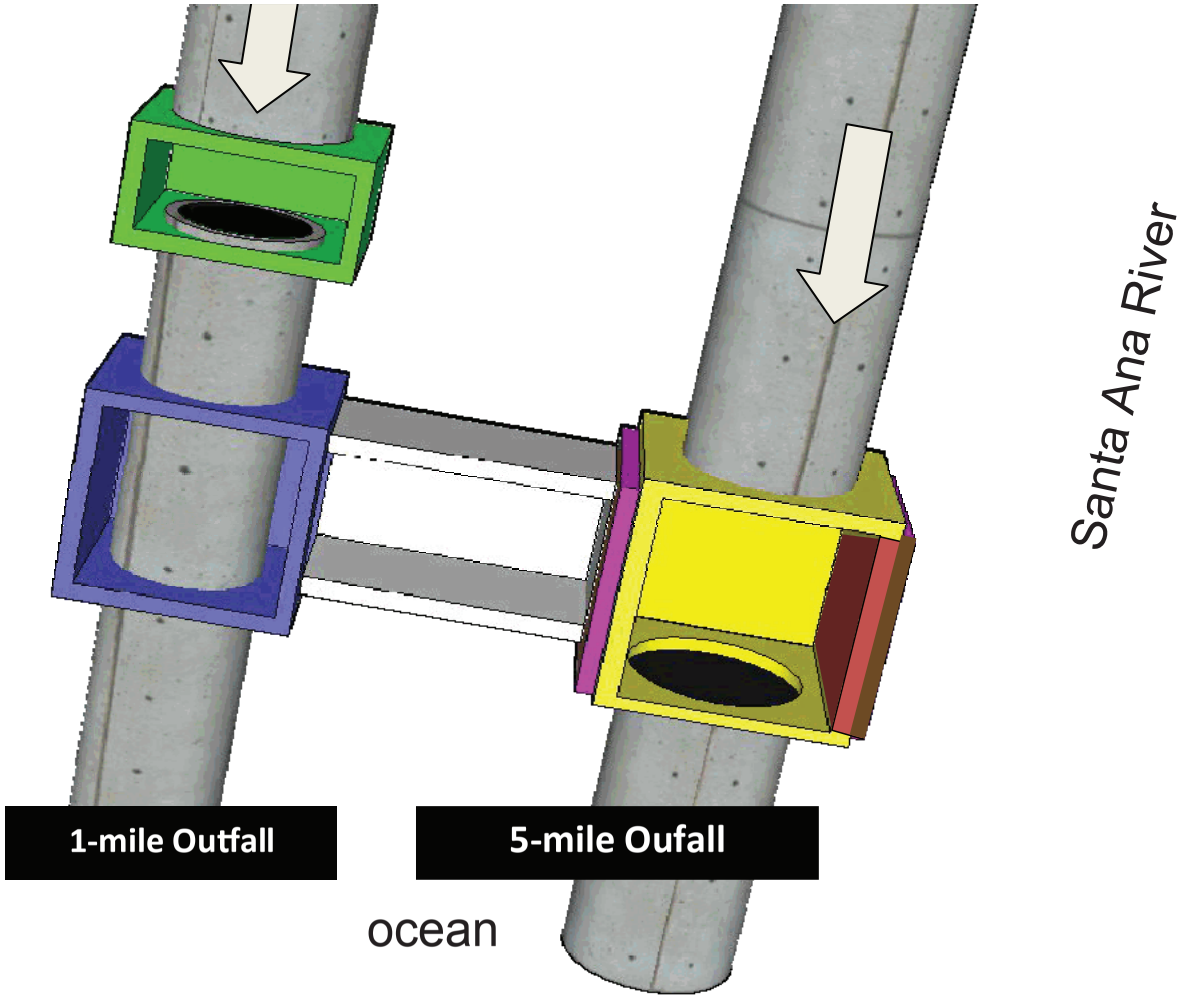
Figure 3

Figure 2

Figure 4

SOURCE: Black & Veatch; ESA, 2011.

Figure 3-11
Views of Exposed Beach Box



SOURCE: Black & Veatch 2011.

Figure 3-12
Schematic of Beach Box

There are three options are under consideration for rehabilitating the Beach Box. Each Beach Box rehabilitation option has advantages and disadvantages regarding implementation. Each option described below would require closure of the Coastal Bikeway south of PCH for the duration of construction. In order to provide a conservative estimate of proposed Project impacts, this document analyzes Option B because it presents the worst case scenario. It requires demolition, includes the most construction equipment, and has a slightly larger construction footprint.

Option A – Carbon Fiber Reinforced Polymer (CFRP) Liner

Under Option A, a high strength CFRP lining designed to withstand the maximum operating pressure of 40 pound-force per square inch (psi) would be installed on the concrete walls, ceiling, and floor on the lower level of the Beach Box. The CFRP liner would form a watertight seal inside the Beach Box that would not diminish flow capacity of the Long Outfall. The frames and plates around the openings on the intermediate level and the opening covers would be replaced once the CFRP lining was applied.

To prepare the surfaces for the CFRP liner, interior surfaces of the Beach Box would be water blasted and dried. Major cracks would be sealed with grout prior to application of the CFRP liner. A high strength CFRP liner would be fed downward through the opening in the intermediate floor from a truck adjacent to the Beach Box. The pipe surface would be prepared with handheld grinders. The CFRP liner would be applied in several layers to all concrete surfaces inside of the bottom level of the Beach Box and to pipe sections immediately upstream and downstream of the Beach Box. Sufficient layers would be applied to create a self-supporting box framework within the lower level of the Beach Box. The ends of the CFRP liner would be firmly bonded with epoxy resin. Repairs would be made to the Beach Box plates/bulkheads and covers. **Figure 3-13** shows a typical CFRP application process.

To accommodate the construction workers and staging areas, rehabilitation of the Beach Box would require that the segment of the Coastal Bikeway south of PCH within the limit of construction be temporarily closed. A bike detour would be established on the north side of PCH.

Option B – Fiberglass Pipe Insert

Under, Option B two portions of the floor/deck on the intermediate level would be removed. Sections of fiberglass pipe would be lowered into the bottom level of the Beach Box. Each section would be pushed up into the Long Outfall, upstream and downstream of the Beach Box. A 54 inch diameter manhole with an access cover would be lowered into the Beach Box and connected to the two sections of fiberglass pipe to provide access to the Long Outfall.

The space above the pipes would be filled with a reinforced light-weight cellular concrete material up to an elevation of 7 feet below the lip of the Beach Box opening. The existing steel cover would be permanently removed. A CFRP liner would be applied at the ends of the fiberglass pipes and the RCP pipes. **Figure 3-14** depicts the typical pipe insert process that would be used under Option B. The construction zone would be similar to Option A.

SOURCE: Orange County Sanitation District, 2011.

Figure 3-13
CFRP Application Process

SOURCE: Orange County Sanitation District, 2011.

Figure 3-14
Pipe Insert Process

Option C – Steel Pipe Insert

Option C is similar to Option B in that it would insert a pipe into the Long Outfall to reinforce the Long Outfall at the Beach Box. Under Option C, a section of the intermediate level of the Beach Box would be retained. The intermediate level covers would be removed and five sections of steel pipe, each measuring 3.5 feet long would be inserted through the largest opening of the floor/deck into the bottom level. The pipe sections would then be welded together in place. A 36 inch riser and access cover would be lowered into the bottom level and welded to the steel pipe sections. The riser would provide access to the Long Outfall. The inside of the sections and the riser would be lined with CRFP, and the annular space between the steel pipe sections and the Beach Box would be filled with grout. The construction zone would be similar to Option A. Equipment ingresses and egresses on the site would not create a larger construction zone because equipment would travel from the staging area at Plant 2 from the offsite location to the site.

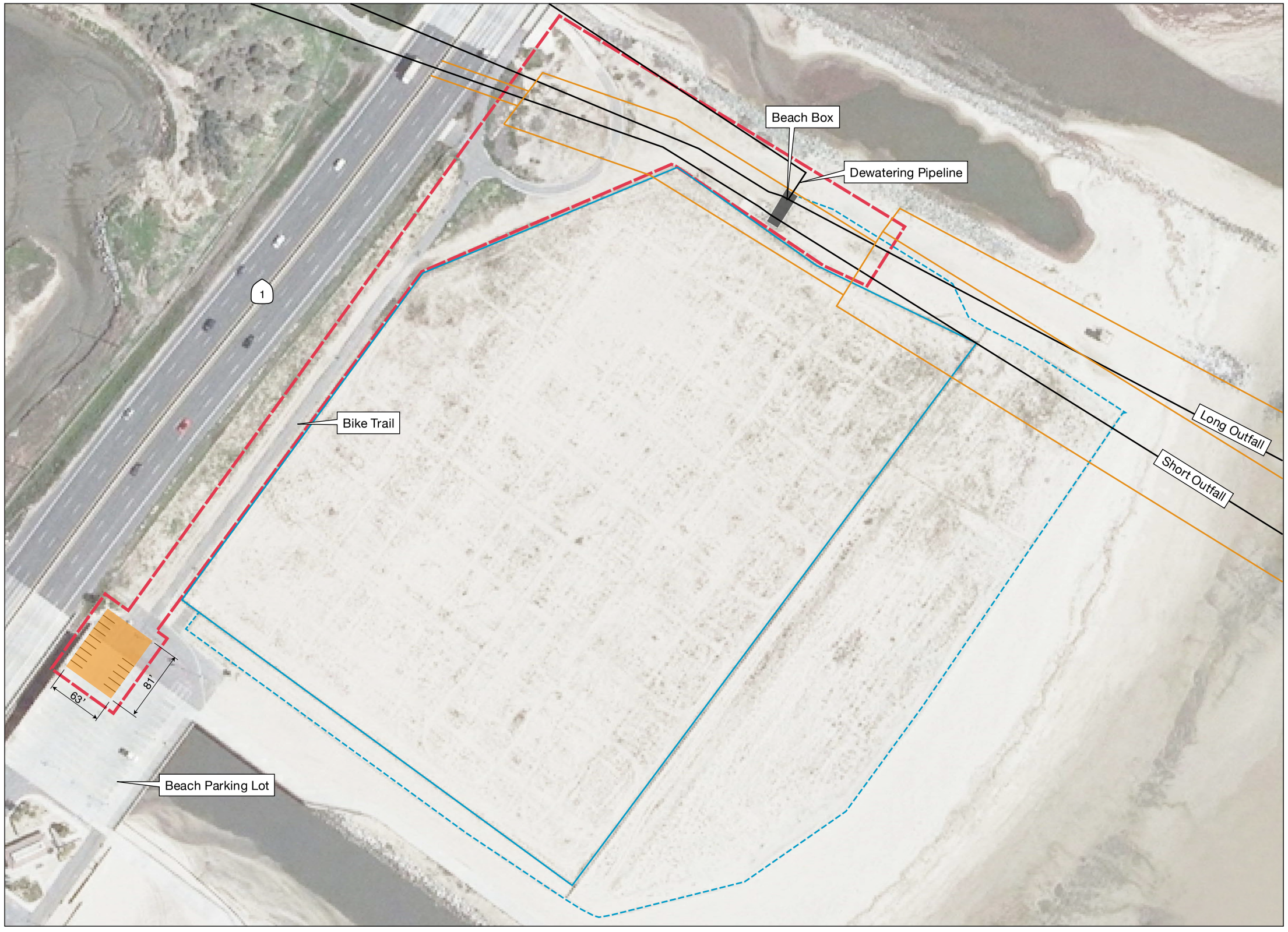
3.4.2 Alternative 2: Non-Bypass – Use of the Short Outfall

Under Alternative 2, the five rehabilitation elements described above would be conducted as described under Alternative 1. The Beach Box would be rehabilitated as soon as possible by implementing either Option A, B or C. The remaining project elements of the Long Outfall system would be inspected, assessed, and rehabilitated as described above under Alternative 1. The work would be conducted primarily within the existing footprint of the Beach Box, with slight variations as discussed under Options A, B, or C. The construction zone within Huntington State Beach and the equipment and material storage area within its parking lot would have a considerably, smaller footprint than Alternative 1, approximately 2.26 acres.

Under Alternative 2, no bypass structure would be constructed on the Huntington State Beach. Effluent would be diverted to the Short Outfall upstream of Surge Tower 2 as shown in Figure 3-3. Effluent would be discharged to the Short Outfall for the duration of (4 to 6 weeks), while the Beach Box is repaired and the rehabilitation of other proposed Project elements are completed. This Alternative would not require settling tanks and filters related to treat dewatered groundwater because there would be no excavation under Alternative 2. Approximately 20 to 30 workers would travel to and from the proposed Project. This Alternative would also require the closure of the segment of the Coastal Bikeway located south of PCH, in order to permit construction access and maintain pedestrian and cyclist safety in the project area.

Under Alternative 2, the rehabilitation of the Surge Tower would be performed in the same manner as Described under Alternative 1 with one exception. The work on the interior steel portion of Surge Tower 2 and the exterior portion of Surge Tower 2 would be done after the interior concrete, bubbler panel and butterfly valve work is complete and the Long Outfall is returned to service rather than before the Long Outfall is taken out of service.

Similar to Alternative 1, Alternative 2 would require one to two dewatering pipeline(s) be installed from the Beach Box to Plant 2 in order to dewater the Long Outfall pipeline once it is shutdown. **Figure 3-15** shows the construction zone required on the beach for rehabilitation of the Beach Box under Alternative 2. A staging area would be located on the Huntington State



Work Areas (Limits of Construction) (2.26 ac)
Least Tern Natural Preserve Boundary
State Park Picket Fence
OCSD Easement
Contractor Temporary Staging Area
(5103 sf; 14 parking spaces)

0 120
Feet

SOURCE: Black & Veatch; ESA, 2011.

Figure 3-15
Alternative 2 Construction Footprint

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Beach parking lot as show in Figure 3-15. Additionally, similar bikeway detours would be required as described above under Alternative 1.

The Sanitation District's Preferred Alternative is Alternative 2. The preferred construction methodology to be implemented for the Beach Box rehabilitation is either Option A or C.

Enhanced Disinfection Treatment

As an element of Alternative 2, the Sanitation District will increase disinfection doses to achieve lower bacteria concentrations in the effluent during the use of the Short Outfall (enhanced disinfection).

An Effluent Bacteria Reduction Demonstration Study was conducted by the Sanitation District in July and August of 2011. The purpose of this study was to operate the Sanitation District's treatment plants in a manner that would reduce indicator bacteria counts in the final effluent to

levels at or near the geometric mean standards for beach water quality. The bacterial reduction was expected to be achieved through a combination of increased bleach disinfection and operation of the secondary treatment processes without disruption. The demonstration project results are included as part of Appendix F.

3.4.3 Wet Weather Flow Capacity

During rain storms in Orange County, both treatment plants experience increases in flow due to infiltration of rain water into the sanitary sewer collection system. The region experiences heavy rain storms for long durations generally between December and March. However, rain events are possible in any month of the year. The Sanitation District conducted a study to determine 1) whether a rain event in the months of January and February for Alternative 1 could result in effluent flow volumes greater than the capacity of the bypass system which could result in effluent being discharged into both the Short Outfall and the Long Outfall and 2) whether rain events in the months of September and October for Alternative 2 could result in effluent flows greater than the capacity of the Short Outfall. This analysis also includes an assessment of the potential to exceed the Short Outfall capacity if a rain storm were to occur coincidentally with an outage at the Groundwater Replenishment System (GWRS). GWRS normally accepts 70 mgd of secondary treated effluent. The analysis included in Appendix E concludes that sufficient storage capacity exists in the treatment and collection systems to accommodate peak wet weather flows under either Alternative 1 or 2.

Emergency Contingency Planning

In case of an emergency event during proposed project rehabilitation activities, the Sanitation District has identified the top priority flow emergencies and recommended specific action plans for each. The top priority flow emergency conditions are as follows:

- Pump Failure / Loss of Power and Back-up Power at Pump Stations
- Unexpected GWRS Shutdown and bypass of flow to Plant No. 2
- Unexpected Extreme Wet Weather Event

A major element of the contingency planning process will be the establishment of adequate emergency storage at the two treatment plants and within the collection system. Approximately 36 mgd of flow storage could be provided within Plant 1 and Plant 2 and within the collection system to handle excess flows during the emergency conditions described above. If an emergency condition occurs, the Sanitation District would divert and store flow by using several contingency measures: (1) opening the gravity bypass pipeline from Junction Box A to Surge Tower No. 2; (2) filling emergency reserve tanks at both Plant 1 and Plant 2; (3) filling the interplant pipelines; and (4) filling the headworks and collection system. These contingency measures would be capable of storing plant effluent under peak daily flow conditions for approximately 5 hours.

3.5 NPDES Permit

The Sanitation District discharges effluent to the Pacific Ocean under the authority of a National Pollution Discharge Elimination System (NPDES) permit (No. CA 0110604, Order No. R8-2204-0062) issued by the US Environmental Protection Agency (USEPA) and Santa Ana Regional Water Quality Control Board (RWQCB). The Sanitation District has historically discharged a mixture of primary and secondary treated water. However, in 2002, the Sanitation District Board of Directors made the decision to upgrade the level of treatment to meet the secondary treatment requirements. The Sanitation District negotiated with the regulators to develop a plan to achieve these requirements as quickly as possible. This resulted in consent decree providing until December 31, 2012 to meet the new treatment requirements. Since 2002, the Sanitation District has initiated an ambitious (or $538 million-dollar) construction program at both treatment plants that will provide secondary treatment and disinfection for the full discharge volume. The treatment upgrades will be complete and brought on line in the summer of 2012.

The Sanitation District currently treats approximately 210 million gallons a day (mgd) of wastewater at two treatment plants. Secondary treatment capabilities at Plant 1, in Fountain Valley, are provided by a trickling filter plant and a conventional air activated sludge plant. Secondary treatment at Plant 2, in Huntington Beach, is provided by a trickling filter plant and an oxygen activated sludge plant. The last secondary treatment process to be built in accordance with the Consent Decree is a conventional activated sludge plant at Plant 1 which would allow the Sanitation District to achieve 100 percent secondary treatment capacity.

During the regular 5-year renewal cycle, the Sanitation District is applying for updated NPDES permit conditions to more accurately reflect the changes in treatment and treatment technology the Sanitation District has employed. Additionally, the increased effluent quality has improved the quality of the receiving waters and ocean conditions and the Sanitation District is requesting changes to the NPDES monitoring program to reflect the changed conditions. Further, in the Sanitation District's 2009 NPDES Permit Application to USEPA and RWQCB, the Sanitation District requested that conditions be added to the NPDES Permit expressly allowing the Sanitation District to conduct planned diversion and discharge effluent from the Short Outfall up to two times during the next permit period to perform maintenance activities on the Long Outfall. These activities would include inspection and repairs to the Long Outfall, the Long Outfall risers, and the Beach Box. The Sanitation District would try to consolidate activities and minimize the

duration of time that flow would need to be routed to the Short Outfall, when possible. The Sanitation District's 2009 NPDES Permit Application is still pending. For these planned diversions, the Sanitation District will submit a notification letter in advance to the RWQCB and EPA. The Sanitation District would also coordinate with the Orange County Health Care Agency (OCHCA) and other local officials prior to conducting maintenance activities that would require use of the Short Outfall.

3.6 Construction Scenario and Schedule

3.6.1 Workers and Truck Trips

The following construction scenarios are assumed for the proposed Project:

- Activities at Plant 2: 25 to 30 workers if work occurs simultaneously at multiple Project locations; 50 to 60 roundtrip truck trips
- Activities at Air Vac Station 12+05: 4 to 6 workers, up to 12 truck trips
- Activities at the Beach Box: 8 to 12 workers, 16 to 24 roundtrip truck trips
- Alternative 1 Bypass Structure: 15 to 20 workers, 30 to 40 roundtrip truck trips

3.6.2 Equipment

Rehabilitation of the Long Outfall system project elements would mobilize equipment as needed. Equipment for the Surge Tower 2 rehabilitation would include high-powered abrasive blasting equipment. The other Plant 2 project elements would include air compressors, saws and cranes to remove large pipe risers. **Table 3-2** depicts the construction equipment that may be used during the implementation of the bypass structure for Alternative 1.

TABLE 3-2
CONSTRUCTION EQUIPMENT ALTERNATIVE 1: BYPASS – NO USE OF SHORT OUTFALL

Equipment Piece	Quantity	Equipment use
Air Compressor (250 cfm)	1	Various uses throughout the construction period; for vibrator, [sheet] pile driver.
Augur Drill Rig	1	Drill 30 dewatering wells.
Compactor	1	Prepare soil for placement of concrete, backfill and soil.
Concrete Pump	1	Pouring the concrete.
Concrete Vibrator	1	Pouring the concrete.
Concrete Mixer Truck	5	Delivering concrete for support slabs and encasement.
Concrete Saw	1	Cut out section of Short Outfall.
Crawler Crane (100 ton)	1	Various uses throughout the construction period.
Dozer	1	Moving soil
Dump Truck (20 cy)	1	Hauling material offsite; during excavation process.
Excavator	1	Excavate soil around outfall to enable construction of bypass structure.

Equipment Piece	Quantity	Equipment use
Flatbed Truck (380 hp 6x4)	1	Delivery of various equipment, pipe, materials, valves. To be used periodically on/off, not more than 2 to 3 hours in a day.
Front-end Loader	1	Moving soil and debris throughout the construction.
Generator (100 kW diesel)	1	Powers the welders; dewatering pumps (the major user) during and after excavation until backfilling; assume 24 hour per day use.
Hot Tap Machinery (2400XL)	1	Line stops, continuous operation in 8 hour cycles per day.
Line Stop Machinery	1	Tapping the pipe; installing line stops; continuous operation in 8 hour
Vibrating Plate Compactor	1	Backfill compaction; few hours running time.
Vibratory Pile Driver (25,000 ft/lb)	1	Sheet piler; excavation.
Water Tank (65 gal)	1	Dust control.
Water Tank Truck (2,000 gal)	1	Dust control.
Welder (300 amp)	1	Welding line stops and bypass piping.

Table 3-3 depicts a preliminary list of construction equipment to be used during the rehabilitation work at Plant 2.

TABLE 3-3
CONSTRUCTION EQUIPMENT – PLANT 2 REHABILITATION

Equipment Piece	Quantity	Equipment use
Abrasive Blast Generator	2	Supply abrasive to blast nozzle.
Abrasive Blasting (Single Nozzle)	2	Remove coating from inside of Surge Tower 2.
Air Compressor	2	
Concrete Mixer Truck	2	Deliver grout and concrete.
Concrete Pump	1	Pumping concrete and grout to fill voids.
Crawler Crane (100 ton)	1	Various uses throughout the construction period.
Crawler Crane (75 ton)	1	Lifting blind flanges of riser pipes and stinger assembly.
Dehumidification Unit	2	Drying concrete surfaces inside the vault.
Dump Truck (20)	1	Hauling debris to the landfill
Flatbed Truck (380 hp 6x4)	1	Delivering pipe and equipment
Panel Truck	1	Transport carbon fiber and steel resin materials; prepare materials.
Pneumatic Tools	5	Remove and install bolts and nuts and chip pipe coating.
Ventilation Fan	2	Provide air to Beach Box for worker health and safety.
Welder (300 amp)	3	Welding patches over corrosion pits.

Table 3-4 depicts a preliminary list of construction equipment to be used during the rehabilitation work at Air Vac Station 12+05.

TABLE 3-4
CONSTRUCTION EQUIPMENT – AIR VAC STATION 12+05 REHABILITATION

Equipment Piece	Quantity	Equipment use
Abrasive Blast Generator	1	Supply abrasive to blast nozzle.
Abrasive Blasting (Single Nozzle)	1	Remove coating from inside of Surge Tower.
Air Compressor	1	Operate power tools.
Crawler Crane (75 ton)	1	Lifting blind flanges of riser pipes and stinger assembly.
Dehumidification Unit	1	Drying concrete surfaces inside the vault.
High Pressure Water Blaster	1	Prepare concrete surfaces for carbon fiber application.
Jackhammer/Chipper	1	Remove concrete.
Panel Truck	1	Transport carbon fiber and steel resin materials and prepare materials.
Pneumatic Tools	1	Remove and install bolts and nuts and chip pipe coating.
Ventilation Fan	1	Provide air to Beach Box for worker health and safety.
Welder (300 amp)	1	Welding patches over corrosion pits.

Table 3-5 depicts a preliminary list of construction equipment to be used during the rehabilitation of the Beach Box for each of the construction method options.

TABLE 3-5
CONSTRUCTION EQUIPMENT – BEACH BOX REHABILITATION

Equipment Piece	Quantity	Equipment use
Option A: Carbon Fiber Wrap		
Air Compressor (250 cfm)	1	Various uses throughout the construction period; for vibrator, [sheet] pile driver.
Crawler Crane (50 ton)	1	Various uses throughout the construction period.
Dehumidification Unit	1	Drying concrete surfaces inside the vault.
Diesel-operated centrifugal dewatering pump	1	Dewater the inside of the pipe (2,000 gallon per minute [gpm] pump).
Dump Truck	1	Debris removal.
Flatbed Truck (380 hp 6x4)	1	Delivering supplies and equipment.
Generator (100 kW diesel)	1	Power lights and portable equipment, and power tools.
Generator (500 kW diesel)	1	Powered humidification units and various portable equipment.
High Pressure Water Blaster	1	Prepare construction surfaces for carbon fiber application.
Panel truck	1	Transport carbon fiber and resin materials and prepare materials.
Pneumatic Tools (various)	3	Remove and install bolts and nuts and jack equipment in place.
Ventilation fan	1	Provide air to Beach Box for worker health and safety.
Water Tank Truck (2,000 gal)	1	Dust control.
Welder	2	Cutoff existing frames; install new cover and frames.

Equipment Piece	Quantity	Equipment use
Options B: Fiberglass Pipe Insert		
Air Compressor (250 cfm)	1	Power equipment; silenced.
Concrete Pump	1	Pump concrete and grout to fill voids.
Concrete Mixer Truck	1	Deliver grout and concrete.
Concrete Saw (10 hp)	1	Demolishing the structure.
Concrete Vibrator	1	Compacting concrete.
Crawler Crane (75 ton)	1	Lift pipe sections into vault.
Dehumidification Unit	1	Dry concrete surfaces inside the vault.
Diesel-operated centrifugal dewatering pumps	1	Dewater pipeline.
Dump Truck (20 cy)	1	Haul debris to the landfill.
Flatbed Truck (380 hp 6x4)	1	Delivering pipe and equipment.
Front-end Loader	1	Remove debris.
Generator (100 kW diesel)	1	Concrete saw, wall saw, and other tools.
Generator (500 kW diesel)	1	Power dehumidification units and various portable equipment.
High Pressure Water Blaster	1	Prepare construction surfaces for carbon fiber application.
Pavement Breaker (60 lb)	1	Demolishing concrete.
Pneumatic Tools (various)	3	Remove and install bolts and nuts and jack equipment in place.
Tractor Trailer Flatbed Truck	1	Deliver fiberglass pipe sections to job site.
Ventilation Fan	1	Provide air to Beach Box for worker health and safety.
Water Tank Truck (2,000 gal)	1	Dust control.
Options C: Steel Pipe Insert		
Air Compressor (250 cfm)	1	Power equipment; silenced.
Concrete Pump	1	Pump concrete and grout to fill voids.
Concrete Mixer Truck	2	Deliver grout and concrete.
Crawler Crane (75 ton)	1	Lift pipe sections into vault.
Dehumidification Unit	1	Drying concrete surfaces inside the vault.
Diesel-operated centrifugal dewatering pumps	1	Dewater pipeline.
Dump Truck (20 cy)	1	Haul debris to the landfill.
Flatbed Truck (380 hp 6x4)	1	Deliver pipe and equipment.
Generator (100 kW diesel)	1	Concrete saw, wall saw, and other tools.
Generator (500 kW diesel)	1	Power dehumidification units and various portable equipment.
High Pressure Water Blaster	1	Prepare construction surfaces for carbon fiber application.
Panel Truck	1	Transport carbon fiber and steel resin materials and prepare materials.
Tractor Trailer Flatbed Truck	1	Deliver fiberglass pipe sections to job site.
Ventilation Fan	1	Provide air to Beach Box for worker health and safety.
Water Tank Truck (2,000 gal)	1	Dust control.
Welder (300 amp)	2	Welding and cutting steel related to line stops and bypass pipes.

3.6.3 Construction Schedule

Construction on the Huntington State Beach would be constrained by the California least tern nesting season, the peak season for beach visitors, and the rainy season. The California least tern nesting season ends September 15. Peak beach use is considered to be between Memorial Day and Labor Day weekends. The rainy season generally starts in December though rain events can occur any time.

Alternative 1 would require approximately 2 years to complete final design, bidding of the contract, and fabrication of the specialized large pipe material (i.e., line stops) needed for the bypass structure; fabrication of the line stops would take a minimum of 1 year. Due to these requirements, it is anticipated that Alternative 1 would be implemented by March 2015. Alternative 2 would be completed in the fall of 2012.

The bypass structure on the beach required for Alternative 1 would require up to 6 months to construct. Due to timing constraints identified above, the proposed construction for Alternative 1 would occur between September 2014 and March 2015. The rehabilitation of the Long Outfall project elements would require 4 to 6 weeks after the bypass structure is completed and operational. Following completion of the rehabilitation of the project elements, the bypass structure would be removed and the beach returned to its pre-existing condition. This would occur before the least tern nesting season begins in April.

The proposed construction period for Alternative 2 is 4 months from mid September 2012 to mid January 2013. However, the time period when the Long Outfall is taken out of service would be 4 to 6 weeks occurring during the period of September 2012 to October 2012. To expedite the schedule, 24-hour construction would be required for most of the project elements. During this construction period, effluent would be discharged to the Short Outfall.

3.7 Discretionary Approvals Required for the Project

Table 3-6 on the following page presents a preliminary list of the agencies and entities with discretionary approval over the Project.

TABLE 3-6
DISCRETIONARY PERMITS POTENTIALLY REQUIRED

Agency	Permits and Authorizations Required	Activities Subject to Regulations	Proposed Project	
			Alternative 1	Alternative 2
United States Fish and Wildlife Service	Section 7	To assess and permit potential Impacts to least tern or snowy plover	X	
Army Corps of Engineers	404 Permit	To install dewatering discharge pipe and dissipator into waters of the United States	X	
California State Parks	Use permit	To close portions of State Beach parking lot and closure bikeway	X	X
California State Lands Commission	General Permit	Construction of bypass structure outside existing easement	X	
California Coastal Commission	Coastal Development Permit	Components in estuary (Alt. 1)	X	
City of Huntington Beach	Coastal Development Permit, Local Coastal Program	Construction in coastal zone	X	X
	Construction Variance	Nighttime Construction Noise Variance	X	X
	Excavation Permit	Beach Box excavation	X	
Regional Water Quality Control Board	NPDES/WDR for Construction Dewatering	Dewatering discharge into the SAR	X	
	NPDES/WDR for Effluent Discharge	Discharge to the Long Outfall or Short Outfall	X	X
County of Orange	Letter of No Objection	Dewatering discharge in to the SAR	X	
	Encroachment Permit	Closure of bikeway	X	X

References – Project Description

California Department of Parks and Recreation, *Resource Management Plan and General Development Plan for Huntington State Beach,* 1976.

Carollo Engineers, *Orange County Sanitation District, Maintenance Repairs at the 120-inch and 78-inch Ocean Outfall Beach Junction Boxes Final Report,* August 2009

CHAPTER 4
Environmental Setting, Impacts, and Mitigation Measures

4.1 Aesthetics

This section addresses the aesthetic and visual quality impacts associated with the proposed Project. This section includes a description of existing visual conditions in the Project area and an evaluation of potential effects on visual resources and public view corridors.

The Draft EIR impact analysis considers view obstruction, negative aesthetic effects, and light and glare effects based on field observations, a review of topographic maps, project drawings, technical data supplied by the Sanitation District, and aerial and ground-level photographs of the Project area.

4.1.1 Environmental Setting

Viewsheds

A viewshed is an area that can be seen from a given vantage point and viewing direction. A viewshed is composed of foreground items (items closer to the viewer) that are seen in detail and background items (items at some distance from the viewer) that frame the view. If a person is moving, as when traveling along a roadway (a view corridor), the viewshed changes as the person moves, with the foreground items changing rapidly and the background items remaining fairly consistent for a long period of time.

Light and Glare

Light is the level of brightness in an area, measured in such units as lux, foot candles, candelas, and lumens. Lumens and candelas are measures of light source intensity. Some common lighting levels, in terms of foot candles, are 0.1 foot candles for a full moon, 1 foot candle for street lighting, ten to 100 foot candles for workspace lighting, 1,000 foot candles for surgery lighting, and 10,000 foot candles for plain sunshine. Night lighting along the Orange County coastline is dominated by urban development and Pacific Coast Highway (PCH). At the mouth of the Santa Ana River (SAR) near the Project site, the Talbert Marsh provides some relief to the otherwise well lit residential and commercial areas.

Glare is unwanted or nuisance light, such as exceptionally bright light sources that are in sharp

contrast to surrounding light levels. Glare generally occurs when a viewer is subjected to a direct beam of light. Glare along the Orange County coast is primarily due to reflections from residences during sunset when beams of sunlight reflect back to the ground level and vehicles along PCH and other roadways.

Regional Setting

Visual resources consist of natural landscapes and scenic views, including landforms, vegetation, and water features, as well as unique elements of the built environment. The proposed Project is located in Orange County, which encompasses approximately 798.3 square miles of land and serves a population of approximately 3 million people. Orange County includes 34 incorporated cities, nine County beaches, six State beaches, three harbors, and 42 miles of coastline. Major roadway corridors in the proposed Project vicinity include the San Diego Freeway (Interstate-405), Beach Boulevard (State Route-39), and PCH.

Project Area Setting

Physical Setting

The proposed Project is located in the City of Huntington Beach (the City). The inland areas of Huntington Beach area relatively flat, with little topographic relief and are characterized with a sequence of mesas and small bays along the coast. Views of the Pacific Ocean and coastlines are visible from the bluffs of Costa Mesa to the northeast of Plant 2, Bolsa Chica mesa to the north, and from portions of PCH. Visual elements considered to contribute positively to the City include the Pacific Ocean, Bolsa Chica Wetlands, and Huntington Harbor.

The proposed Project site is located: (1) within the Sanitation District's Plant 2 boundaries, (2) in an area (south of Plant 2) at the edge of the Talbert Marsh, adjacent to Air Vac Station 12+05, and (3) in Huntington State Beach (State Beach). Plant 2 is located on approximately 110 acres bounded by Brookhurst Street on the northwest, PCH on the southwest, and the SAR on the east. Plant 2 is a 110 acre industrial facility, adjacent to the SAR, roughly 1,500 feet from the Pacific Ocean, and located within the southeast industrial area of the City.

The Talbert Marsh is located south of Plant 2 near the Air Vac Station 12+05 site. The Talbert Marsh bike trail connects Brookhurst Street to the SAR Bikeway just north of the Talbert Marsh. The 25-acre , 40-foot wide Marsh contains numerous plant and avian species that provide visual relief along the stretch of PCH and is designated as a Landscape Corridor by the Huntington Beach Coastal Element (For a specific discussion of fauna and flora near this site, please refer to Chapter 4.3, Biological Resources). The Air Vac Station 12+05 is accessed via a dirt road and is enclosed by a chain-link fence.

The Pacific Ocean is the City's most prominent visual asset as views of the ocean from PCH, peripheral streets, and surrounding neighborhoods enhance the visual quality of the City. Huntington State Beach extends from Beach Boulevard to the SAR. The Project area located on Huntington State Beach, is east of, and within a small portion of the California Least Tern Natural Preserve Area, where the Beach Box is located.

The proposed Project is located in close proximity to residential, natural, and public recreation areas. The nearest sensitive receptors to any of the proposed Project work sites are the Huntington Beach residences located approximately 250 feet west of the construction staging area, inside Plant 2. Plant 2 has an 8 foot slump block wall on the northern, western, and southern boundaries that separates the residences from the rehabilitation efforts. The next nearest sensitive receptor is approximately 634 feet east of the Beach Box in the City of Newport Beach.

Plant 2 is a developed industrial site containing numerous structures that vary in height, mass and function. Plant 2 is visible from public and private views, including a small commercial area, residential communities, PCH, beach areas and the SAR Bikeway, parallel to the SAR. Residential communities with views of Plant 2 are located in the cities of Huntington Beach to the northwest, Costa Mesa to the northeast, and Newport Beach to the southeast. There are single family residences located directly north and west of the site along Brookhurst Street that have views of Plant 2, however, a screening wall enhanced with landscaping borders Plant 2 at those locations. Nevertheless, some of the homes have partial views of the plant and its facilities.

The tallest structure located at Plant 2 is Surge Tower 2, which stands at 86 feet, located on the southeast portion of the site, adjacent to the SAR Bikeway

The Talbert Marsh, which is adjacent to Air Vac Station 12+05 site, provides a natural buffer between PCH and Plant 2, which contains low lying scrub and marsh habitat. There are no man made features located within the Talbert Marsh other than the Talbert Marsh bike trail that runs easterly from Brookhurst Street to the SAR Bikeway and dirt access roads on its eastern boundaries. The low lying vegetation does not shield views of Plant 2 from PCH, or from the residential neighborhoods southeast of the Talbert Marsh.

Huntington State Beach includes coastal views of the Pacific Ocean, SAR, the adjacent Talbert Marsh and tidal channel, and the California Least Tern Natural Preserve Area. Currently, the chain link fence area of the Preserve covers approximately 8.9 acres and the picket fence “front-yard” area is 3.8 acres. The beach area is dominated by open sandy areas with sparse vegetation scattered throughout the area. The area adjacent to the Beach Box includes sparse vegetation, sand, and trail access to the beach. Southeast of the Beach Box is a lifeguard tower and the eastern boundary of the beach is a access trail to the beach, parallel to the channel.

Lighting

The proposed Project is located within various settings, including industrial, urban-open space interface area, a transportation corridor and open space-conservation, all of which contain numerous existing sources of light and glare to varying degrees. Examples of light and glare include, streetlights, freestanding lights, building mounted lights, vehicular headlights and reflective building materials. Lighting from these adjacent sources results in a generally diminished quality of nighttime sky. Plant 2 has controlled lighting at night. In order to eliminate unnecessary lighting at Plant 2, lighting is customized at Plant 2 to meet lighting needs and environmental standards. No nighttime light and glare sources are located adjacent to the Talbert Marsh area at Air Vac Station 12+05, nor at the Beach Box at Huntington State Beach.

Views of the Proposed Project Site

The proposed Project is surrounded by public views and is visible from the surrounding roadways. Public views of Plant 2 from Brookhurst are partially obscured by high walls, trees, and vegetation, while views of Plant 2 from PCH are relatively unobstructed. Plant 2 is also visible from the SAR Bikeway located adjacent to Plant 2 on the eastern boundaries and from the Coastal Bikeway located adjacent to the Huntington State Beach. Plant 2 is also 0.75 miles east of the City of Costa Mesa. However, the public views from the City of Costa Mesa of Plant 2, where construction activity would occur are obstructed by topography, trees and vegetation.

Public views of the Project site on Huntington State Beach (the Beach Box) are relatively open and unobstructed from PCH and the Coastal Bikeway. Views of the Beach Box area from the State Beach public parking lot are partially obscured by the fenced area reserved for the California Least Tern Natural Preserve Nesting Area.

Figure 4.1-1 depicts an aerial photograph of the site and identifies several key vantage points (KVP) surrounding the proposed Project area. Photographs of the proposed Project element and the site vicinity are included in **Figure 4.1-2** through **Figure 4.1-7**.

KVP 1(**Figure 4.1.2**) is a view of the Surge Tower 2 located at Plant 2 looking southwest. In the foreground are overhead pipes connecting within Surge Tower 2 and large concrete slabs. The background is characterized with electrical poles, trees, and lower brush.

KVP 2 (**Figure 4.1-2**) is a view of the Air Vac Station 12+05 looking west located at the edge of the Talbert Marsh in an area adjacent to the western edge of the SAR Bikeway, between the southern side of Plant 2 and PCH. In the foreground is a dirt access road that leads to the Air Vac Station 12+05 which is fenced off for security reasons and located in a vegetated area. The Air Vac Station 12+05 is surrounded by high brush and vegetation on three sides of the chain-link fencing.

KVP 3 (**Figure 4.1-3**) is a close-up view of the Beach Box on Huntington State Beach from the Coastal Bikeway looking west. The Beach Box is fenced off for security reasons and is surrounded by sand in the foreground. Behind the fenced Beach Box is a chain-link fence and wooden fence that separates the Huntington State Beach from the California Least Tern Natural Preserve Area.

KVP 4 (**Figure 4.1-3**) is a view of the Huntington State Beach parking lot looking west and located adjacent to the Huntington State Beach and Coastal Bikeway. The foreground is characterized by safety cones and cement. The background includes the parking lot and palm trees. This area of the parking lot would be used for construction equipment staging.

KVP 5 (**Figure 4.1-4**) is a view from the Coastal Bikeway parallel to the Huntington State Beach coastline from the west looking east towards the proposed Project site. As shown in the foreground and beyond, the California Least Tern Natural Preserve Area is located to the south and the proposed Project site is not visible. The background includes views of the cement path,

sand along the edges of the path, and electrical poles. This portion of the Coastal Bikeway would be used to transport construction equipment to the Beach Box.

KVP 6 (**Figure 4.1-4**) is a view from the Coastal Bikeway looking south towards the California Least Tern Natural Preserve Area and the coastline. The foreground shows minimal vegetation surrounding the front of the preserve area. This view includes the fencing of the preserve area and views beyond the fenced preserve area.

KVP 7 (**Figure 4.1-5**) is a view of the eastern end of the Coastal Bikeway located near the SAR Bikeway loop looking west towards the State Beach parking lot. As shown here in the foreground, vegetation is present but is relatively low and does not obscure views of the area. In the background and beyond, views of the bikeway, the fenced area of the California Least Tern Natural Preserve Area, palm trees, and electrical poles can be seen.

KVP 8 (Figure 4.1-5) is a view from the SAR Bikeway loop located north of the Coastal Bikeway looking south towards the proposed Project site and California Least Tern Natural Preserve Area. As shown in the foreground, the Coastal Bikeway and beach area are open with some obstruction from existing fencing used to delineate the California Least Tern Natural Preserve Area and the public beach area from the Coastal Bikeway. Beyond the views of the fencing, the beach, lifeguard tower, and coast can be seen.

KVP 9 (**Figure 4.1-6**) is a view from the Coastal bikeway looking south towards the proposed Project site which includes the Beach Box. In the foreground of the photograph, sand, wooden fencing, and the chain-link fencing can be seen which delineates the California Least Tern Natural Preserve Area and the public beach area from the Coastal bikeway. Beyond the fencing is the Beach Box and its attached solar panel located on the Huntington State Beach.

KPV 10 (**Figure 4.1-6**) is a view from the eastern boundary of the California Least Tern Natural Preserve Area looking east. The foreground of the photograph shows sparse vegetation and the SAR outlet leading to the Pacific Ocean. Beyond the views of the SAR outlet is Newport Beach, ornamental trees, and the nearest residential receptors, approximately 1,896 feet south in the City of Newport Beach.

KVP 11 (**Figure 4.1-7**) is a view from the Huntington State Beach looking southeast towards the SAR outlet. In the foreground sparse vegetation and the breakers of the river can be seen. Beyond the breakers are views of the SAR outlet and the Pacific Ocean coastline.

KVP 12 (**Figure 4.1-7**) is a view from the Huntington State Beach looking west towards the California Least Tern Natural Preserve Area. The foreground shows the sands of the beach and the wooden fencing separating the preserve area from the Huntington State Beach. Beyond the wooden fencing is the chain link fencing of the California Least Tern Natural Preserve Area.

Outfall Land Section and OOBS Piping Rehabilitation . 211261

SOURCE: ESA, 2011.

Figure 4.1-1
Key Vantage Points

Vantage Point 1: View from Plant 2 at Surge Tower 2 looking southwest.

Vantage Point 2: View of Air Vac Station 12+05 from access road looking west.

SOURCE: ESA, 2011.

J-112 Outfall Land Section and OOBS Piping Rehabilitation . 211261

Figure 4.1-2
Site Photos

Vantage Point 3: View of Beach Box from bikeway looking southwest.

Vantage Point 4: View from the bikeway east of the Huntington State Beach parking lot looking west.

SOURCE: ESA, 2011.

Figure 4.1-3
Site Photos

Vantage Point 5: View of the bikeway from the west looking east.

Vantage Point 6: View from the bikeway north of the California Least Tern Natural Preserve looking south.

SOURCE: ESA, 2011.

J-112 Outfall Land Section and OOBS Piping Rehabilitation . 211261

Figure 4.1-4
Site Photos

Vantage Point 7: View of the bikeway from the east looking west.

Vantage Point 8: View from the bikeway loop looking south.

SOURCE: ESA, 2011.

J-112 Outfall Land Section and OOBS Piping Rehabilitation . 211261

Figure 4.1-5
Site Photos

Vantage Point 9: View from the north looking south towards the Beach Box.

Vantage Point 10: View from the eastern boundary of the California Least Tern Natural Preserve looking east towards mouth of Santa Ana River and City of Newport Beach residents.

SOURCE: ESA, 2011.

J-112 Outfall Land Section and OOBS Piping Rehabilitation . 211261

Figure 4.1-6
Site Photos

Vantage Point 11: View from Huntington State Beach looking southeast towards the mouth of Santa Ana River.

Vantage Point 12: On Huntington State Beach looking west towards the California Least Tern Natural Preserve "front yard" area.

SOURCE: ESA, 2011.

Figure 4.1-7
Site Photos

4.1.2 Regulatory Framework

State

State Scenic Highway Program

The Scenic Highway Program created in 1963 by the California legislature was established to protect scenic highway corridors from changes that would diminish the aesthetic value of adjacent lands. State regulations and guidelines governing the Scenic Highway Program are found in the Streets and Highways Code, Section 260 et seq. The California Department of Transportation (Caltrans) designates scenic highways. The portion of PCH that runs adjacent to the coast in the City is not officially designated as a State Scenic Highway, but is designated as eligible for the Scenic Highways program.

California Coastal Act

The California Coastal Act (CCA) defines the coastal zone and establishes land use control for the designated zone. The CCA: (1) sets specific uses, including restoration, in which wetlands may be permitted in the coastal zone; (2) provides for additional review and approvals for proposed actions located within designated sensitive coastal areas; and (3) requires cities or counties located within the coastal zone to prepare a Local Coastal Program (LCP). The CCA has also identified and requires the protection of important scenic and visual qualities of the coastal areas.

Local

County of Orange General Plan

The County of Orange General Plan does not contain any goals, objectives, or policies specifically related to visual quality that would apply to the proposed Project. The Orange County Master Plan of Scenic Highways designates the portion of PCH within the proposed Project vicinity as a County scenic highway and as a viewscape corridor. With this designation, specific guidelines are given for enhancing the scenic amenities of these facilities.

The City of Huntington Beach Coastal Element

The Huntington Beach Coastal Element was certified by the California Coastal Commission (CCC) in 1985 and approved by the City Council and certified by the CCC in 1999. The purpose of the Coastal Element is to meet the requirements of the Coastal Act and guide civic decisions regarding growth, development, enhancement and preservation of the City's Coastal Zone and its resources. The Coastal Element of the General Plan identifies the stretch of PCH within the Project vicinity as a Major Urban Scenic Corridor and Landscape Corridor. The City's Coastal Zone includes visual resources, facilities and assets that contribute to both the positive and negative aesthetic character of the Coastal Zone. Assets that define the coastal visual resources within the Project vicinity include the Huntington State Beach, Pacific Ocean, Talbert Marsh, and the SAR.

City of Newport Beach Local Coastal Program

The City of Newport Beach does not have a certified LCP, and therefore, does not have the jurisdiction to issue Coastal Development Permits (CDP). The City of Newport Beach does, however, have a Coastal Land Use Plan that has been certified by the CCC. Since the City of Newport Beach does not have permit jurisdiction, the City reviews pending development projects for consistency with the City's General Plan, Coastal Land Use Plan and Zoning regulations before an applicant can file for a coastal development permit with the Coastal Commission. The City of Newport Beach is presently in the process of preparing an Implementation Plan for the City's Coastal Land Use Plan. The City of Newport Beach has designated the PCH segment adjacent to the Project area as a coastal view road.

Although the proposed Project is not located in the City of Newport Beach, it is located in proximity to the City of Newport Beach's city limit. Impacts to bordering uses have been taken into account in this analysis.

4.1.3 Impacts and Mitigation Measures

Significance Criteria

For the purposes of this Draft EIR and consistency with Appendix G of the *CEQA Guidelines*, applicable local plans, and agency and professional standards, the proposed Project would have a significant impact on aesthetics if it would:

- Create a substantial adverse effect on a scenic vista;
- 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; or
- Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

Impacts Discussion

The following sections discuss the potential effects of the proposed project to visual resources according to the key issue areas identified in Appendix G of the *CEQA Guidelines* and corresponding to the significance criteria identified above.

It was determined in the Draft EIR analysis the following environmental factors would have no impact. The following is a brief discussion of the analysis:

State Scenic Highway

There are no officially-designated State Scenic Highways within the Project area (Caltrans, 2011). The status of a proposed State Scenic Highway changes from eligible to officially designated when the local governing body applies to Caltrans for scenic highway approval, adopts a Corridor Protection Program, and receives notification that the highway has been

officially designated a Scenic Highway. The segment of PCH near the Project area is currently an eligible Scenic Highway but is not yet officially designated as a Scenic Highway by Caltrans (Caltrans, 2011).

However, the proposed Project is located in an area that is designated as a viewscape corridor by the County of Orange General Plan, a major urban scenic corridor by the City General Plan, and a coastal view road by the Newport Beach General Plan.

Nevertheless, there are no State designated scenic corridors in the vicinity of the proposed Project, which are defined as the land generally adjacent to and visible by motorists from a scenic highway. Therefore, the proposed Project would not impact scenic resources within a designated State Scenic Highway corridor, including rock outcroppings, trees, or historic buildings. There would be no impact to a designated State Scenic Highway.

Significance Level: No impact

Scenic Vistas

Impact 4.1-1: The proposed Project could alter a scenic vista.

As required by the Coastal Act, scenic and visual qualities of coastal areas including natural landforms along bluffs and cliffs are to be considered and protected as an important public resource. The proposed Project site is located in the Coastal Zone. As stated in the City's Coastal Element, Huntington's Coastal Zone includes visual resources, facilities and assets that contribute to both the positive and negative aesthetic character of the Coastal Zone. Assets that define the coastal visual resources within the Project vicinity include Huntington State Beach, the Pacific Ocean, Talbert Marsh, and the SAR.

Alternative 1

Activities on Plant 2

Plant 2 is a 110 acre industrial facility, adjacent to the SAR, roughly 1,500 feet from the Pacific Ocean. The proposed rehabilitation activities located within Plant 2 boundaries would not involve the construction of new facilities that would alter the existing visual resources of the immediate area. As these temporary activities would take place within the boundaries of Plant 2, scenic vistas of PCH and the coast would not be affected; impacts to scenic vistas from activities at Plant 2 would be less than significant.

Activities at Air Vac Station 12+05

The Talbert Marsh is located south of Plant 2 near Air Vac Station 12+05. The Talbert Marsh bike trail connects Brookhurst Street to the SAR Bikeway just north of the 25 acre, 40 foot wide, Talbert Marsh. The Talbert Marsh contains numerous plant and avian species and provides visual relief along the stretch of PCH and is designated as a Landscape Corridor by the City's Coastal

Element (For a specific discussion of fauna and flora near this site, please refer to Chapter 4.3, Biological Resources). The Air Vac Station 12+05 access road is located at the western edge of the SAR Bikeway between the south side of Plant 2 and PCH (**Figure 4.1-1**). The Air Vac Station 12+05 is enclosed by a chain-link fence and accessed via a dirt road.

Strengthening of the riser connection located in Air Vac Station 12+05 would require temporary use of construction equipment during rehabilitation activities. Construction equipment would be located in the area adjacent to Air Vac Station 12+05 and would include generators, an air compressor, dehumidification unit, high pressure water blaster, jackhammer/chipper, panel truck, pneumatic tools, ventilation fan, and a welder. It is anticipated that a crane would also be utilized for approximately two days during construction. The crane would be sited on the SAR Bikeway when in use. A typical crane for this type of work at its highest point of the telescopic boom would be approximately 171 feet. The crane would have a width of approximately 24 feet and a length of approximately 28 feet.

The rehabilitation activities at Air Vac Station 12+05 would be located below ground and would not require the removal of vegetation. Staging of equipment at the access road and adjacent to the SAR Bikeway would last approximately one week. At the end of rehabilitation activities at Air Vac Station 12+05 located at the edge of the Talbert Marsh, vistas and views would return to pre-construction conditions. Impacts to scenic vistas from construction activities associated with Air Vac Station 12+05 would be less than significant.

Activities on the Beach

Rehabilitation of Beach Box

The Pacific Ocean is the City's most prominent visual asset as views of the ocean from PCH, peripheral streets, and surrounding neighborhoods enhance the visual quality of the City. The Coastal Element of the City's General Plan identifies the stretch of PCH within the Project vicinity, as a Major Urban Scenic Corridor and Landscape Corridor. Rehabilitation of the Beach Box would require staging of equipment including a crane at the beach for 4 to 6 weeks. No new structures would be erected. **Mitigation Measure 4.1-1** requires the installation of a visual screen between the construction activities and the SAR, which would block some of the views of the construction site from residential and public views at the beach. Following construction, the Beach Box would be returned to its pre-construction condition. Impacts to a scenic vista from rehabilitation of the Beach Box would be less than significant with mitigation.

Construction of Bypass Structure

The proposed Project under Alternative 1 would include the installation of a bypass structure south of the Beach Box. This would include installation of two 60 inch (5 foot diameter) overhead/aboveground pipes approximately 6 feet above ground. **Figure 3-9** of Chapter 3, Project Description, provides a visual rendering of the proposed bypass structure. The top elevation of the machinery used to install the isolation gates (line stops) would be approximately 55 feet aboveground.

The installation of the bypass structure south of the Beach Box would create obstructions that would be visible from PCH, the bikeways and surrounding residential areas. As shown in **Figure 4.1-5** the view of the coast is relatively unobstructed with the exception of an elevated solar panel at the Beach Box. In addition, fencing surrounding the California Least Tern Natural Preserve Area would partially obstruct views of the coast and beach (**Figure 4.1-5**). The installation of the 60 inch diameter bypass structure would disrupt views of the coast and westerly views from across the SAR in Newport Beach. In addition, the machinery used to install the isolation gates (line stops) would be approximately 55 feet above ground, approximately 45 feet taller than any other structures near this portion of the beach and within the proposed Project area. The tallest structure near this activity is the restroom facility located in the Huntington State Beach parking lot, which is a single story building.

A groundwater treatment system consisting of approximately 60, 8 feet by 5 feet dewatering tanks, 22 desilting tanks and the associated bags filters would be installed directly south and southeast of the California Least Tern Natural Preserve Area, to treat groundwater from the construction zone and remove sand (**Figure 3-5**). Dewatering operations would occur 24 hours a day, 7 days a week. However, as part of the dewatering system, the flow from the bag filters would be conveyed using four, 48 inch corrugated high-density polyethylene (HDPE) drainage pipes directly to the SAR at a location approximately 200 feet to the east of the bag filers. The pipes would project over the rip rap on the eastern edge of the SAR and discharge directly into the estuary where the river currently meets the ocean tides. The discharge pipe would be visible from PCH, the beach, and the local residential area.

Impacts to scenic vistas would occur during the entire seven month construction and rehabilitation activities of the proposed Project under Alternative 1, lasting from September 2014 through March 2015. Visual screens would not effectively obscure the construction site from PCH views due to the height of the bypass structure, large machinery used at the installation of isolation gates (line stops), construction cranes, dewatering system and the 10 foot high stock pile. In addition, PCH is at a higher grade than the construction site, which diminishes the effectiveness of temporary visual screens.

At the end of construction, the bypass structure would be removed and scenic vistas of the coast would return to their pre-construction condition. Although impacts to scenic vistas would be temporary, the proposed Project site would be returned to its pre-condition state, and **Mitigation Measures 4.1-1** would be implemented, impacts associated with construction of the bypass structure would still be considered significant and unavoidable.

Significance Level Alternative 1: Installation of the bypass structure under Alternative 1 would result in a temporary significant and unavoidable impact. All other elements would be less than significant with mitigation.

Alternative 2

Alternative 2 would result in identical impacts at Plant 2, Air Vac Station 12+05, and on the beach during Beach Box rehabilitation activities as described for Alternative 1. Under Alternative 2, no major construction or excavation activities would occur on the beach, because no bypass structure

would be required. Nevertheless, in order to protect nearby scenic vista views, **Mitigation Measures 4.1-1 is** proposed and impacts to visual character would be less than significant.

Significance Level Alternative 2: Less than significant with mitigation.

Mitigation Measure

> **4.1-1:** A visual screen shall be installed along the eastern and southeastern edge of the Beach Box construction area to reduce the impact of construction activities along PCH and to residents east of the SAR in the City of Newport Beach.

Visual Character

Impact 4.1-2: The proposed Project could substantially degrade the existing visual character or quality of the site and its surroundings.

Alternative 1

Activities on Plant 2

Rehabilitation activities located within the boundaries of Plant 2 would not degrade the existing visual character or quality of the site and its surroundings. Views of the existing treatment plant are largely shielded from residential areas and other potential sensitive receptors by screening walls and various types of vegetation (in some cases up to 30 feet tall). Residential areas located across the SAR from Plant 2 have long-range views of the structures within the plant site under existing conditions. The bikeways on either side of the SAR also have views of Plant 2. The rehabilitation of the Long Outfall at Plant 2 would be conducted exclusively within the Long Outfall. Rehabilitation of Surge Tower 2 and the onsite pipe risers would be visible during the work on the exterior, but this change in visual character would be temporary. Impacts to the visual character associated with proposed activities on Plant 2 site and its surroundings would be less than significant.

Activities at Air Vac Station 12+05

Rehabilitation activities at Air Vac Station 12+05 would be visible from the SAR Bikeway. The existing visual character of the site is defined by a dirt path that leads to Air Vac Station 12+05, enclosed by a chain-link fence surrounded on the outside by vegetation and brush on three sides, as shown in **Figure 4.1-2**. The machinery used to support the internal structural strengthening of the riser connection at Air Vac Station 12+05 would be parked along the dirt access road and the SAR Bikeway. Construction equipment and machinery would also occupy the SAR Bikeway, north of PCH to a point south of the Talbert Marsh bike trail and result in a bike trail closure of up to a week during the rehabilitation activities. However, a majority of the rehabilitation activities would occur within the underground pipeline. Although the construction vehicles, including a crawler crane, would be sited on the SAR Bikeway, resulting in a closure for up to a week, the affects within the surrounding viewshed would be limited to a short period of time.

Additionally, the site would be returned to its pre-construction condition. Thus, the temporary parking of construction vehicles and equipment associated with the rehabilitation activities at the Air Vac Station 12+05 would not affect the visual character of the site. The impacts to visual character from activities at the Air Vac Station 12+05 would be less than significant.

Activities on the Beach

Rehabilitation of Beach Box

As described above, rehabilitation of the Beach Box would require staging of equipment including a crane at the beach for 4 to 6 weeks. No new structures would be erected. Implementation of **Mitigation Measure 4.1-1** requires the installation of a visual screen between the construction and the river that would block some of the views of the construction activities from adjacent residential and public uses. Following construction, the Beach Box site would be returned to its pre-construction condition. Impacts to visual character from activities at the Beach Box would be less than significant with mitigation.

Construction of Bypass Structure

Alternative 1would involve the installation of two 60 inch diameter (5-feet) bypass pipes that would be approximately 6 feet above ground. Construction of the bypass structure and rehabilitation activities for Alternative 1 would last up to seven months. The top elevation of the machinery used to install the line stops would be approximately 55 feet above ground. In addition, approximately 4,350 cubic yards of sand and soil would be excavated and stockpiled on site south of the Beach Box. These stockpiles and construction activities would alter the character of this portion of the beach during the seven month construction period. The Project area is currently approximately 500 feet southeast of the parking lot and obscured by chain-link fences that border the Beach Box and California Least Tern Preserve Area. The bypass structure and construction activities would be visible for a seven month period. Views from the houses directly across the mouth of the SAR in the City of Newport Beach would be most affected.

The existing visual character of the Project area would be significantly altered during the entire seven month construction and rehabilitation activities of the proposed Project under Alternative 1, lasting from September 2014 through March 2015. Visual screens would not effectively obscure the construction site from PCH views due to the height of the bypass structure, large machinery used at the installation of isolation gates (line stops), construction cranes, dewatering system and the stock pile. In addition, PCH is at a higher grade than the construction site, which diminishes the effectiveness of temporary visual screens.

At the end of construction, the bypass structure would be removed and scenic views of the coast would return to their pre-construction condition. Although impacts to visual character of the area would be temporary and mitigation measures would be implemented, impacts to the visual character associated with the construction of the bypass structure would remain significant and unavoidable**.**

Significance Level Alternative 1: Installation of the bypass structure under Alternative 1 would result in a temporary significant and unavoidable impact. All other components would be less than significant with mitigation.

Alternative 2

Alternative 2 would result in identical impacts at Plant 2, the Air Vac Station 12+05, and on the beach during Beach Box rehabilitation activities as described for Alternative 1. Under Alternative 2, no major construction or excavation activities would occur on the beach, because no bypass structure would be required. Nevertheless, in order to protect nearby views from activities on the beach, **Mitigation Measure 4.1-1** is proposed and impacts to visual character would be less than significant.

Significance Level Alternative 2: Less than significant with mitigation.

Mitigation Measure

Implement **Mitigation Measure 4.1-1**

Light and Glare

Impact 4.1-3: The proposed Project could create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

Alternative 1

Activities on Plant 2

Rehabilitation activities located within the boundaries of Plant 2 would require the need for temporary construction lighting if activities are conducted during nighttime hours. If nighttime lighting of Surge Tower 2 or construction equipment is required, construction lighting would be shielded and directed downward to avoid possible spillover to surrounding areas. Also, lighting near the portals (manholes/vaults) to the underground pipeline to aid in repair inside the underground Long Outfall would not substantially increase the light spillover on the plant site. Typical nighttime construction lighting includes light towers and portable light stands.

When necessary, the staging area located in the southwest corner of Plant 2 would include lighting; however, similar to lighting that would be used for work at Surge Tower 2, lighting would be shielded and directed downward to avoid possible spillover to surrounding areas, including the Talbert Marsh. Implementation of **Mitigation Measures 4.1-3a** and **4.1-3b** would ensure that the temporary nighttime lighting would be shielded and directed downward to avoid light spillover to the SAR, Talbert Marsh and other light-sensitive areas. Aboveground structures, such as Surge Tower 2 would be coated with a non-reflective surface to reduce glare. Impacts associated with construction lighting and nighttime lighting associated with activities at Plant 2 would be less than significant with mitigation.

Activities at Air Vac Station 12+05

Rehabilitation activities at Air Vac Station 12+05 would require the use of construction lighting for work performed within the underground pipeline at night. Typical nighttime construction lighting includes light towers and portable light stands, which vary in wattage from 200 to 1,000 watt fixtures. The light towers have masts that rotate 360 degrees. However, **Mitigation Measure 4.1-3a** would ensure that the temporary nighttime lighting would be shielded and directed downward to avoid light spillover to the Talbert Marsh area and other light-sensitive areas. Impacts associated with construction lighting and nighttime lighting would be less than significant with mitigation.

Activities on the Beach

Rehabilitation of Beach Box

Rehabilitation activities at Beach Box would require the use of construction lighting for work performed within the underground Beach Box at night. Typical nighttime construction lighting includes light towers and portable light stands, which vary from 200 to 1,000 watts. The light towers have masts that rotate 360 degrees. **Mitigation Measure 4.1-3a** would ensure that the temporary nighttime lighting would be shielded and directed downward to avoid light spillover. **Mitigation Measure 4.1-1** would erect a visual screen to lessen effects of nighttime light on the neighboring residences in Newport Beach. Impacts associated with construction lighting and nighttime lighting related to the rehabilitation of the Beach Box would be less than significant with mitigation.

Construction of Bypass Structure

No nighttime construction of the bypass structure would occur under Alternative 1. The temporary structure would not emit light or glare. Construction of the bypass structure for Alternative 1 would occur 8 hours per day, 7 days a week. The bypass structure would be coated with a non-reflective surface to reduce glare, thus construction of the bypass structure would not result in light or glare impacts.

Significance Level Alternative 1: Less than significant with mitigation.

Alternative 2

Alternative 2 would result in identical impacts at Plant 2, the Air Vac Station 12+05, and on the beach during Beach Box rehabilitation activities as described above for Alternative 1. Under Alternative 2, no major construction or excavation activities would occur on the beach, because no bypass structure would be required. Impacts from light and glare associated with activities under Alternative 2 would be less than significant with mitigation.

Significance Level Alternative 2: Less than significant with mitigation.

Mitigation Measures

> **4.1-3a:** All construction-related lighting associated with the rehabilitation of the Beach shall be directed downward and away from adjacent sensitive receptors, including

residences, the California Least Tern Natural Preserve Area and other sensitive wildlife areas. Lighting shall use the minimum wattage necessary to provide safety at the construction sites.

4.1-3b: Prior to the commencement of rehabilitation activities, the Sanitation District shall coordinate with the City of Huntington Beach concerning nighttime activities.

References – Aesthetics

California Department of Transportation (Caltrans), 2011. *California Scenic Highway Program.* Available online: http://www.dot.ca.gov/hq/LandArch/scenic_highways/scenic_hwy.htm, accessed October 2011.

City of Huntington Beach, 2001. *City of Huntington Beach General Plan - Coastal Element,* adopted 2001, amended 2008.

City of Newport Beach, 2006. *City of Newport Beach General Plan – Coastal Element*.

County of Orange, 2005. *County of Orange General Plan*.

County of Orange, 2005. *County of Orange Scenic Highway Plan*.

4.2 Air Quality

This section provides an overview of the existing air quality at the proposed Project site and surrounding region, the regulatory framework, an analysis of potential impacts to air quality that would result from implementation of the proposed Project, and identification of mitigation measures.

4.2.1 Environmental Setting

The air quality setting in the immediate vicinity of the proposed Project is influenced primarily by traffic along Pacific Coast Highway (PCH). The sea breeze circulation system established due to the proximity to the Pacific Ocean can influence local pollutant concentrations.

Climate and Meteorology

Atmospheric conditions such as wind speed, wind direction, and air temperature gradients interact with the physical features of the landscape to determine the movement and dispersal of air pollutants. The proposed Project is located in Orange County in the City of Huntington Beach (the City) and within the boundaries of the South Coast Air Basin (Basin). The Basin includes all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino counties. The Basin, which is a subregion of the South Coast Air Quality Management District's (SCAQMD) jurisdiction, is bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino, and San Jacinto mountains to the north and east. The topography and climate of southern California combine to make the Basin an area of high air pollution potential. During the summer months, a warm air mass frequently descends over the cool, moist marine layer produced by the interaction between the ocean's surface and the lowest layer of the atmosphere. The warm upper layer forms a cap over the cool marine layer and inhibits the pollutants in the marine layer from dispersing upward. In addition, light winds during the summer further limit ventilation. Furthermore, sunlight triggers the photochemical reactions which produce ozone. The region experiences more days of sunlight than any other major urban area in the nation except Phoenix, Arizona (SCAQMD, 2007).

Project Area Setting

Existing Air Quality

The SCAQMD monitors air quality conditions at 38 locations throughout the Basin. The Project site is located in the Source Receptor Area 18, North Orange County Coastal Air Monitoring Subregion. There are no monitoring stations located within this subregion; however, air quality in the proposed Project area can be characterized by ambient air quality data collected at the closest monitoring stations located at the Costa Mesa Monitoring Station and the Anaheim Monitoring Station. The Costa Mesa monitoring station (2850 Mesa Verde Drive East),is located approximately five miles northeast of the proposed Project site, and monitors the ambient concentrations of ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), and sulfur dioxide (SO_2).

The Anaheim Monitoring Station (1630 Pampas Lane), located approximately 15 miles north of the Project site, and monitors O_3, NO_2, CO, coarse particulate matter (PM_{10}) and fine particulate matter ($PM_{2.5}$) data. The most recent available historical data from the Costa Mesa and Anaheim Monitoring Stations for 2008 through 2010 is shown in **Table 4.2-1**.

Criteria Air Pollutants

The following pollutants are defined as "criteria" air pollutants as standards have been established for each of them to meet specific public health and welfare criteria set forth in the Federal Clean Air Act (FCAA). The EPA calls these pollutants "criteria" air pollutants because it regulates them by developing human health-based and/or environmentally-based criteria (science-based guidelines) for setting permissible levels. California has adopted more stringent ambient air quality standards for the criteria air pollutants (referred to as State Ambient Air Quality Standards, or State standards) and has adopted air quality standards for some pollutants for which there is no corresponding national standard.

Ozone (O_3)

Ozone, the main component of photochemical smog, is primarily a summer and fall pollution problem. Ozone is not emitted directly into the air but is formed through a complex series of chemical reactions involving other compounds that are directly emitted. These directly emitted pollutants (also known as ozone precursors) include reactive organic gases (ROG) and nitrogen oxides (NO_X). The time period required for ozone formation allows the reacting compounds to spread over a large area, producing regional pollution problems. Ozone concentrations are the cumulative result of regional development patterns rather than the result of a few significant emission sources.

Once ozone is formed in our atmosphere, it remains in the atmosphere for 1 or two days. Ozone is then eliminated through reaction with chemicals on the leaves of plants, attachment to water droplets as they fall to earth ("rainout"), or absorption by water molecules in clouds that later fall to earth with rain ("washout").

Short-term exposure to ozone can irritate the eyes and cause constriction of the airways. In addition to causing shortness of breath, ozone can aggravate existing respiratory diseases such as asthma, bronchitis, and emphysema.

Carbon Monoxide (CO)

CO, a colorless and odorless gas, is a non-reactive pollutant that is a product of incomplete combustion and mostly associated with motor vehicles. When inhaled at high concentrations, CO combines with hemoglobin in the blood and reduces the oxygen-carrying capacity of the blood. This results in reduced oxygen reaching the brain, heart and other body tissues. This condition is especially critical for people with cardiovascular diseases, chronic lung disease, or anemia. CO measurements and modeling were important in the early 1980's when CO levels were regularly exceeded throughout California. In more recent years, CO measurements and modeling have not been a priority in most California air districts due to the retirement of older polluting vehicles, less emission from new vehicles, and improvements in fuels.

TABLE 4.2-1
AIR QUALITY DATA SUMMARY (2008 – 2010)

Pollutant	Standard[a]	Monitoring Data by Year 2008	2009	2010
Ozone – Costa Mesa Monitoring Station				
Highest 1 Hour Average (ppm)		0.094	0.087	0.097
Days over State Standard	0.09 ppm	0	0	0
Highest 8 Hour Average (ppm)		0.079	0.072	0.076
Days over National Standard	0.075 ppm	3	0	1
Days over State Standard	0.070 ppm	5	3	2
Carbon Monoxide – Costa Mesa Monitoring Station				
Highest 1 Hour Average (ppm)		3	3	–
Days over National Standard	35 ppm	0	0	–
Days over State Standard	20 ppm	0	0	–
Highest 8 Hour Average (ppm)		1.97	2.16	2.09
Days over National Standard	9 ppm	0	0	0
Days over State Standard	9 ppm	0	0	0
Nitrogen Dioxide – Costa Mesa Monitoring Station				
Highest 1 Hour Average (ppm)		0.081	0.065	0.070
Days over National Standard	0.100 ppm	0	0	0
Days over State Standard	0.18 ppm	0	0	0
Annual Average (ppm)		0.013	0.013	0.011
Days over National Standard	0.053 ppm	0	0	0
Days over State Standard	0.030 ppm	0	0	0
Sulfur Dioxide – Costa Mesa Monitoring Station				
Highest 24 Hour Average (ppm)		0.003	0.004	0.002
Days over State Standard	0.04 ppm	0	0	0
Particulate Matter (PM_{10}) - Anaheim Monitoring Station				
Highest 24 Hour Average ($\mu g/m^3$)[b]		61.0	63.0	43.0
Days over National Standard (measured)[c]	150 $\mu g/m^3$	0	0	0
Days over State Standard (measured)[c]	50 $\mu g/m^3$	3	1	0
Annual Average ($\mu g/m^3$)[b]	20 $\mu g/m^3$	28.6	30.9	22.5
Particulate Matter ($PM_{2.5}$) - Anaheim Monitoring Station				
Highest 24 Hour Average ($\mu g/m^3$)[b]		67.8	64.5	31.7
Days over National Standard (measured)[c]	35 $\mu g/m^3$	5	5	0
Annual Average ($\mu g/m^3$)[b]	12 $\mu g/m^3$	-	12.0	10.5

ppm = parts per million
µg/m3 = micrograms per cubic meter.
– = No data available.
[a] Generally, State and national standards are not to be exceeded more than once per year.
[b] Concentrations and averages represent federal statistics. State and federal statistics may differ because of different sampling methods.
[c] Measurements are usually collected every 6 days. Days over the standard represent the measured number of days that the standard has been exceeded.

SOURCE: California Air Resource Board. http://www.arb.ca.gov/adam/, 2011.

Particulate Matter (PM_{10} and $PM_{2.5}$)

PM_{10} and $PM_{2.5}$ consist of particulate matter that is 10 microns or less in diameter and 2.5 microns or less in diameter, respectively (A micron is 1-millionth of a meter). PM_{10} and $PM_{2.5}$ represent fractions of particulate matter that can be inhaled into the air passages and the lungs and can cause adverse health effects. Acute and chronic health effects associated with high particulate levels include the aggravation of chronic respiratory diseases, heart and lung disease, and coughing, bronchitis and respiratory illnesses in children. Recent mortality studies have shown an association between morbidity and mortality and daily concentrations of particulate matter in the air. The California Air Resources Board (CARB) has estimated that achieving the ambient air quality standards for PM_{10} could reduce premature mortality rates by 6,500 cases per year (CARB, 2002). Particulate matter can also damage materials and reduce visibility. One common source of $PM_{2.5}$ is diesel exhaust emissions.

PM_{10} consists of particulate matter emitted directly into the air, such as fugitive dust, soot, and smoke from mobile and stationary sources, construction operations, fires, and natural windblown dust; and particulate matter formed in the atmosphere by condensation and/or transformation of SO_2 and ROG. Traffic generates particulate matter emissions through entrainment of dust and dirt particles that settle onto roadways and parking lots. PM_{10} and $PM_{2.5}$ emissions are also emitted by burning wood in residential wood stoves and fireplaces and open agricultural burning. PM_{10} can remain in the atmosphere for up to seven days before gravitational settling, rainout, and washout remove it.

Nitrogen Dioxide (NO_2)

NO_2 is a reddish-brown gas that is a by-product of combustion processes. Automobiles and industrial operations are the main sources of NO_2. Combustion devices emit primarily nitric oxide (NO), which reacts through oxidation in the atmosphere to form NO_2. The combined emissions of NO and NO_2 are referred to as NO_X, which are reported as equivalent NO_2. Aside from its contribution to ozone formation, NO_2 can increase the risk of acute and chronic respiratory disease and reduce visibility. NO_2 may be visible as a coloring component of a brown cloud on high pollution days, especially in conjunction with high ozone levels.

Odorous Emissions

Offensive odors are unpleasant and can lead to public distress generating citizen complaints to local governments. Although unpleasant, offensive odors rarely cause physical harm. The occurrence and severity of odor impacts depend on the nature, frequency, and intensity of the source, wind speed, direction, and the sensitivity of receptors.

Sensitive Land Uses

Land uses such as schools, children's daycare centers, hospitals, and convalescent homes are considered to be more sensitive to poor air quality than the general public because the population groups associated with these uses have increased susceptibility to respiratory distress. In addition, residential uses are considered more sensitive to air quality conditions than commercial and industrial uses, because people generally spend longer periods of time at their residences,

resulting in greater exposure to ambient air quality conditions. Recreational land uses are considered moderately sensitive to air pollution. Exercise activities create a high demand on respiratory functions, which can be impaired by air pollution, even though exposure periods during exercise are generally short. In addition, noticeable air pollution can detract from the enjoyment of recreation.

The proposed Project is located in close proximity to residential, natural, and public recreation areas. The primary sensitive receptors in the Project vicinity are residential neighborhoods located to the east of the Project site. The closest residences are about 250 feet west from the construction staging area inside Plant 2, 634 feet east of the proposed Beach Box, 796 feet east from the Air Vac Station 12+05 at the mobile home community across the SAR and approximately 1,896 feet east from the construction activities that would occur within Plant 2 boundaries. There are areas within the vicinity of the SAR which support recreational visitors that could also be considered sensitive receptors. The proposed Project is also located in proximity to the Huntington State Beach, Coastal bikeway and SAR Bikeway. Bicyclists, pedestrians, and other visitors that utilize the Coastal bikeway and SAR Bikeway and the portion of the Huntington State Beach would be the nearest sensitive receptors to the Project area. The bikeway is adjacent to Plant 2 and the beach and is located within a portion of the Project construction area. The nearest school, the John H. Eader Elementary School, is located approximately 0.5 mile northwest of Plant 2.

4.2.2 Regulatory Framework and Air Quality Standards

Federal

The Federal Clean Air Act (FCAA) requires the U.S. Environmental Protection Agency (USEPA) to identify National Ambient Air Quality Standards (NAAQS or national standards) to protect public health and welfare. National standards have been established for ozone, CO, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and lead. **Table 4.2-2** shows current national and State ambient air quality standards and provides a brief discussion of the related health effects and principal sources for each pollutant.

Pursuant to the 1990 Federal Clean Air Act Amendments (FCAAA), the USEPA classifies air basins (or portions thereof) as “attainment” or “nonattainment” for each criteria air pollutant, based on whether or not the NAAQS have been achieved. The FCAA requires each state to prepare an air quality control plan referred to as the State Implementation Plan (SIP). The SIP is periodically modified to reflect the latest emissions inventories, planning documents, and rules and regulations of air basins as reported by the agencies with jurisdiction over them. The USEPA has responsibility to review all state SIPs to determine if they conform to the mandates of the FCAAA and will achieve air quality goals when implemented.

If the USEPA determines a SIP to be inadequate, it may prepare a Federal Implementation Plan (FIP) for the nonattainment area and may impose additional control measures. Failure to submit an approvable SIP or to implement the plan within mandated timeframes can result in sanctions being applied to transportation funding and stationary air pollution sources in the air basin.

TABLE 4.2-2
STATE AND NATIONAL CRITERIA AIR POLLUTANT STANDARDS, EFFECTS, AND SOURCES

Pollutant	Averaging Time	State Standard	National Standard	Pollutant Health and Atmospheric Effects	Major Pollutant Sources
Ozone	1 hour 8 hours	0.09 ppm 0.07 ppm	--- 0.075 ppm	High concentrations can directly affect lungs, causing irritation and difficulties in breathing. Long-term exposure may cause damage to lung tissue.	Formed when reactive organic gases (ROG) and nitrogen oxides (NOx) react in the presence of sunlight. Major sources include on-road motor vehicles, solvent evaporation, and commercial / industrial mobile equipment.
Carbon Monoxide	1 hour 8 hours	20 ppm 9.0 ppm	35 ppm 9 ppm	Classified as a chemical asphyxiant, carbon monoxide interferes with the transfer of fresh oxygen to the blood and deprives sensitive tissues of oxygen.	Internal combustion engines, primarily gasoline-powered motor vehicles.
Nitrogen Dioxide	1 hour Annual Avg.	0.18 ppm 0.030 ppm	0.100 ppm 0.053 ppm	Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown.	Motor vehicles, petroleum refining operations, industrial sources, aircraft, ships, and railroads.
Sulfur Dioxide	1 hour 3 hours 24 hours	0.25 ppm --- 0.04 ppm	75 ppb 0.5 ppm 0.14 ppm	Irritates upper respiratory tract; injurious to lung tissue. Can yellow the leaves of plants, destructive to marble, iron, and steel. Limits visibility and reduces sunlight.	Fuel combustion, chemical plants, sulfur recovery plants, and metal processing.
Respirable Particulate Matter (PM_{10})	24 hours Annual Avg.	50 $\mu g/m^3$ 20 $\mu g/m^3$	150 $\mu g/m^3$ ---	May irritate eyes and respiratory tract, decreases in lung capacity, cancer and increased mortality. Produces haze and limits visibility.	Dust and fume-producing industrial and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind-raised dust and ocean sprays).
Fine Particulate Matter ($PM_{2.5}$)	24 hours Annual Avg.	--- 12 $\mu g/m^3$	35 $\mu g/m^3$ 15 $\mu g/m^3$	Increases respiratory disease, Lung damage, cancer, and premature death. Reduces visibility and results in surface soiling.	Fuel combustion in motor vehicles, equipment, and industrial sources; residential and agricultural burning; Also, formed from photochemical reactions of other pollutants, including nitrogen oxides, sulfur oxides, and organics.
Lead	Monthly Avg. Quarterly Rolling 3-Month Average	1.5 $\mu g/m^3$ --- ---	--- 1.5 $\mu g/m^3$ 0.15 $\mu g/m^3$	Disturbs gastrointestinal system, and causes anemia, kidney disease, and neuromuscular and neurological dysfunction.	Present source: Lead smelters, battery manufacturing & recycling facilities, deterioration of lead paint. Past source: combustion of leaded gasoline.
Hydrogen Sulfide	1 hour	0.03 ppm	No National Standard	Nuisance odor (rotten egg smell), headache and breathing difficulties (higher concentrations).	Geothermal Power Plants, Petroleum Production and refining.
Sulfates	24 hour	25 $\mu g/m^3$	No National Standard	Breathing difficulties, aggravates asthma, reduced visibility.	Produced by the reaction in the air of SO_2.
Vinyl Chloride	24 hour	0.01 ppm	No National Standard	Central nervous system effects, such as dizziness, drowsiness, and headaches, liver damage, cancer, angiosarcoma.	Detected near landfills, sewage plants, and hazardous waste sites, due to microbial breakdown of chlorinated solvents.
Visibility Reducing Particles	8 hour	Extinction of 0.23/km; visibility of 10 miles or more	No National Standard	Reduces visibility, reduced airport safety, lower real estate value, discourages tourism.	See $PM_{2.5}$.

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

SOURCE: California Air Resources Board, 2010a. *Ambient Air Quality Standards,* available at http://www.arb.ca.gov/research/aaqs/ aaqs2.pdf Standards last updated September 8, 2010;
California Air Resources Board, 2001. *ARB Fact Sheet: Air Pollution Sources, Effects and Control,* http://www.arb.ca.gov/research/health/fs/fs2/fs2.htm, page last updated December 2009.

The FCAAA added requirements for states containing areas that violate the NAAQS to revise their SIPs to incorporate additional control measures to reduce air pollution.

Regulation of Toxic Air Contaminants (TACs), termed Hazardous Air Pollutants (HAPs) under federal regulations, is achieved through federal, State and local controls on individual sources. The 1977 Clean Air Act Amendments required the USEPA to identify National Emission Standards for Hazardous Air Pollutants (NESHAPs) to protect public health and welfare. These substances include certain volatile organic chemicals, pesticides, herbicides, and radionuclides that present a tangible hazard, based on scientific studies of exposure to humans and other mammals. TACs are usually present in minute quantities in the ambient air; however, their high toxicity or health risk may pose a threat to public health even at low concentrations. According to *The California Almanac of Emissions and Air Quality*, the majority of the estimated health risk from TACs can be attributed to relatively few compounds, the most important being particulate matter from diesel-fueled engines (diesel PM).

State

CARB manages air quality, regulates mobile emissions sources, and oversees the activities of county Air Pollution Control Districts (APCDs) and regional Air Quality Management Districts (AQMDs). CARB also establishes State ambient air quality standards and vehicle emissions standards.

California has adopted ambient standards that are more stringent than the federal standards for the criteria air pollutants under the waiver provisions of Section 209(b) of the CAA and are further discussed in **Table 4.2-2**. Under the California Clean Air Act (CCAA), areas have been designated as attainment or nonattainment with respect to the State standards. **Table 4.2-3** summarizes the attainment status of the Basin with respect to national and State standards.

Toxic Air Contaminants

California State law defines TACs as air pollutants that may cause or contribute to an increase in mortality or in serious illness, or that may pose a hazard to human health. The State Air Toxics Program was established in 1983 under Assembly Bill (AB) 1807 (Tanner). A total of 243 substances have been designated TACs under California law and include the 189 HAPs identified by USEPA. The Air Toxics "Hot Spots" Information and Assessment Act of 1987 (AB 2588) seeks to identify and evaluate risk from air toxics sources; however, AB 2588 does not regulate air toxics emissions. Toxic air contaminant emissions from individual facilities are quantified and prioritized. "High-priority" facilities are required to perform a health risk assessment and are required to communicate the results to the public in the form of notices and public meetings, if specific thresholds are violated.

In August of 1998, CARB identified particulate emissions from diesel-fueled engines (i.e., diesel particulate matter, or DPM) as TACs. CARB subsequently developed the *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles* (CARB, 2000). This document provides proposals to reduce diesel particulate emissions with the goal of reducing emissions and associated health risks by 75 percent in 2010 and by 85 percent in 2020.

TABLE 4.2-3
SOUTH COAST AIR BASIN ATTAINMENT STATUS

	Designation/Classification	
Pollutant	**Federal Standards**	**State Standards**
Ozone – 1 hour	No Federal Standard [a]	Nonattainment (Extreme)
Ozone – eight hour	Nonattainment (Extreme)	Nonattainment [b]
PM_{10}	Nonattainment (Serious)	Nonattainment
$PM_{2.5}$	Nonattainment	Nonattainment
Carbon Monoxide	Attainment/Maintenance	Attainment
Nitrogen Dioxide	Unclassified/Attainment	Nonattainment
Sulfur Dioxide	Unclassified	Attainment
Lead	No Designation	Attainment
Hydrogen Sulfide	No Federal Standard	Unclassified
Sulfates	No Federal Standard	Attainment
Visibility Reducing Particles	No Federal Standard	Unclassified

[a] Federal One Hour Ozone National Ambient Air Quality Standard was revoked on June 15, 2005
[b] The State 8-hour ozone standard was approved by the CARB on April 28, 2005, and became effective May 17, 2006.

SOURCE: USEPA, 2011a. *The Green Book Nonattainment Areas for Criteria Pollutants.* http://www.epa.gov/oaqps001/greenbk/, page updated 2011; CARB, 2010b. *Area Designation Maps,* http://www.arb.ca.gov/desig/adm/adm.htm, updated 2010.

CARB published the *Air Quality and Land Use Handbook: A Community Health Perspective* (CARB, 2005) to provide guidance concerning land use compatibility with TAC sources. The handbook highlights recent studies that have shown that public exposure to air pollution can be substantially elevated near freeways and certain other facilities (i.e., distribution centers, rail yards, chrome platers, etc.) concluding that the health risk is greatly reduced with distance. Although it is not a law or adopted policy, the handbook offers advisory recommendations for the siting of sensitive receptors near uses associated with TACs, including freeways and high-traffic roads, commercial distribution centers, rail yards, ports, refineries, dry cleaners, gasoline stations, and industrial facilities, to help keep children and other sensitive populations out of harm's way.

ARB's Asbestos Program enforces compliance with NESHAP (Federal Asbestos National Emission Standard for Hazardous Air Pollutants) and investigates all related complaints, as specified by HSC Section 39658(b)(1). Of the 35 air districts in California, 19 of the districts do not have an asbestos program in place. In these "non-delegated" districts, a demolition/renovation notification is required for compliance with the Asbestos NESHAP. ARB reviews and investigates the notifications.

Local

South Coast Air Quality Management District

The 1977 Lewis Air Quality Management Act created the South Coast Air Quality Management District (SCAQMD) to coordinate air quality planning efforts throughout southern California and

merged four county air pollution control agencies into one regional district to better address the issue of improving air quality in southern California. Under the Act, renamed the Lewis-Presley Air Quality Management Act in 1988, SCAQMD is the agency principally responsible for comprehensive air pollution control in the region. Specifically, SCAQMD is responsible for monitoring air quality, as well as planning, implementing, and enforcing programs designed to attain and maintain State and federal ambient air quality standards in the district. Programs that were developed include air quality rules and regulations that regulate stationary sources, area sources, point sources, and certain mobile source emissions. SCAQMD is also responsible for establishing stationary source permitting requirements and for ensuring that new, modified, or relocated stationary sources do not create net emission increases.

SCAQMD has jurisdictional area of over 10,743 square miles, consisting of Orange County; the non-desert portions of Los Angeles, Riverside, and San Bernardino counties; and the Riverside County portion of the Salton Sea Air Basin and Mojave Desert Air Basin. The Basin includes all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino and covers an area of 6,745 square miles. The Basin is bounded by the Pacific Ocean to the west; the San Gabriel, San Bernardino and San Jacinto Mountains to the north and east; and the San Diego county line to the south.

All projects are subject to SCAQMD rules and regulations in effect at the time of construction. Specific rules applicable to the construction anticipated under the proposed project may include the following:

Rule 401 – Visible Emissions. A person shall not discharge into the atmosphere from any single source of emission whatsoever any air contaminant for a period or periods aggregating more than 3 minutes in any 1 hour that is as dark or darker in shade as that designated No. 1 on the Ringelmann Chart, as published by the United States Bureau of Mines.

Rule 402 – Nuisance. A person shall not discharge from any source whatsoever such quantities of air contaminants or other material that cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or that endanger the comfort, repose, health, or safety of any such persons or the public, or that cause, or have a natural tendency to cause, injury or damage to business or property. The provisions of this rule do not apply to odors emanating from agricultural operations necessary for the growing of crops or the raising of fowl or animals.

Rule 403 – Fugitive Dust. This rule is intended to reduce the amount of particulate matter entrained in the ambient air as a result of anthropogenic (human-made) fugitive dust sources by requiring actions to prevent, reduce, or mitigate fugitive dust emissions. Rule 403 applies to any activity or human-made condition capable of generating fugitive dust.

Rule 1113 – Architectural Coatings. No person shall apply or solicit the application of any architectural coating within the SCAQMD with volatile organic compound (VOC) content in excess of the values specified in a table incorporated in the Rule.

Air Quality Management Plan

SCAQMD and the Southern California Association of Governments (SCAG) are responsible for preparing the air quality management plan (AQMP), which addresses federal and State CAA requirements. The AQMP details goals, policies, and programs for improving air quality in the Basin.

The 2007 AQMP was adopted by the SCAQMD Governing Board on June 1, 2007. The purpose of the 2007 AQMP for the Basin is to set forth a comprehensive program that will lead the region into compliance with federal 8-hour ozone and $PM_{2.5}$ air quality standards. ARB adopted the State Strategy for the 2007 SIP, and the 2007 AQMP as part of the SIP on September 27, 2007. On November 28, 2007, ARB submitted a SIP revision to USEPA for ozone, $PM_{2.5}$, CO, and NO_2 in the Basin; this revision is identified as the 2007 South Coast SIP. The 2007 AQMP/2007 South Coast SIP demonstrates attainment of the federal $PM_{2.5}$ standard in the Basin by 2014, and attainment of the federal 8-hour ozone standard by 2023. The SIP also includes a request of reclassification of the ozone attainment designation from "severe" to "extreme." USEPA proposed to approve the 2007 AQMP in September 2011 (USEPA, 2011b)

SCAQMD is undertaking the preparation of the 2012 AQMP that will incorporate the latest scientific and technological information and planning assumptions, including the 2012 Regional Transportation Plan/Sustainable Communities Strategy and updated emission inventory methodologies for various source categories.

Air Toxics Control Plan

SCAQMD has a long and successful history of reducing air toxics and criteria emissions in the Basin. SCAQMD has an extensive control program, including traditional and innovative rules and policies, which can be viewed in SCAQMD's *Air Toxics Control Plan for the Next Ten Years* (March, 2000). To date, the most comprehensive study on air toxics in the Basin is the Multiple Air Toxics Exposure Study (MATES-III), conducted by SCAQMD. The monitoring program measured more than 30 air pollutants, including both gaseous pollutants and particulate matter. The monitoring study was accompanied by a computer modeling study in which SCAQMD estimated the risk of cancer from breathing toxic air pollution throughout the region based on emissions and weather data. MATES-III found that the cancer risk in the region from carcinogenic air pollutants ranges from about 870 in a million to 1,400 in a million, with an average regional risk of about 1,200 in a million.

4.2.3 Impacts and Mitigation Measures

Significance Criteria

According to *CEQA Guidelines* Appendix G, the proposed Project would have a significant effect on air quality if it would:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation;

- Result in a cumulatively considerable net increase of any nonattainment pollutant for which the project is non-attainment under an applicable federal or State ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors);
- Expose sensitive receptors to substantial pollutant concentrations; or
- Create objectionable odors affecting a substantial number of people

As stated in Appendix G, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the above determinations. SCAQMD has established thresholds, as shown in **Table 4.2-4**.

The proposed Project would result in a significant construction or operational air quality impact if either of the following occurs:

- Emissions exceed the significance thresholds set forth in **Table 4.2-4.**
- The proposed Project would not be compatible with SCAQMD air quality goals and policies.
- The proposed Project would generate significant emissions of TACs or expose sensitive receptors to substantial pollutant concentrations.

TABLE 4.2-4
SCAQMD SIGNIFICANCE THRESHOLDS

Pollutant	Regional Construction Emissions	Operational Emissions
NO_x	100 lbs/day	55 lbs/day
VOC (ROG)	75 lbs/day	55 lbs/day
PM_{10}	150 lbs/day	150 lbs/day
$PM_{2.5}$	55 lbs/day	55 lbs/day
CO	550 lbs/day	550 lbs/day
SO_X	150 lbs/day	150 lbs/day

lbs/day = pounds per day
SOURCE: SCAQMD, 2011. *SCAQMD Air Quality Significance Thresholds*. Updated March 2011.

Methodology

Construction emissions are considered short term and temporary, but have the potential to represent a significant impact with respect to air quality. PM_{10} and $PM_{2.5}$ are among the pollutants of greatest localized concern with respect to construction activities. Particulate emissions from construction activities can lead to adverse health effects and nuisance concerns, such as reduced visibility and soiling of exposed surfaces. Particulate emissions can result from a variety of construction activities, including excavation, grading, demolition, vehicle travel on paved and unpaved surfaces, and vehicle and equipment exhaust. Construction emissions of PM can vary greatly depending on the level of activity, the specific operations taking place, the number and

types of equipment operated, local soil conditions, weather conditions, and the amount of earth disturbance.

Emissions of ozone precursors VOC and NO_X are primarily generated from mobile sources and vary as a function of vehicle trips per day associated with delivery of construction materials, the importing and exporting of soil, vendor trips, and worker commute trips, and the types and number of heavy-duty, off-road equipment used and the intensity and frequency of their operation. A large portion of construction-related VOC emissions also result from the application of asphalt and architectural coatings and vary depending on the amount of coatings and paving applied each day.

It is mandatory for all construction projects in the Basin to comply with SCAQMD Rule 403 for controlling fugitive dust. Incorporating Rule 403 into the proposed Project would reduce regional PM_{10} and $PM_{2.5}$ emissions from construction activities. Specific Rule 403 control requirements include, but are not limited to, applying water in sufficient quantities to prevent the generation of visible dust plumes, reestablishing ground cover as quickly as possible, utilizing a wheel washing system to remove bulk material from tires and vehicle undercarriages before vehicles exit the proposed Project site, covering all trucks hauling soil with a fabric cover or maintaining a freeboard height of 12 inches. Site watering would reduce the particulate matter from becoming airborne, while washing of transport vehicle tires and undercarriages would reduce re-entrainment of construction dust onto the local roadway network.

Short-term emissions associated with construction and rehabilitation activities were estimated and analyzed for the Proposed Project. Maximum daily construction emissions were estimated using the SCAQMD-recommended California Emissions Estimator Model (CalEEMod) (Version 2011.1.1). CalEEMod is designed to model construction and operational emissions for land use development projects based on building size, land use and type, and disturbed acreage, and allows for the input of Project-specific information. CalEEMod modeling data is provided in **Appendix B** of this document. Regional emissions were compared to the SCAQMD regional thresholds to determine Project impact significance.

CO concentration is a direct result of motor vehicle activity (e.g., idling time and traffic flow conditions) particularly during peak commute hours and certain meteorological conditions. Under specific meteorological conditions (e.g., stable conditions that result in poor dispersion), CO concentrations may reach unhealthy levels with respect to local sensitive land uses such as residential areas, schools, and hospitals. As a result, SCAQMD recommends analysis of CO emissions at a local and regional level.

Diesel PM was identified as a TAC by CARB in 1998. The potential cancer risk from the inhalation of diesel PM, as discussed below, outweighs the potential non-cancer health impacts (CARB, 2003). At this time, SCAQMD has not adopted a methodology for analyzing such impacts.

The dose to which receptors are exposed is the primary factor used to determine health risk (i.e., potential exposure to TAC to be compared to applicable standards). Dose is a function of the concentration of a substance or substances in the environment and the duration of exposure to the

substance. Dose is positively correlated with time, meaning that a longer exposure period would result in a higher exposure level for the Maximally Exposed Individual (MEI). Thus, the risks estimated for a MEI are higher if a fixed exposure occurs over a longer period of time. According to the Office of Environmental Health Hazard Assessment (OEHHA), health risk assessments, which determine the exposure of sensitive receptors to TAC emissions, should be based on a 70-year exposure period; however, such assessments should be limited to the period/duration of activities associated with the proposed Project.

Impacts Discussion

Both Alternatives 1 and 2 would not add any new permanent stationary sources of emissions. Upon completion of the rehabilitation work, the proposed Project, under either Alternative, would return to its existing functioning capacity. Therefore, it is not anticipated that operation of the rehabilitated facilities would increase air emissions permanently in the Project area. There would be no new traffic trips generated by implementation of the rehabilitation efforts, upon completion of the rehabilitation activities. The proposed Project would not increase operational emissions, and there would be no impact from the proposed Project operation under Alternative 1 or Alternative 2. Therefore, the following analysis is limited to construction emissions.

Consistency with Air Quality Management Plans

Impact 4.2-1: The proposed Project could conflict with or obstruct implementation of the applicable air quality plan.

SCAQMD regulates air emissions in the Basin and is required to reduce emissions of criteria pollutants for which the Basin is in nonattainment. Strategies to achieve these emissions reductions are contained in the AQMP. The local Metropolitan Planning Organization for the region is the Southern California Association of Governments (SCAG). SCAG has established the assumptions for growth, in terms of demographic growth and associated air quality impacts, and these assumptions are utilized in SCAQMD's 2007 AQMP. As previously stated, the 2007 AQMP is designed to meet both State and federal CAA planning requirements for all areas under SCAQMD jurisdiction. It focuses on reduction strategies for ozone and particulate matter and sets forth procedures for measurements, control strategies, and air quality modeling (SCAQMD, 2007).

The proposed Project involves rehabilitating an existing vital public facility. Many of the rehabilitation activities would occur on Plant 2. No new permanent structures would be built. Activities associated with wastewater treatment on Plant 2 would be consistent with applicable city and County General Plans. The two offsite locations, (Air Vac Station 12+05 and the beach) are zoned as Coastal Conservation (CC).

Alternative 1

Activities on Plant 2

The proposed Project would not increase operational air emissions or implement facilities that would conflict in any way with the AQMP. The proposed Project involves maintenance of an

existing vital public utility. These temporary emissions associated with rehabilitation activities are considered consistent with the AQMP. The impact would be less than significant.

Activities at Air Vac Station 12+05

The proposed Project would not increase operational air emissions or implement facilities that would conflict in any way with the AQMP. The proposed Project involves maintenance of an existing vital public utility. These temporary emissions associated with rehabilitation activities are considered consistent with the AQMP. The impact would be less than significant.

Activities on the Beach

Rehabilitation of Beach Box

The proposed Project would not increase operational air emissions or implement facilities that would conflict in any way with the AQMP. The proposed Project involves maintenance of an existing vital public utility. These temporary emissions associated with rehabilitation activities are considered consistent with the AQMP. The impact would be less than significant.

Construction of the Bypass Structure

The proposed Project would not increase operational air emissions or implement facilities that would conflict in any way with the AQMP. The proposed Project involves maintenance of an existing vital public utility. These temporary emissions associated with rehabilitation activities are considered consistent with the AQMP. The impact would be less than significant.

Significance Level Alternative 1: Less than significant.

Alternative 2

The proposed Project would not increase operational air emissions or implement facilities that would conflict in any way with the AQMP. The proposed Project involves maintenance of an existing vital public utility. These temporary emissions associated with rehabilitation activities are considered consistent with the AQMP. The impact would be less than significant.

Significance Level Alternative 2: Less than significant.

Violation of an Air Quality Standard

Impact 4.2-2: The proposed Project could violate an air quality standard or contribute substantially to an existing or projected air quality violation during its construction and operation.

Alternative 1

Activities on Plant 2

Air emissions during rehabilitation activities at Plant 2 would primarily be associated with the 100 ton and 75 ton cranes and the other construction equipment such as dozers, excavators, loaders, and diesel generators. Additional sources of air emissions would include mobile emissions from equipment deliveries and worker commute. Abrasive blasting on Surge Tower 2 would be powered by electricity. The proposed Project includes provisions to provide adequate enclosure of abrasive blasting operation to ensure that visible emissions do not extend beyond the structure.

Emissions associated with rehabilitation activities were estimated for a maximum day, i.e. when most of the construction equipment would operate simultaneously. **Table 4.2-5** summarizes the emissions for all activities at Plant 2. Emissions from rehabilitation activities at Plant 2, along with other Project elements, would be less than significant.

Activities at Air Vac Station 12+05

The construction schedule for activities adjacent to Air Vac Station 12+05 are similar to those at Plant 2 as they would be temporary and short-term; and would occur on a 24 hour, 7 days a week schedule. Rehabilitation activities at Air Vac Station 12+05 consist primarily of activities within the Air Vac Station 12+05 structure on the Long Outfall. Outside the Air Vac Station 12+05, the only activity would be mobilization of trucks and equipment used within the Air Vac Station 12+05 structure. A crane would be used to lift the Air Vac Station 12+05 blind flange at Air Vac Station 12+05, remove the mating flange, install a new mating flange, and replace the blind flange. This process is expected to be done. Much of the work at this location would occur within the structure connecting to the Long Outfall. Equipment would be powered by a diesel generator. The carbon fiber wrap process to be applied within the structure does not involve use of a significant amount of solvents or VOCs. As shown in **Table 4.2-5**, emissions associated with activities at Air Vac Station 12+05, along with other proposed Project Elements, would be less than significant.

Activities on the Beach

Rehabilitation of the Beach Box

The Sanitation District would employ one of three options to repair the Beach Box, Option A, Carbon Fiber Wrap; Option B, Fiberglass Pipe Insert; or Option C, Steel Insert. Option B, Fiberglass Pipe Insert has the highest number of construction equipment pieces associated with rehabilitation due to the demolition required. Rehabilitation of the Beach Box would require a few mobile pieces of equipment including a crane to remove the Beach Box cover. Most of the work would be conducted within the Beach Box using hand held tools powered by a generator. Air emissions would include equipment delivery and worker commute. To rehabilitate the Beach Box, most of the rehabilitation activities would take place within the Long Outfall, which would reduce the amount of emissions produced from construction activities. The construction schedule for activities at the Beach Box is similar to construction activities at Air Vac Station 12+05, and would occur on a 24 hour, 7 days a week schedule.

TABLE 4.2-5
MAXIMUM DAILY EMISSIONS FROM PROJECT CONSTRUCTION FOR ALTERNATIVE 1
(pounds per day)

	Estimated Emissions (lbs/day)				
Activity	**ROG**	**NO_X**	**CO**	**PM_{10}**	**$PM_{2.5}$**
Surge Tower Rehabilitation [a]	2.2	6.8	3.5	0.7	0.4
Air Vac Station 12+05 Rehabilitation	0.9	6.4	3.6	0.4	0.3
Beach Box Rehabilitation	7.8	82.8	32.8	3.0	2.9
Bypass Structure Construction	8.3	90.3	35.8	9.6	6.3
Maximum Daily Emissions	*10.4*	*97.1*	*39.3*	*9.6*	*6.7*
SCAQMD Thresholds	**75**	**100**	**550**	**150**	**55**
Significant Impact (Yes or No)	***No***	***No***	***No***	***No***	***No***

a VOC emissions include the average daily emissions from recoating the surge tower. Emissions were estimated based on the surface area to be recoated. Tower dimensions are 84.5 feet height and 26 feet diameter, VOC content limits per SCAQMD Rule 1113 that the Project would comply with, and duration of surge tower rehabilitation. Detailed calculations are provided in **Appendix B**.

NOTES:

Maximum daily emissions would occur during the overlap between bypass structure construction and surge tower rehabilitation. Daily emissions during the beach box and Air Vac Station 12 + 05 rehabilitation would be lower.

Emissions estimates include the operation of diesel generators for 24 hours/day for dewatering., Air Vac Station 12+05 and Surge Tower 2.

Emissions estimates include emissions from off-road equipment and on-road trips from construction workers and heavy-duty trucks based on trip rates provided by Black and Veatch.

Emissions for Beach Box rehabilitation are shown for Option B since it includes the maximum number of construction equipment and would represent the worst-case. Emissions for Options A and C would be lower.

Project construction emissions estimates for off-road equipment were made using CalEEMod Version 2011.1.1. See **Appendix B** for data emission sheets.

SOURCE: ESA, 2011.

The 3 materials that constitute the available options for repair of the Beach Box would not be a source of volatile emissions. The installation process for the carbon fiber wrap, steel insert or the fiberglass pipe insert does not involve use of a significant amount of solvents or VOCs.

Emissions were estimated for Option B for the Beach Box since it would require the highest number of construction equipment pieces and would represent the worst-case scenario in terms of daily emissions. As shown in **Table 4.2-5,** emissions associated with rehabilitation of the Beach Box, along with other proposed Project elements, would be less than significant.

Construction of the Bypass Structure

Alternative 1 would include the construction of a temporary bypass structure on the beach. Construction of the bypass structure would occur 7 days a week, 8 hours a day for 3 to 4 months. Construction of the bypass structure would require excavation to access both the Long and Short Outfalls. The total construction area would be approximately 6.56 acres. Approximately 4,350 cubic yards of existing beach sand would be excavated from an area approximately 65 feet wide by 80 feet long and 20 to 25 feet deep. The excavated material would be stockpiled within the construction zone in a pile measuring approximately 150 feet in width by 400-feet long (60,000

square feet). Following construction, the existing stockpiled material would be used to backfill the excavation. No soil or sand would be exported from the construction site. Because groundwater is anticipated to be within 5 feet below ground surface, the dewatering of the excavation zone would require approximately 30 dewatering wells producing up to 30 million gallons per day (mgd). The dewatering wells would operate continuously while the bypass structure is in operation. During the dewatering process, treatment systems consisting of filters and settlement tanks would also be installed to treat the recovered water. The treatment system would remove sand and sediments. The pumped water would be discharged into SAR in the vicinity of the SAR jetty.

In summary, Alternative 1 includes activities at Plant 2, the Air Vac Station 12+05 and on the beach. It also includes the construction of the bypass structure. The air emissions calculations assume that the total construction duration for Alternative 1 would be seven months. Construction and rehabilitation activities would vary from day- to- day depending upon the activities being performed. The bypass structure on the beach required for Alternative 1 would require three months to construct. The rehabilitation of the Long Outfall project elements would require four to six weeks after the bypass structure is completed and operational. Following completion of the rehabilitation of the proposed Project elements, the bypass structure would be removed and the beach returned to its pre-existing condition.

This would occur before the California least tern nesting season begins April 1. Construction worker and truck trips required for Alternative 1 were included in the emissions estimates and are described in more detail under Impact 4.2-4 below. Maximum daily construction-related regional emissions associated with these activities are presented in **Table 4.2-5**. Emissions were estimated based on the maximum number of construction equipment that would be anticipated to operate on a peak day. Construction emissions of criteria pollutants and precursors would be below SCAQMD's daily significance thresholds. It should be noted that emissions shown in the table represent the maximum daily emissions associated with each proposed Project element. These emissions would not occur over the entire duration of construction. The construction activities would be subject to Rule 403 dust control measures. It is anticipated that construction of the bypass structure would overlap with the surge tower rehabilitation. Additionally, rehabilitation activities at Air Vac Station 12+05 and Beach Box could occur simultaneously. Maximum daily emissions due to any potential overlap between phase activities would be below SCAQMD's thresholds. Since construction emissions would not exceed the SCAQMD thresholds, the regional construction impact would be less than significant.

Significance Level Alternative 1: Less than significant.

Alternative 2

Alternative 2 would result in identical impacts at Plant 2, the Air Vac Station 12+05 and on the beach, during Beach Box rehabilitation activities. Alternative 2 would not include the construction of the temporary bypass structure to divert flows. The effluent from the Long Outfall would be diverted to the Short Outfall during rehabilitation of the Long Outfall. The proposed construction for Alternative 2 would require 4 months. However, the time Long Outfall would be out of service is 4 to 6 weeks. To the meet this schedule, 24 hour-hours, seven days a week

construction would be required for all Project elements. During this construction period, effluent would be discharged to the Short Outfall. Rehabilitation activities would vary day- to- day and depends upon the activities being performed. Construction worker and delivery truck trips generated by Alternative 2 were included in the emissions estimates and are described in more detail under Impact 4.2-4 below.

Alternative 2 includes activities at Plant 2, Air Vac 12+05 and on Huntington State Beach. Maximum daily construction related regional emissions associated with these activities are presented in **Table 4.2-6** on the following page. Emissions were estimated based on the maximum number of construction equipment pieces that would be anticipated to operate on a peak day. Construction emissions of criteria pollutants and precursors would be below SCAQMD's daily significance thresholds. As discussed in Alternative 1, the emissions associated with rehabilitation activities would be temporary. Since construction emissions would not exceed the SCAQMD thresholds, the regional construction impact would be less than significant.

TABLE 4.2-6
MAXIMUM DAILY EMISSIONS FROM PROJECT CONSTRUCTION
FOR ALTERNATIVE 2 (pounds per day)

	Estimated Emissions (lbs/day)				
Activity	**ROG**	**NO_X**	**CO**	**PM_{10}**	**$PM_{2.5}$**
Surge Tower Rehabilitation [a]	2.2	6.8	3.5	0.7	0.4
Air Vac Station 12+05 Rehabilitation	0.9	6.4	3.6	0.4	0.3
Beach Box Rehabilitation	7.8	82.8	32.8	3.0	2.9
Maximum Daily Emissions	*8.7*	*89.2*	*36.4*	*3.2*	*3.2*
SCAQMD Thresholds	**75**	**100**	**550**	**150**	**55**
Significant Impact (Yes or No)	***No***	***No***	***No***	***No***	***No***

[a] VOC emissions include the average daily emissions from recoating the surge tower. Emissions were estimated based on the surface area to be recoated. Tower dimensions are 84.5 feet height and 26 feet diameter, VOC content limits per SCAQMD Rule 1113 that the Project would comply with, and duration of surge tower rehabilitation.

NOTES:

- Maximum daily emissions would occur during the overlap between Beach Box and
- Emissions estimates include the operation of diesel generators for 24 hours/day for dewatering.
- Emissions estimates include emissions from off-road equipment and on-road trips from construction workers and heavy-duty trucks based on trip rates provided by Black and Veatch.
- Emissions for Beach Box rehabilitation are shown for Option B since it includes the maximum number of construction equipment and would represent the worst-case. Emissions for Options A and
- Project construction emissions estimates for off-road equipment were made using CalEEMod Version 2011.1.1. See **Appendix B** for more information.

SOURCE: ESA, 2011.

Significance Level Alternative 2: Less than significant.

Cumulative Air Emissions

Impact 4.2-3: The proposed Project could result in a cumulatively considerable net increase of any criteria pollutant under an applicable federal or State ambient air quality standard.

Alternative 1

Alternative 1 would include the construction of a temporary bypass structure and rehabilitation and maintenance activities at Plant 2, the Air Vac Station 12+05 and at the Huntington State Beach. Air quality impacts associated with Alternative 1 would not exceed SCAQMD's significance thresholds. In addition, implementation of Alternative 1 would not result in a net increase of long-term operation-related emissions (e.g., regional VOC, NO_X, or PM_{10}, or local CO) from mobile, stationary, or area sources. Thus, proposed Project-generated emissions would not result in a cumulatively considerable net increase of a criteria pollutant for which the project region is non-attainment under an applicable federal or State ambient air quality standard. Cumulative projects are construction projects that involve temporary construction emissions. The proposed Project, along with other projects in the vicinity, is required to comply with SCAQMD rules and regulations to minimize emissions. The closest construction activities to the proposed Project would occur over 2,000 feet upstream of Alternative 1 activities. Since emissions under Alternative 1 would be temporary and would result in a less than significant impact, and emissions would be minimized due to compliance with SCAQMD regulations and compliance with Rule 403, this impact would be less than significant.

Significance Level Alternative 1: Less than significant.

Alternative 2

Alternative 2 includes the same rehabilitation activities as Alternative 1 at Plant 2, Air Vac Station 12+05 and Huntington State Beach. As discussed above, air quality impacts associated with Alternative 2 would be less than significant. In addition, implementation of Alternative 2 would not result in a net increase of long-term operation-related emissions (e.g., regional VOC, NO_X, or PM_{10}, or local CO) from mobile, stationary, or area sources. Thus, proposed Project-generated emissions would not result in a cumulatively considerable net increase of a criteria pollutant for which the project region is non-attainment under an applicable federal or State ambient air quality standard. Cumulative projects in close proximity to the proposed Project which also involve temporary construction emissions. The proposed Project, along with other projects in the vicinity, is required to comply with SCAQMD rules and regulations to minimize emissions. The closest construction activities to the proposed Project would occur over 2,000 feet upstream of Alternative 1 activities. Since emissions under Alternative 2 would be temporary and would result in a less than significant impact, and emissions would be minimized due to compliance with SCAQMD regulations and compliance with Rule 403, this impact would be less than significant.

Significance Level Alternative 2: Less than significant.

Effects on Sensitive Receptors

Impact 4.2-4: The proposed Project could expose sensitive receptors to substantial pollutant concentrations.

As previously discussed, the proposed Project is located in close proximity to residential, natural, and public recreation areas. The nearest sensitive receptors to any of the proposed Project work sites are the residences that are located approximately about 250 feet west of the construction staging area, inside Plant 2. Plant 2 has an 8 foot slump block wall on the northern, western, and southern boundaries that separates the residences from the rehabilitation efforts. The next nearest sensitive receptor is approximately 634 feet east of the Beach Box. Impacts to sensitive receptors can occur from CO hotspots due to a project's traffic and TAC emissions during a project's construction activities. The potential for this to occur as a result of the proposed Project is discussed below.

The *Transportation Project-Level Carbon Monoxide Protocol* (the Protocol) provides an appropriate qualitative screening procedure for CO. It also provides the procedures and guidelines to determine whether a project poses the potential for a CO hotspot (UCD ITS, 1997). This is the protocol recommended by Caltrans for project-level air quality analysis needed for federal conformity determinations, NEPA, and CEQA. The Protocol is the standard method for project-level CO analysis used by Caltrans. A CO hotspot is an area of localized CO pollution that is caused by severe vehicle congestion on major roadways, typically near intersections. According to the Protocol, projects may worsen air quality if they increase the percentage of vehicles in cold start modes by 2 percent or more; significantly increase traffic volumes (by 5 percent or more) over existing volumes; or worsen traffic flow, defined for signalized intersections as increasing average delay at intersections operating at Level of Service (LOS) E or F or causing an intersection that would operate at LOS D or better without the project, to operate at LOS E or F.

Alternative 1

Activities on Plant 2

As discussed in Section 4.13, Traffic and Circulation, it is estimated that approximately 25 to 30 construction workers would commute to the Plant 2 site with their own vehicles for the duration of the construction activities (approximately 4 to 6 weeks). Truck traffic associated with material delivery is estimated to be 2 additional trips daily. The addition of approximately 50 to 60 round trip vehicular worker trips on Brookhurst Street would not significantly affect the local or regional circulation system and as a consequence would not produce a CO hotspot. This would be a less than significant impact.

Activities at Air Vac Station 12+05

Approximately 4 to 6 construction workers would be required for construction activities at Air Vac Station 12+05, resulting in up to 12 roundtrip vehicular construction trips. Approximately 3 material delivery truck trips would be required. The addition of 3 trips associated with site access during the construction period would be minimal and temporary, and would be less than significant.

Activities on the Beach

Rehabilitation of Beach Box

Rehabilitation of the Beach Box would require 8 to 12 constructions workers at the beach or approximately 16 to 24 average daily trips associated with construction worker commute. Truck traffic associated with material delivery is estimated to be 1 additional daily trip. This would not result in significant air emission impacts.

Construction of Bypass Structure

Vehicle traffic associated with construction of the bypass structure would include material deliveries, demolished material removed, and construction worker commute to the site. Construction of the bypass structure under Alternative 1 would require 15 to 20 construction workers, which would result in approximately 30 to 40 roundtrip construction vehicular trips per day for seven months. Truck traffic associated with material delivery is estimated to be 3 additional daily trips over the seven month period.

Construction-related vehicular trips would be temporary and minimal and is not expected to impact the existing transportation circulation system. At the conclusion of construction and rehabilitation activities for Alternative 1, operational trips to and from the project site would resume to pre-construction levels and return to day-to-day operational trips. Construction trips would not significantly impact the LOS at the intersections of Beach Boulevard with PCH, Center Avenue; Brookhurst Street with Garfield Avenue, Yorktown Avenue, Adams Avenue, Indianapolis Avenue, Atlanta Avenue, Hamilton Avenue, Banning Avenue, and PCH; and Magnolia Street with PCH (see Section 4.13 Traffic and Circulation). Therefore, since no significant delays at intersections would result, the proposed Project-generated local mobile-source CO emissions under Alternative 1 would not result in or substantially contribute to concentrations that exceed the 1 hour or 8 hour ambient air quality standards for CO. This impact would be less than significant.

The particulate emissions associated with diesel combustion are a toxic air contaminant. The construction fleet for the proposed Project includes diesel generators; however, the use of these generators would be temporary. Alternative 1 would not result in long term exposure of people to TACs including off-road heavy-duty diesel emissions. Thus, the impact would be less than significant.

Significance Level Alternative 1: Less than significant.

Alternative 2

Alternative 2 would result in identical impacts at Plant 2, Air Vac Station 12+05, and Huntington State Beach during Beach Box rehabilitation activities. Construction-related vehicular trips under Alternative 2 would be temporary and minimal and is not expected to impact the existing transportation circulation system and the LOS at affected intersections. At the conclusion of the proposed Project construction and rehabilitation activities, operational trips to and from the project site would resume to pre-construction levels and return to day-to-day operational trips. Thus, localized CO impacts would be less than significant.

Alternative 2 does not include the construction of the temporary bypass structure. Therefore, the construction schedule and duration of use of diesel equipment would be shorter as compared to Alternative 1. Thus, because the use of off-road heavy-duty diesel equipment would be temporary in combination with the highly dispersive properties of diesel PM (Zhu and Hinds, 2002), emissions of TACs for Alternative 2 would not expose sensitive receptors to substantial emissions of TACs. The impact would be less than significant.

Significance Level Alternative 2: Less than significant.

Odor Impacts

Impact 4.2-5: The proposed Project could create objectionable odors affecting a substantial number of people.

The occurrence and severity of odor impacts depend on numerous factors, including the nature, frequency, and intensity of the source; wind speed and direction; and the presence of sensitive receptors. Although offensive odors rarely cause any physical harm, they still can be very unpleasant. The exposure of sensitive receptors to odorous emissions from construction and operation of the proposed Project is discussed below.

Alternative 1

Construction and rehabilitation activities at Plant 2, Air Vac Station 12+05, and Huntington State Beach under Alternative 1 could result in odorous emissions from diesel exhaust generated by construction equipment. Emissions would vary with change in construction intensity and location. Because of the temporary nature of these emissions and the highly diffusive properties of diesel exhaust, nearby receptors would not be affected by diesel exhaust odors associated with proposed Project construction and rehabilitation. Upon completion of the rehabilitation work, the proposed Project would return to its existing functioning capacity. No new odors would be generated as a result of the proposed Project. Odor impacts associated with Alternative 1 would be less than significant.

Significance Level Alternative 1: Less than significant.

Alternative 2

Similar to Alternative 1, construction and rehabilitation activities at Plant 2, the Air Vac Station 12+05, and the beach under Alternative 2 could result in odorous emissions from diesel exhaust generated by construction equipment. Emissions would vary with change in construction intensity and location. Alternative 2 does not include construction of the temporary bypass structure, therefore, odor emissions associated with diesel exhaust would be limited to rehabilitation activities. Because of the temporary nature of these emissions and the highly diffusive properties of diesel exhaust, nearby receptors would not be affected by diesel exhaust odors associated with proposed Project construction and rehabilitation. Upon completion of the rehabilitation work, the proposed Project would return to its existing functioning capacity. No new odors would be

generated as a result of the project. Odor impacts associated with Alternative 2 would be less than significant.

Significance Level Alternative 2: Less than significant.

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4.3 Biological Resources

This section describes the existing biological resources on the Project site and in the Project vicinity and identifies potential impacts to those resources associated with proposed Project implementation. Refer to Section 4.10 Marine Environment for a discussion on the proposed Project impacts to marine resources, including fish and invertebrate, algae, sea grass, and surf grass.

4.3.1 Environmental Setting

Methodology

The setting and analysis of biological resources is based on a review of available literature, onsite meetings with resource agencies, and field surveys within the proposed Project area.

Site Surveys

On August 16, 2011, ESA biologists conducted a reconnaissance-level biological resource assessment to evaluate existing and potential biological resources that could be impacted by implementation of the proposed Project. The biological survey encompassed the areas where proposed rehabilitation activities will take place including within Plant 2, near the Air Vac Station 12+05, and at the Beach Box. Additionally, the Santa Ana River (SAR) western levee was surveyed for existing conditions from the Plant 2 to the SAR Bridge at Pacific Coast Highway (PCH) where the dewatering pipeline will be placed. The purpose of the field survey was to determine whether special-status plant and wildlife species have the potential to occur in areas potentially affected by the proposed Project. The assessment identified the location of waters of the U.S. and wetlands in the Project area. No formal (absence/presence) bird surveys were conducted for this Draft EIR.

Existing Information

The biological assessment includes a review of existing information within the California Natural Diversity Database (CNDDB) (CDFG, 2011) and the California Native Plant Society Lists (CNPS, 2011). ESA queried these sources for special-status species records in the Newport Beach and Huntington Beach U.S. Geological Survey 7.5-minute quadrangles. The potential for special-status species to occur on the Project site was evaluated based on the proximity of the proposed Project to previously recorded occurrences in the CNDDB, onsite vegetation and habitat quality, proximity to habitat preservation areas, and geographic ranges and seasonal migration patterns of special-status wildlife species known to occur in the region.

Regional Setting

The proposed Project is located in Orange County within the limits of the City of Huntington Beach (the City). The climate in this region can be characterized as Mediterranean, with an average high temperature of 75.4 and lows of 49.4 degrees Fahrenheit. Annual precipitation averages 12.86 inches, with 10.74 inches primarily accumulating from November to March. Elevation in the Project area ranges from 10 to 15 feet.

The proposed Project area is part of the SAR hydrological unit and is within the Lower SAR Hydraulic Area or Watershed Management Area, which extends from Prado Dam to the Pacific Coast. The Project is located north and south of PCH between the Talbert Marsh and SAR.

Local Setting

Plant 2 is an existing, developed wastewater treatment facility consisting of wastewater treatment structures, offices, pavement, and ornamental landscaping. Plant 2 is accessed through a local surface street (Brookhurst Street) that runs in a northwest/southeast manner and is surrounded by urban development and residences on the north and west sides. The SAR and the SAR Bikeway border Plant 2 to the east. The SAR levee is a rip-rap covered flood control levee with no vegetation. The Talbert Marsh is adjacent to Plant 2's southern boundary and is separated from the marsh by the Talbert Marsh bike trail.

The Huntington Beach Wetlands Conservancy (Conservancy) owns 118 acres of wetlands between the SAR and Newland Street. Talbert Marsh is one of five wetland parcels owned by the Conservancy in the Project area and includes the 25 acres from Brookhurst Street to the SAR Bikeway, west of and adjacent to the SAR. The Talbert Marsh is a tidal marsh that has been restored to full tidal action (California Wetlands Information System, 1997).The water within Talbert Marsh is seawater from the ocean inlet located south of the marsh property that fluctuates in height up to 8 feet from tidal flows. Talbert Marsh provides habitat for migratory and resident bird species as described below.

The Air Vac Station12+05 is located within an upland area at the edge of the Talbert Marsh south of Plant 2. The proposed rehabilitation activities would occur at Air Vac Station 12+05 which intersects the SAR Bikeway by a short dirt road.

The SAR is located east of the Long Outfall, separated by the flood control levee. The SAR is tidally connected with the ocean in this location with high tides reaching as far up river as Victoria Street Bridge. The SAR is bounded by riprap levees that do not support any vegetation, however the bike trails are lined with native and ornamental vegetation.

A portion of the proposed Project would be located on Huntington State Beach, south of the PCH. This portion of Huntington State Beach contains the California Least Tern Natural Preserve Area. The California Least Tern Natural Preserve Area was first established under the Huntington State Beach General Development Plan in 1976. It was originally dedicated on 2.5 acres and was fenced off with a cyclone fence (a heavy-duty, chain-link fence topped with barbed wire) to prevent predators from harassing the birds. Over the years, the California least tern's nesting area has expanded beyond the fenced area, State Parks has erected additional picket fencing to protect the birds. Currently, the cyclone fence area covers approximately 8.9 acres and the picket fence "front-yard" area is 3.8 acres. **Figure 3-13** shows the location of the protected areas. State Parks protects the nesting area by limiting access, conducting trash removal, grooming the sand periodically, and conducting predator management.

Plant Communities and Habitat Types

Plant communities are assemblages of plant species that occur together in the same area. They are defined by species composition and relative abundance. Provided below is a brief description of the existing plant communities and habitat found in areas potentially affected by the proposed Project.

Plant 2 is considered to be developed land and is composed of various concrete areas containing developed wastewater treatment structures. Vegetation onsite of Plant 2 is composed of ornamental landscaping. No biological resources exist within Plant 2.

Vegetation within the Talbert Marsh area is primarily composed of tidal waters, mudflats, coastal salt marsh, and coastal scrub. The upland area east of Talbert Marsh and adjacent to portions of the proposed work area consists of coastal scrub composed primarily of four-wing saltbush (*Atriplex canescens)*, Australian saltbush (*Atriplex semibaccata*), coyote brush (*Baccharis pilularis*), broom baccharis (*Baccharis sarothroides*), and salt heliotrope (*Heliotropium curvassavicum*). There is a dirt access road leading to Air Vac Station 12+05, which is associated with the Long Outfall system. The Air Vac Station12+05 structure is also enclosed in a chain link fence on a graded surface. No plant communities occur in the disturbed access route or work areas.

The area surrounding the Beach Box is composed of sand and sparse vegetation. Vegetation present within the vicinity of the Beach Box includes Sea Rocket (*Cakile maritime*), telegraph weed (*Heterotheca grandiflora*), suncup (*Camissonia sp*.), beach evening Primrose (*Camissonia cheiranthifolia*), and Coast Wolly-heads *(Nemacaulis denudata* var. *denudate*). Areas directly adjacent to the Beach Box include sand and asphalt trails.

Wildlife

Plant 2 is a developed wastewater treatment plant and there is no native wildlife habitat onsite.

Common wildlife known to use the Talbert Marsh include waterfowl and shorebirds (e.g., mallards, geese and green-backed heron) raptors (e.g., white-tailed kites, kestrels and red-tailed hawks), and other birds (e.g., sparrows). The tidal waters of the marsh may be expected to support topsmelt (*Atherinops affinis*) and sculpin (*Scorpaena guttata*) among other species. Foraging least terns are known to use the Talbert Marsh, SAR Marsh, the SAR, and Pacific Ocean for foraging during the breeding season. Upland areas are habitat for small mammals such as the western harvest mouse (*Reithrodontomys megalotis*) and skunk (*Mephitis mephitis*), and both native and non-native mammalian predators such as raccoon (*Procyon lotor*), red fox (*Vulpes vulpes*) and feral cats. Given the disturbed nature of the existing locations of the proposed maintenance activities (immediately adjacent to the existing sand/dirt and asphalt trails), the Air Vac Station12+05 work and associated access areas are not expected to provide high value for wildlife species.

Wildlife within the Huntington State Beach area include American kestrel, loggerhead shrike, various egrets and herons, California ground squirrels, common ravens, peregrine falcons, and

gull-billed terns. High value wildlife habitat occurs along the northwestern boundary of the Project area in the California Least Tern Preserve Area. The California least tern is a federal and State-listed endangered species. The bird is approximately 9–10 inches in size, and nests within the preserve colony on the Huntington State Beach. The birds forage for food by diving from the air into the water for fish.

In addition to the California least terns, the federally listed western snowy plover is also known to utilize areas adjacent to the preserve area. The western snowy plover is listed as a federally threatened species and a State species of special concern. It is approximately 5–7 inches in size, and nests in loose colonies or singly. The western snowy plovers feed on invertebrates. They are typically known to reside along the beach starting around July/August through the winter months.

The western snowy plovers are not typically colonial nesters like the least terns. High use areas on the beach are generally not conducive to western snowy plover nesting. Attempted nesting within the California Least Tern Natural Preserve Area has been documented on rare occasions in the past but successful nesting has not been observed. The fencing used to protect the area from predators also acts as a significant barrier to the movement of the western snowy plover chicks. Therefore, based on the limited number of nesting attempts and the barriers to successful fledging of chicks, western snowy plover are not anticipated to be nesting within the California Least Tern Natural Preserve Area. However, western snowy plover are regularly found during the winter season foraging and loafing on the beach area just south of the California Least Tern Natural Preserve Area.

Special-Status Species

Special-status species are those plants and animals that, because of their recognized rarity or vulnerability to various causes of habitat loss or population decline, are recognized by federal, state, or other agencies as under threat from human-associated development. Some of these species receive specific protection that is defined by federal or state endangered species legislation. Others have been designated as “sensitive” on the basis of adopted policies and expertise of state resource agencies or organizations with acknowledged expertise, or policies adopted by local governmental agencies such as counties, cities, and special districts to meet local conservation objectives. These species are referred to in this report collectively as “special-status species,” which follows a convention that has developed in practice to provide guidance for CEQA analysis.

For the purposes of this analysis, special-status species include:

- Species listed or proposed for listing as threatened or endangered, or are candidate for possible future listing as threatened or endangered, under the federal Endangered Species Act (FESA) or the California Endangered Species Act (CESA);
- Species that meet the definition of rare or endangered under the California Environmental Quality Act (CEQA) (*CEQA Guidelines* Section 15380);
- Plants listed as rare under the California Native Plant Protection Act (CDFG Code 1900 et seq.);

- Plants considered by the California Native Plant Society (CNPS) to be rare, threatened, or endangered (List 1B and 2 plants) in California;;
- Wildlife species of special concern to California Department of Fish and Game (CDFG); and/or
- Wildlife fully protected in California (CDFG Code Sections 3511, 4700, and 5050).

A CNDDB search revealed the recorded occurrences of 11 special status plant and animal species within a 1-mile radius of the Project area (CDFG, 2011). Additional species were identified based on information provided by State Parks and knowledge from other projects in the area.

Habitat for special status species is not found within the Plant 2 property. However, there is suitable habitat south of Plant 2, particularly adjacent to Talbert Marsh and adjacent to and within the California Least Tern Natural Preserve Area. Suitable foraging habitat is also present in the SAR and shoreline of the Pacific Ocean.

As a result of the field surveys and the literature review, it was concluded that the following three listed wildlife species either have been recorded to occur, or have a moderate or high potential to occur within the Project area or its vicinity.

- California least tern
- Western snowy plover
- Belding's savannah sparrow

These listed species are expected to utilize habitat within and adjacent to the Project area and have the potential to be directly or indirectly affected by proposed Project activities. The high disturbance level from human presence reduces the quality of beach habitat in the vicinity for the California least tern and the western snowy plover, especially during the summer months. However, the fenced California Least Tern Natural Preserve Area provides nesting habitat for the California least tern and the beach provides suitable habitat for western snowy plovers in the winter months. In addition, the relative isolation of the Project area separated from the main public beaches by the SAR and Talbert Marsh enhances the area use by western snowy plover for foraging and loafing habitat. Western snowy plovers are known to overwinter in the area including adjacent to the California Least Tern Natural Preserve Area.

Zembal and others (2006) reported three Belding's savannah sparrow territories within Talbert Marsh. Suitable habitat for this species is concentrated in the western portion of the Talbert Marsh approximately 1,000 feet from Air Vac Station 12+05.

The only sensitive plant species expected and/or documented to occur in the Project vicinity is the CNPS List 1B.2 annual, Coast Woolly-heads *(Nemacaulis denudata* var. *denudate*). Coast woolly-heads are reported to occur within and adjacent to the California Least Tern Preserve Area.

Table 4.3-1 below depicts the results of the CNNDB database search for a 1-mile radius of the proposed Project. The following species accounts describe the sensitive species that are known to occur, or have a high potential to occur on the proposed Project site.

TABLE 4.3-1
SPECIAL-STATUS PLANT SPECIES AND ANIMALS REPORTED OR POTENTIALLY OCCURING IN THE PROJECT VICINITY

Species	Listing Status	Habitat Requirements	Seasonality	Potential for Occurrence
Plants/Communities				
Coast woolly-heads (*Nemacaulis denudata* var. *denudata*)	- - List 1B.2	Coastal dunes.	April-September	Present - Found in abundance around and within the California least tern nesting colony south of the Pacific Coast Highway in Huntington State Beach.
chaparral sand-verbena (*Abronia villosa* var. *aurita*)	- - List 1B.1	Chaparral, coastal scrub; sandy areas.	June-August	Known to occur in Talbert Marsh; Not present in project footprint
Davidson's saltscale (*Atriplex serenana* var. *davidsonii*)	- - List 1B.2	Coastal scrub, coastal bluff scrub; alkaline soils.	April-September	Not present in project footprint
estuary seablite (*Suaeda esteroa*)	- - List 1B.2	Coastal marshes and swamps; clay, silt, and sand substrates.	April-September	Suitable habitat not present in project footprint
southern tarplant (*Centromadia parryi* ssp. *australis*)	- - List 1B.1	Margins of marshes and swamps, valley and foothill grassland; Alkaline soils and occasionally in saltgrass or vernal pool margins.	May-November	Suitable habitat not present in project footprint
Ventura marsh milk-vetch (*Astragalus pycnostachyus var lanosissimus*)	FE CE List 1B.1	Coastal salt-marsh	July-October	Suitable habitat not present in project footprint
San Fernando Valley spineflower (*Chorizanthe parryi var fernandina)*	FC CE List 1B.1	Coastal scrub	April-June	Suitable habitat not present in project footprint
Salt marsh bird's-beak *(Cordylanthus maritimus ssp maritimus)*	FE CE List 1B.2	Coastal salt-marsh, coastal dunes	May-October	Suitable habitat not present in project footprint
Laguna Beach dudleya (*Dudleya stolonifera)*	FT CT List 1B.1	Chaparral, coastal scrub, cismontane woodland, valley and foothill grassland	May-July	Suitable habitat not present in project footprint
Santa Ana River woolystar (*Eriastrum densifolium ssp sanctorum)*	FE CE List 1B.1	Coastal sage scrub, chaparral	June-August	Suitable habitat not present in project footprint

Species	Listing Status	Habitat Requirements	Seasonality	Potential for Occurrence
California Orcutt grass (*Orcuttia californica)*	FE CE List 1B.1	Vernal pools	May-June	Suitable habitat not present in project footprint
Lyon's pentachaeta (*Pentachaeta lyonii)*	FE CE List 1B.1	Edges of chaparral, grasslands	March-August	Suitable habitat not present in project footprint
Aphanisma (*Aphanisma blitoides*)	FSC - List 1B.2	Coastal bluff scrub, coastal dunes	April-May	Suitable habitat not present in project footprint
Coulter's saltbush (*Atriplex coulteri*)	- - List 1B.2	Coastal bluff scrub, coastal dunes, coastal scrub and grassland	March-October	Suitable habitat not present in project footprint
South Coast saltscale (*Atriplex pacifica)*	- FSC List 1B.2	Coastal bluff scrub, coastal dunes, playas, chenopod scrub	March-October	Suitable habitat not present in project footprint
Parish's brittlescale (*Atriplex parishii)*	- FSC List 1B.1	Alkali meadows, vernal pools, chenopod scrub, playas	June-October	Suitable habitat not present in project footprint
Santa Barbara morning-glory (*Calystegia sepium ssp binghamiae)*	- - List 1A	Coastal marshes	June-August	Suitable habitat not present in project footprint
Southern tarplant (*Centromadia parryi* ssp. *Australis)*	- - List 1B.1	Marshes and swamps, grassland, vernal pools	May-November	Suitable habitat not present in project footprint
Many-stemmed dudleya (*Dudleya multicaulis)*	- FSC List 1B.2	Chaparral, coastal scrub, valley and foothill grassland	May-June	Suitable habitat not present in project footprint
Cliff spurge (*Euphorbia misera)*	- - List 2	Coastal bluff scrub	January-August	Suitable habitat not present in project footprint
Los Angeles sunflower (*Helianthus nuttallii ssp parishii)*	- FSC List 1A	Coastal salt and freshwater marshes and swamps	August-October	Suitable habitat not present in project footprint
Coulter's goldfields (*Lasthenia glabrata ssp coulteri)*	- FSC List 1B.1	Coastal salt-marsh, playas, valley and foothill grassland, vernal pools	March-May	Not observed
Robinson's pepper-grass (*Lepidium viginicum var robinsonii*)	- - List 1B.2	Chaparral, coastal scrub	Junary-April	Suitable habitat not present in project footprint

Species	Listing Status	Habitat Requirements	Seasonality	Potential for Occurrence
Mud Nama (Not observed)	- - List 2.2	Marshes and swamps	March-May	Suitable habitat not present in project footprint
Prostrate navarretia (*Navarretia prostrate*)	- FSC List 1B.1	Coastal scrub, grassland, vernal pools	April-July	Suitable habitat not present in project footprint
Sanford's arrowhead (*Sagittaria sanfordii*)	- FSC List 1B.2	Marshes and swamps	May-August	Suitable habitat not present in project footprint
Salt spring checkerbloom (*Sidalcea neomexicana*)	- - List 2.2	Alkali playas, brackish marshes, chaparral, coastal scrub, lower montane conifer forest, desert scrub	April-June	Suitable habitat not present in project footprint
Estuary seablite (*Suaeda esteroa*)	- - List 1B.2	Marshes and swamps	July-October	Suitable habitat not present in project footprint
Amphibians				
Arroyo toad (*Bufo microscaphus califonicus*)	FE CSC	Semi-arid, near washes or intermittent streams, including valley-foothill and desert riparian	Year-round	Suitable habitat not present in project footprint
Birds				
Belding's savannah sparrow (*Passerculus sandwichensis beldingi*)	- CE	Coastal salt marshes, from Santa Barbara south through San Diego County. Nests in *Salicornia* on and about the margins of tidal flats.	Year-round	Suitable habitat not present in project footprint or vicinity
Black skimmer (*Rynchops niger*)	- CSC	Nests along gravel bars, low islets and sandy beaches along Salton Sea and southern San Diego Bay	June-October	Known to occur seasonally in project vicinity; does not utilize project area
Burrowing owl (*Athene cunicularia*)	FSC CSC	Nests in mammal burrows in open, sloping grasslands	February-June	Suitable habitat not present in project footprint or vicinity
Coastal cactus wren *Campylorhynchus brunneicapillus couesi*	- CSC	Coastal sage scrub	Year-round	Suitable habitat not present in project footprint or vicinity

Species	Listing Status	Habitat Requirements	Seasonality	Potential for Occurrence
California Least Tern (*Sternula antillarum browni*)	FE CE (fully protected)	Nests along the Pacific coast from San Francisco Bay south to northern Baja California. Colonial breeder on bare or sparsely vegetated, flat substrates on sand beaches, alkali flats, landfills, or paved areas.	April-August	Present - Known to occur seasonally in project vicinity
Coastal California gnatcatcher (*Polioptila californica californica*)	FE CE	Coastal sage scrub	Year-round	Suitable habitat not present in project footprint or vicinity
Cooper's hawk (*Accipiter cooperi*)	- CSC	Nests in riparian growths of deciduous trees and live oaks	March-July	Suitable habitat not present in project footprint or vicinity
Least Bell's vireo (*Vireo belliipusillus*)	FE CE	Low riparian vegetation near river bottoms	Summer	Suitable habitat not present in project footprint or vicinity
Light-footed clapper rail (*Rallus longirostris levipes*)	FE CE	Salt marshes traversed by tidal sloughs where cordgrass and pickleweed are the dominant vegetation. Requires dense growth of either pickleweed or cordgrass for nesting or escape cover.	Year-round	Suitable habitat not present in project footprint or vicinity
Tricolored blackbird (*Agelaius tricolor*)	FSC CSC	Riparian thickets and emergent vegetation	Spring	Suitable habitat not present in project footprint or vicinity
Western Snowy Plover (*Charadrius alexandrinus nivosus*)	FE CSC	Sandy beaches, salt pond levees and shores of large alkali lakes. Needs sandy, gravelly or friable soils for nesting.	Year-round	Present - Known to occur seasonally in project vicinity
Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*)	FC CE	Riparian forests along flood bottoms of large river systems	Spring-Summer	Suitable habitat not present in project footprint or vicinity
Yellow-breasted chat *Icteria virens (nesting)*	- CSC	Riparian corridors with willows or other dense foliage	March-September	Suitable habitat not present in project footprint or vicinity
Fish				
Santa Ana sucker (*Catostomus santaanae*)	FT CSC	Los Angeles Basin coastal streams	Year-round	Suitable habitat not present in project footprint or vicinity
Invertebrates				
San Diego fairy shrimp (*Branchinecta sandiegonensis*)	- FE	Endemic to San Diego County mesas	February-March	Suitable habitat not present in project footprint or vicinity

Species	Listing Status	Habitat Requirements	Seasonality	Potential for Occurrence
Sandy beach tiger beetle (*Cicindela hirticollis gravid*)	- FSC	Areas adjacent to non-brackish ater along the coast	January-July	Suitable habitat not present in project footprint or vicinity
Wanderign skipper (*Panoquina errans*)	- FSC	Coastal salt-marsh	February-October	Suitable habitat not present in project footprint
Mimic tryonia (*Tryonia imitator*)	- FSC	Coastal lagoons, estuaries, and salt-marshes	Year-round	Not observed
Mammals				
Pacific pocket mouse (*Perognathus longimembris pacificus*)	FE CSC	Narrow coastal plains	Year-round	Suitable habitat not present in project footprint or vicinity
Reptiles				
Southwestern pond turtle (*Clemmys marmorata pallid*)	FSC CSC	Permanent freshwater ponds and slow streams edged with sandy soils for laying eggs	Year-round	Suitable habitat not present in project footprint or vicinity
Orange-throated whiptail (*Cnemidophorus hyperythrus beldingi*)	FSC CSC	Coastal scrub, chaparral, and valley-foothill hardwood habitats	Year-round	Suitable habitat not present in project footprint or vicinity
San Diego horned lizard (*Phrynosoma coronatum blainvillei*)	FSC CSC	Coastal sage scrub, arid chaparral	Year-round	Suitable habitat not present in project footprint or vicinity
CDFG-sensitive plant communities				
Southern Coastal Salt Marsh is not present in project footprint				
Southern Dune Scrub is not present in project footprint				
Southern Foredunes is not present in project footprint				
USFWS species of concern				
Birds				
California black rail (*Laterallus jamaicensis coturniculus*) is not present in project footprint				
Light-footed clapper rail (*Rallus longirostris levipes*) is not present in project footprint				

Federal Categories (USFWS)
FE = Federally endangered: any species, subspecies, or variety of plant or animal that is in danger of extinction throughout all or a significant portion of their range. Species become officially listed as endangered and receive explicit protection under the FESA upon publication of final rule for listing in the Federal Register.
FT = Federally threatened: any species, subspecies, or variety of plant or animal that is considered likely to become endangered throughout all or a significant portion of its range within the foreseeable future. Once listed in the Federal Register, threatened species receive discretionary protection under the FESA.
FSC = Federal species of concern
FPE = Proposed for listing as endangered
FPT = Proposed for listing as threatened
FC = Candidate for federal listing

California State Status (CDFG)
CE = California State endangered: any species, subspecies, or variety of plant or animal that are in serious danger of becoming extinct throughout all, or a significant portion, of their range due to one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, or disease.
CT = California State threatened: any species, subspecies, or variety of plant or animal that, although not presently threatened with extinction, is likely to become an endangered species in the foreseeable future in the absence of special protection and management efforts.
CSC = species of special concern status applies to animals not listed under the FESA or the California Endangered Species Act (CESA), but which nonetheless 1) are declining at a rate that could result in listing, or 2) historically occurred in low numbers and known threats to their persistence currently exist. The California Department of Fish and Game has designated certain vertebrate species as "Species of Special Concern" because declining population levels, limited ranges, and/or continuing threats have made them vulnerable to extinction. The goal of designating species as "Species of Special Concern" is to halt or reverse their decline by calling attention to their plight and addressing the issues of concern early enough to secure their long term viability. Not all "Species of Special Concern" have declined equally; some species may be just starting to decline, while others may have already reached the point where they meet the criteria for listing as a "Threatened" or "Endangered" species under the FESA and/or CESA.
CR = Listed rare by the State of California
Fully protected: animal species may not be taken or possessed at any time and no licenses or permits may be issued for their take except for collecting these species for necessary scientific research and relocation of the bird species for the protection of livestock.

California Native Plant Society Status
List 1B = Plants are native California species, subspecies or varieties that are rare, threatened, or endangered in California and throughout its range.
List 2 = California Native Plant Society List 2 plants are native California species, subspecies or varieties that are rare, threatened or endangered in California, but more common outside of the State.
List 3 = California Native Plant Society List 3 plants are native California species, subspecies or varieties that more information is needed to assign them to one list or another or to reject them.
List 1A = Plants presumed extinct in California
List 1B = Plants rare, threatened, or endangered in California and elsewhere
List 2 = Plants rare, threatened, or endangered in California but more common
List 3 = Plants about which more information is needed
List 4 = Plants of limited distribution
California Native Plant Society Threat Codes
0.1 means it is seriously endangered in California.
0.2 means it is fairly endangered in California.
0.3 means it is not very endangered in California.

NOTE: "No habitat" indicates that the habitat is not present within the project impact area or the species has not been recorded in the area in the past or detected in the general survey conducted by ESA. Therefore, species are not assumed present in the area or affected by the project. "Not observed" indicates that the species may be present but was not observed during the reconnaissance survey of the project impact area conducted by ESA in 2011 or other sources. "Observed" indicates that the species is known to utilize the habitat within the project area.

SOURCE: California Natural Diversity Database.

California Least Tern (Sterna antillarum browni)

The California least tern is a federally listed Endangered Species and a State-listed Endangered, Fully Protected Species. The California least tern is one of three subspecies of least terns in the United States. Complex sub-adult plumages make it virtually impossible to separate the subspecies in the field, and subspecies are usually identified by distribution. California least terns forage over open waters, where they hover to locate prey and then dip or dive into the water's surface to capture it. They also forage over mudflats at low tide, where they make short skimming approaches onto shallow pools of water. They eat a variety of fish species, and are thought to be partial to northern anchovy (*Engraulis mordax*) and silversides (*Atherinidae* sp.). They may also consume small invertebrates.

Least terns require tracts of sparsely-vegetated open sand or fine-gravel substrate for nesting. The construction of PCH in the early 20th century had a significant impact on California least terns, as well as other shorebirds, by directly destroying nesting beaches as well as making these areas more accessible to human encroachment. Faced with the loss of natural nesting habitat, the subspecies will use newly filled or graded lands, airports, and salt ponds. Nesting areas must be located near open water supporting adequate and appropriate fish populations.

The California least tern is a migratory species and their winter distribution is unknown. During the spring and summer breeding season (April 1 and September 1), they are found nesting along the Pacific Coast from Contra Costa County south to Mexico. Statewide, California least terns nest at approximately 35 locations from Contra Costa County to San Diego (Feeney, 2000). Threats to the species include continued habitat loss and excessive predation. Successful recovery programs require expensive and intensive management efforts, and public support for predator control.

Western Snowy Plover (Charadrius alexandrinus nivosus)

The western snowy plover is a federally listed Threatened Species and a State Species of Special Concern. The western snowy plover is a small, 6 inch migratory shorebird found on sandy marine and estuarine shores and at some inland nesting locations. The species is known to breed from Washington to Baja California (USFWS, 2007). The threatened Pacific Coast population is defined as those nesting adjacent to the tidal waters of the Pacific Ocean. This species gleans insects and amphipods from the dry sand of upper beaches (Tucker and Powell, 1999), but occasionally forages in kelp or in wet sand for young sand crabs. They also feed on brine flies at salt ponds. Western snowy plovers rely on camouflage for cover, crouching motionless when danger is suspected.

For nesting these birds require friable soil, usually sand or gravel, above the high tide line, preferring to nest on coastal beaches, beaches at creek and river mouths, and salt pans at lagoons and estuaries (CDFG, 2005). They are uncommon nesters at dry salt ponds and salt pond levees, but such nesting has become more common in response to human disturbances (USFWS, 2008c). Most snowy plovers are nest-site-faithful and return to the same area every year (Warriner et al., 1986). Nests are shallow depressions sometimes lined with pebbles, gravel, or fragments of glass. They are frequently located near or under driftwood, rocks, or defoliated bushes. The breeding

season is March 1 through September 30 (USFWS, 2007). Western snowy plovers are polyandrous and the female often abandons the brood, leaving the male to raise the precocial chicks while she mates again for a second clutch. Chicks usually fledge within 31 days (Page et al, 1995). The western snowy plover are known to breed north of the proposed Project site, at the Bolsa Chica Ecological Reserve. Western snowy plovers are preyed upon at all life stages by gulls, ravens, coyotes, and skunks.

The encroachment of non-native European beachgrass (*Ammophila arenaria*) has also reduced available nesting habitat (USFWS, 2007). The greatest threat is human disturbance, with the breeding season coinciding with the warmest summer months and peak human recreation at sandy beaches.

Belding's Savannah Sparrow (Passerculus sandwichensis beldingi)

The Belding's savannah sparrow is listed as endangered in California and a candidate species for federal protection. It is a non-migratory subspecies that occurs in coastal salt marshes between Goleta Slough, Santa Barbara County, and Bahia de San Quintin in Mexico. These sparrows nest from April through July, with a peak in May and June, in hollows near the ground in and under a canopy of pickleweed. Savannah sparrows feed on grass and other seeds, snail, spiders and other invertebrates. The same salt-marsh habitat losses that have affected least terns (see above) and other salt marsh dependent species are responsible for population declines to Belding's savannah sparrow.).

Coast Woolly-Heads (Nemacaulis denudata var. *denudata)*

The coast woolly-heads is a CNPS 1B.2 species. The coast woolly-heads is a prostrate annual found in well-developed coastal sand dunes along Pacific beaches from Los Angeles County south to Baja California, Mexico. Back dunes, in mildly protected locales, seem to be preferred. Coast woolly-heads is severely declining due to extensive recreational beach use leaving few expanses of dune or undisturbed beach habitat available. Several specimens of the desert-dwelling ssp. *gracilis* (or a hybrid) are known from the coast (reported at Oceanside and the marine base on San Diego Bay); other possible hybrids with ssp. *denudata* are reported from Baja California (Reiser, 1994).

4.3.2 Regulatory Framework

Federal

Federal Endangered Species Act

The USFWS administers the FESA that provides a process for listing species as either threatened or endangered, and methods of protecting listed species. Species are listed as either endangered or threatened under Section 4 of the FESA which defines "endangered" as any plant or animal species that is in danger of extinction throughout all or a significant portion of its range and "threatened" if a species is likely to become endangered in the foreseeable future. Section 9 of the FESA prohibits "take" of listed threatened or endangered species. The term "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in

such conduct. Harm under the definition of "take" includes disturbance or loss of habitats used by a threatened or endangered species where it actually kills or injures wildlife by impairing essential behavior patterns, including breeding, feeding or sheltering. Under the regulations of the FESA, the USFWS may authorize "take" when it is incidental to, but not the purpose of, an otherwise lawful act.

Migratory Bird Treaty Act of 1918

The Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S.C. 703-311) makes it unlawful to possess, buy, sell, purchase, barter or "take" any migratory bird listed in Title 50 of the Code of Federal Regulations Part 10. "Take" is defined as possession or destruction of migratory birds, their nests or eggs. Disturbances that cause nest abandonment and/or loss of reproductive effort or the loss of habitats upon which these birds depend may be a violation of the MBTA.

Clean Water Act (CWA) Section 404

Wetlands are generally considered to be areas that are periodically or permanently inundated by surface water or groundwater, and support vegetation adapted to life in saturated soil. Wetlands are recognized as important features on a regional and national level due to their high inherent value to fish and wildlife, use as storage areas for storm and floodwaters, and water recharge, filtration, and purification functions. Technical standards for delineating wetlands have been developed by the U.S. Army Corp of Engineers (ACOE) which generally defines wetlands through consideration of three criteria: hydrology, soils, and vegetation. Under Section 404 of the Clean Water Act (CWA), the ACOE is responsible for regulating the discharge of dredged or fill material into waters of the United States. The term "waters" includes wetlands and non-wetland bodies of water that meet specific criteria as defined in the Code of Federal Regulations.

U.S. Army Corps of Engineers

The ACOE has primary federal responsibility for administering regulations that concern waters and wetlands on the project site. In this regard, the ACOE acts under two statutory authorities, the Rivers and Harbors Act (Sections 9 and 10), which governs specified activities in "navigable waters," and the CWA (Section 404), which governs specified activities in "waters of the United States," including wetlands and special aquatic sites. Wetlands and nonwetland waters, e.g., rivers, streams and natural ponds, are a subset of "waters of the U.S." and receive protection under Section 404 of the CWA. The ACOE has primary federal responsibility for administering regulations that concern waters and wetlands on the project site under statutory authority of the CWA (Section 404). In addition, the regulations and policies of various federal agencies (e.g., U.S. Department of Agriculture and Natural Resource Conservation Service [NRCS], and the U.S. Environmental Protection Agency [US EPA]) mandate that the filling of wetlands be avoided to the extent feasible. The ACOE requires obtaining a permit if a project proposes placing structures within navigable waters and/or alteration of waters of the United States.

The term "waters of the United States" as defined in the Code of Federal Regulations (33 CFR 328.3[a] and [b]; 40 CFR 230.3[s]) includes those areas that are inundated or saturated by surface or groundwater a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil

conditions. In existing regulations, these may be taken to be sloughs, wet meadows, or natural ponds; however, the Supreme Court of the United States ruled that certain isolated wetlands do not fall under the jurisdiction of the CWA (*Solid Waste Agency of Northwestern Cook County (SWANCC) v. United State Army Corps of Engineers et al., 2001*).

Based on the SWANCC Supreme Court ruling (2001), non-navigable, isolated, intrastate waters are no longer defined as waters of the United States. Jurisdiction over non-navigable, isolated, intrastate waters may be possible if their use, degradation, or destruction could affect other waters of the Unites States or interstate or foreign commerce. Jurisdiction over such other waters is analyzed on a case-by-case basis. Impoundments of waters, tributaries of waters, and wetlands adjacent to waters should be analyzed on a case-by-case basis.

A more recent Supreme Court case, *Rapanos v. United States* (2006), also questioned the definition of "waters of the United States" and the scope of federal regulatory jurisdiction over such waters, but left open the question as to whether the CWA extends to those waters and wetlands that have a "significant nexus" to navigable waters of the United States, or whether it is limited to waters with a continuous connection. The implications of this ruling are still being tested in the courts. For example, the California Ninth Circuit Court of Appeals decision, *Northern California River Watch v. City of Healdsburg* (2006), relied on the "significant nexus" definition, an interpretation that suggests little change in the scope of the CWA. To date, neither the US EPA nor the ACOE have issued guidelines as to how to implement the CWA in light of these latest rulings. In practice, USACE jurisdictional authority remains as it was prior to *Rapanos*, although the potential exists for changes in the future based on Court decisions and pending regulatory guidance.

Non-wetland waters such as unvegetated streams are also regulated by the ACOE. Jurisdiction over these features is delineated by the presence of indicators that define the Ordinary High Water Mark (OHWM). Coastal waters are also regulated under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbor Act.

State

California Fish and Game Code

Fully-Protected Species

The California Fish and Game Code provides protection from "take" for animal species that possess "fully-protected species" status. Fully protected species may not be taken or possessed at any time, and no licenses or permits may be issued for their take except for collecting these species for necessary scientific research or relocation. The California least tern is a fully protected species.

Bird and Nest Protection

Section 3503 of the California Fish and Game Code prohibits the killing of birds or the destruction of bird nests. Birds of prey are protected in California under 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." It is generally recognized that construction disturbances during the breeding season can result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment. Disturbances that cause nest abandonment and/or loss of reproductive effort are considered a "take" by CDFG. Any loss of fertile eggs, nesting raptors, or any activities resulting in nest abandonment would constitute a significant impact. This approach would apply to red-tailed hawks, American kestrels, barn owls, and other birds of prey. Project impacts to these species would not be considered "significant" in this Draft EIR unless they are known to be present or have a high potential to nest on the site or rely on it for primary foraging.

California Department of Fish and Game (CDFG)

Under Sections 1600 – 1616 of the California Fish and Game Code, the CDFG regulates activities that would substantially divert, obstruct the natural flow, or substantially change the hydrological dynamic of rivers, streams and lakes. The CDFG enforces Section 1602 of the California Fish and Game Code which prohibits the foreign activities as to any, bed, channel, or bank of any river, stream, or lake, or the deposit or disposal of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake. The CDFG requires a Lake or Streambed Alteration Agreement for activities within its jurisdictional area. Impacts to the jurisdictional area of the CDFG would be considered "significant" in this Draft EIR.

California Endangered Species Act (CESA)

Under the CESA, the CDFG is responsible for maintaining a list of threatened and endangered species (California Fish and Game Code Section 2070). The CDFG also maintains a list of "candidate species", which are species formally noticed as being under review for addition to the list of threatened and endangered species. The CDFG also maintains a list of species of special concern which serves as a watch list. Pursuant to the requirements of CESA, an agency reviewing a proposed project within its jurisdiction must determine whether any State-listed endangered or threatened species may be present on the project region and determine whether the proposed project would have a potentially significant impact on such species. In addition, the CDFG encourages informal consultation on any proposed project that may impact a candidate species.

Although threatened and endangered species are protected by specific federal and State statues, *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 criteria. These criteria have been modeled after the definition in FESA and the section of the California Fish and Game Code dealing with rare or endangered plants or animals. This section was included in the *CEQA Guidelines* primarily to deal with situations in which a public agency is reviewing a project that may have a significant effect on, for example, a candidate species that has not yet been listed by either the USFWS or CDFG. Thus, CEQA provides an 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. In general plants appearing on CNPS list 1 or 2 are considered to meet CEQA Section 15380 criteria and effects to these species would be considered "significant" in this Draft EIR.

Local

Orange County Natural Community Conservation Plan

The Orange County Natural Community Conservation Plan/Habitat Conservation Plan (NCCP/HCP) sets forth a proposed Conservation Strategy that would be implemented by the County of Orange in cooperation with State and federal agencies and Participating Landowners in Orange County. The proposed Conservation Strategy focuses on long-term protection and management of multiple natural communities that provide habitat essential to the survival of a broad array of wildlife and plant species. The proposed Project is not located within the Orange County NCCP/HCP and would not be subject to the management policies outlined within the NCCP/HCP.

City of Huntington Beach Coastal Program

As required by the California Coastal Act (California State Public Resources Code, Division 20, Sections 30000 et seq.), local governments lying wholly or partially within the Coastal Zone[1] are required to prepare a Local Coastal Program (LCP) for its portion of the Coastal Zone. The LCP is used to implement policies and requirements of the Coastal Act by local governments and must be reviewed and certified by the California Coastal Commission (CCC) prior to being implemented by the local government. The LCP is divided into two components: (1) a coastal element and (2) an implementation program. The Coastal Element found in the City's General Plan includes a land use plan and policies to be used by decision makers when reviewing coastal-related issues and proposed development within a jurisdiction's Coastal Zone boundary. The implementation program includes the zoning ordinances, zoning district maps, specific plans, and other implementing actions that must conform with the goals and policies of the certified coastal element. Chapter 216 Coastal Conservation District of the Zoning Code implements the General Plan and LCP land use designation of Open Space: Conservation; and also provides policies for the protection, maintenance, restoration and enhancement of wetlands and environmentally sensitive habitat areas located in the Coastal Zone.

The City of Huntington Beach General Plan contains a Coastal Element that addresses environmentally sensitive habitats in the area. The Coastal Element Chapter of the General Plan has objectives and policies that ensure future planning activities account for their potential degradation to environmentally sensitive habitats and wetland areas. Specifically, Goal C7 states to preserve, enhance and restore, where feasible, environmentally sensitive habitat areas (ESHAs) in the City's Coastal Zone, including the Bolsa Chica wetlands which is within the City's Sphere of Influence. Talbert Marsh and the California Least Tern Natural Preserve Area are identified as a coastal salt marsh and nesting sanctuary, respectively, and is depicted by the CDFG as ESHA (City of Huntington Beach, 2008). The proposed Project would be subject to the goals, objectives and policies associated with the preservation and conservation of these ESHAs should it directly impacts these areas.

[1] The coastal zone is defined as areas 1,000 yards inland from the mean high tide except in significant coastal estuarine, habitat, and recreational areas, where it extends inland to the first major ridge line paralleling the sea or 5 miles from the mean high tide line, whichever is less (California Coastal Act 1976).

4.3.3 Impacts and Mitigation Measures

Significance Criteria

The criteria used to determine the significance of impacts related to biological resources are based on Appendix G of the *CEQA Guidelines*. The proposed Project would result in a significant impact if it would:

- Have a substantial adverse effect, either directly or through habitat modifications, 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 any riparian habitat or other sensitive natural community 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 CWA (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or
- Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan.

Impacts Discussion

The following sections discuss the potential effects of the proposed Project to biological resources according to the key issue areas identified in Appendix G of the *CEQA Guidelines* and corresponding to the significance criteria identified above.

It was determined in the Draft EIR analysis that the Project would have no impact on the following environmental factors. The following is a brief discussion of the analysis:

Local Polices and Ordinances

Rehabilitation activities would not impact any trees or locally protected species. The proposed Project may temporarily affect the California Least Tern Natural Preserve Area which is designated as an ESHA in the Huntington Beach LCP. The project would comply with the provisions of the LCP. Therefore, no conflict with local policies and ordinances would occur and no further analysis is warranted. Refer to Chapter 4.9, Land Use, for a more detailed discussion of proposed Project consistency with local policies and ordinances.

Significance Level: No impact.

Orange County HCP/NCCP

The proposed Project activities would not be located within areas designated as HCP/NCCP. There are no proposed Project activities that would be within the Orange County HCP/NCCP and, accordingly, the proposed Project would not conflict with the provisions of the management of designated areas. Normal operation activities upon completion of rehabilitation activities would not be in conflict with the local HCP/NCCP. Therefore, no impacts would occur and no further analysis is warranted. Therefore, no conflict with HCP/NCCP policies would occur and no further analysis is warranted.

Significance Level: No impact.

Special-Status Species

Impact 4.3-1: The proposed Project could have a substantial adverse effect, either directly or through habitat modifications, on a species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFG or USFWS.

Alternative 1

Activities on Plant 2

Plant 2 is a developed wastewater treatment plant. There are no known sensitive species onsite at Plant 2. Therefore, no impacts would occur to existing conditions related to special-status species within the Plant 2 property. Activities associated with impacts to special-status species at Plant 2 would be less than significant.

Activities at Air Vac Station 12+05

The proposed Project would not impact native habitat in this area. **Figure 4.3-1** shows the Project zone near Air Vac Station 12+05. All activities are restricted to the unvegetated access road leading to Air Vac Station 12+05. Furthermore, the vegetated area surrounding the Air Vac Station 12+05 is coastal scrub that does not support sensitive species in this area. Indirect impacts to sensitive species are therefore not anticipated to occur. The open water and coastal salt marsh areas of Talbert Marsh are located outside the boundaries of the proposed Project footprint and would be unaffected by the proposed Project. No suitable Belding's savannah sparrow habitat occurs within or immediately adjacent to Air Vac Station 12+05. The nearest potential nesting habitat is approximately 1,000 feet away from the Air Vac Station 12+05 on the western edge of the marsh, well away from the relatively minor rehabilitation activities at Air Vac Station 12+05. Furthermore, indirect impacts will be avoided by completing proposed Project activities outside the peak breeding season and sufficiently shielding temporary nighttime lighting and directing it away from Talbert Marsh. Due to the limited rehabilitation activities occurring at Air Vac Station12+05, and that all of the rehabilitation activities will occur within the Long Outfall pipeline, no impacts to special-status species are expected to occur at this location. Staging of equipment along the access road and intersecting SAR Bikeway would not remove any vegetation or cause substantial disruption of species. Proposed Project activities are planned only during the non-breeding season (between September 1 and March 31). On that basis, there would be a less

than significant impact to migratory birds. The proposed Project would result in a less than significant impact to special status species at the edge of the Talbert Marsh at Air Vac Station 12+05.

Activities on the Beach

Rehabilitation of Beach Box

Rehabilitation of the Beach Box would occur within several feet of the chain-link fence demarcating the California Least Tern Natural Preserve Area boundary. However, there is additional habitat outside the chain-link fence surrounding the Beach Box that is suitable for terns. Breeding colonies of the California least tern utilize the California Least Tern Natural Preserve Area within the chain-link fence and in the sand just outside and adjacent to the fence. **Figure 4.3-2** identifies the California Least Tern Natural Preserve Area boundaries and the Alternative 1 construction footprint. As shown on the Figure, the California State Parks have installed a temporary picket fence outside the area enclosed by the chain-link fence, to provide some protection to the western snowy plover and this beach scrub habitat. **Figure 4.1-6** shows a picture of both fences with the Beach box site in the background.

Rehabilitation of the Beach Box will require removing approximately 0.12 acres of habitat suitable for least tern nesting. If implementation of the proposed Project were to occur during the breeding season, the disruption from rehabilitation activities and the removal of habitat could significantly affect the federal and State-listed California least tern. The proposed Project is designed to avoid any activities during the California least tern nesting season, considered to be between April 1 and September 1. Since the terns are migratory, after the breeding season, there are no terns present. Therefore, direct impact of the terns would be avoided. However, the rehabilitation activities would remove some of the vegetated area (~0.12 acres) within the picket fence for use as staging areas. Implementation of **Mitigation Measures 4.3-1a** through **4.3-1h** would ensure that construction activities are confined and that the affected area is returned to its pre-construction condition. Impacts to California least tern due to the Beach Box rehabilitation would be less than significant with mitigation.

Western snowy plovers are known to use the beaches adjacent to the California Least Tern Natural Preserve Area in the winter. There has been no record of any successful breeding for the western snowy plovers on the Huntington State Beach. However, the western snowy plover may be present during the proposed Project period, using the sandy beach area near the surf to forage and loaf. Groups of plovers move around the beach to areas that are not frequented by dogs and people. Since the Huntington State Beach does not allow dogs in this area, western snowy plovers are commonly seen up and down the beach in this area. Project activities may disrupt these birds. However, the birds may relocate easily to other known loafing areas along the immediate coastline during rehabilitation activities and would therefore not be significantly affected by the temporary disruption.

A small area of the beach scrub surrounding the Beach Box would be affected (0.12 acres). This habitat type includes a special status plant species, the coast woolly-heads. The coast woolly-heads is not a federally or State-listed species but is recorded by the CNPS as a species of

concern. Project activities would grub the top 6 inches of sand to capture the seed bank near the Beach Box. This grubbed material would be stockpiled separately and replaced on the surface of the affected area after implementation as part of the Project. Furthermore, **Mitigation Measure 4.3-1h** would provide for seed collection as feasible from the coast woolly-heads within the proposed Project footprint. The seed would then be spread back on the temporarily impacted areas. Removing the plants along with the rest of the scrub and restoring the site with the grubbed materials and collected seed would ensure that impacts to the plant species would be less than significant.

Implementation of **Mitigation Measures 4.3-1a** through **4.3-1h** would minimize effects of the Project on sensitive species and the habitat used by sensitive species. Therefore, impacts to sensitive species due to the Beach Box rehabilitation would be less than significant with mitigation.

Construction of Bypass Structure

The California Least Tern Natural Preserve Area is located adjacent to the Beach Box, and safeguards nesting areas for protected species. The area is fenced off by a chain link fence, preventing the nesting area from being disturbed by pedestrians, bikers, and beach visitors. The area south of the California Least Tern Natural Preserve Area is also frequented by the threatened western snowy plover. Portions of the preserve area and the area that is frequented by the western snowy plover would be disturbed by the construction and implementation of the bypass structure for approximately seven months. Specifically, construction of the bypass structure and dewatering system under Alternative 1 would temporarily impact 3.55 acres located inside the picket fence area and 0.26 acres located within the natural preserve boundary. The area outside the chain link fenced area known as the "front yard" within the picket fence area supported over 140 least tern nests in the 2011 season.[2] The construction of the bypass structure would occur over this entire area during the non-breeding season. Therefore, the proposed Project would directly impact both the established California Least Tern Natural Preserve Area and the areas known to support breeding pairs outside the chain-link fence.

Construction of the bypass structure on the beach under Alternative 1 would require up to seven months. Due to timing constraints identified above, the proposed construction for Alternative 1 would occur between September 2014 and March 2015. The rehabilitation of the Long Outfall project elements would require 4 to 6 weeks after the bypass structure is completed and operational. Following completion of the rehabilitation of the project elements, the bypass structure would be removed in accordance with **Mitigation Measure 4.3-1h**, the beach returned to its pre-existing condition. This would occur before the least tern nesting season begins in March. Implementation of **Mitigation Measures 4.3-1a** through **4.3-1h** would ensure the impact is less than significant, since no individuals would be directly affected and the habitat would be returned to a suitable condition prior to breeding season. The restoration would include returning preconstruction conditions onsite, spreading stockpiled soils, and seeding with coastal woolly-heads. However, due to the size of the area affected in relation to the California Least Tern Natural Preserve Area, the risk that construction delays could affect early season nesting birds,

[2] Pryor, David, 2011. Personal communication with David Pryor, California State Parks, October 11, 2011

and the importance of the nesting site to the preservation of the species, Alternative 1 would likely require formal consultation with the USFWS pursuant to Section 7 or 10 of the Endangered Species Act.

The dewatering system would extend close to the shore line (**Figure 4.3-3**) and would potentially disturb wintering western snowy plover. The disturbance of the large construction site may deter snowy plovers from accessing this portion of the beach during this winter season. The western snowy plover's winter loafing habitat may be constricted more than normal during the temporary construction period. Nonetheless, due to the large quantity of available beach, and the fact that the disturbance is a one-time short-term event, this is not considered to be a significant impact.

Significance Level Alternative 1: Less than significant with mitigation.

Alternative 2

Alternative 2 would result in identical impacts at Plant 2, at Air Vac Station 12+05 and on the beach during Beach Box rehabilitation activities. **Figure 4.3-3** identifies the construction footprint under Alternative 2. Under Alternative 2, the impacts associated with construction of the bypass structure would be avoided. Additionally, **Mitigation Measures 4.3-1a** through **4.3-1h** would ensure that impacts from implementation of Alternative 2 would be less than significant.

Significance Level Alternative 2: Less than significant with mitigation.

Mitigation Measures

4.3-1a: Prior to the commencement of any construction activities, all construction areas outside Plant 2 will be staked in the field and silt fencing will be installed. No debris, supplies or soils will be placed outside of the marked areas. The installation of staking and fencing will be overseen by a qualified biologist.

4.3-1b: All construction areas outside Plant 2 will be surveyed by a qualified biologist prior to rehabilitation and construction activities to document and map preconstruction conditions.

4.3-1c: A qualified biologist will be present during rehabilitation activities adjacent to Talbert Marsh to ensure that no rehabilitation and maintenance activities occur outside of the marked work areas.

4.3-1d: A qualified biologist will be present during construction activities within Huntington State Beach to ensure that no construction activities occur outside of the marked construction area.

4.3-1e: In order to avoid direct and indirect impacts to nesting birds, project activities adjacent to Air Vac Station 12+05 will occur outside the typical breeding period of the Belding savannah sparrow which generally runs from March 1 through September 1. Project activities near the California Least Tern Natural Preserve Area will occur outside of the peak breeding season which generally runs from April 1 through September 1.

4.3-1f: Work areas outside Plant 2 will be restored to pre-construction contours and all fencing will be re-installed with oversight from a qualified biologist.

4.3-1g: The top 6 inches of sand supporting vegetation in the impact area at Huntington State Beach will be grubbed and stockpiled adjacent to the construction zone. Following construction, the material will be re-spread over the affected area.

4.3-1h: Coast woolly-heads seed within the temporary construction areas at Huntington State Beach will be salvaged and replanted within the temporary impact areas when work is completed as feasible and in consultation with State Parks.

Riparian Habitat and Natural Communities

Impact 4.3-2: The proposed Project could have a substantial adverse effect on riparian habitat or a sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFG or USFWS.

Alternative 1

Activities on Plant 2

Plant 2 is a developed wastewater treatment plant. Rehabilitation activities of the Long Outfall system at Plant 2 including Surge Tower 2 would have no effect on riparian habitats or any other sensitive natural community. There are no known sensitive habitats onsite at Plant 2 and there is no riparian habitat along the SAR adjacent to the plant. Therefore, no impacts would occur to existing conditions related to effects on riparian habitat or natural communities within the Plant 2 property.

Activities at Air Vac Station12+05

No vegetation would be removed at or near the Air Vac Station 12+05 site. The proposed Project would not directly or indirectly affect any salt marsh vegetation. **Mitigation Measure 4.3-1a** includes provisions to stake the limits of the work area under the supervision of a qualified biologist to prevent accidental encroachment into adjacent coastal scrub habitat. **Mitigation Measure 4.3-1b** requires work to be monitored by a qualified biologist to further prevent accidental encroachment into adjacent coastal scrub habitat. Therefore, with the implementation of **Mitigation Measures 4.3-1a** and **4.3-1b**, no significant impacts would occur to natural communities adjacent to Talbert Marsh.

Activities on the Beach

Rehabilitation of Beach Box

The beach area outside the California Least Tern Natural Preserve Area and in the vicinity of the Beach Box is highly disturbed due to the regular presence of human activities and beach grading by the State Parks. The habitat found within the California Least Tern Natural Preserve Area is considered a sensitive habitat and has flora characteristic of dune habitat. A portion of this habitat would be affected during Beach Box rehabilitation activities. Restoring the disturbed area to preconstruction conditions after completion of rehabilitation efforts as required under **Mitigation Measures 4.3-1f** through **4.3-1h**, would ensure that impacts would be less than significant after

mitigation. Therefore, impacts to natural communities identified in a plans, policies, or regulations for Beach Box rehabilitation activities would be less than significant.

Construction of Bypass Structure

Alternative 1 would require the construction of the bypass structure within both the picket fence and the chain link fence portion of the California Least Tern Natural Preserve Area. The habitat found within the California Least Tern Natural Preserve Area is considered a sensitive habitat and has flora characteristic of dune habitat. Impacts to approximately four acres of this sensitive habitat would occur during the construction of the bypass structure. Restoring the disturbed area to preconstruction conditions after completion of rehabilitation efforts as required under **Mitigation Measures 4.3-1f** through **4.3-1h** would ensure that impacts to natural communities would be less than significant with mitigation.

Significance Level Alternative 1: Less than significant with mitigation.

Alternative 2

Alternative 2 would result in identical impacts at Plant 2, at Air Vac 12+05 and on the beach during Beach Box rehabilitation activities. Impacts associated with construction of the bypass structure would be avoided. **Mitigation Measures 4.3-1d**, **4.3-1e**, **4.3-1f**, and **4.3-1fh** would ensure that impacts from implementation of Alternative 2 would be less than significant.

Significance Level Alternative 2: Less than significant after mitigation.

Mitigation Measures

Please refer to **Mitigation Measures 4.3-1f** through **4.3-1h**.

Wetlands

Impact 4.3-3: The proposed Project could have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.

Alternative 1

Activities on Plant 2

There are no wetlands within Plant 2. There would be no impact.

Activities at Air Vac Station 12+05

Typical wetland communities such as coastal salt marsh are considered to be federally regulated wetlands. No coastal salt marsh habitat would be affected by the Project. While the Talbert Marsh contains features considered to be a jurisdictional wetland subject to the CWA, rehabilitation activities occurring at Air Vac Station 12+05 would be limited to upland, non-wetland areas of the property. The coastal scrub immediately adjacent to the Air Vac Station 12+05 is an upland community dominated by upland plant species that lacks wetland hydrology and is not considered

to be a State or federal wetland. Proposed work at the site location would not encroach into the SAR. The rehabilitation work at Air Vac Station 12+05 would occur within the structure and have no impacts to federal wetlands or other waters.

Activities on the Beach

Rehabilitation of Beach Box

Rehabilitation of the Beach Box on Huntington State Beach would not affect any waters of the US and the work boundaries would not encroach into the SAR. **Figure 4.3-2** identifies the approximate jurisdictional limits of the SAR and Pacific Ocean in this area. Therefore, rehabilitation of the Beach Box would have no impact on wetlands.

Construction of Bypass Structure

Construction of the bypass structure under Alternative 1 would largely avoid the ordinary high water mark of the SAR and would therefore avoid impacts to waters of the US under jurisdiction of the CWA. However, the dewatering system will require the temporary placement of discharge pipes to the mouth of the SAR as shown in **Figure 4.3-3**. The pipes will be laid across the beach and placed within the river mouth. A velocity dissipator will be placed in the river to minimize the potential for the 30 mgd of flow from the dewatering system to result in scouring of the river bed. Placing this dissipator temporarily within the SAR may result in a temporary impact to waters of the US requiring a permit from the ACOE. Once the proposed Project is complete, the velocity dissipator would be removed. Therefore, there would be no permanent impacts to waters of the US and no net loss of wetlands or other waters. Therefore, impacts would be less than significant. Nonetheless, a permit from the ACOE pursuant to Section 404 of the CWA would be required.

Significance Level Alternative 1: Less than significant.

Alternative 2

Alternative 2 would result in identical impacts at Plant 2, the Air Vac Station12+05, and on the beach during Beach Box rehabilitation activities. Impacts associated with construction of the bypass structure and discharging groundwater to the SAR would be avoided, and therefore there would be no impacts to federal wetlands and other waters.

Significance Level Alternative 2: No impact.

Wildlife Movement Corridor

Impact 4.3-4: The proposed Project could interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.

Alternative 1

Activities on Plant 2

Plant 2 is a fully developed wastewater treatment facility and does not have any wildlife corridor function. No impacts will occur to a wildlife corridor from activities on Plant 2.

Activities at Air Vac Station12+05

The coastal scrub that lies between the Talbert Marsh and the SAR provides cover for animals moving between the Talbert Marsh and the SAR. However, the proposed work at Air Vac Station 12+05 is not anticipated to preclude animals moving between the Talbert Marsh and the SAR because the work area is confined to the short dirt road and fenced area around the Air Vac Station 12+05. The work window around the Air Vac Station 12+05 would be short in duration and spatially discrete leaving room on either side of the access road for movement between the Talbert Marsh and the SAR. Moreover, most species moving between the Talbert Marsh and the SAR are birds and are able to fly over and around the work area. Because the rehabilitation work at Air Vac Station 12+05 occurs over a limited time, in a small area confined to the immediate access to and around the Air Vac Station 12+05, the temporary construction impacts are not expected to significantly reduce wildlife movement in this area. Impacts associated with rehabilitation activities at Air Vac Station12+05 to wildlife movement would be less than significant.

Activities on the Beach

Rehabilitation of Beach Box

The California Least Tern Natural Preserve Area is entirely surrounded by disturbed and developed lands including PCH and does not provide a corridor function. The temporary construction associated with rehabilitation of the Beach Box would not interfere with wildlife movement. Impacts associated with rehabilitation activities at the Beach Box to wildlife movement would be less than significant.

Construction of Bypass Structure

The construction of the bypass structure would encroach into the picket fence and the chain link fence portion of the California Least Tern Natural Preserve Area. However, the California Least Tern Natural Preserve Area is entirely surrounded by disturbed and developed lands including PCH and does not provide a corridor function. The temporary construction associated with development of the bypass structure under Alternative 1 would not interfere with wildlife movement, because the proposed Project site is not located within a wildlife movement corridor. Impacts associated with construction of the bypass structure to wildlife movement would be less than significant.

Significance Level Alternative 1: Less than significant.

Alternative 2

Alternative 2 would result in identical impacts at Plant 2, the Air Vac Station 12+05, and on the beach during Beach Box rehabilitation activities. The temporary construction associated with

construction of the bypass structure under Alternative 1 would be avoided in Alternative 2. Impacts to wildlife movement under Alternative 2 would be less than significant.

Significance Level Alternative 2: Less than significant.

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4.4 Cultural and Paleontological Resources

This section describes the existing conditions of the Project area and provides an evaluation of potential impacts to cultural resources associated with the proposed Project. The following analysis is based on the Cultural Resources Report included in **Appendix C**.

4.4.1 Environmental Setting

General Setting

The proposed Project is located in the City of Huntington Beach (the City), Orange County, in southern California. The topography of Orange County includes a combination of mountains, hills, flatlands, and shorelines. Urbanized Orange County is predominantly within an alluvial plain, semi-enclosed by the Puente and Chino Hills to the north, the San Joaquin Hills to the south, and the Santiago Foothills and the Santa Ana Mountains to the east. The Puente and Chino Hills, which identify the northern limit of the plains, extend for 22 miles and reach a peak height of 7,780 feet. To the east and southeast of the plains are the Santa Ana Mountains, which have a peak height of 5,691 feet. The Santa Ana River (SAR) is located adjacent to and just east of the Project area.

The City is located near the coastal margin of the Los Angeles Basin, which includes Orange County, and is underlain by more than 15,000 feet of stratified sedimentary rocks of marine origin (Oakeshott, 1978). Soils in the region near the mouth of the Santa Ana River (SAR) are composed of younger alluvium that is divided into river floodplain deposits (washed in from the northeast as sand, gravel and silt), and tidal flat/lagoonal type deposits lie in the gaps (finer-grained silts and clays) (City of Huntington Beach, 1996).

Prehistoric Context

The prehistory of the region has been summarized within four major horizons or cultural periods: Early (10,000 to 8,000 years before present [B.P.]), Millingstone (8,000 to 3,000 B.P.), Intermediate (3,000 to 1,500 B.P.), and Late Prehistoric (1,500 B.P to A.D. 1769) (Wallace, 1955; Warren, 1968).

Early Period (10,000 to 8,000 B.P.)

The southern California coast may have been settled as early as 10,000 years ago (Jones, 1992). These early inhabitants were likely maritime-adapted groups exploiting shellfish and other marine resources found along the coastline (Dixon, 1983; Erlandson, 1994; Vellanoweth and Altschul, 2002). A site located in Newport Bay, Orange County (CA-ORA-64), which dates to approximately 9,500 years B.P., suggests early intensive utilization of shellfish, fish, and bird resources (Drover et al., 1983; Macko, 1998).

Millingstone Period (8,000 to 3,000 B.P.)

The Millingstone Period dates to about 8,000 to 3,000 B.P. The transition from the Early Period to the Millingstone Period is marked by an increased emphasis on the processing of seeds and edible plants. The increased utilization of seeds is evident by the high frequencies of handstones (manos) and milling slabs (metates). Around 5,000 B.P., mortar and pestles appear in the archaeological record. Mortars and pestles suggest the exploitation of acorns (Vellanoweth and Altschul, 2002).

Millingstone Period sites in Orange County generally date to between 8,000 and 4,000 B.P. Archaeological evidence suggests a low, stable population centered around semi-permanent residential bases. These sites are located along coastal marine terraces, near the shoreline, bays, or estuaries. Satellite camps were used to take advantage of seasonally available resources. Marine resources were supplemented by seeds and small terrestrial mammals. Later Millingstone Period sites indicate a growing reliance on shellfish (Cleland et al., 2007).

Intermediate Period (3,000 to 1,500 B.P.)

The Intermediate Period dates to between 3,000 to 1,500 B.P. Archaeological sites dating to this period indicate a broader economic base, with increased reliance on hunting and marine resources. An expanded inventory of milling equipment is found at sites dated to this period. Intermediate Period sites are characterized by the rise of the mortar and pestle and small projectile points (Cleland et al., 2007).

The number of Intermediate Period sites in Orange County declined over time, particularly around Newport Bay. Climate changes and drier conditions led to the congregation of populations near freshwater sources. Settlement patterns indicate greater sedentism, with reduced exploitation of seasonal resources and a lack of satellite camps. Coastal terrace sites are not reoccupied during this time period. These shifts in settlement and subsistence strategies led to growing population densities, resource intensification, higher reliance on labor-intensive technologies, such as the circular fishhook, and more abundant and diverse hunting equipment. Rises in disease and inter-personal violence, visible in the archaeological record, may be due to the increased population densities (Cleland et al., 2007; Raab et al., 1995).

Late Prehistoric Period (1,500 B.P. to A.D. 1769)

The Late Prehistoric Period began around 1,500 B.P. and lasted until Spanish contact in 1769. The Late Prehistoric Period resulted in concentration of larger populations in settlements and communities, greater utilization of the available food resources, and the development of regional subcultures (Cleland et al., 2007). Artifacts from this period include milling implements, as well as bone and shell tools and ornaments.

Newport Bay and San Joaquin Hills, abandoned during the Intermediate Period, were reoccupied during the Late Prehistoric Period. These settlements were smaller than in the Intermediate Period. Village sites were located in areas with a multitude of resources. Small collector groups moved between a small number of these permanent settlements (Cleland et al., 2007).

Ethnographic Setting

The proposed Project is located in a region traditionally occupied by the Takic-speaking Gabrielino-Tongva Indians. Prior to European colonization, the Gabrielino-Tongva occupied a diverse area that included the watersheds of the Los Angeles, San Gabriel, and Santa Ana rivers; the Los Angeles basin; and the islands of San Clemente, San Nicolas, and Santa Catalina (Kroeber, 1925). The Gabrielino-Tongva are reported to have been second only to the Chumash in terms of population size and regional influence (Bean and Smith, 1978).

The Gabrielino-Tongva Indians were hunter-gatherers and lived in permanent communities located near the presence of a stable food supply and some measure of protection from flooding. Community populations generally ranged from 50-100 inhabitants, although larger settlements may have existed. The Gabrielino-Tongva are estimated to have had a population numbering around 5,000 in the pre-contact period (Kroeber, 1925).

Beginning with the Mission Period, Native Americans suffered severe depopulation and their traditional culture was radically altered. Nonetheless, Gabrielino-Tongva descendants still reside in the greater Los Angeles and Orange County areas and maintain an active interest in their heritage.

Historical Setting

The historical setting for the Project area is divided into three primary periods: the Spanish Period (A.D. 1769-1822), the Mexican Period (A.D. 1822-1846), and the American Period (A.D. 1846 to present).

Spanish Period (A.D. 1769-1821)

The first European exploration of Orange County began in 1769 when the Gaspar de Portola expedition passed through on its way from Mexico to Monterey. A permanent Spanish presence was established with the founding of Mission San Juan Capistrano in 1776 (Hoover et al., 2002). The mission was founded to break the long journey from Mission San Diego to Mission San Gabriel (near Los Angeles). A large, ornate church was constructed at the mission from 1797 to 1806, but was destroyed only 6 years later in an earthquake. The church was not rebuilt.

In an effort to promote Spanish settlement of Alta California, Spain granted several large land concessions from 1784 to 1821. At this time, Spain retained title to the land; individual ownership of lands in Alta California was not granted. The part of Orange County that would become the cities of Tustin and Irvine began as a Spanish land concession. Permission for settlement and cattle grazing of Rancho Santiago de Santa Ana was granted to Antonio Yorba and his nephew Juan Pablo Peralta by Jose Joaquin de Arrillago, Spanish Governor of Alta California, on July 1, 1810. The total land concession comprised 17 leagues (62,516 acres) (Logan, 1990; Sherman Library, 2009).

Mexican Period (A.D. 1821-1846)

In 1821, Mexico won its independence from Spain. Mexico continued to promote settlement of California with the issuance of land grants. In 1833, Mexico secularized the missions, reclaiming the majority of mission lands and redistributing them as land grants. The area that would become southern Irvine was part of Rancho San Joaquin, granted in 1837 to Jose Sepulveda by Governor Alvarado (Starr, 2007). The area that would become northern Irvine was part of Rancho Lomas de Santiago, granted in 1846 to Teodosio Yorba (Logan, 1990). The area that would become Tustin remained part of the Santiago de Santa Ana Rancho.

Ranchos continued to be used for cattle grazing by settlers. Hides and tallow from cattle became a major export for Californios (Hispanic Californians), many of whom became wealthy and prominent members of society. These Californios led generally easy lives, leaving the hard work to vaqueros (Hispanic cowhands) and Indian laborers. Californios lives centered primarily around enjoying the fruits of their labors, throwing parties, singing and dancing, and feasting on Catholic holidays (Pitt, 1994; Starr, 2007).

American Period (A.D. 1846 to present)

Mexico ceded California to the United States as part of the Treaty of Guadalupe Hildalgo, which ended the Mexican-American War (1846-1848). The treaty also recognized the right of Mexican citizens to retain ownership of land granted to them by Spanish or Mexican authorities. However, the claimant was required to prove their right to the land before a patent was given. The process was lengthy and costly, and generally resulted in the claimant losing at least a portion of their land to attorney's fees and other costs associated with proving ownership (Starr, 2007).

The Gold Rush (1849-1855) saw the first big influx of American settlers to California. Most of these settlers were men hoping to strike it rich in the gold fields. The increasing population provided an additional outlet for the Californios' cattle (Bancroft, 1980). As demand increased, the price of beef skyrocketed and Californios reaped the benefits.

The culmination of the Gold Rush, followed by devastating floods in 1861 and 1862 and droughts in 1863 and 1864, led to the rapid decline of the cattle industry (Bancroft, 1890). Many Californios lost their lands during this period, and former ranchos were subsequently divided and sold for agriculture and residential settlement.

Following the admission of California into the United States in 1850, the region of modern day Orange County was originally part of Los Angeles County. Orange County was established in 1889, with the City of Santa Ana as County Seat (Armor, 1921).

History of the Project Area and Vicinity

The Project vicinity was once part of a 30,000-acre Spanish land grant, Las Bolsas, granted to Manuel Nieto in 1797. Abel Stearns later acquired the land for ranching and cultivation of barley. During the land boom of the 1880s, the area was subdivided for agricultural and residential development (Carlberg and Epting, 2009; Milkovich, 1986).

Previously called Shell Beach and later Pacific City, the town changed its name to the City of Huntington Beach in 1904 when Henry E. Huntington extended Pacific Electric Railway service to the little community (Carlberg and Epting, 2009; Milkovich, 1986). Discovery of oil in the 1920s led to a population explosion in the town. In one month, the population of the City went from 1,500 to 6,000.

A review of available historic maps and aerial photographs indicates that the Project area was historically covered by marsh lands (now called Talbert Marsh) located at the mouth of the SAR. The marsh appears to have been largely undeveloped prior to the construction of the Sanitation District facilities in 1954. The SAR, located just east of and adjacent to the Project area, is visible on the 1953 aerial photograph prior to its channelization. Salt marshes, still present within the Project area, are also visible. Portions of the Project area appear to have been under cultivation in 1953 (USGS, 1896; USGS, 1901; Historicaerials.com, 2011).

Paleontological Resources

Paleontological resources are fossilized evidence of past life found in the geologic record. Despite the huge volume of sedimentary rock deposits preserved worldwide and the enormous number of organisms that have lived through time, preservation of plant or animal remains as fossils is an extremely rare occurrence. Because of the infrequency of fossil preservation, fossils (particularly vertebrate fossils) are considered to be nonrenewable resources. Because of their rarity and the scientific information they can provide, fossils are highly significant records of ancient life. Paleontological resource localities are sites where the fossilized remains of extinct animals and/or plants are found.

Methods and Results

A paleontological records search was conducted at the Natural History Museum of Los Angeles County on September 15, 2011. The results indicated that the proposed Project area is overlain by surficial deposits of younger Quaternary Alluvium derived primarily from fluvial deposits from the SAR located on the eastern boundary of the Project area. No fossil vertebrate localities have been previously identified in these deposits in the vicinity of the proposed Project. However, older Quaternary deposits may underlie the younger Quaternary Alluvium and could be present within the Project area at unknown depths. These older Quaternary deposits have produced marine, freshwater, and terrestrial fossil specimens, including leopard shark (*Triakis*), three-spined stickleback (*Gasteroteus*), garter snake (*Thamnophis*), desert shrew (*Notiosorex*), and pocket gopher (*Thomomys*), from a nearby locality (LACM 7366). These fossil specimens were recovered by screen washing matrix (McLeod, 2011).

Historical and Archaeological Resources

Methods

Archival

A records search for the proposed Project was conducted on August 8, 2011 at the South Central Coastal Information Center (SCCIC) housed at California State University, Fullerton. The records search included a review of all recorded archaeological sites within a 0.5-mile radius of the Project area, as well as a review of cultural resource reports on file. In addition, the California Points of Historical Interest (PHI), the California Historical Landmarks (CHL), the California Register of Historical Resources (California Register), the National Register of Historic Places (National Register), and the California State Historic Resources Inventory (HRI) listings were reviewed for properties within or adjacent to the Project area.

Field Methods

A field survey of the Project area was performed by ESA archaeologist Candace Ehringer, M.A., RPA, on August 30, 2011. The Project area was surveyed by foot. The goal of the pedestrian survey was to identify any cultural resources present and to evaluate the Project area for its potential to contain buried cultural resources.

Native American Correspondence

The Native American Heritage Commission (NAHC) maintains a confidential Sacred Lands File containing sites of traditional, cultural, or religious value to the Native American community. As part of the archival research for this Project, the NAHC was contacted on August 2, 2011 to request a database search for sacred lands or other cultural properties of significance to local Native Americans. The NAHC also provided a list of people or organizations that might have specific information regarding cultural resources in the Project area, or who may have an interest in the current project.

Results

Archival

The records search indicated that a total of 12 cultural resources studies have been conducted within a 0.5-mile radius of the Project area. Of these 12 studies, 6 included portions of the Project area. Archaeological Research Inc. conducted a surface survey of the Sanitation District facilities at Plant 2 in 1975 (ARI, 1975). Construction areas were subject to a visual examination and no cultural materials were located. It was noted, however, that the Project location is on a flood plain of the SAR and had been inundated several times during recorded history (from the late 18th century). The SAR has changed course within the historic period and the area is covered by great quantities of silt, sand, and gravel.

Two prehistoric archaeological sites (CA-ORA-843 and CA-ORA-906) have been previously recorded within 0.5 mile of the Project area and are described below. Both sites are

approximately 0.45 mile from the current Project area. No other cultural resources, including historic-era built resources, have been recorded within 0.5 mile of the Project area.

Site CA-ORA-843 (P-30-000843)

Prehistoric site CA-ORA-843 was first recorded in 1979 and was located north of Pacific Coast Highway (PCH) on a bluff overlooking the SAR (about 0.45 mile east of the Project area). At that time, the site measured 40 meters by 60 meters, encompassing an area of 2400 square meters, and was described as a "shell midden with few chert waste flakes" (Murray, 1979). Shell types were primarily scallop (*Pecten* sp.) and clam (*Chione* sp.). Noted site disturbances included oil well pads and access roads, and the site recorded surmised that much of the site had been destroyed. The site was re-surveyed in 1998, though no surface evidence was observed at that time (Smith et al., 1998a). Shovel test pits conducted in 1998 determined that ongoing oilfield operations had disturbed the site and it was recommended not eligible for listing in the California Register or the National Register (BonTerra Consulting, 2009 as cited in Newport Banning RanchEIR, 2011).

Site CA-ORA-906 (P-30-000906)

Site CA-ORA-906 was first recorded in 1980 and was located north of PCH in an active oil field (about 0.45 mile northeast of the Project area) (Van Horn and Murray, 1980). The dimensions of the site could not be determined, but a recent cut by machinery exposed a midden deposit of at least 70 centimeters. The deposit was located under about 10 feet of artificial fill. Marine shell and bird bone were observed. The location of the site was re-surveyed in 1998, but surface evidence of the site could not be relocated (Smith et al., 1998b). Shovel test pits were also conducted at this site in 1998. It was determined that ongoing oilfield operations had disturbed the site and it was recommended not eligible for listing in the California Register or the National Register (BonTerraBonTerra Consulting, 2009 as cited in Newport Banning Ranch EIR, 2011).

Native American Correspondence

The NAHC responded to the request for a Sacred Lands File check in a letter dated August 4, 2011. The letter indicated that "numerous" Native American cultural resources are known to be located within a 0.5 mile radius of the Project area. The letter also included an attached list of Native American contacts.

Contact letters to all individuals and groups indicated by the NAHC as having affiliation with the Project area were prepared and mailed on August 17, 2011. The letters described the proposed Project and included a map depicting the location of the Project. Recipients were requested to reply with any information they are able to share about Native American resources that might be affected by the Project. To date, one response has been received. Alfred Cruz of the Juaneno Band of Mission Indians responded by phone on September 1, 2011. Mr. Cruz did not have any specific information about cultural resources within the Project area, but did express that the area was known to have been used in prehistoric times and there was the possibility of uncovering cultural resources during ground disturbance. He requested that an archaeological monitor be present during ground disturbing activities and that he be notified if any cultural resources were unearthed.

Field Survey

ESA archaeologist Candace Ehringer, M.A., RPA, visited the Project area on August 30, 2011, to examine the area for the presence of cultural resources and evaluate the potential for buried cultural resources. Ms. Ehringer did not identify any cultural resources within the Project area. The Project area appears to have largely been disturbed by past construction activities, including the creation of a multipurpose trail, channelization of the SAR, and installation of Sanitation District facilities.

4.4.2 Regulatory Framework

Federal

Section 106 of the NHPA

Archaeological resources are protected through the National Historic Preservation Act (NHPA) of 1966, as amended (16 USC 470f), and the implementing regulation, Protection of Historic Properties (36 CFR Part 800), the Archaeological and Historic Preservation Act of 1974, and the Archaeological Resources Protection Act of 1979. Prior to implementing an "undertaking" (e.g., issuing a federal permit), Section 106 of the NHPA requires federal agencies to consider the effects of the undertaking on historic properties and to afford the Advisory Council on Historic Preservation and the State Historic Preservation Officer a reasonable opportunity to comment on any undertaking that would adversely affect properties eligible for listing in the National Register. As indicated in Section 101(d)(6)(A) of the NHPA, properties of traditional religious and cultural importance to a tribe are eligible for inclusion in the National Register. Under the NHPA, a resource is considered significant if it meets the National Register listing criteria at 36 CFR 60.4.

National Register of Historic Places

The National Register was established by the NHPA of 1966, as "an authoritative guide to be used by federal, State, and local governments, private groups and citizens to identify the Nation's historic resources and to indicate what properties should be considered for protection from destruction or impairment" (36 CFR 60.2). The National Register recognizes both historical-period and prehistoric archaeological properties that are significant at the national, State, and local levels.

To be eligible for listing in the National Register, a resource must be significant in American history, architecture, archaeology, engineering, or culture. Districts, sites, buildings, structures, and objects of potential significance must meet one or more of the following four established criteria (U.S. Department of the Interior, 1995):

A. Are associated with events that have made a significant contribution to the broad patterns of our history;

B. Are associated with the lives of persons significant in our past;

C. Embody the distinctive characteristics of a type, period, or method of construction or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

D. Have yielded, or may be likely to yield, information important in prehistory or history.

Unless the property possesses exceptional significance, it must be at least fifty years old to be eligible for National Register listing (U.S. Department of the Interior, 1995).

In addition to meeting the criteria of significance, a property must have integrity. Integrity is defined as "the ability of a property to convey its significance" (U.S. Department of the Interior, 1995). The National Register recognizes seven qualities that, in various combinations, define integrity. The seven factors that define integrity are location, design, setting, materials, workmanship, feeling, and association. To retain historic integrity, a property must possess several, and usually most, of these seven aspects. Thus, the retention of the specific aspects of integrity is paramount for a property to convey its significance.

State

The State implements the NHPA through its statewide comprehensive cultural resources surveys and preservation programs. The California Office of Historic Preservation (OHP), as an office of the California Department of Parks and Recreation, implements the policies of the NHPA on a statewide level. The OHP also maintains the California Historic Resources Inventory. The State Historic Preservation Office (SHPO) is an appointed official who implements historic preservation programs within the State's jurisdictions.

California Register of Historical Resources

The California Register is "an authoritative listing and guide to be used by State and local agencies, private groups, and citizens in identifying the existing historical resources of the State and to indicate which resources deserve to be protected, to the extent prudent and feasible, from substantial adverse change" (California Public Resources Code [PRC] Section 5024.1[a]). The criteria for eligibility for the California Register are based upon National Register criteria (California PRC Section 5024.1[b]). Certain resources are determined by the statute to be automatically included in the California Register, including California properties formally determined eligible for, or listed in, the National Register.

To be eligible for the California Register, a prehistoric or historical-period property must be significant at the local, State, and/or federal level under one or more of the following four criteria:

1. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
2. Is associated with the lives of persons important in our past;
3. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or

4. Has yielded, or may be likely to yield, information important in prehistory or history.

A resource eligible for the California Register must meet one of the criteria of significance described above, and retain enough of its historic character or appearance (integrity) to be recognizable as a historical resource and to convey the reason for its significance. It is possible that a historic resource may not retain sufficient integrity to meet the criteria for listing in the National Register, but it may still be eligible for listing in the California Register.

Additionally, the California Register consists of resources that are listed automatically and those that must be nominated through an application and public hearing process. The California Register automatically includes the following:

- California properties listed on the National Register and those formally Determined Eligible for the National Register;
- California Registered Historical Landmarks from No. 770 onward; and
- Those California Points of Historical Interest that have been evaluated by the OHP and have been recommended to the State Historical Commission for inclusion on the California Register.

Other resources that may be nominated to the California Register include:

- Historical resources with a significance rating of Category 3 through 5 (those properties identified as eligible for listing in the National Register, the California Register, and/or a local jurisdiction register);
- Individual historical resources;
- Historical resources contributing to historic districts; and
- Historical resources designated or listed as local landmarks, or designated under any local ordinance, such as an historic preservation overlay zone.

California Environmental Quality Act

CEQA is the principal statute governing environmental review of projects occurring in the State and is codified at PRC Section 21000 et seq. CEQA requires lead agencies to determine if a proposed Project would have a significant effect on the environment, including significant effects on historical or archaeological resources.

Under CEQA (Section 21084.1), a project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment. The *CEQA Guidelines* (Section 15064.5) recognize that an historical resource includes: (1) a resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the California Register; (2) a resource included in a local register of historical resources, as defined in PRC Section 5020.1(k) or identified as significant in a historical resource survey meeting the requirements of PRC Section 5024.1(g); and (3) any object, building, structure, site, area, place, record, or manuscript which a lead agency determines

to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California by the Lead Agency, provided the Lead Agency's determination is supported by substantial evidence in light of the whole record. The fact that a resource does not meet the three criteria outlined above does not preclude the lead agency from determining that the resource may be an historical resource as defined in PRC Sections 5020.1(j) or 5024.1.

If a Lead Agency determines that an archaeological site is a historical resource, the provisions of Section 21084.1 of CEQA and Section 15064.5 of the *CEQA Guidelines* apply. If a project may cause a substantial adverse change (defined as physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired) in the significance of an historical resource, the lead agency must identify potentially feasible measures to mitigate these effects (*CEQA Guidelines* Sections 15064.5(b)(1), 15064.5(b)(4)).

If an archaeological site does not meet the criteria for a historical resource contained in the *CEQA Guidelines*, then the site may be treated in accordance with the provisions of Section 21083, which is a unique archaeological resource. As defined in Section 21083.2 of CEQA a "unique" archaeological resource is an archaeological artifact, object, or site, about which it can be clearly demonstrated that without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

- Contains information needed to answer important scientific research questions and there is a demonstrable public interest in that information;
- Has a special and particular quality such as being the oldest of its type or the best available example of its type; or,
- Is directly associated with a scientifically recognized important prehistoric or historic event or person.

If an archaeological site meets the criteria for a unique archaeological resource as defined in Section 21083.2, then the site is to be treated in accordance with the provisions of Section 21083.2, which state that if the lead agency determines that a project would have a significant effect on unique archaeological resources, the lead agency may require reasonable efforts be made to permit any or all of these resources to be preserved in place (Section 21083.1(a)). If preservation in place is not feasible, mitigation measures shall be required.

The *CEQA Guidelines* note that if an archaeological resource is neither a unique archaeological nor a historical resource, the effects of the project on those resources shall not be considered a significant effect on the environment (*CEQA Guidelines* Section 15064.5(c)(4)).

California Coastal Act

Coastal Act Policy requires that significant historical and archeological resources of the Coastal Zone be identified and protected. The Coastal Act identifies such resources located in the Coastal

Zone, and sets forth policies to ensure reasonable protection and or enhancement of such resources.

Local

The Orange County Community Development General Plan 2005 includes the following goals, objectives, and policies regarding cultural resources including paleontological resources.

Goal 1

To raise the awareness and appreciation of Orange County's cultural and historic heritage.

Objectives

1.1 Facilitate and participate in activities that inform people about the social, cultural, economic, and scientific values of Orange County's heritage.

1.2 Work through the Orange County Historical Commission in the areas of history, paleontology, archaeology, and historical preservation.

Policies

1.1 To stimulate and encourage financial support for projects in the public and private sector.

1.2 To coordinate countywide programs and be the liaison for local organizations.

1.3 To advise and aid the public and private sectors in meeting museum needs and finding funding sources for same.

1.4 To stimulate and encourage research, writing, and publication of articles on Orange County subjects.

1.5 To develop and maintain a County archive for historically valuable records.

1.6 To encourage and facilitate cooperation among local historical societies.

Goal 2

To encourage through a resource management effort the preservation of the county's cultural and historic heritage.

Objectives

2.1 Promote the preservation and use of buildings, sites, structures, objects, and districts of importance in Orange County through the administration of planning, environmental, and resource management programs.

2.2 Take all reasonable and proper steps to achieve the preservation of archaeological and paleontological remains, or their recovery and analysis to preserve cultural, scientific, and educational values.

2.3 Take all reasonable and proper steps to achieve the preservation and use of significant historic resources including properties of historic, historic architectural, historic archaeological, and/or historic preservation value.

2.4 Provide assistance to County agencies in evaluating the cultural environmental impact of proposed projects and reviewing EIRs.

2.5 Provide incentives to encourage greater private sector participation in historic preservation.

Policies

The following policies addressing archaeological, paleontological, and historical resources shall be implemented at appropriate stage(s) of planning, coordinated with the processing of a project application, as follows:

2.1 Identification of resources shall be completed at the earliest stage of project planning and review such as general plan amendment or zone change

2.2 Evaluation of resources shall be completed at intermediate stages of project planning and review such as site plan review, subdivision map approval, or at an earlier stage of project review.

2.3 Final reservation actions shall be completed at final stages of project planning and review such as grading, demolition, or at an earlier stage of project review.

Archaeological Resources Policies:

1. To identify archaeological resources through literature and records research and surface surveys.
2. To evaluate archaeological resources through subsurface testing to determine significance and extent.
3. To observe and collect archaeological resources during the grading of a project.
4. To preserve archaeological resources by: (a) Maintaining them in an undisturbed condition, or (b) Excavating and salvaging materials and information in a scientific manner.

Paleontological Resources Policies:

1. To identify paleontological resources through literature and records research and surface surveys.
2. To monitor and salvage paleontological resources during the grading of a project.
3. To preserve paleontological resources by maintaining them in an undisturbed condition.

Historic Resources Policies:

1. To identify historic resources through literature and records research and/or onsite surveys.

2. To evaluate historic resources through comparative analysis or through subsurface or materials testing.

3. To preserve significant historic resources by one or a combination of the following alternatives, as agreed upon by Resources Development and Management Department (RDMD) and the project sponsor: (a) Adaptive reuse of historic resource; (b) Maintaining the historic resource in an undisturbed condition; (c) Moving the historic resource and arranging for its treatment;(d) Salvage and conservation of significant elements of the historic resources; (e) Documentation (i.e., research narrative, graphics, photography) of the historic resource prior to destruction.

Goal 3

To preserve and enhance buildings structures, objects, sites, and districts of cultural and historic significance.

Objectives

3.1 Undertake actions to identify, preserve, and develop unique and significant cultural and historic resources.

3.2 Develop and maintain a County archive for historically valuable records, thereby promoting knowledge and understanding of the origins, programs, and goals of the County of Orange.

Policies

3.1 To pursue grants and innovative funding strategies for acquisition or development of significant properties.

3.2 To develop, utilize, and promote effective technical conservation and restoration strategies.

3.3 To appraise, collect, organize, describe, preserve, and make available County of Orange records of permanent, historical value.

3.4 To serve as a research center for the study of County history.

Paleontological Resources

Federal

A variety of federal statutes specifically address paleontological resources. They are generally applicable to a project if that project includes federally owned or managed lands or involves a federal agency license, permit, approval, or funding. Federal legislative protection for paleontological resources stems from the Antiquities Act of 1906 (PL 59-209; 16 United States Code 431 *et. seq.*; 34 Stat. 225), which calls for protection of historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest on federal lands.

State

Paleontological resources are also afforded protection by environmental legislation set forth under CEQA. Appendix G of the *CEQA Guidelines* provides guidance relative to significant impacts on paleontological resources, stating that a project would normally result in a significant impact on the environment if it would "…disrupt or adversely affect a paleontological resource or site or unique geologic feature, except as part of a scientific study." Section 5097.5 of the Public Resources Code specifies that any unauthorized removal of paleontological remains is a misdemeanor. Further, California Penal Code Section 622.5 sets the penalties for the damage or removal of paleontological resources.

Professional Standards

The Society of Vertebrate Paleontology (SVP) has established standard guidelines that outline acceptable professional practices in the conduct of paleontological resource assessments and surveys, monitoring and mitigation, data and fossil recovery, sampling procedures, and specimen preparation, identification, analysis, and curation. Most qualified professional paleontologists in the nation adhere closely to the SVP's assessment, mitigation, and monitoring requirements as specifically provided in its standard guidelines. Most California State regulatory agencies accept the SVP standard guidelines as a measure of professional practice.

4.4.3 Impacts and Mitigation Measures

Significance Criteria

For the purposes of this Draft EIR and consistent with the *CEQA Guidelines*, the proposed Project is considered to have a significant impact if it would result in any of the following:

- A substantial adverse change in the significance of a historical resource that is either listed or eligible for listing in the National Register, the California Register, or a local register of historic resources;
- A substantial adverse change in the significance of a unique archaeological resource;
- Disturbance or destruction of a unique paleontological resource or site or unique geologic feature; or
- Disturbance of any human remains, including those interred outside of formal cemeteries.

According to *CEQA Guidelines* (CCR Title 14, 15064.4), a project with an effect that may cause a substantial adverse change in the significance of a historical resource is a project that may have a significant effect on the environment (CCR Title 14, 15064.4(b)). The guidelines further state that a substantial adverse change in the significance of a resource means the physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historic resource would be materially impaired. Actions that would materially impair the significance of a historical resource are any actions that would demolish or adversely alter those physical characteristics of a historical resource that convey its historical significance and qualify it for inclusion in the California Register or in a local register or survey that meet the requirements of PRC Sections 5020.1(k) and 5024.1(g).

Impact Discussion

Historical and Archaeological Resources

Impact 4.4-1: Proposed Project construction could adversely affect known or unknown cultural resources, including unique archaeological resources and historical resources.

Alternative 1

Activities on Plant 2

The proposed Project includes rehabilitation of Surge Tower 2 and other repairs to the Long Outfall system onsite within the boundaries of Plant 2. Rehabilitation activities on the developed, existing treatment plant structures on site would not require any ground disturbing activities and therefore no impact to known or unknown cultural resources would occur, including unique archaeological resources and historical resources. No impacts to cultural resources are anticipated in connection with the rehabilitation activities at Plant 2.

Activities at Air Vac Station 12+05

The proposed Project includes rehabilitation of the existing Air Vac Station 12+05 structure to remove corrosion and replace the risers. These activities are limited to the structure itself and would not involve any ground disturbance and, therefore, would have no impact to known or unknown cultural resources, including unique archaeological resources and historical resources. No impacts to cultural resources are anticipated in connection with Air Vac Station 12+05.

Activities on the Beach

Rehabilitation of the Beach Box

The proposed Project includes repairs to the existing Beach Box. These activities are limited to the structure itself and would not involve any ground disturbance and, therefore, there would be no impact to known or unknown cultural resources including unique archaeological resources and historical resources.

Construction of Bypass Structure

Alternative 1 includes the installation of a bypass structure downstream of the Beach Box. The purpose of this structure is to allow the Long Outfall system to be taken out of service for rehabilitation without discharging treated effluent through the Short Outfall. No cultural resources were identified within the Huntington State Beach Project site as a result of the record search or the field survey; however, based on the results of a Sacred Lands File (SLF) check, the general Project vicinity is considered sensitive for cultural resources by interested Native American groups. Additionally, two prehistoric archaeological sites (CA-ORA-843 and CA-ORA-906) have been previously recorded approximately 0.45 miles from the proposed Project area in the Huntington Beach oil fields. Both sites were previously evaluated and recommended not eligible for listing in the National and California registers.

There is the potential for construction activities associated with construction of the bypass structure to encounter subsurface cultural resources. Buried resources could occur in both onshore and offshore contexts due to shifts in the configuration of the shoreline as a result of tributary runoff, sedimentation, erosion, and onshore and offshore activities. Construction of the bypass structure would require excavation that could potentially uncover previously unknown cultural resources. While unlikely, inadvertent damage to significant buried cultural resources during construction, including historical resources and unique archaeological resources, would be a significant impact. However, with the implementation of **Mitigation Measures 4.4-1a** and **4.4-1b**, the impact would be reduced to less than significant.

Level of Significance Alternative 1: Less than significant with mitigation.

Alternative 2

Alternative 2 would result in identical impacts at Plant 2, Air Vac Station 12+05 and the beach as Alternative 1. Activities at the beach for Alternative 2 would be limited to repairs to the Beach Box and the activities are limited to the structure itself and would not involve any ground disturbance and, therefore, there would be no impact to known or unknown cultural resources, including unique archaeological resources and historical resources. No impacts to cultural resources are anticipated in connection with Alternative 2, and no mitigation is required.

Level of Significance Alternative 2: Less than significant.

Mitigation Measures

4.4-1a: Prior to the start of any earth-moving activity, an archaeological monitor shall be retained by the Sanitation District to monitor ground-disturbing activities associated with Alternative 1 of the proposed beach activities, including but not limited to grading, excavation, brush clearance and grubbing. The archaeological monitor shall conduct pre-construction cultural resources worker sensitivity training to bring awareness to personnel of actions to be taken in the event of a cultural resources discovery. The archaeological monitor shall be, or shall work under the supervision of, a qualified archaeologist, defined as an archaeologist meeting the Secretary of the Interior's Standards for professional archaeology (U.S. Department of the Interior, 2010). The duration and timing of monitoring shall be determined by the qualified archaeologist in consultation with the Sanitation District and based on the grading plans. Initially, all ground-disturbing activities associated with Alternative 1 shall be monitored. However, the qualified archaeologist, based on observations of soil stratigraphy or other factors, and in consultation with the Sanitation District, may reduce the level of monitoring as warranted. In the event that cultural resources are unearthed during ground-disturbing activities, the archaeological monitor shall have the authority to halt or redirect ground-disturbing activities away from the vicinity of the find so that the find can be evaluated.

4.4-1b: Under Alternative 1, during construction of the bypass structure, if a cultural resource is encountered, construction activities shall be redirected away from the immediate vicinity of the find until it can be evaluated by a qualified archaeologist. If the

find is determined to be potentially significant, the archaeologist, in consultation with the Sanitation District and appropriate Native American group(s) (if the find is a prehistoric or Native American resource), shall develop a treatment plan. Construction activities shall be redirected to other work areas until the treatment plan has been implemented or the qualified archaeologist determines that work can resume in the vicinity of the find.

Paleontological Resources

Impact 4.4-2: The proposed Project could adversely affect unidentified paleontological resources.

Alternative 1

Activities on Plant 2

The proposed Project includes rehabilitation of Surge Tower 2 and other repairs to the Long Outfall system onsite within the boundaries of Plant 2. Rehabilitation activities on the developed, existing treatment plant structures onsite would not require any ground disturbing activities and, therefore, no impact to any known or unknown unique paleontological resource or site or unique geologic feature would occur. No impacts to paleontological resources are anticipated in connection with the proposed Plant 2 activities.

Activities at Air Vac Station 12+05

The proposed Project includes rehabilitation of the existing Air Vac Station 12+05 to remove corrosion and replace the risers. These activities are limited to the structure itself and would not involve any ground disturbance and, therefore, no impact to any known or unknown unique paleontological resource or site or unique geologic feature would occur. No impacts to paleontological resources are anticipated in connection with Air Vac Station 12+05.

Activities on the Beach

Rehabilitation of the Beach Box

The proposed Project would rehabilitate the existing Beach Box. These activities are limited to the structure itself and would not involve any ground disturbance and, therefore, there would be no impact to known or unknown unique paleontological resource or site or unique geologic features. No impacts to paleontological resources are anticipated in connection with Beach Box rehabilitation activities.

Construction of Bypass Structure

Alternative 1 includes the installation of a bypass structure downstream of the Beach Box. The purpose of this structure is to allow the Long Outfall system to be taken out of service for rehabilitation without discharging treated effluent through the Short Outfall. No paleontological resource localities were identified within the Huntington State Beach area; however, the proposed

Project vicinity is considered sensitive for paleontological resources. While surficial deposits of younger Quaternary Alluvium are unlikely to contain fossils, excavation into older Quaternary deposits may uncover marine, freshwater, or terrestrial fossil specimens.

There is the potential for construction activities associated with Alternative 1 to encounter paleontological resources. While significant fossil discoveries are unlikely, they could be encountered in association with older Quaternary soil matrices. With the implementation of **Mitigation Measure 4.4-2**, however, the impact would be reduced to a less than significant level.

Level of Significance Alternative 1: Less than significant with mitigation.

Alternative 2

Alternative 2 would result in the identical impacts at Plant 2, Air Vac Station 12+05 and the beach as Alternative 1. Rehabilitation activities at the beach for Alternative 2 are limited to repairs to the Beach Box. These activities are limited to the structure itself and would not involve any ground disturbance and, therefore, there would be no impact to paleontological resources, and no mitigation is required.

Level of Significance Alternative 2: Less than significant.

Mitigation Measures

> **4.4-2:** Prior to the start of any earth moving activities, an Orange County Certified (OCC) Paleontologist shall be retained. Based on geotechnical findings and the construction design plans for proposed Alternative 1 beach activities, the OCC Paleontologist shall develop a Paleontological Resources Mitigation and Monitoring Plan. The mitigation and monitoring plan shall address pre-construction salvage and reporting; pre-construction contractor sensitivity training; procedures for paleontological resources monitoring; microscopic examination of samples where applicable; the evaluation, recovery, identification, and curation of fossils, and the preparation of a final mitigation report.
>
> Initially, all ground-disturbing activities associated with Alternative 1, occurring in older Quaternary Alluvial matrix shall be subject to paleontological monitoring. However, the OCC Paleontologist, based on observations of soil stratigraphy or other factors, and in consultation with the Sanitation District, may reduce the level of monitoring as warranted. In the event fossils are exposed during earth moving, the monitor shall have the authority to halt or redirect construction activities to other work areas until the procedures outlined in the Paleontological Mitigation and Monitoring Plan have been implemented or the OCC Paleontologist determines that work can resume in the vicinity of the find.

Human Remains

Impact 4.4-3: Proposed Project construction could result in the disturbance of human remains.

Alternative 1

Activities at Plant 2

The proposed Project includes rehabilitation of Surge Tower 2 and other repairs to the Long Outfall system onsite within the boundaries of Plant 2. Rehabilitation activities on the developed, existing treatment plant would occur within existing facilities and would not include ground disturbing activities and, therefore, there would be no impact to human remains..

Activities at Air Vac Station 12+05

The proposed Project includes rehabilitation of Air Vac Station 12+05 to remove corrosion and replace the risers. These activities are limited to the structure itself and would not involve any ground disturbance and therefore there would be no impact to human remains. No impacts to human remains are anticipated to be encountered in connection with Air Vac Station 12+05 rehabilitation activities.

Activities on the Beach

Rehabilitation of the Beach Box

The proposed Project includes repairs to the existing Beach Box. These activities are limited to the structure itself and would not involve any ground disturbance and, therefore, there would be no impact to human remains. No impacts to human remains are anticipated in connection with activities on the beach at the Beach Box.

Construction of Bypass Structure

Alternative 1 includes the installation of a bypass structure downstream of the Beach Box. The purpose of this structure is to allow the Long Outfall system to be taken out of service for rehabilitation without discharging treated effluent through the Short Outfall. Based on the results of the cultural resources archival research and survey, there is no indication that the Project area was ever formally or informally used as a burial ground. However, based on the results of the SLF check, the general Project vicinity is considered sensitive for cultural resources by interested Native American groups. Additionally, two prehistoric archaeological sites (CA-ORA-843 and CA-ORA-906) have been previously recorded approximately 0.45 miles from the proposed Project in the Huntington Beach oil fields. Both sites were previously evaluated and recommended not eligible for listing in the National and California registers.

Although unlikely, there is the potential for excavation associated with Alternative 1 to encounter human remains. While unlikely, inadvertent damage to human remains during construction would be a significant impact. With the implementation of **Mitigation Measure 4.4-3**, however, the impact would be reduced to a less than significant.

Significance Level Alternative 1: Less than significant with mitigation

Alternative 2

Alternative 2 would result in identical impacts at Plant 2 and Air Vac Station 12+05 during rehabilitation activities as Alternative 1. Under Alternative 2 activities at the beach are limited to repairs to the Beach Box. These activities are limited to the structure itself and would not involve any ground disturbance and, therefore, there would be no impact to human remains. No impacts to human remains are anticipated to be encountered in connection with implementation of Alternative 2, and no mitigation is required.

Significance Level Alternative 2: Less than significant.

Mitigation Measure

> **4.4-3:** In the event of accidental discovery of any human remains, the County Coroner shall be notified immediately and construction activities shall be halted in accordance with Section 15064.4 (e)(1) of the CEQA Guidelines and Health and Safety Code Section 7050.5. If the remains are found to be Native American, Health and Safety Code Section 7050.5, subdivision (c), and Public Resources Code 5097.98 (as amended by AB 2641) shall be followed.

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4.5 Geology, Soils, and Seismicity

This section evaluates the geologic resources, soils and seismicity within the Project area and evaluates the Project's potential related impacts on the Project. A portion of the following analysis is based on the Preliminary Geotechnical Evaluation Report included in **Appendix D.**

4.5.1 Environmental Setting

Regional Geology

The proposed Project is located in the Peninsular Ranges Geomorphic Province.[1] The province traverses the southwestern end of California and is bounded by the Transverse Range province to the north, the Colorado Desert province to the east, and the Pacific Ocean to the west. The topography of the province is characterized as alternating northwest trending ridges and valleys with the bedrock geology most closely resembling the Sierra Nevada with granitic intrusions into older metamorphic rocks (California Geological Survey [CGS], 2002).

The proposed Project is located in the City Huntington Beach (the City) located near the coastal margin of the Los Angeles Basin, and includes Orange County. Near surface geologic units mapped within the proposed Project sites include (1) well-sorted, fine-grained sand and silt that form wind-blown dunes, (2) medium- to fine-grained sand deposited in the late Holocene [2] by the Santa Ana River (SAR), (3) sandy, silty, and clayey organic-rich estuarine deposits, and (4) modern sandy wash deposits confined within the SAR channel (USGS, 2006).

Local Topography

Elevations within the Project sites range from near sea-level near the Pacific Ocean, the shores of the SAR, and the coastal lagoons, to about 25 feet above mean sea level (amsl) at the Pacific Coast Highway (PCH) where it approaches the SAR (City of Huntington Beach, 2008a). PCH is elevated in this location by structural fills so that it may span the SAR. The portion of the long outfall inland of PCH, and the rest of the Sanitation District Plant 2, ranges in elevation from about 5 to 15 feet amsl. Due to minor elevation changes across the Project area, slope gradients are relatively flat.

1 California's geomorphic provinces are naturally defined geologic regions that display a distinct landscape or landforms with unique, defining features based on geology, faults, topographic relief, and climate.

2 The Holocene epoch dates back to 10,000 years before present.

Regional Seismicity

The Project site is located within the highly seismic Southern California region where numerous active and potentially active faults exist.[3] The United States Geologic Survey (USGS) working group on earthquake probabilities estimates a 67 percent probability that a magnitude 6.7 or larger earthquake could strike Southern California in the next 30 years (USGS, 2008). The Project site is located within the Coastal Zone, which has three geologically active earthquake faults, all of which are part of a larger Newport-Inglewood fault zone (City of Huntington Beach, 2008b). The Newport-Inglewood Fault Zone, shown in **Figure 4.5-1**, is characterized as a 75 kilometer right-lateral, local reverse strike slip fault associated with numerous fault steps. The surface trace is discontinuous in the Los Angeles Basin, but topographic evidence of the fault zone is expressed by the existence of a chain of low hills extending from Culver City to Signal Hill. South of Signal Hill, it roughly parallels the coastline until just south of Newport Bay, where it heads offshore.

One of the Holocene-active segments of the Newport-Inglewood Fault Zone is inferred [4] as passing in a northwest to southeast direction through the Sanitation District Plant 2 in close proximity to the Surge Tower 2 and the northeastern end of the Long Outfall. Because the trace of the fault is inferred, the exact location and trend of the fault within the proposed Project area is unknown. Historic events on the fault (which did not produce ground-surface rupture) include a magnitude 6.3 Long Beach earthquake in 1933, and possibly an earthquake recorded back in 1812 (Treiman and Lundberg, 1999). The recurrence interval of large earthquakes on this fault is estimated to be between 1,200 and 3,000 years (Treiman and Lundberg, 1999). The well-defined portion of the fault zone, located approximately 2 miles northwest of Plant 2, is zoned as an Alquist Priolo fault rupture hazard zone (see regulatory setting below); however the Alquist Priolo fault rupture hazard zone does not extend into the proposed Project area (CDMG, 1986).

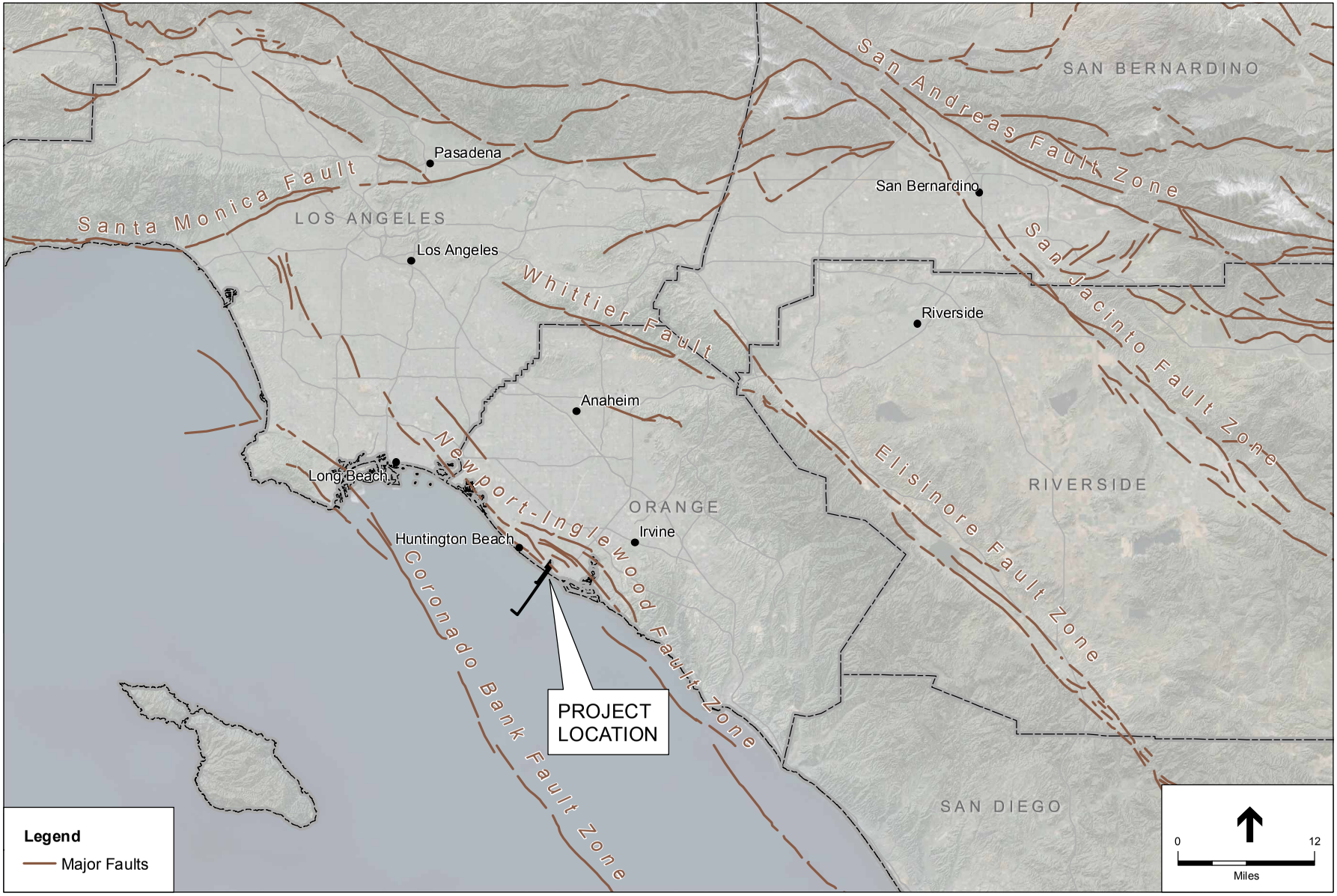
The San Andreas Fault is also susceptible to earthquake rupture, which has experienced surface displacement within the last 150 years, and is located approximately 50 miles northeast of the Project area (City of Huntington Beach, 1996). Other active nearby faults include the offshore Palos Verdes Fault, the Whittier Fault, the San Joaquin Hills Fault, and the Elsinore Fault.

Soils

The City of Huntington Beach General Plan identifies the soils of the proposed Project site as being composed of river floodplain deposits (washed in from the northeast as sand, gravel and silt), and tidal flat/lagoonal type deposits lie in the gaps (finer-grained silts and clays) (City of Huntington Beach, 1996). Plant 2, Air Vac Station12+05, and the Beach Box are underlain by Bolsa Silt Loam, Bolsa Silt Loam (drained), tidal flats, and beach sands according to

[3] An *active* fault is defined by the California Geological Survey as a fault that has had surface displacement within the Holocene time (approximately the last 11,000 years). A *potentially active* fault is a fault that has shown evidence of surface displacement during the last 1.6 million years, unless direct geologic evidence demonstrates inactivity for the last 11,000 years or longer. This definition does not mean that faults lacking evidence of surface displacement are necessarily inactive. *Sufficiently active* is also used to describe a fault if there is some evidence that Holocene surface displacement occurred on one or more of its segments or branches (Hart, 2007).

[4] When the trace of a fault line is inferred, field observation and/or paleoseismic studies have not definitely located the trace of the fault; rather, the trace is estimated based on indirect geological evidence.



SOURCE: Bing Maps; USGS; ESA, 2011.

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Figure 4.5-1

Principal Faults in the Project Area

the latest data provided by the National Resources Conservation Service (NRCS) (NRCS, 2011). Soils with a high clay fraction, which have a high expansion potential, are possibly present within the river floodplain deposits inland from PCH. The erosion potential ("k" factor) for these soils fall in the high range (0.55 k factor) and corresponds to high susceptibility to sheet and rill erosion by water (NRCS, 2011).

In 2011, a preliminary geotechnical evaluation report was prepared by Converse Consultants. The purpose of the report was to review and evaluate the available and pertinent geotechnical data available for the Beach Box and to provide a preliminary geotechnical evaluation for the planned excavation, sheet piling, and dewatering that would be necessary for installation of the bypass structure (Converse Consultants, 2011). As discussed in the report, a foundation investigation on the Long Outfall Land Section was completed in 1965, which stated that exploration borings encountered roughly 10 to 27 feet of fill and soft natural soils, which were underlain by firm silty sand and sand (Converse Consultants, 2011). The fill consists of soft clays and silts to the north of PCH and consists of moderately firm sand to the south of PCH (Converse Consultants, 2011). The soils immediately underlying the existing fill are soft silts and clays except south of PCH where natural sand was found beneath the sand fill. These findings are generally consistent with the geology and soil types mapped in the Project area.

Based on the available geotechnical test hole logs, earth materials consist of fill and natural soils. The fill is approximately 10 feet deep consisting of fine-grained sand with gravels, cobbles and boulders. Natural soils underlying fills consists of fine to medium-grained sand with gravel layers at approximately 20 feet below ground surface (Converse Consultants, 2011). Based on review of as-built plans, the pile zone for the Long Outfall is approximately 21 feet wide confined by sheet piling walls. The pile zone consists of approximately 5 feet of backfilled sand underlain by Class B stone and gravel bedding to a depth of approximately 23 feet below ground surface. The report assumed the Short Outfall soil profile is similar to the Long Outfall, although Converse Consultants recognized that conditions may be variable. The report indicated that the most challenging aspects of the proposed Project would be keeping construction excavations clear of water due to the high groundwater table, and the cohesionless nature of the beach sands, which when saturated, can easily slough or slump when excavated.

Seismic Hazards

Surface Fault Rupture

Seismically-induced ground rupture is defined as the physical displacement of surface deposits in response to an earthquake's seismic waves. The magnitude and nature of fault rupture can vary for different faults, or even along different strands of the same fault. Ground rupture is considered more likely along the surface traces of active faults. Surface fault rupture may occur suddenly during an earthquake or slowly in the form of fault creep and almost always follows pre-existing faults, which are zones of weakness. Not all earthquakes will result in surface rupture.

Although no onshore surface fault rupture along the Newport-Inglewood Fault Zone has taken place in the last 150 years, because the fault is active, it should be considered capable of producing surface rupture if a sufficiently large earthquake on the fault occurs in the future. As discussed above, the site is not within an Alquist Priolo fault rupture hazard zone (**Figure 4.5-2**). The Newport-Inglewood Fault Zone has a probability of approximately 1 percent of producing an earthquake larger than magnitude 6.7 in the next 30 years (USGS, 2008). As such, while surface rupture is a possibility on the project site, the potential for such an event to occur is low.

Ground Shaking

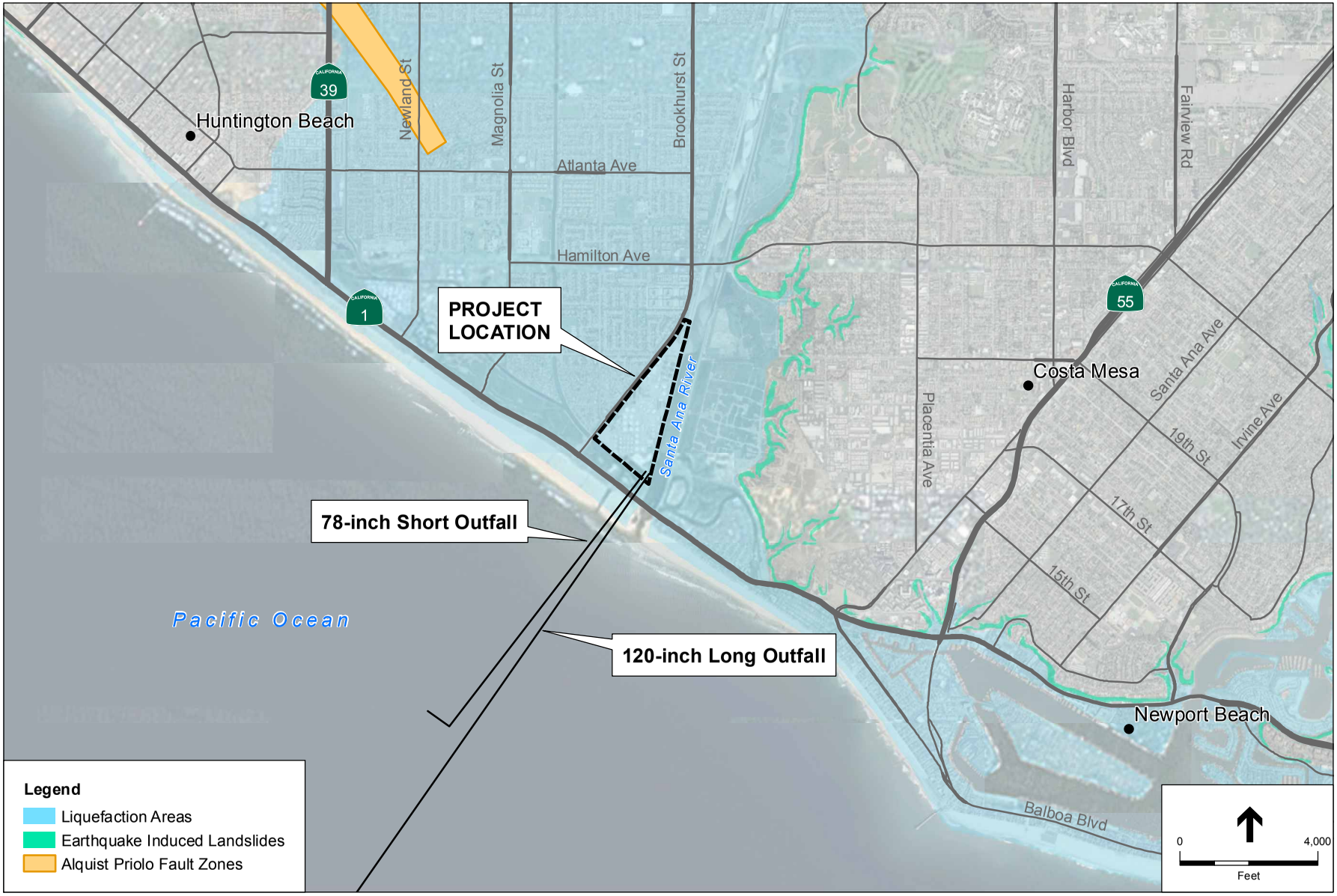
The proposed Project site is subject to seismic ground shaking, as there is a 67 percent chance of a large earthquake in the region in the next 30 years. Ground shaking intensity varies depending on the overall earthquake magnitude, distance to the fault, focus of earthquake energy, and type of geologic materials underlying an area. The Modified Mercalli Intensity (MMI) scale is commonly used to express earthquake effects due to ground shaking because it expresses ground shaking relative to actual physical effects observed by people during a seismic event. MMI values range from I (earthquake not felt) through a scale of increasing intensities to XII (near total damage) (**Table 4.5-1**).

Geologists and engineers attempt to predict earthquake ground acceleration at sites to improve the structural design of buildings so that the building can withstand the earthquake motion and not collapse. A probabilistic seismic hazard assessment describes seismic hazard from earthquakes that geologists and seismologists agree could occur. The analysis takes into consideration the probability of large earthquakes on various active and potentially active faults, uncertainties in the size and location of earthquakes, and the resulting ground motions that can affect a particular site. The California Geological Survey (CGS) Probabilistic Seismic Hazard Assessment for California determined that peak ground accelerations in unconsolidated alluvium, which is found at the proposed Project site, has a 10 percent probability of exceeding 0.424g in the next 50 years (CGS, 2011). Ground acceleration is measured in “g”, where 1 g corresponds to the vertical acceleration force due to gravity. As shown in **Table 4.5-1**, a ground acceleration of 0.424 g corresponds to a MMI value of VIII, where damage would be slight in specially designed structures (CGS, 2011).

Geologic Hazards

Liquefaction

Soil liquefaction is a phenomenon where unconsolidated and/or near saturated soils lose cohesion and are converted to a fluid state as a result of severe vibratory motion. The relatively rapid loss of soil shear strength during strong earthquake shaking results in the temporary fluid-like behavior of the soil. During liquefaction, soils lose strength and ground failure may occur. Secondary ground failures associated with liquefaction include lateral spreading or flowing of stream banks or fills, sand boils, and subsidence. Areas characterized by water-saturated, cohesionless and granular soils are most susceptible to liquefaction and usually at depths of less than 50 feet, especially in areas with a shallow water table.



SOURCE: USGS; State of California Department of Conservation, Seismic Hazards Zonation Program, 2011.

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Figure 4.5-2

Seismic Hazard Zones

TABLE 4.5-1
MODIFIED MERCALLI INTENSITY SCALE (ABRIDGED)

Intensity Value	Intensity Description	Average Peak Acceleration(g)[a]
I	Not felt except by very few persons under especially favorable circumstances.	< 0.0017 g
II	Felt only by a few persons at rest, especially on upper floors on buildings. Delicately suspended objects may swing.	< 0.014 g
III	Felt quite noticeably indoors; especially on upper floors of buildings, but many people do not recognize it as an earthquake.	< 0.014 g
IV	During the day felt indoors by many, outdoors by few. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sound.	0.014–0.039 g
V	Felt by nearly everyone, many awakened. Some dishes, windows, etc., broken; a few instances of cracked plaster; unstable objects overturned.	0.039–0.092 g
VI	Felt by all, many frightened and run outdoors. Some heavy furniture moved; minor fallen plaster or damaged chimneys. Damage slight.	0.092–0.18 g
VII	Everybody runs outdoors. Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable in poorly built or badly designed structures; some chimneys broken.	0.18–0.34 g
VIII	Damage slight in specially designed structures; considerable in ordinary substantial buildings, with partial collapse; great in poorly built structures. Panel walls thrown out of frame structures. Fall of chimneys, factory stacks, columns, monuments, and walls.	0.34–0.65 g
IX	Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb; great in substantial buildings, with partial collapse.	0.65–1.24 g
X	Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations; ground badly cracked. Rails bent. Landslides considerable from riverbanks and steep slopes. Shifted sand and mud. Water splashed (slopped) over banks.	> 1.24 g
XI	Few, if any, (masonry) structures remain standing. Bridges destroyed. Broad fissures in ground. Underground pipelines completely out of service. Earth slumps and land slips in soft ground. Rails bent greatly.	> 1.24 g
XII	Damage total. Practically all works of construction are damaged greatly or destroyed. Waves seen on ground surface. Lines of sight and level are distorted. Objects are thrown upward into the air.	> 1.24 g

[a] g is gravity = 980 centimeters per second squared. Acceleration is scaled against acceleration due to gravity or the acceleration with which a ball falls if released at rest in a vacuum (1.0 g). Acceleration of 1.0 g is equivalent to a car traveling 100 meters (328 feet) from rest in 4.5 seconds.

SOURCE: Bolt, 1988.

Because the proposed Project site is underlain by loose granular soils and contains a shallow groundwater table, subsurface soils could liquefy in the event of a large regional earthquake (CGS, 1997 and 1998). Figure 4.5-2 shows seismic hazard zones located within and around the proposed Project site. The City of Huntington Beach General Plan also identifies the proposed Project site as having a high to very high potential for liquefaction (City of Huntington Beach, 2008b).

Landslide Hazards

Landslides are the down-slope displacement of rock, soils and debris. The susceptibility of land (slope) failure is dependent on slope and geological formations and influenced by levels of rainfall, excavation, or seismic activities. Steep slopes and down-slope creep of surface materials characterize landslide-susceptible areas. The proposed Project site itself is flat with little topographic relief and there are no steep slopes in the proposed Project vicinity. According to the Seismic Hazard Zones map of the Newport Beach Quadrangle (**Figure 4.5-2)**, the proposed Project site is not located within a landslide hazard zone (CGS, 1997 and 1998).

Expansive Soils

Expansive soils possess shrink-swell characteristics that can result in gradual structural damage over an extended period of time. Expansive soils are largely comprised of silicate clays, which expand in volume when water is absorbed and shrink when dried. The City of Huntington Beach General Plan identifies soils in the proposed Project area as having a variable shrink-swell potential along and south of PCH, and moderate-to-high shrink-swell potential within Plant 2 (City of Huntington Beach, 1996).

Soils with shrink-swell or expansive properties typically occur in fine-grained clay sediments and cause damage to structures through volume changes as a result of a wetting and drying process. Structural damage may occur over a long period of time, usually the result of inadequate soil and foundation engineering or the placement of structures directly on expansive soils. As discussed above, geologic maps, soil surveys and site-specific geotechnical reports indicate soils underlying the beach box and surrounding area are primarily sandy in nature, thereby indicating a low likelihood that soils would exhibit shrink-swell characteristics.

Erosion

Erosion is the displacement of solids (soil, mud, rock, and other particles) by wind, water, or ice and by downward or down-slope movement in response to gravity. Generally, portions of the proposed Project area that are not paved (i.e., outside of Plant 2) are underlain by well-drained sandy soils on a flat to low-gradient land surface. As a result, the potential for substantial and accelerated erosion is low. Soils with a high clay fraction, which have a high expansion potential, are possibly present within the SAR floodplain deposits inland from PCH. The erosion potential ("k" factor) for these soils fall in the high range (0.55 k factor) and corresponds to high susceptibility to sheet and rill erosion by water (NRCS, 2011). However, these soils are not currently subject to erosion because they are paved over, landscaped, or located within estuarine marsh areas that are periodically inundated.

Subsidence

Subsidence of the ground surface occurs under static conditions (i.e., due to consolidation settlement from overlying load or long-term water or mineral extraction), but can also be accelerated and accentuated by earthquakes. The extraction of fluid resources from subsurface

sedimentary layers (i.e., water or oil) can result in subsidence from the removal of supporting layers in the geologic formation. Settlement of loose, unconsolidated soils generally occurs slowly, but can cause significant structural damage if structures are not properly designed. The proposed Project site is not in an area that is subject to subsidence identified in the City of Huntington Beach General Plan (City of Huntington Beach, 1996).

4.5.2 Regulatory Framework

Federal

Occupational Safety and Health Administration Regulations

Excavation and trenching are among the most hazardous construction activities. The Occupational Safety and Health Administration's (OSHA) Excavation and Trenching standard, Title 29 of the Code of Federal Regulations (CFR), Part 1926.650, covers requirements for excavation and trenching operations. OSHA requires that all excavations in which employees could potentially be exposed to cave-ins be protected by sloping or benching the sides of the excavation, supporting the sides of the excavation, or placing a shield between the side of the excavation and the work area.

State

Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act (formerly the Alquist-Priolo Special Studies Zone Act) signed into law in December of 1972, requires the delineation of zones along active faults in California. The purpose of the Alquist-Priolo Fault Zoning Act is to regulate development on or near active fault traces to reduce the hazard of potential fault rupture and to prohibit the location of most structures for human occupancy across these traces. Cities and counties must regulate certain development projects within the zones, which includes withholding permits until geologic investigations demonstrate that development sites are not threatened by future surface displacement (Hart, 2007). The proposed Project is not subject to this Act because it is not within an earthquake fault zone and it does not involve structures for human occupancy. Nevertheless, this Act is included in the regulatory framework because it requires the State of California to identify and disseminate information about the location of earthquake fault zones, which is considered relevant to the environmental setting.

Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act was developed to protect the public from the effects of strong ground shaking, liquefaction, landslides, or other ground failure, and from other hazards caused by earthquakes. This Act requires the State Geologist to delineate "zones of required investigation" (i.e., seismic hazard zones) where site investigations are required to determine the need for mitigation of potential liquefaction and/or earthquake-induced landslide ground displacements. The act requires cities, counties, and other local permitting agencies to regulate certain development projects by implementing the provisions of the Act through various local

building codes, permits, and ordinances. Before a development permit is granted for a site within a seismic hazard zone, a geotechnical investigation of the site must be conducted and appropriate mitigation measures incorporated into the project design, consistent with CGS Special Publication 117, *Guidelines for Evaluating and Mitigating Seismic Hazards in California*. While the proposed Project site is located in a zone of required investigation for liquefaction, the Sanitation District is not required to comply with the evaluation and mitigation guidelines because the proposed Project does not include or otherwise affect structures for human occupancy. Nevertheless, this Act is included in the regulatory framework because it requires the State of California to identify and disseminate information about seismic hazards, which is considered relevant in the environmental setting.

California Building Code

The California Building Code (CBC) has been codified in the CCR as Title 24, Part 2. Title 24 is administered by the California Building Standards Commission, which, by law, is responsible for coordinating all building standards. The purpose of the CBC is to establish minimum standards to safeguard the public health, safety and general welfare through structural strength, means of egress facilities, and general stability by regulating and controlling the design, construction, quality of materials, use and occupancy, location, and maintenance of all building and structures within its jurisdiction. The CBC is based on the International Building Code (IBC). The 2010 CBC is based on the 2009 IBC published by the International Code Conference. In addition, the CBC contains necessary California amendments which are based on reference standards obtained from various technical committees and organizations such as the American Society of Civil Engineers (ASCE), the American Institute of Steel Construction (AISC), and the American Concrete Institute (ACI). ASCE Minimum Design Standards 7-05 provides requirements for general structural design and includes means for determining earthquake loads as well as other loads (flood, snow, wind, etc.) for inclusion into building codes. The provisions of the CBC apply to the construction, alteration, movement, replacement, and demolition of every building or structure or any appurtenances connected or attached to such buildings or structures throughout California. General standards for earthwork, grading, backfill, and compaction contained in the CBC would be applied to the proposed Project, as an excavation permit and a construction variance permit from the City of Huntington Beach would be required., however, the proposed Project would not be required to obtain a building permit.

Local

City of Huntington Beach General Plan

The City of Huntington Beach General Plan contains an Environmental Hazards Element and Coastal Element that addresses geologic hazards in the area. The Environmental Hazards Chapter of the General Plan has Objectives and Policies that relate to ensuring future planning activities account for the risk associated with geologic conditions and seismic safety. The Environmental Hazards Chapter of the General Plan also contains policies that are designed to minimize damage resulting from seismic hazards, ensure that existing unsafe structures are retrofitted to reduce hazards and mitigate other existing unsafe conditions.

City of Huntington Beach Coastal Element

As required by the California Coastal Act (California Public Resources Code, Division 20, Sections 30000 et seq.), local governments lying wholly or partially within the Coastal Zone are required to prepare a Local Coastal Program (LCP) for its portion of the Coastal Zone. The LCP is used to implement policies and requirements of the Coastal Act by local governments and must be reviewed and certified by the California Coastal Commission (CCC) prior to being implemented by the local government. The LCP is divided into two components: (1) a coastal element; and (2) an implementation program. The Coastal Element found in the City's General Plan includes a land use plan and policies to be used by decision makers when reviewing coastal-related issues and proposed development within a Coastal Zone boundary. The implementation program includes the zoning ordinances, zoning district maps, specific plans, and other implementing actions that implement the goals and policies of the certified coastal element. Chapter 216 Coastal Conservation District of the Zoning Code implements the General Plan and LCP land use designation of Open Space: Conservation; and also provides policies for the protection, maintenance, restoration and enhancement of wetlands and environmentally sensitive habitat areas located in the Coastal Zone.

4.5.3 Impacts and Mitigation Measures

Significance Criteria

The criteria used to determine the significance of impacts related to geology, soils and seismicity are based on Appendix G of the *CEQA Guidelines*. The proposed Project would result in a significant impact to geology, soils and seismicity if it would:

- Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:
  - Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault
  - Strong seismic ground shaking
  - Seismic-related ground failure, including liquefaction
  - Landslides
- Result in substantial soil erosion or the loss of topsoil;
- Be located on a geologic unit or soil that is unstable or that would become unstable as a result of the project, and potentially result in onsite or offsite landslide, lateral spreading, subsidence (i.e., settlement), liquefaction, or collapse;
- Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property; or
- Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water.

Impacts Discussion

It was determined in the Draft EIR analysis that the following environmental factors would have no impact. The following is a brief discussion of the analysis:

Landslides

The City of Huntington Beach General Plan Coastal Element establishes development standards and design reviews to prevent erosion and landslide hazards along the coastal zone. The proposed Project site is not located on coastal bluffs subject to landslides and, as shown in **Figure 4.5-2**, is not in an area susceptible to earthquake induced landslides. The proposed Project site is generally flat and surrounded by relatively flat topography. Because proposed Project facilities would be located in these flat areas that are not susceptible to landslides and proposed Project activities would not alter existing conditions in such a manner that would induce landslides, the proposed Project would not expose people or structures to substantial adverse effects related to landslides. Therefore, there would be no impact related to this environmental factor.

Significance Level: No impact.

Soil Suitability for Septic System

The proposed Project does not include a septic system or alternative reclaimed water system. Therefore, no impact would occur related to soil suitability for septic systems or alternative reclaimed water system for disposal of reclaimed water and no further analysis is warranted.

Significance Level: No impact.

Exposure to Seismic-Related Hazards

Impact 4.5-1: The proposed Project could expose people or structures to potential adverse effects of fault rupture, strong seismic ground shaking or seismic related ground failure, including liquefaction.

Alternative 1

Activities on Plant 2

As discussed above, the Project area could be subject to strong seismic ground shaking and secondary ground-shaking hazards, such as liquefaction in the event of a large regional earthquake. Further, in the unlikely event of a strong earthquake on the Newport-Inglewood Fault (i.e., about 1 percent in the next 30 years), and if the earthquake was centered along the portion of the fault underlying the proposed Project site, the site could experience fault rupture. However, rehabilitation activities on existing treatment facilities within Plant 2, including the rehabilitation of Surge Tower 2, would not result in any change to the existing, developed conditions at Plant 2.

The proposed activities within Plant 2 would be temporary in nature, would not involve the construction of new facilities, and would not result in an increase in the intensity of ground shaking that might be expected or the future probability of fault rupture. Therefore, rehabilitation activities at Plant 2 would have a less than significant impact with respect to fault rupture, liquefaction and/or seismic ground shaking and would not expose people to seismic hazards.

Activities at Air VacStation12+05

For the same reasons discussed for Plant 2, rehabilitation activities at Air Vac Station 12+05 would have a less than significant impact with respect to fault rupture, liquefaction and/or seismic ground shaking.

Activities on the Beach

Rehabilitation of the Beach Box

Rehabilitation of the Beach Box under either Options A, B, or C would result in construction activities within the existing area where the Beach Box structure is located as well as temporary disturbances to the immediate vicinity of the Beach Box. The proposed activities on the Beach Box would not result in a significant exposure to people (including construction workers) or existing structures to potential adverse effects from earthquake fault ruptures and seismic ground shaking. The rehabilitation activities would be temporary and construction equipment and workers would be removed upon completion. Furthermore, the rehabilitation of the Beach Box would enhance the system's protection against seismically induced ground shaking by removing corroded portions of the Beach Box. Therefore, impacts would be less than significant for either Options A, B, or C.

Construction of the Bypass Structure

The footprint for the bypass structure excavation pit would be approximately 65 feet wide by 80 feet long and 20 to 25 feet deep. In total, the bypass structure would require substantial excavation volumes of approximately 4,350 cubic yards of beach sand. Despite the low likelihood of a large regional earthquake occurring during the 2.5year construction period to protect worker safety and ensure the rehabilitation work is completed successfully and on schedule, it is necessary to ensure that construction site shoring and/or onsite bulkheads are installed in a manner that could withstand seismic loading and/or possible liquefaction-related effects. As discussed in the setting, the construction site is likely to be underlain by cohesionless sands with a high groundwater table, which are not favorable conditions for deep excavations due to the possibility that side walls could slough or slump. As such, without proper geotechnical characterization and design of shoring systems for the construction excavation, the proposed Project could have a significant impact to the safety of site workers and the successful completion of the proposed Project.

Implementation of **Mitigation Measure 4.5-1** would require the preparation of a geotechnical report and require the implementation of recommended design features, if necessary, to ensure the stability of construction excavations during an earthquake and to ensure that significant impacts are avoided. Findings made in the geotechnical report will outline and determine if additional design features are necessary. Implementation of **Mitigation Measure 4.5-1** would

minimize substantial adverse effects with respect to fault rupture, liquefaction and/or seismic ground shaking to a less than significant level and would not expose people to seismic hazards.

Significance Level Alternative 1: Less than significant with mitigation.

Alternative 2

Alternative 2 would result in identical impacts at Plant 2, Air Vac Station 12+05, and on the Huntington State Beach during Beach Box rehabilitation activities. Under Alternative 2, effluent would be diverted and discharged using the Short Outfall in order to conduct rehabilitation activities on the Long Outfall system. This temporary diversion would not involve the construction of a bypass structure. Construction activities on the beach would not require excavation. Rehabilitation activities would occur within the framework of the existing Beach Box. Implementation of Alternative 2 would not result in the construction or operation of new structures that could increase the risk of impacts from fault rupture, liquefaction and/or seismic ground shaking. Therefore, impacts are considered less than significant with no mitigation required.

Significance Level Alternative 2: Less than significant.

Mitigation Measure

> **4.5-1:** For Alternative 1, prior to the approval of construction plans for the bypass structure under Alternative 1, a design-level geotechnical investigation, including collection of site-specific subsurface data shall be completed. The geotechnical evaluation shall further characterize the underlying soils and assess the maximum loads to which the shoring system would be subject, and shall include seismic loads in the calculations. The geotechnical investigation shall be prepared by a licensed geotechnical engineer, shall reflect current industry standards, and shall provide recommendations necessary to ensure that planned shoring, bulkheads, and sheet piles are designed in a manner to withstand maximum loads that would occur during a large regional earthquake. These recommendations shall be incorporated into the design of Alternative 1.

Soil Erosion or Topsoil Loss

Impact 4.5-2: Construction of the proposed Project could result in substantial soil erosion or the loss of topsoil.

Construction activities that require site grubbing, grading, and/or soil stockpiling, can leave loose soil exposed to the erosive forces of rainfall and high winds. Generally, soil erosion can cause sedimentation problems in storm drain systems; and initiate or increase the size of shallow channels; and/or result in water quality problems (see Section 4.8, Hydrology and Water Quality). As discussed in the setting, soils within unpaved portions of the Project vicinity are not prone to substantial erosion because they are sandy and well drained, and the site topography is generally flat. Nevertheless, it does not entirely preclude erosion or loss of topsoil from occurring,

especially if soil stockpiles, constructed slopes, and/or otherwise unprotected soils are exposed during large storm events or high winds during construction.

Alternative 1

Activities on Plant 2

Rehabilitation activities proposed within the boundaries of Plant 2 would occur on a developed site that has previously been graded and paved. Activities on Plant 2 would not involve earthwork and grading activities that could disturb site soils and potentially expose them to wind or water erosion. All rehabilitation work would be conducted on existing structures situated on concrete, developed areas. Therefore, no loss of topsoil would occur with implementation of the proposed Project within Plant 2, resulting in no impact with respect to soil erosion or loss of topsoil.

Activities at Air Vac Station12+05

Rehabilitation activities at Air Vac Station 12+05 would occur on a developed portion of this site that has previously been graded. Rehabilitation activities at Air Vac Station 12+05 would not involve earthwork and grading activities that could disturb site soils and potentially expose them to wind or water erosion. All rehabilitation work would be conducted within the existing Air Vac Station 12+05 structure situated on graded, developed land. Therefore, no loss of topsoil would occur with implementation of the proposed Project at Air Vac Station 12+05, resulting in no impact with respect to soil erosion or loss of topsoil.

Activities on the Beach

Rehabilitation of Beach Box

A temporary dewatering pipeline would be extended from the Beach Box to Plant 2, but it would not result in substantial soil erosion or the loss of topsoil due to the minimal area of disturbance required for the short distance of pipeline routing from the beach to Plant 2 and the small area of disturbance to repair the Beach Box. Rehabilitation work for the Beach Box would occur within the existing structure, which is accessed from an existing concrete cover at beach-level. Therefore, impacts on soil erosion and loss of topsoil would be less than significant for either Options A, B, or C.

Construction of Bypass Structure

Construction of the bypass structure would require excavation of approximately 4,350 cubic yards of sand and soil from around the Beach Box and two dewatering pipelines, one for dewatering inside the Beach Box, and routed to Plant 2 and dewatering outside and around the beach box to discharge groundwater to the mouth of the SAR. For further discussion see Hydrology and Water Quality Section. The excavated material would be stockpiled on site, south of the California Least Tern Natural Preserve Area and could be subject to wind and rain erosion during the construction period. Soils on the beach are composed of Bolsa Silt Loam, Bolsa Silt Loam (drained), tidal flats, and beach sands (NRCS, 2011). Because this Project element would require substantial subgrade excavation and soil stockpiles, erosion and soil loss could occur, most likely due to high coastal winds.

To minimize impacts related to soil erosion or loss of topsoil, the proposed Project would implement **Mitigation Measure 4.8-1a** described in Section 4.8, Hydrology and Water Quality, which requires the development and implementation of construction water quality best management practices (BMPs). The BMPs would include erosion control measures to protect topsoil during construction, including measures to protect surface waters in the vicinity. Following installation of the bypass structure, all excavated soils would be backfilled into the construction excavation such that no beach sand would be lost or removed from the site. As a result of the BMPs, potential soil erosion during construction would be reduced to a less than significant level.

Significance Level Alternative 1: Less than significant with mitigation.

Alternative 2

Alternative 2 would result in identical impacts at Plant 2, Air Vac Station 12+05, and on the beach during Beach Box rehabilitation activities. Alternative 2 would not require the installation of a bypass structure and thus the potential impacts due to erosion of soil from soil stockpiles or construction related excavations would not occur. Nevertheless, implementation of Alternative 2 could still result in an increased potential for soil loss due to the presence of staging areas and construction related vehicles and equipment on the beach. Typical construction related activities on the beach could result in soil disturbance, soil compaction and the possibility of tracking sand off site. However, the Sanitation District would implement **Mitigation Measure 4.8-1a** described in Section 4.8, Hydrology and Water Quality, which requires the development and implementation of construction water quality BMPs. These BMPs include erosion control measures which would reduce potential soil loss to a less than significant level.

Significance Level Alternative 2: Less than significant with mitigation.

Mitigation Measure

4.8-1a: Under Alternative 1 and 2, for activities at Air Vac Station 12+05 and at the beach, a SWPCP shall be prepared prior to the initiation of any maintenance or rehabilitation activity. BMPs within the SWPCP shall control erosion, sedimentation, and other construction-related pollutants. The BMPs shall be maintained at the site for the duration of construction. The objectives of the BMPs are to identify pollutant sources that may affect the quality of stormwater discharges and to implement measures to reduce pollutants in stormwater discharges. The SWPCP shall contain the following:

- Using structural controls such as gravel bags or fiber roles retain sediment to avoid draining toward receiving waters;
- Stabilize slopes of stockpiled sand/soil to eliminate or reduce sediment dispersal from construction site to surrounding areas and surface waters;
- Store all reserve fuel supplies only within the confines of a designated construction staging area;
- The use or storage of petroleum-powered equipment shall be accomplished in a manner to prevent the potential release of petroleum materials into receiving waters;

- Oil absorbent and spill containment materials shall be located on site when mechanical equipment is in operation within 100 feet of receiving waters. If a spill occurs, no additional work shall commence until (1) the mechanical equipment is inspected by the contractor, and the leak has been repaired, (2) the spill has been contained, and (3) all appropriate agencies have been contacted and have evaluated the impacts of the spill;
- Vehicle parking areas would be established with drip pans to prevent oil drips onto the sand;
- If heavy –duty construction equipment is stored overnight adjacent to potential receiving water, drip pans will be placed beneath the machinery engine block and hydraulic systems;
- Fuel storage needed for dewatering pumps will be provided within secondary containment; and
- Refueling will occur only within designated fueling zones that are equipped with secondary containment and spill clean-up equipment.

Soil Stability

Impact 4.5-3: The proposed Project could be located on a geologic unit or soil that is expansive or unstable, or that would become unstable as a result of the project, and potentially result in onsite or offsite lateral spreading, subsidence or collapse.

Alternative 1

Activities on Plant 2

Rehabilitation activities proposed within boundaries of Plant 2 would occur on a developed site that has previously been graded. Activities on Plant 2 would not involve earthwork and grading activities. No new structures would be constructed. Therefore, no significant impacts relating to unstable soils would occur with implementation of the proposed Project within Plant 2.

Activities at Air Vac Station 12+05

Rehabilitation activities at Air Vac Station 12+05 would occur within the existing structure on a developed portion of this site that has been previously graded. No new structures would be constructed. Therefore, no significant impacts to soil stability would occur with implementation of the proposed Project within Air Vac Station 12+05.

Activities on the Beach

Rehabilitation of Beach Box

Rehabilitation of the Beach Box would not include construction of new structures. All activities would occur within the Beach Box and dewatered discharge pipeline. A temporary dewatering pipeline for the Outfall dewatering would be extended from the Beach Box to Plant 2, but it

would not affect or be affected by the stability of underlying soils. Therefore, impacts on soil stability would be less than significant for either Options A, B, or C.

Construction of Bypass Structure

The temporary bypass structure would be installed downstream of the Beach Box. The area slopes slightly toward the river. Under the sand south of the construction zone, riprap has been placed to protect the beach from high river flows. These river reinforcements also protect the construction zone which is situated on flat beach sand. Some fill rock may be encountered during excavation. Underlying the surface sands, beach soils exhibit more strength than the surface sands and would anchor shoring and other supports, such as saddles around the base on the line stops. These saddles would be encased in concrete to provide structural support, as would the Long Outfall and Short Outfall where they are connected to the 60 inch bypass structure pipes. In addition, **Mitigation Measure 4.5 1** would ensure that the shoring systems installed for construction of the temporary bypass structure will be designed in accordance with the recommendations set forth in the required geotechnical investigation. The findings and recommendations of the geotechnical report will ensure that the sidewalls of the construction excavations are adequate to prevent soil instabilities from adversely affecting site workers or successful installation of the bypass structure. Following construction, stockpiled soils would be backfilled into the excavation, thereby resulting in no change to the stability, character or properties of preexisting soils onsite.

Due to the substantial amount of groundwater that is expected to seep into the excavation, up to 30 dewatering wells producing up to 30 mgd would be installed to keep the construction area dry and free of water. However, this dewatering activity is not expected to result in local ground subsidence because of the shallow nature of groundwater extraction and the high permeability of surrounding soils. It is estimated the rate of groundwater pumping that would be required based on site conditions which include soils with high rate of water transmission. In addition, it was assumed, based on professional judgment, that the line of zero groundwater drawdown would be approximately 100 feet from the pumping location (Converse Consultants, 2011). Therefore, if local ground subsidence were to occur, the magnitude of subsidence would be negligible because the maximum groundwater drawdown would be to the bottom of the excavation [up to 25 feet below ground surface (bgs)] and the pumping influence would not extend further than a hundred feet from the construction excavation.

For the above reasons, impacts associated with soil stability would be less than significant.

Significance Level Alternative 1: Less than significant with mitigation.

Alternative 2

Alternative 2 would result in identical impacts at Plant 2, Air Vac Station 12+05, and on the beach during Beach Box rehabilitation activities. The proposed Project site is located in areas of low potential for unstable soils. Under Alternative 2, no new structures would be constructed and no excavation or shoring would be employed. Impacts associated with soil stability under Alternative 2 would be less than significant, with no mitigation required.

Significance Level Alternative 2: Less than significant.

Mitigation Measure

Implement **Mitigation Measure 4.5-1** for Alternative 1 only.

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4.6 Greenhouse Gas Emissions

4.6.1 Environmental Setting

Climate change is defined as the changing of the earth's climate caused by natural fluctuation and the impact of human activities that alter the composition of the global atmosphere. Greenhouse gases (GHGs) in the atmosphere regulate the earth's temperature; however, emissions from human activities such as electricity production and motor vehicles have elevated the concentration of GHGs in the atmosphere. This accumulation of GHGs has contributed to an increase in the temperature of the earth's atmosphere and contributed to Global Climate Change. Principal GHGs include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), sulfur hexafluoride (SF_6), perfluorocarbons (PFCs), hydrofluorocarbons (HFCs), and water vapor (H_2O). HFCs are used in refrigeration systems as substitutes for CFCs, which were banned for destroying the ozone layer. CO_2 is the reference gas for climate change because it is the most abundant and is considered the most important GHG. To account for the warming potential of GHGs, these emissions are often quantified and reported as CO_2 equivalents (CO_2e). Large emission sources are reported in million metric tons (MMT) of CO_2e.

Potential global warming impacts in California may include, but are not limited to, loss in snow pack, sea level rise, more extreme heat days per year, more high ozone days, more large forest fires, and more drought years. Secondary effects can include a global rise in sea level, impacts to agriculture, changes in disease vectors, and changes in habitat and biodiversity.

4.6.2 Regulatory Framework

Federal

The federal Clean Air Act (FCAA) requires the U.S. Environmental Protection Agency (USEPA) to define national ambient air quality standards to protect public health and welfare in the U.S. The CAA does not specifically regulate GHG emissions; however, on April 2, 2007 the U.S. Supreme Court in *Massachusetts v. U.S. Environmental Protection Agency*, determined that GHGs are pollutants that can be regulated under the FCAA. Currently, there are no federal regulations that establish ambient air quality standards for GHGs.

On December 7, 2009, USEPA adopted its Proposed Endangerment and Cause or Contribute Findings for Greenhouse Gases under the CAA (Endangerment Finding). The Endangerment Finding is based on Section 202(a) of the CAA, which states that the administrator (of USEPA) should regulate and develop standards for "emission[s] of air pollution from any class or classes of new motor vehicles or new motor vehicle engines, which in [its] judgment cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare." The rule addresses Section 202(a) in two distinct findings. The first addresses whether the concentrations of the six key GHGs (CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6) in the atmosphere threaten the public health and welfare of current and future generations. The second addresses whether the combined emissions of GHGs from new motor vehicles and motor vehicle engines

contribute to atmospheric concentrations of GHGs and, therefore, contribute to the threat of climate change.

The administrator of USEPA found that atmospheric concentrations of GHGs endanger the public health and welfare within the meaning of Section 202(a) of the CAA. The evidence supporting this finding consists of human activity resulting in "high atmospheric levels" of GHG emissions, which are likely responsible for increases in average temperatures and other climatic changes. Furthermore, the observed and projected results of climate change (e.g., higher likelihood of heat waves, wild fires, droughts, sea level rise, higher intensity storms) are a threat to the public health and welfare. Therefore, GHGs were found to endanger the public health and welfare of current and future generations.

The administrator of USEPA also found that GHG emissions from new motor vehicles and motor vehicle engines are contributing to air pollution, which is endangering public health and welfare. USEPA's final findings respond to the 2007 U.S. Supreme Court decision that GHGs fit within the CAA definition of air pollutants. The findings do not in and of themselves impose any emission reduction requirements but, rather, allow USEPA to finalize the GHG standards proposed earlier in 2009 for new light-duty vehicles as part of the joint rulemaking with the Department of Transportation.

State

The California Air Resources Board (CARB) is the agency responsible for coordination and oversight of State and local air pollution control programs in California. Various statewide and local initiatives to reduce the State's contribution to GHG emissions have raised awareness that, even though the various contributors to and consequences of global climate change are not yet fully understood, global climate change is under way, and there is a real potential for severe adverse environmental, social, and economic effects in the long term. Because every nation emits GHGs and therefore makes an incremental cumulative contribution to global climate change, cooperation on a global scale will be required to reduce the rate of GHG emissions to a level that can help to slow or stop the human-caused increase in average global temperatures and associated changes in climatic conditions.

There are currently no State regulations in California that establish ambient air quality standards for GHGs. However, California has passed laws directing CARB to develop actions to reduce GHG emissions, and several State legislative actions related to climate change and GHG emissions have come into play in the past decade.

Assembly Bill 32 (AB 32)

In September 2006, then-Governor Schwarzenegger signed the California Global Warming Solutions Act (AB 32; California Health and Safety Code Division 25.5, Sections 38500 - 38599). AB 32 establishes regulatory, reporting, and market mechanisms to achieve quantifiable reductions in GHG emissions and establishes a cap on statewide GHG emissions. AB 32 requires that statewide GHG emissions be reduced to 1990 levels by 2020. This reduction will be

accomplished by enforcing a statewide cap on GHG emissions that will be phased in starting in 2012. To effectively implement the cap, AB 32 directs CARB to develop and implement regulations to reduce statewide GHG emissions from stationary sources. AB 32 specifies that regulations adopted in response to AB 1493 should be used to address GHG emissions from vehicles. However, AB 32 also includes language stating that if the AB 1493 regulations cannot be implemented, then CARB should develop new regulations to control vehicle GHG emissions under the authorization of AB 32.

AB 32 requires CARB to adopt a quantified cap on GHG emissions representing 1990 emissions levels and disclose how it arrived at the cap; institute a schedule to meet the emissions cap; and develop tracking, reporting, and enforcement mechanisms to ensure that the State reduces GHG emissions enough to meet the cap. AB 32 also includes guidance on instituting emissions reductions in an economically efficient manner, along with conditions to ensure that businesses and consumers are not unfairly affected by the reductions. According to CARB's Scoping Plan, the 2020 target of 427 million metric tons (MMT) CO_2e requires the reduction of 169 $MMTCO_2e$, or approximately 28.4 percent, from the State's projected 2020 business-as-usual (BAU) emissions level of 596 $MMTCO_2e$. However, CARB has discretionary authority to seek greater reductions in more significant and growing GHG sectors, such as transportation, as compared to other sectors that are not anticipated to significantly increase emissions.

OPR's 2008 Technical Advisory

On June 19, 2008, OPR published a technical advisory on CEQA and Climate Change. The advisory provided OPR's perspective on the emerging role of CEQA in addressing climate change and greenhouse gas emissions, while recognizing that approaches and methodologies for calculating greenhouse gas emissions and addressing environmental impacts through CEQA review are rapidly evolving. The advisory recognized that OPR would develop amendments to the *State CEQA Guidelines* pursuant to SB 97 as was done in 2010. The Natural Resources Agency would then adopt these amendments. The technical advisory pointed out that neither CEQA nor the *CEQA Guidelines* prescribe quantitative thresholds of significance or particular methodologies for performing an impact analysis by stating, "This is left to lead agency judgment and discretion, based upon factual data and guidance from regulatory agencies and other sources where available and applicable" (OPR, 2008). This deference to lead agencies was memorialized in the *CEQA Guidelines* Section 15064.4 as discussed below. OPR recommended, at the time, that "the global nature of climate change warrants investigation of a statewide threshold of significance for GHG emissions" (OPR, 2008).

Until such a standard is established, OPR advises that each lead agency should develop its own approach to performing analyses for projects that generate greenhouse gas emissions (OPR, 2008). Agencies should then assess whether the emissions are "cumulatively considerable" even though a project's greenhouse gas emissions may be individually limited. OPR states, "Although climate change is ultimately a cumulative impact, not every individual project that emits GHGs must necessarily be found to contribute to a significant cumulative impact on the environment" (OPR, 2008). Based on this, individual lead agencies may undertake a project-by-project analysis, consistent with available guidance and current CEQA practice (OPR, 2008).

If the lead agency determines emissions are a cumulatively considerable contribution to a significant cumulative impact, then the lead agency must investigate and implement ways to mitigate the emissions (OPR, 2008). OPR states that "Mitigation measures will vary with the type of project being contemplated, but may include alternative project designs or locations that conserve energy and water, measures that reduce vehicle miles traveled (VMT) by fossil-fueled vehicles, measures that contribute to established regional or programmatic mitigation strategies, and measures that sequester carbon to offset the emissions from the project" (OPR, 2008). OPR concludes that "a lead agency is not responsible for wholly eliminating all GHG emissions from a project; the CEQA standard is to mitigate to a level that is "less than significant" (OPR, 2008). The technical advisory includes a list of mitigation measures that can be applied on a project-by-project basis.

GHG Amendments to the CEQA Guidelines

On April 13, 2009, OPR submitted its proposed amendments to the Secretary for Natural Resources in regards to the *State CEQA Guidelines* for GHG emissions, as required by Public Resources Code Section 21083.05 (Senate Bill 97) (OPR, 2009). The Natural Resources Agency adopted the *State CEQA Guidelines* Amendments with minor, non-substantial changes on December 31, 2009 and transmitted the Adopted Amendments and the entire rulemaking file to the Office of Administrative Law (OAL). The adopted guidelines became effective on March 18, 2010.

No quantitative significance threshold is included in the Amendments. The *CEQA Guidelines* afford the customary deference provided to lead agencies in their analysis and methodologies. OPR emphasizes the necessity of having a consistent threshold available to analyze projects, and the analyses should be performed based on the best available information. For example, if a lead agency determines that GHGs may be generated by a proposed project, the agency is responsible for assessing GHG emissions by type and source. The *CEQA Guidelines* Amendments provide the following recommendations for determining the significance of GHG emissions under Section 15064.4:

(a) The determination of the significance of GHG emissions calls for a careful judgment by the lead agency consistent with the provisions in Section 15064. A lead agency should make a good-faith effort, based on available information, to describe, calculate or estimate the amount of GHG emissions resulting from a project. A lead agency shall have discretion to determine, in the context of a particular project, whether to:

(1) Use a model or methodology to quantify GHG emissions resulting from a project, and which model or methodology to use. The lead agency has discretion to select the model it considers most appropriate provided it supports its decision with substantial evidence. The lead agency should explain the limitations of the particular model or methodology selected for use; and/or

(2) Rely on a qualitative analysis or performance based standards.

(b) A lead agency may consider the following when assessing the significance of impacts from GHG emissions on the environment:

(1) The extent to which the project may increase or reduce GHG emissions as compared to the existing environmental setting;

(2) Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project; and

(3) The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions. Such regulations or requirements must be adopted by the relevant public agency through a public review process and must include specific requirements that reduce or mitigate the project's incremental contribution of GHG emissions. If there is substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding compliance with the adopted regulations or requirements, an EIR must be prepared for the project.

The Amendments also include a new Subdivision 15064.7(c) which clarifies that in developing thresholds of significance, a lead agency may appropriately review thresholds developed by other public agencies, or recommended by other experts, provided the decision of the lead agency to adopt such thresholds is supported by substantial evidence.

In addition, the Amendments include a new Section 15183.5 that provides for tiering and streamlining the analysis of GHG emissions. Project-specific environmental documents may rely on an EIR containing a programmatic analysis of GHG emissions in the region over a specified time period.

Finally, the Amendments add a new set of environmental checklist questions (VII. Greenhouse Gas Emissions) to the *State CEQA Guidelines* Appendix G, which are provided below in Section 4.6.3, under Significance Criteria.

CARB Draft GHG Significance Thresholds

On October 24, 2008, CARB released its *Preliminary Draft Staff Proposal on Recommended Approaches for Setting Interim Significance Thresholds for Greenhouse Gases under the California Environmental Quality Act* for review and public comment (CARB, 2008b). The proposal identifies benchmarks or standards that assist lead agencies in the significance determination for industrial, residential, and commercial projects. Staff intended to make its final recommendations on thresholds in early 2009, consistent with OPR's timeline for issuing draft CEQA guidelines addressing GHG emissions; however, CARB has yet to issue a final recommendation for GHG significance thresholds.

The proposal currently focuses on two sectors for which local agencies are typically the CEQA lead agency: industrial projects; and residential and commercial projects. Future proposals will focus on transportation projects, large dairies and power plant projects.

For industrial projects, CARB recommends that projects below the industrial screening level (7,000 metric tons/year CO_2e not including traffic emissions) can be found to be less than significant. For residential and commercial projects, CARB staff's objective is to develop a threshold on performance standards that will substantially reduce the GHG emissions from new projects and streamline the permitting of carbon efficient projects. Performance standards will address the five major emission sub-sources for the sector: energy use, transportation, water use, waste, and construction. Projects may alternatively incorporate mitigation equivalent to these performance standards, such as measures from green building rating systems.

Local

South Coast Air Quality Management District (SCAQMD) GHG Thresholds of Significance

As an interim method for determining significance under CEQA until statewide significance thresholds are established, SCAQMD developed a draft tiered flowchart in 2008 for determining significance thresholds for GHGs and CEQA for industrial projects where SCAQMD is acting as the lead agency. In December 2008, SCAQMD adopted a 10,000 $MTCO_2e$/year for industrial facilities, but only with respect to projects where SCAQMD is the lead agency (SCAQMD, 2008). SCAQMD has not adopted a threshold for residential or commercial projects at the time of this writing.

The SCAQMD flowchart uses a tiered approach in which a proposed project is deemed to have a less than significant impact related to GHG emissions when any of the following conditions are met:

- GHG emissions are within GHG budgets in an approved regional plan;
- Incremental increases in GHG emissions due to the project are below the defined Significance Screening Levels, or Mitigated to Less than the Significance Screening Level;
- Performance standards are met by incorporating project design features and/or implementing emission; and
- Carbon offsets are made to achieve target significance screening level.

In October 2008, an update to the SCAQMD tiered flowchart modified its original flowchart slightly, by adding separate Significance Screening Levels for industrial projects (10,000 metric tons [MT]/year carbon dioxide equivalent [CO_2e]) versus commercial/residential projects (3,000 MT/year CO_2e). In December 2008, SCAQMD adopted these thresholds for industrial facilities, but only with respect to projects where SCAQMD is the lead agency. SCAQMD has not adopted a separate GHG threshold of significance for construction emissions.

4.6.3 Impacts and Mitigation Measures

Significance Criteria

According to *CEQA* Guidelines Appendix G, the proposed project would have a significant effect on greenhouse gas emissions if it would:

- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; or
- Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

Impacts Discussion

Generation of GHG

Impact 4.6-1: The proposed project could generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.

Upon completion of the rehabilitation work, the proposed Project would return to its existing functioning capacity. Therefore, it is not anticipated that operation of the rehabilitated facilities would increase GHG emissions permanently in the Project area. There would be no permanent traffic trips generated by implementation of the rehabilitation efforts, upon completion of the rehabilitation activities. Therefore, the following discussion focuses on construction-related activities only.

Alternative 1

Activities on Plant 2

GHG impacts are considered exclusively cumulative impacts and no non-cumulative GHG emissions impact from a climate change perspective (CAPCOA, 2008). The proposed Project would not add any new stationary sources of emissions (e.g., emergency generators).

GHG emissions associated with construction and rehabilitation activities for activities at Plant 2, Air Vac 12+05, and at the beach were estimated using the SCAQMD-recommended California Emissions Estimator Model (CalEEMod) (Version 2011.1.1). As shown on the modeling input and output sheets from CalEEmod, with the implementation of activities associated with Plant 2 rehabilitation work would generate approximately 25 metric tons of CO_2e over the entire duration of maintenance and rehabilitation.

Activities at Air Vac 12+05

GHG emissions associated with construction and rehabilitation activities for activities at Air Vac Station 12+05 were estimated using the SCAQMD-recommended CalEEMod. As shown on the modeling input and output sheets from CalEEmod, with the implementation of activities associated with Plant 2 rehabilitation work would generate approximately 5 metric tons of CO_2e over the entire duration of maintenance and rehabilitation.

Activities on the Beach

Rehabilitation of the Beach Box

GHG emissions associated with construction and rehabilitation activities for activities at the Beach Box were estimated using the SCAQMD-recommended CalEEMod. The Sanitation

District has three options available to repair the Beach Box, Option A, Carbon Fiber Wrap; Option B, Fiberglass Pipe Insert; and Option C, Steel Insert. Option B, Fiberglass Pipe Insert has the greatest GHG emissions associated with rehabilitation due to the demolition required and equipment list. As shown on the modeling input and output sheets from CalEEmod, with the implementation of activities associated with Plant 2 rehabilitation work would generate approximately 86 metric tons of CO_2e over the entire duration of maintenance and rehabilitation.

Construction of the Bypass Structure

GHG emissions associated with construction and rehabilitation activities for activities at f the bypass structure, were estimated using the SCAQMD-recommended CalEEMod. As shown on the modeling input and output sheets from CalEEmod, with the implementation of activities associated with Plant 2 rehabilitation work would generate approximately 441 metric tons of CO_2e over the entire duration of maintenance and rehabilitation.

Overall, Alternative 1 would generate approximately 558 metric tons of CO_2e over the entire duration of construction. Modeling input and output sheets are provided in **Appendix B.** Construction emissions would be temporary and finite and would be below SCAQMD's adopted and proposed thresholds of significance. Given the temporary nature of construction GHG emissions and their relatively small magnitude, the impact due to proposed Project-generated GHG emissions would be less than significant.

Significance Level Alternative 1: Less than significant impact

Alternative 2

Alternative 2 would generate approximately 117 metric tons of CO_2e over the duration of the rehabilitation activities at Plant 2, Air Vac Station 12+05, and the beach. Alternative 2 would have substantially lower emissions because it does not include the construction of the bypass structure and also has a 4 to 6 week construction schedule. Modeling input and output sheets are provided in **Appendix B.** Construction emissions would be temporary and finite and would be below SCAQMD's adopted and proposed thresholds of significance. Given the temporary nature of construction GHG emissions and their relatively small magnitude, the impact due to proposed Project-generated GHG emissions would be less than significant.

Significance Level Alternative 2: Less than significant impact.

Impact 4.6-2: The proposed project could conflict with applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs.

In accordance with AB 32, CARB produced the *Scoping Plan* which developed a list of early actions to begin sharply reducing greenhouse gas emissions, assemble an inventory of historic emissions, and establishing the 2020 emissions limit. As previously discussed, the Project's temporary construction emissions are minor compared to SCAQMD's adopted and proposed

GHG thresholds for operational emissions (10,000 MT/year for industrial sources and 3,000 MT/year for residential/commercial projects). Thus, the proposed Project would be consistent with plans, policies, and regulations regarding GHG emissions and impacts would be considered less than significant.

Significance Level: Less than significant impact.

References –Greenhouse Gas Emissions

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4.7 Hazards and Hazardous Materials

This section describes the potential adverse impacts on human health and the environment from hazards and hazardous materials impacts that could result during proposed Project inspection, condition assessment, and rehabilitation of existing facilities.

Definitions

Title 22 of the California Code of Regulations (CCR), Division 4.5, Chapter 11, Article 3 classifies hazardous materials into the following four categories based on their properties: toxic (causes human health effects), ignitable (has the ability to burn), corrosive (causes severe burns or damage to materials), and reactive (causes explosions or generates toxic gases). Hazardous materials have been and are commonly used in commercial, agricultural and industrial applications as well as in residential areas to a limited extent. Hazardous wastes are hazardous materials that no longer have practical use, such as substances that have been discarded, discharged, spilled, contaminated, or are being stored prior to proper disposal. The health impacts of hazardous materials exposure are based on the frequency of exposure, the exposure pathway, and individual susceptibility.

In some cases, past industrial or commercial land uses on a site can result in spills or leaks of hazardous materials and petroleum to the ground, resulting in soil and groundwater contamination. Federal and State laws require that soils having concentrations of contaminants such as lead, gasoline, or industrial solvents that are higher than certain acceptable levels must be handled and disposed as hazardous waste during excavation, transportation, and disposal. The CCR, Title 22, §66261.20-24 contains technical descriptions of characteristics that would cause a soil to be classified as a hazardous waste.

4.7.1 Environmental Setting

Physical Setting

The proposed Project is located in the City of Huntington Beach (the City) and is located on three land use designations, Public, Open Space Conservation and Open Space Shore. Work would be performed outside of the Plant 2 along the western edge of the Santa Ana River (SAR) Bikeway and the south side of Plant 2, and work that would occur at Huntington State Beach. The rehabilitation and maintenance of Surge Tower 2 and the ultrasonic flow meter would occur within Plant 2 boundaries. The abandonment of the outfall meter ports would also occur within Plant 2 boundaries. The Air Vac Station 12+05 release structure is located outside of the Plant 2 adjacent to the Talbert Marsh. The Beach Box is located at Huntington Beach State Park. The Coastal Bikeway runs along the northern portion of the California Least Tern Natural Preserve Area and is just north of the Beach Box. The SAR Mouth Beach is a public access County beach located south of Huntington State Beach and north of Newport City Beach where the SAR meets the Pacific Ocean, southeast of the Beach Box site.

Plant 2 uses chemicals during the effluent treatment process including ferric chloride and anionic polymers to enhance primary sedimentation and control digester sulfide; cationic polymers to assist in the sludge thickening and dewatering process; caustic soda used in the air scrubbers; and hydrogen peroxide for odor control. Two 37,500 gallon tanks of liquid oxygen are also stored for use in the aeration basins. In 2002, the outfall effluent disinfection program introduced the use of sodium hypochlorite (bleach) for disinfection and sodium bisulfate for dechlorination. In addition, residual hydrochloric acid in the ferric chloride solution is used to lower the effluent pH to enhance the efficiency of the bleach and increase bacteria-reduction rates (Sanitation District, 2010).

Sensitive Receptors

Plant 2 is located in southern Huntington Beach adjacent to the SAR, approximately 1,500 feet north of the Pacific Ocean. Plant 2 is located on approximately 110 acres bounded by Brookhurst Street on the northwest, PCH on the Southwest, and the SAR on the east.

The primary sensitive receptors in the Project vicinity are residential neighborhoods located east of the Project site. The closest residences are about 250 feet west of the construction staging area inside Plant 2, 634 feet east of the Beach Box site, 796 feet east from the Air Vac Station 12+05 site at the mobile home community across the SAR and approximately 1,896 feet east from the construction activities that would occur within Plant 2 boundaries. There are areas within the vicinity of the SAR and Huntington State Beach which supports recreational visitors that could also be considered sensitive receptors. There are also sensitive receptors within the greater Plant 2 vicinity including John H. Eader Elementary located approximately 0.5 mile west, and Beach Cities Community Church located 0.3 miles north.

Areas of Fire Hazard

The proposed Project site is located in a developed, urbanized coastal area and is not located in a high fire hazard zone.

Contaminated Soils

Regulatory databases provided by federal, State, and local agencies provide information of past and present usage, storage and disposal of hazardous materials. A database search of hazardous materials sites was performed for this Draft EIR to identify potential contaminated sites in the Project area using the online SWRCB GeoTracker (SWRCB, 2011) and DTSC EnviroStor (DTSC, 2011) databases. GeoTracker identifies the following types of sites: leaking underground storage tank (LUST) sites; land disposal sites; military sites; DTSC cleanup sites; other cleanup sites; permitted underground storage tank (PUST)facilities; and permitted hazardous waste generators. EnvirStor identifies federal Superfund sites, State response sites, voluntary cleanup sites, school cleanup sites, corrective action sites, and tiered permit sites.

The proposed Project site is listed in the GeoTracker database, which identified Plant 2 as having a permitted PUST and two closed leaking underground storage tank (LUST) cases. Typically, sites are closed once they have demonstrated that based on existing site use, the levels of existing

contamination present no significant risk to human health or the environment. No additional sites within a quarter mile of the proposed Project site were identified in the database search.

4.7.2 Regulatory Framework

Federal

Occupational Safety and Health Administration

The Occupational Safety and Health Administration of 1970 (OSHA) was created to ensure safe and healthy working conditions for working men and women by setting and enforcing standards and by providing training, outreach, education and assistance. CFR Title 29 regulations are designed to protect workers from hazards associated with encountering hazardous materials at the work site.

In accordance with OSHA regulations, the Sanitation District has implemented an Integrated Emergency Response Program (IERP) to cover worker safety, spill prevention, emergency response and hazardous materials management for Plant 2. The IERP provides structural design specifications for storage tanks including over-flow alarms and secondary containment volumes, visual monitoring schedules for aboveground storage tanks, underground storage tanks tightness testing schedules, emergency response procedures, and reporting requirements. The IERP includes safety procedures for operations and maintenance workers, which includes worker safety training, hazard communications, personal protective equipment, site security, and departmental organization. Furthermore, the IERP includes training in and implementation of the Incident Command System (ICS) during crisis situations.

Resource Conservation and Recovery Act

The Federal Toxic Substances Control Act (1976) and the Resource Conservation and Recovery Act of 1976 (RCRA) establishes regulation of the generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA was amended in 1984 by the Hazardous and Solid Waste Act (HSWA), which affirmed and extended the “cradle to grave” system of regulating hazardous wastes. Under RCRA, individual states may implement their own hazardous waste programs in lieu of RCRA as long as the state program is at least as stringent as the federal RCRA requirements and approved by the US Environmental Protection Agency (US EPA). California established the Hazardous Waste Control Law (HWCL) in 1992.

Toxic Substance Control Act

The Toxic Substances Control Act of 1976 (TSCA) provides the US EPA with authority to require reporting, record-keeping and testing requirements, and restrictions relating to chemical substances and/or mixtures. TSCA addresses the production, importation, use, and disposal of specific chemicals including polychlorinated biphenyls (PCBs). Under TSCA, the US EPA has the ability to track the 75,000 industrial chemicals currently produced or imported in the United States and can ban the manufacture and import of those chemicals that pose an unreasonable risk.

CERCLA

The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) was developed to protect water, air, and land resources from risk created by past chemical disposal practices. CERCLA, also known as Superfund, allows the federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment. CERCLA established requirements concerning closed and abandoned hazardous waste sites; provided for liability of persons responsible for releases of hazardous waste at these sites; and established a trust fund to provide for clean up when no responsible party could be identified.

Under CERCLA, the Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) was developed and lists all contaminated sites in the nation that have in part or are currently undergoing cleanup activities. The CERCLIS database includes information on current hazardous waste sites, potential hazardous waste sites, and remediation activities, including sites listed on EPA's National Priorities List (NPL) or being considered for the NPL.

State

California Code of Regulations

The CCR is the official compilation and publication of the regulations adopted, amended or repealed by State agencies pursuant to the Administrative Procedure Act.

CCR, Title 22, § 66261.20-24 contains technical descriptions of characteristics that would classify wasted material as hazardous waste. Soils with concentrations of contaminants higher than acceptable levels must be handled and disposed of as hazardous waste.

California Occupational Safety and Health Administration

The California Occupational Safety and Health Administration (Cal/OSHA) is the primary agency responsible for worker safety in the handling and use of chemicals in the work place. Cal/OSHA standards are generally more stringent than federal regulations. The employer is required to monitor worker exposure to listed hazardous substances and notify workers of exposure (8 CCR § 337-340). Regulations specify requirements for employee training, availability of safety equipment, accident prevention programs, and hazardous substance exposure warnings.

Additional safety and health regulations for construction are set forth in 29 CFR Subpart D, Section 1926. These regulations cover worker exposures to gases, vapors, fumes, and dust from construction operations, including the following: construction, installation, inspection, and maintenance of blast-cleaning enclosures to prevent the dispersion into the air of dust, fumes, and mist that could cause harmful exposures; concentrations of dust in the breathing zone of an abrasive-blasting operator; and disposal of exhaust material. In addition, this section of the regulations covers welding and cutting operations.

California Hazardous Waste Control Law

The California Environmental Protection Agency (Cal EPA) administers the California Hazardous Waste Control Law (HWCL) which regulates hazardous waste; lists 791 chemicals and 300 common materials that may be hazardous; establishes criteria for identifying, packaging and labeling hazardous wastes; prescribes management controls; establishes permit requirements for treatment, storage, disposal and transportation; and identifies some wastes that cannot be disposed of in landfills. The HWCL implements RCRA as a "cradle to grave" waste management system in California and also establishes criteria for the reuse and recycling of hazardous wastes. Although the HWCL is more stringent than RCRA regulations, both State and federal laws apply in California until the approval by the US EPA.

California Accidental Release Prevention Program

The California Accidental Release Prevention Program (CalARP) regulates facilities that use or store regulated substances such as toxic or flammable chemicals, in quantities that exceed established thresholds (CCR Title 19, Division 2, Chapter 4.5). The overall purpose of CalARP is to prevent accidental releases of regulated substances and reduce the severity of releases that may occur. The CalARP Program meets the requirements of the USEPA Risk Management Program that was established pursuant to the Clean Air Act Amendments.[1]

California Hazardous Materials Release Response Plans and Inventory Law

The California Hazardous Materials Release Response Plans and Inventory Law of 1985 (Business Plan Act) requires businesses that store hazardous materials onsite above threshold amounts prepare a Risk Management Plan, which includes an inventory of the hazardous materials onsite and an Emergency Response Plan (ERP). The Cal EPA and DTSC have primary regulatory responsibility for the management of hazardous materials, with delegation of authority to local jurisdictions that enter into agreements with the State.

Unified Hazardous Waste and Hazardous Materials Management Regulatory Program

In January 1996 the Unified Hazardous Waste and Hazardous Materials Management Regulatory Program was implemented by Cal EPA to consolidate and coordinate the activities of six separate hazardous materials programs under one agency, a Certified Unified Program Agency (CUPA). The CUPA is the local administrative agency that coordinates the regulation of hazardous materials and hazardous waste in Orange County. The program has six elements: (1) hazardous waste generators and hazardous waste onsite treatment; (2) aboveground storage tanks; (3) underground storage tanks; (4) hazardous materials release response plans and inventory; (5) CalARP program (risk management and prevention programs); and (6) hazardous materials management plans and inventories.

[1] DTSC has no regulations regarding handling procedures during construction. This would be handled through the water quality requirements of a SWPPP.

Hazardous Structural and Building Components

Numerous State and federal laws and regulations control exposure to asbestos, lead-based paint, and PCBs. These regulations cover the demolition, removal, cleanup, transportation, storage, and disposal of asbestos and lead-containing material. Regulations also outline the permissible exposure limits, protective measures, monitoring, and compliance to ensure the safety of construction workers exposed to these materials.

Department of Toxic Substance Control

The Department of Toxic Substances Control (DTSC) regulates the generation, transportation, treatment, storage, and disposal of hazardous waste in California (California Health and Safety Code, Division 20, Chapter 6.5, § 25100, et seq.). The hazardous waste regulations establish criteria for identifying, packaging, and labeling hazardous wastes; dictate the management of hazardous waste; establish permit requirements for hazardous waste treatment, storage, disposal, and transportation; and identify hazardous wastes that cannot be disposed of in landfills.

DTSC maintains a Hazardous Waste and Substances Site List for site cleanup, commonly referred to as the Cortese List. The Cortese List provides information about the location of hazardous materials release sites and is used by the State, local agencies, and developers to comply with CEQA requirements. Government Code § 65962.5 requires the Cal EPA to update the Cortese List at least annually. Although, DTSC is responsible for a portion of the information contained in the Cortese List, other State and local government agencies are required to provide additional hazardous material release information for the Cortese List.

EnviroStor Data Management System provides access to detailed information on hazardous waste permitted, corrective action facilities, and existing site cleanup information. EnviroStor also includes information for NPL sites; State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites.

Local

Orange County Health Care Agency

The Orange County Health Care Agency (HCA) has the primary responsibility for public health services and hazardous waste enforcement. The State Secretary for Environmental Protection designated the Environmental Health Division of the HCA as the CUPA for the County of Orange on January 1, 1997. The CUPA is the local administrative agency that coordinates six programs regulating hazardous materials and hazardous wastes in Orange County, which include the following:

Orange County Health Agency – Environmental Health Division Hazardous Waste

- Underground Storage Tanks (UST)
- Aboveground Storage Tanks (AST)

Orange County Fire Authority

- Hazardous Materials Disclosure (HMD)
- Business Plan

- California Accidental Release Program (CalARP)

The Orange County Fire Authority (OCFA) has joined the CUPA, as a Participating Agency, to form a partnership with the County's Unified Program. The Environmental Health Division of the HCA administers the Hazardous Waste, UST, and AST programs while the OCFA administers the other three elements listed above (HMD, Business Plan, and CalARP)

City of Huntington Beach Municipal Code Hazardous Materials

Chapter 17 of the Municipal Code for the City of Huntington Beach applies to the use and storage of hazardous materials within the City. The Municipal Code requires that businesses that use or handle hazardous materials provide a Hazardous Materials Disclosure Package that includes an inventory and disclosure of all hazardous materials used onsite to the Huntington Beach Fire Department in the case of the need for emergency response.

Orange County Sanitation District Contingency Plan

In order to efficiently and effectively rehabilitate the Long Outfall system, the Sanitation District has included a Contingency Plan which consists of the duration of activities, detailed procedures, and notifications that must be followed to ensure successful Project completion. The Contingency Plan includes detailed contingency measures that the contractor is required to implement to avoid and/or reduce negative impacts resulting from unforeseen conditions.

As discussed above, the Sanitation District has also implemented the IERP that contains plans and procedures for preparing and responding to emergencies including wet weather high flows. The High Flow Emergency Response Plan is a section of the IERP and establishes special information and instruction to support the Sanitation District's response to high influent events. The IERP also covers worker safety, spill prevention, emergency response, and hazardous materials management of treatment plants. The IERP includes the Spill Prevention Containment and Countermeasure (SPCC) Plan required by the Santa Ana RWQCB which includes structural specifications and secondary containment for storage tanks, emergency response procedures, and reporting requirements. The IERP High Flow Emergency Response Plan includes safety procedures for operations and maintenance workers; including worker safety training, hazard communications, personal protective equipment, site security, and departmental organization. Training in and implementation of the Incident Command System for managing crisis situation is also included in the IERP.

4.6.3 Impacts and Mitigation Measures

Significance Criteria

For the purposes of this analysis and consistent with Appendix G of the *CEQA Guidelines*, the proposed Project would result in potentially significant impacts if it would:

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;

- Create a significant hazard to the public or the environment through foreseeable upset and accident conditions involving the release of hazardous materials into the environment;
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school;
- Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment;
- For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area;
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan; or
- Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residents are intermixed with wildlands.

Impacts Discussion

It was determined in the Draft EIR analysis the following environmental factors would have no impact. The following is a brief discussion of the analysis:

Hazardous Emissions in the Vicinity of Schools

The proposed Project is not located within a quarter mile of a school. The nearest school is John H. Eader Elementary School located 0.5 miles northwest of Plant 2. Therefore, no impacts related to emissions of hazardous materials within a quarter mile of a school would occur.

Significance Level: No impact.

Airport Operations

There are no public airports or private airstrips within 2 miles of the proposed Project site. The nearest airport, John Wayne International Airport is approximately 5 miles southeast of the proposed Project. No impacts would occur.

Significance Level: No impact.

Wildland Fires

The proposed Project is located within an urbanized area in the City and is not located adjacent to wildlands or near a substantial amount of dry brush that could expose people to wildfire risks. No impacts related to wildland fires would occur.

Significance Level: No impact.

Location on a Hazardous Materials Site

According to the regulatory agency database searches, Plant 2 has one registered UST and two LUST identified onsite. The LUSTs are closed cases because the tanks and affected soil have been removed, indicating that residual soil contamination, if any exists, does not pose a threat to human health or the environment. Although the proposed Project site is listed on a regulatory agency list, site cleanup associated with the two LUST listings has occurred. No known releases have occurred from existing USTs. The proposed Project site was not listed on any other regulatory agency list as having had a known release of hazardous materials. Therefore, no significant hazards to the public or the environment would occur.

Significance Level: No impact.

Emergency Response Plan

Impact 4.7-1: The proposed Project could impair implementation or physically interfere with an adopted emergency response plan or emergency evacuation plans.

Alternative 1

Activities on Plant 2

Project rehabilitation activities at Plant 2 are not anticipated to physically interfere with an adopted emergency response plan or evacuation plan because all construction activities and staging areas including internal roadways would be located within the Plant 2 boundaries. As rehabilitation activities would be conducted within Plant 2 boundaries, impacts from proposed Project implementation would be less than significant.

Activities at Air Vac Station 12+05

Construction workers can access the construction area located at Air Vac Station 12+05 site through the Plant 2 access gate on the south east side of Plant 2. Construction workers and equipment would access Air Vac Station 12+05 via a short portion of the Talbert Marsh bike trail from Plant 2 (south gate) to the SAR Bikeway and then the Air Vac Station 12+05 dirt access road, which is located perpendicular to the SAR bikeway. The SAR Bikeway would be closed for public access for approximately 1 week, while the Air Vac Station 12+05 rehabilitation efforts are implemented. The SAR Bikeway is not a designated emergency evacuation route. Activities at Air Vac Station 12+05 would not physically interfere with an adopted emergency response plan or emergency evacuation plan. Impacts to implementation of emergency response plan or emergency evacuation plans would be less than significant.

Activities on the Beach

Rehabilitation of Beach Box

Construction and rehabilitation activities located on the Huntington State Beach are not anticipated to interfere with emergency response to the Huntington State Beach or adopted emergency response plan or emergency evacuation plans. Construction vehicles would follow all roadway regulation and no street closures are anticipated during proposed Project

implementation. Construction activities would not interfere with emergency response vehicle access to Huntington State Beach. Impacts to implementation of emergency response plan or emergency evacuation plans would be less than significant.

Additionally, the work proposed on Huntington State Beach for the Beach Box repair is not anticipated to interfere with lifeguard activities. Lifeguard services provided by the California State Parks Lifeguard Service are implemented roughly from Memorial Day weekend through Labor Day weekend (Cal State Parks, 2011). Rehabilitation activities at the Huntington State Beach are anticipated to occur in either September/October or January/march. Therefore, the construction activities would not affect lifeguard services.

Construction of the Bypass Structure

Construction of the Bypass Structure would not interfere with emergency response plans for Huntington State Beach or either the cities of Huntington Beach or Newport Beach. Based on hydraulic analysis (Appendix E), the Sanitation District will be able to store intermittent high flows during an extreme wet weather event or shutdown of the Ground Water Replenishment System (GWRS), thereby avoiding discharge to the SAR outfalls.

The proposed Project would utilize an area of the Huntington State Beach parking lot. As a condition of the State Parks' Use Permit, emergency access to the beach and surf zone of Mouth Beach would be maintained during construction. The proposed Project is located in an area next to the river that would not block evacuation routes for any residences or beach goers. Effects on emergency response plans would be less than significant.

Significance Level: Less than significant.

Alternative 2

Alternative 2 would result in identical impacts at Plant 2, the Air Vac Station 12+05, and on the beach during Beach Box rehabilitation activities. The Short Outfall is currently used as an emergency outfall to be used in case the Long Outfall capacity is exceeded during a wet weather event. Under Alternative 2, the Short Outfall would be in use, which reduces the overall capacity of the OOBS discharge system. However, under Alternative 2, the Short Outfall would only be used during the early fall months when rain storms are less frequent and generally less severe. The Sanitation District conducted a study to determine whether a rain event in the months of September through November could result in effluent volume greater than the Short Outfall capacity. The analysis is included in Appendix E. This analysis also includes an assessment of the potential to exceed the Short Outfall capacity if a rain storm were to occur coincidentally with an outage at the GWRS. The analysis concludes that the potential to exceed the discharge capacity of the Short Outfall during the fall months requiring an emergency discharge to the SAR is nearly zero (Section 4.8, Hydrology).

The proposed Project would utilize an area of the Huntington State Beach parking lot. As a condition of the State Parks' Use Permit, emergency access to the beach and surf zone of Mouth Beach would be maintained during construction. Impacts to emergency response plans and evacuation routes would be less than significant.

Significance Level: Less than significant.

Routine Use and Accidental Upset of Hazardous Materials

Impact -4.7-2: The proposed Project could create a significant hazard to the public or the environment through routine transport, use, or disposal of hazardous materials or through reasonably foreseeable upset and accident conditions involving the release of hazardous materials.

Alternative 1

Activities on Plant 2

Rehabilitation activities located within the boundaries of Plant 2 may include the use of hazardous materials including but not limited to petroleum products (including oil and gasoline), automotive fluids (antifreeze, hydraulic fluid), paint, and cleaners. Numerous laws and regulations ensure the safe transportation, use, storage and disposal of hazardous materials. Worker safety regulations cover hazards related to exposure to hazardous materials, while best management practices (BMPs) required by construction stormwater regulations are designed, among other things, to prevent a release to the environment from hazardous materials use. The District's Stormwater Onsite Management Plan identified BMPs that would be implemented for all construction activities that would minimize the potential for a hazardous materials release and ensure prompt cleanup in the event of such a release. BMPs include training of employees and contractors in proper hazardous materials storage and handling procedures, emergency response and cleanup procedures. Spill cleanup kits would be maintained at all construction sites. In addition, routine inspections of equipment and storage areas are required. The District's IERP also includes safety procedures for operations and maintenance workers; including worker safety training, hazard communications, personal protective equipment, and site security. Because the Sanitation District and all service providers would be required to comply with existing and future hazardous materials laws and regulations for the transport, use and disposal of hazardous materials, the impacts associated with the potential to create a significant hazard to the public or the environment would be less than significant.

Rehabilitation activities at Surge Tower 2 include abrasive blasting. Sandblasting could cause workers to be exposed to small particulates of sand and paint. Dust particles from abrasive sandblasting, often microscopic in size, could become an inhalation hazard for workers or cause contamination if released to the environment. Sandblasting would be performed within the Surge Tower 2 which would reduce particulate dispersion into the air. Sandblasting and other construction operations must comply with OSHA safety and health regulations, including containment of all particulates and appropriate disposal of sandblast material, which could contain lead waste. Similarly, the regulations stipulate construction methods and protective equipment to ensure worker safety. With compliance with construction health and safety laws and regulations, the potential impact of exposure to hazardous building materials would be less than significant.

With compliance with existing laws and regulations, impacts related to the transport, use and disposal of hazardous materials for rehabilitation activities at Plant 2, including the Long Outfall and appurtenances would be less than significant.

Activities at Air Vac Station 12+05

Rehabilitation activities at Air Vac Station 12+05 may require small quantities of solvents, lubricants or fuels associated with construction equipment. As discussed above, the Sanitation District and its contractors would implement BMPs**,** designed to minimize the potential for release of hazardous materials. All hazardous materials would be stored in compliance with regulations and Sanitation District BMPs, including requirements for secondary containment of hazardous materials and maintenance of spill kits to prevent any such releases near the Talbert Marsh. With compliance with existing laws, regulations, and District BMPs, impacts related to the transport, use and disposal of hazardous materials associated with construction equipment needed for rehabilitation activities at Air Vac Station 12+05 would be less than significant.

Activities on the Beach

Rehabilitation of Beach Box

The Sanitation District is considering three options to repair the Beach Box: Option A, Carbon Fiber Wrap; Option B, Fiberglass Pipe Insert; and Option C, Steel pipe Insert. Option B, the Fiberglass Pipe Insert requires the demolition of the intermediate floor of the Beach Box structure to provide enough room to insert five 3-5-foot long 9-foot diameter fiberglass pipe inserts. These would be lowered into the Beach Box through the opening and inserted into the Long Outfall. Demolition debris would require disposal in accordance with applicable regulations. Additionally, similar to the rehabilitation activities at Plant 2 and the Air Vac Station 12+05 site, small quantities of hazardous materials such as fuels and lubricants would be used. With compliance with existing laws, regulations, and Sanitation District BMPs, impacts would be less than significant.

Construction of Bypass Structure

Construction of the bypass structure would require the use of various hazardous materials including, but not limited to, petroleum products (including oil and gasoline), automotive fluids (antifreeze, hydraulic fluid), paint, and cleaners. As discussed above, the Sanitation District and its contractors would be required to comply with all existing laws and regulations concerning the storage and handling of hazardous materials, as well as District BMPs. These requirements include such safety measures as ensuring the use of appropriate storage vessels, secondary containment features, safety labeling, readily available spill absorbent materials, and training of site workers to respond to any accidental release. Compliance with existing regulations and Sanitation District BMPs would ensure that impacts related to the transport, use and disposal of hazardous materials for rehabilitation activities at the bypass structure would be less than significant.

The construction methods required to successfully install the bypass structure while the Long Outfall remains in service are proven technologies that have been successfully completed in other areas. However, they require special expertise and precision. Risks associated with installation

include the potential for leaks on the beach. As part of the Sanitation District's normal contracting procedures, a detailed evaluation of potential contractors would be conducted to ensure the qualifications of the design and construction team. During construction, engineering expertise, risk minimization measures, and contingency planning would be employed as with any important construction project implemented by the Sanitation District. Adherence to safety and risk management protocols would ensure that the risk of upset during installation of the bypass structure would be minimized.

Significance Level Alternative 1: Less than significant.

Alternative 2

Alternative 2 would result in identical impacts at Plant 2, the Air Vac Station 12+05 site. Slightly fewer hazardous materials would be utilized as the bypass structure would not be constructed. As discussed above, the Sanitation District and its contractors would be required to comply with all existing laws and regulations concerning the storage and handling of hazardous materials, as well as District BMPs. These requirements include such safety measures as ensuring the use of appropriate storage vessels, secondary containment features, safety labeling, readily available spill absorbent materials, and training of site workers to respond to any accidental release. Compliance with existing regulations and Sanitation District BMPs would ensure that impacts associated with the transport, use and disposal of hazardous materials for rehabilitation activities on the Beach Box would be less than significant.

Alternative 2 would implement an enhanced disinfection treatment for the duration of the use of the Short Outfall (Appendix F). During this period, additional sodium hypochlorite would be used to lower bacteria levels in the effluent. In addition, more sodium bisulfate would be needed as a dechlorination prior to discharge. These chemicals are already routinely transported and stored at the Treatment Plant 2. Discharging to the Short Outfall would increase the use of these chemicals for 4 to 6 weeks, after which time the use of these chemicals would return to pre-project levels. Chemical use would be subject to existing laws and regulations and all Sanitation District protocols for storage and handling. The short term increase in chemical use at Plant 2 would not increase risk of upset or increase hazards at Plant 2.

Significance Level: Less than significant impact.

Public Safety

Impact 4.7-3: Discharge to the SAR could create a hazard to the public.

The potential for discharges to the SAR that may present a public safety hazard is limited to Alternative 1. Therefore, the analysis below is limited to construction of the bypass structure.

Alternative 1

Activities on the Beach

Construction of Bypass Structure

Dewatering required to construct the bypass structure would discharge up to 30 mgd to the mouth of the SAR for the duration of the 7-month construction period. Discharges of this size could create a swift current from the discharge point out to the ocean, particularly during periods when the tide is waning. During dry weather, beach goers traverse the mouth of the SAR to pass between Huntington Beach and Newport Beach. The added water in the river could increase the current to levels that could create a hazard or prevent crossing. If beach goers attempted to cross during the higher flow, the possibility exists that the current could wash them into the ocean. Furthermore, the mouth of the SAR is a highly used surfing spot. The additional flow could alter the near shore ocean currents at this location and could push surfers from the shore into deeper waters. To avoid this potential hazard, **Mitigation Measure 4.7-3** would prevent beach goers from crossing the river during the 7- month construction period. In addition, posting warnings on the beach would reduce the potential for surfers to be unaware of the hazard.

Significance Level Alternative 1: Less than significant with mitigation.

Mitigation Measure

> **4.7-3:** For Alternative 1, during discharges from the dewatering system into the SAR, the Sanitation District shall post signs on the beach near the mouth of the SAR on either side of the river that warns the public, including surfers and swimmers that the high flows in the SAR may cause hazardous currents in the ocean. In addition, the Sanitation District shall install a fence along both sides of the river in the cities of Huntington Beach and Newport Beach preventing beach goers from crossing the river for the duration of the seven month construction period. Installation of the fence and notification to the public shall be coordinated with State Parks, County of Orange, and affected cities.

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4.8 Hydrology and Water Quality

This section describes local surface water and groundwater resources and discusses regional water quality issues. It also evaluates the impacts of the proposed Project on hydrology and groundwater. Refer to Section 4.10 Marine Environment for a discussion of the proposed Project's impacts to the marine environment and marine water quality.

4.8.1 Environmental Setting

Surface Water

The Santa Ana River Basin comprises an area of approximately 2,800 square miles. The proposed Project area is part of the Santa Ana River (SAR) hydrological unit and is within the Lower Santa Ana River Hydraulic Area, which extends from Prado Dam to the Pacific Coast (RWQCB, 2006). Cities located within this watershed include Yorba Linda, Anaheim Hills, Orange, Villa Park, Anaheim, Garden Grove, Santa Ana, Fountain Valley, Huntington Beach, Newport Beach and Costa Mesa. The proposed Project is adjacent to the mouth of the Santa Ana River (SAR).

The Santa Ana Region Basin Plan divides the SAR into six reaches (RWQCB, 2008). Reach 2 carries all upstream flows downstream through Santa Ana Canyon to Orange County where much of the water is recharged into the Orange County groundwater basin. The SAR then transitions into Reach 1 where it empties through to the Pacific Ocean. Reach 1 is a normally dry flood control channel. This reach extends from 17th Street to the SAR mouth at the ocean. Surface water in the region primarily consists of urban drainages flowing to the SAR.

Groundwater

Orange County Water District (OCWD) manages groundwater resources across an approximately 350 square-mile service area, including the City of Huntington Beach (the City). Approximately 63 percent of the total water supply for the City is groundwater. OCWD captures SAR flows and recharges it into the groundwater basin.

The Groundwater Replenishment System (GWRS) is a project jointly-funded by the Orange County Water District and the Orange County Sanitation District. GWRS takes effluent that would have previously been discharged into the Pacific Ocean and purifies it using a three-step advanced treatment process consisting of microfiltration, reverse osmosis and ultraviolet light disinfection with hydrogen peroxide. The highly treated water is conveyed to recharge basins to augment the groundwater basin.

Groundwater in the Project area is found at shallow depths due its close proximity to the ocean. The depth to groundwater is tidally influenced and varies from season to season.

Flooding

Orange County is vulnerable to flooding during peak rainfall events. The U.S. Army Corp of Engineers (ACOE) has significantly reduced flood risks along the Santa Ana River through the

construction of concrete-lined levees and flood control channels along much of the river and its tributaries. Plant 2 is protected from the 100-year floodplain by the river levees constructed in 1995 (**Figure 4.8-1)**. The Federal Emergency Management Agency (FEMA) flood insurance maps show that the Beach Box is located in a floodway designated as Zone AE subject to inundation by the 1-percent-annual-chance flood event. Plant 2 is within in an area designated as Zone X. This area is protected from the one-percent-annual-chance flood by levee, dike, or other structures subject to possible failure or overtopping during larger floods (FEMA, 2011). The Orange County Flood Control District (OCFCD) now owns and maintains the river levees.

Seiche, Tsunami and Mudflow

Earthquakes can cause flooding due to tsunamis, seiches, or dam failure. Tsunamis are a potential hazard at this site due to the close proximity of the coast and low elevation. Orange County has not experienced a major tsunami. The offshore islands provide some protection to the coastline from the impacts of tsunamis originating from distant seismic events. A portion of the project area is classified as a Moderate Tsunami Run-Up Area according to the City of Huntington Beach General Plan, Environmental Hazards Element.

Seiches are earthquake-induced waves in an enclosed or partially enclosed body of water, which may produce flooding in local areas. The proposed Project is not located near a body of water that could experience seiches.

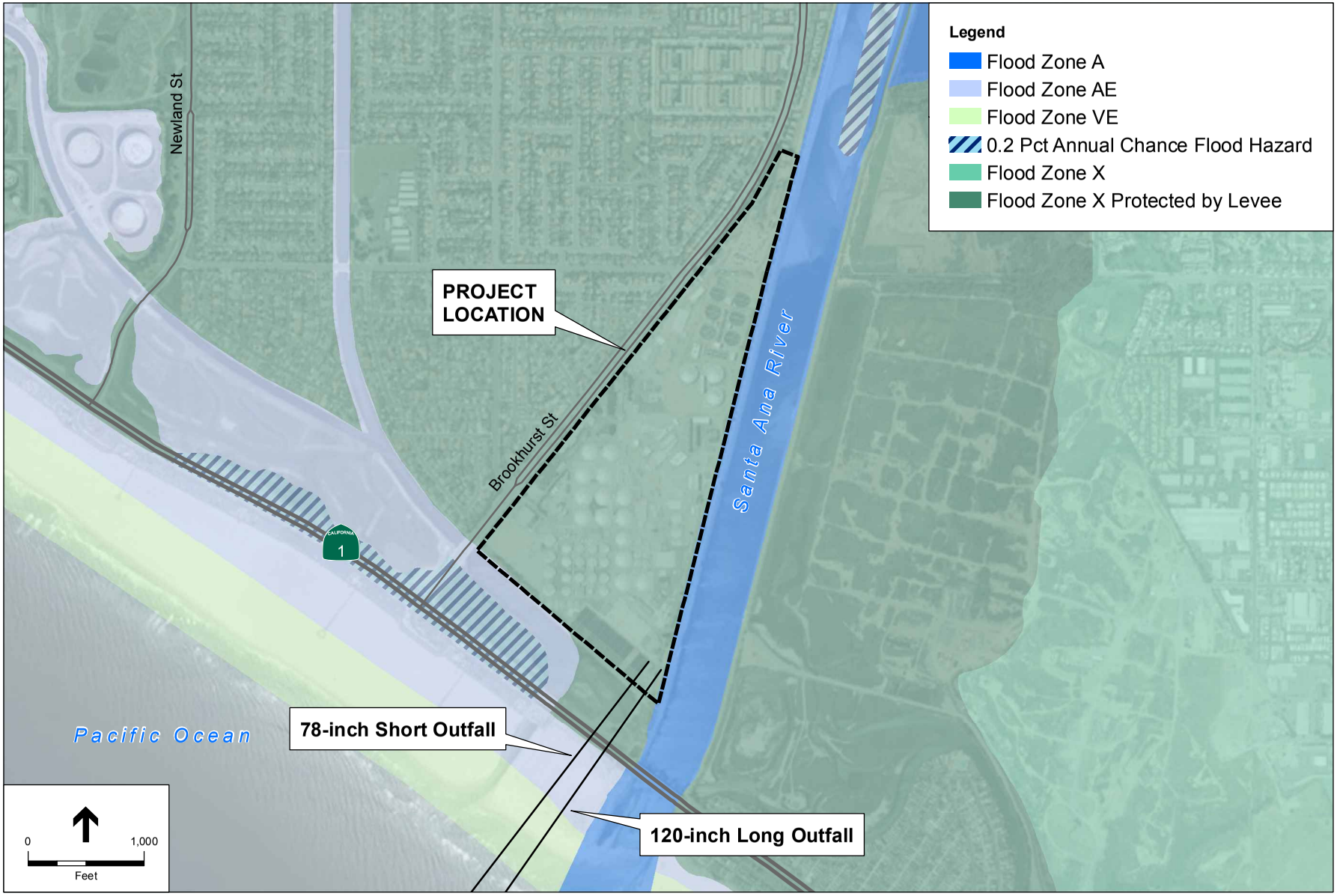
Flood Inundation Maps prepared by the ACOE show that the project area is located within the Prado Dam Inundation Area. The Prado Dam was completed in 1941 by the ACOE to control flooding in the Lower SAR Basin. Prado Dam is a major component of the Santa Ana Mainstem Project, which extends from the upper canyon in the San Bernardino Mountains downstream to the Pacific Ocean at Newport Beach, along the SAR. The system is designed to provide various levels of flood protection ranging from 100 to 190 years for areas most susceptible to damage from flooding (ACOE, 2009).

4.8.2 Regulatory Framework

Federal

Clean Water Act (CWA)

The Federal Water Pollution Control Act (33 U.S.C. 1251 et. sec.) as amended by the Federal Water Pollution Control Act Amendments of 1972, also known as the Clean Water Act (CWA), states that the discharge of pollutants to waters of the United States from any point source is unlawful, unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. Amendments to the CWA added a section that established a framework for regulating municipal and industrial (M&I) stormwater discharges under the NPDES program. On November 16, 1990, the United States Environmental Protection Agency (USEPA) published final regulations, under the 1987 CWA Amendments, that establish application requirements for stormwater permits.



SOURCE: USGS; FEMA, 2011.

Outfall Land Section and OOBS Piping Rehabilitation. 211261

Figure 4.8-1

FEMA Flood Zones

CWA Section 402

CWA Section 402 regulates discharges to surface waters of the US through the NPDES program. In California, the USEPA authorizes the SWRCB to oversee the NPDES program through the RWQCBs. In September 2004, the RWQCB adopted Time Schedule Order No. R8-2004-0067, which requires the Sanitation District to achieve full secondary treatment by December 31, 2012. The Sanitation District has since carried out improvement projects of existing facilities and constructed new facilities to achieve secondary treatment standards by the year 2012 (RWQCB, 2004).

Stormwater discharges are also regulated under CWA Section 402.Construction activities disturbing one acre of land or greater must be covered under the SWRCB General Construction Activity Stormwater Permit. The permit requires preparation of a Storm Water Pollution Prevention Plan (SWPPP) for construction activities. A SWPPP prepared in compliance with the General Permit describes the site, erosion and sediment controls, runoff water quality monitoring, means of waste disposal, implementation of approved local plans, control of post-construction sediment and erosion control measures and maintenance responsibilities, and non-stormwater management controls. Dischargers are also required to inspect construction sites before and after storms to identify stormwater discharge from construction activity, and to identify and implement controls where necessary.

CWA Section 303(d)

Section 303(d) of the CWA requires that each state identify water bodies or segments of water bodies that are “impaired” (i.e., do not meet one or more of the water quality standards established by the state). These waters are identified in the Section 303(d) list as waters that are polluted and need further attention to support their beneficial uses. Once the water body or segment is listed, the state is required to establish Total Maximum Daily Load (TMDL) for the pollutant. A TMDL is the maximum amount of a pollutant that a water body can receive and still meet the water quality standards. Typically, TMDL is the sum of the allowable loads of a single pollutant from all contributing point and nonpoint sources. On October 11, 2011, the USEPA approved a revised list of water quality limited segments (herein referred to as the 303(d) list) prepared by the RWQCB for California's 2008 through 2010.

Table 4.8-1 summarizes the impaired water bodies on the RWQCB 2006 Clean Water Act Section 303(d) list near the proposed Project site. The Santa Ana River, Reach 1, and the Huntington State Beach are the nearest surface water to the Project site, is not an impaired water body.

TABLE 4.8-1
IMPAIRED WATER BODIES IN THE PROJECT AREA

Water Body/Reach Name	Pollutant/Stressor	Potential Source
Santa Ana River, Reach 2	Indicator Bacteria	Unknown

SOURCE: RWQCB, 2011. Available online at: http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2010.shtml

CWA Section 401

Section 401 of the federal CWA requires that any activity, including the crossing of rivers or streams during road, pipeline, or transmission line construction, that might result in discharges of dredged or fill material into a state water body, be certified by the RWQCB. This certification ensures that the proposed activity does not violate state or federal water quality standards. A water quality certification (or waiver thereof) pursuant to Section 401 of the federal CWA would also be required from the San Diego RWQCB.

CWA Section 404

Wetlands are generally considered to be areas that are periodically or permanently inundated by surface water or groundwater, and support vegetation adapted to life in saturated soil. Wetlands are recognized as important features on a regional and national level due to their high inherent value to fish and wildlife, use as storage areas for storm and floodwaters, and water recharge, filtration, and purification functions. Technical standards for delineating wetlands have been developed by the ACOE which generally defines wetlands through consideration of three criteria: hydrology, soils, and vegetation. Under Section 404 of the CWA, the ACOE is responsible for regulating the discharge of dredged or fill material into waters of the United States. The term "Waters of the U.S." includes wetlands and non-wetland bodies of water that meet specific criteria as defined in the Code of Federal Regulations.

State

Porter-Cologne Water Quality Act

The Porter-Cologne Act (Division 7 of the California Water Code) provides the basis for water quality regulation within California and defines water quality objectives as the limits or levels of water constituents that are established for reasonable protection of beneficial uses. The SWRCB administers water rights, water pollution control, and water quality functions throughout the State, while the RWQCB conducts planning, permitting, and enforcement activities. The Porter-Cologne Act requires the RWQCB to establish water quality objectives, while acknowledging that water quality may be changed to some degree without unreasonably affecting beneficial uses. Beneficial uses, together with the corresponding water quality objectives, are defined as standards, per Federal regulations. Therefore, the regional plans form the regulatory standards for meeting State and federal requirements for water quality control. Changes in water quality are only allowed if the change is consistent with the maximum beneficial use designated by the State, does not unreasonably affect the present or anticipated beneficial uses, and does not result in water quality less than that prescribed in the water quality control plans.

National Pollutant Discharge Elimination Program (NPDES)

The NPDES permit program is administered in the State of California by the RWQCBs, and was first established under the a**ut**hority of the Clean Water Act to control water pollution by regulating point sources that discharge pollutants into "Waters of the U.S.". If discharges from industrial, municipal, and other facilities go directly to surface waters, those project applicants must obtain permits. An individual NPDES permit is specifically tailored to a facility. A general

NPDES permit covers multiple facilities within a specific activity category such as construction activities. A general permit applies with same or similar conditions to all dischargers covered under the general permit.

There are nine RWQCB in the State of California. These boards have the mandate to develop and enforce water quality objectives and implementation plans within their regions. The Project site is located within the jurisdiction of the Santa Ana RWQCB Region 8. On December 2, 2002, the Sanitation District submitted an NPDES permit renewal application to the RWQCB. In response to the application the RWQCB administratively extended NPDES NO. CAO110604 through Order No. RS-2004-0062 as well as the Sanitation District's Waste Discharge Requirement (WDR).

SWRCB WDRs

To provide a consistent, statewide regulatory approach to address sanitary sewer overflow (SSO), the SWRCB adopted Statewide General Waste Discharge Requirements for Sanitary Sewer Systems, Water Quality Order No. 2006-0003 (Sanitary Sewer Systems WDR) on May 2, 2006. The Sanitary Sewer Systems WDR requires public agencies that own or operate sanitary sewer systems to develop and implement sewer system management plans and report all SSOs to the State Water Board's online SSO database (SWRCB, 2011).

The SWRCB also has issued General Waste Discharge Requirements (WDRs) under Order No. R8-2003-0061, NPDES No. CAG 998001 (Dewatering General Permit) governing non-storm water construction-related discharges from activities such as dewatering, water line testing, and sprinkler system testing. The discharge requirements include provisions mandating notification, testing, and reporting of dewatering and testing-related discharges. The General WDRs authorize such construction-related discharges so long as all conditions of the permit are fulfilled.

Municipal Storm Water Permitting (MS4)

The State's Municipal Storm Water Permitting Program regulates storm water discharges from Municipal Separate Storm Sewer Systems (MS4s). MS4 Permits were issued in two phases. Phase I was initiated in 1990, under which the RWQCBs adopted NPDES storm water permits for medium (serving between 100,000 and 250,000 people) and large (serving more than 250,000 people) municipalities. As part of the Phase II, the SWRCB adopted a General Permit for small MS4s (serving less than 100,000 people) and non-traditional small MS4s including governmental facilities such as military bases, public campuses, and hospital complexes.

The NPDES permits for nonpoint sources are required for municipalities and unincorporated communities of populations greater than 100,000 to control urban stormwater runoff. The municipal permits require the preparation of Storm Water Management Plans (SWMPs) that reflect the environmental concerns of the local community. The County of Orange stormwater management requirements are presented in its Drainage Area Management Plan (DAMP). The Sanitation District is not subject to DAMP requirements since it is not subject to MS4 requirements. However, the Sanitation District attempts to comply with the DAMP requirements when constructing new facilities within the collection system to ensure consistency with Orange

County's SWMP and to ensure compliance with water quality discharge requirements imposed by the CWA.

Regional

Santa Ana River Basin Plan

Existing water quality issues have been identified in the watershed planning process and are incorporated in the Water Quality Control Plan (WQCP) for the Santa Ana River Basin (Basin Plan). The Basin Plan establishes water quality standards for all the ground and surface waters of the region and specifies water quality objectives intended to protect those uses. The Basin Plan also specifies an implementation plan describing actions that are necessary to achieve and maintain water quality standards, and regulates waste discharges to minimize and control their effects. Dischargers must comply with the water quality standards and beneficial uses contained in the Basin Plan. Beneficial uses identified by the Santa Ana RWQCB for the Tidal Prism of the SAR include intermittent non-contact water recreation, warm freshwater habitat, and wildlife habitat (RWQCB, 2008).

Local

Orange County Flood Control District

The Orange County Flood Control District (OCFCD) is responsible for the design, construction, operation, and maintenance of regional flood control facilities. Flood channels are maintained annually, and maintenance includes debris and vegetation removal. The existing storm drainage channels were originally designed to accommodate 25-year flood events. The County now uses 100-year flood event standards for new storm drain construction and drainage improvements, and portions of their existing channels have been improved to accommodate up to a 100-year flood event.

City of Huntington Beach Municipal Code

The SWTCB and the City of Huntington Beach Municipal Code require erosion and sediment controls for construction projects with land disturbance. The City's Grading and Excavation Code (Municipal Code Title 17, Chapter 17.05), which implements the requirements of California Building Code Appendix Section J110, Erosion Control, for construction periods, addresses the issue of soil loss. The requirements include preparation and implementation of a Storm Water Pollution Prevention Plan (SWPPP), with both construction-period and permanent erosion and sediment controls; preparation and implementation of an erosion and sediment control plan, describing both construction-period and permanent erosion and sediment controls; and construction site inspection by the City of Huntington Beach.

4.8.3 Impacts and Mitigation Measures

Significance Criteria

The criteria used to determine the significance of impacts related to hydrology and water quality are based on Appendix G of the *CEQA Guidelines*. The proposed Project would result in a significant impact to hydrology and water quality if it would:

- Violate any water quality standards or waste discharge requirements;
- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level;
- Substantially alter the existing drainage pattern of a site or area through the alteration of the course of a stream or river in a manner that would result in substantial erosion or siltation;
- Substantially alter the existing drainage pattern of a site or area through the alteration of the course of a stream or river, or by other means, substantially increase the rate or amount of surface runoff in a manner that would result in onsite or offsite flooding;
- Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff or otherwise substantially degrade water quality;
- Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other authoritative flood hazard delineation map;
- Place within a 100-year flood hazard area structures that would impede or redirect flood flows;
- Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam;
- Expose people or structures to a significant risk of loss, injury or death involving inundation by seiche, tsunami, or mudflow.

Impacts Discussion

It was determined in the Draft EIR analysis the Project would have no impact on the following environmental factors. The following is a brief discussion of the analysis.

Flooding

The proposed Project does not propose to construct housing, and therefore would not place new housing within an identified 100-year flood hazard area. Further, the proposed Project would not result in placement of housing that could redirect flood flows. The proposed Project would not alter existing risk of dam failure. Therefore, no impact would occur relative to residential uses within a flood zone and no further analysis is warranted.

Significance Level: No impact.

Water Quality Standards and Waste Discharge Requirements

Impact 4.8-1: The proposed Project could violate water quality standards or waste discharge requirements, increase polluted runoff, or increase erosion and sedimentation.

Alternative 1

Activities on Plant 2

Rehabilitation activities at Plant 2 may involve the use and handling of materials and pollutants associated with heavy machinery and equipment such as oils, fuels, and lubricants. In the event of an accidental release of such pollutants such as spills during fueling of equipment or vehicles, the pollutants could potentially come into contact with surface water. Within Plant 2 boundaries, stormwater runoff is captured and conveyed to the headworks for treatment and discharge to the ocean.

The Sanitation District has prepared and submitted an Onsite Stormwater Management Plan (OSSWMP) to the Regional Board. The OSSWMP regulates stormwater management for both treatment plants and addresses stormwater management during operation and construction activities. The potential for construction activities to impact storm water runoff quality or increase erosion and sedimentation within Plant 2 would be less than significant.

Activities at Air Vac Station 12+05

Rehabilitation activities at Air Vac Station 12+05 may involve the use and handling of pollutants associated with heavy machinery and equipment such as oils, fuels, and lubricants. In the event of an accidental release of such pollutants, stormwater runoff quality could be affected. The Sanitation District would implement multiple source controls (such as preventive maintenance of equipment and the development of spill prevention and response programs) in order to minimize stormwater pollutants. Implementation of **Mitigation Measure 4.8-1a r**equiring the preparation of a SWPCP, would ensure stormwater runoff does not violate any water quality standards.

Activities on the Beach

Rehabilitation of Beach Box

Rehabilitation activities on the beach may involve the use and handling of chemicals associated with heavy machinery and equipment such as oils, fuels, and lubricants. In the event of an accidental release of such chemicals, such as spills during fueling of equipment or vehicles, the chemicals could come into contact with stormwater runoff and flow into the SAR or ocean, thus affecting surface water quality, and/or absorbed into the soil and affect groundwater quality.

Prior to rehabilitation activities, a Stormwater Pollution Control Plan (SWPCP) would be prepared by the construction contractor, to minimize impacts from storm water to local receiving water in compliance with the Sanitation existing storm water management program. The rehabilitation activities are considered a maintenance Project. Therefore Alternative 1 is exempt from the requirements of the NPDES General Construction Permit; according to the General Permit, projects do not apply to “Routine maintenance to maintain original line and grade,

hydraulic capacity, or original purpose of the facility". [1] However, compliance with **Mitigation Measure 4.8-1a** would ensure that impacts to water quality from spills, erosion, and sedimentation would be less than significant.

Construction of Bypass Structure

Construction of the bypass structure would involve the use and handling of chemicals associated with heavy machinery and equipment such as oils, fuels, and lubricants. In the event of an accidental release of such chemicals, such as spills during fueling of equipment or vehicles, the chemicals could come into contact with stormwater runoff and flow into the SAR or ocean, thus affecting surface water quality, and/or absorbed into the soil and affect groundwater quality. The SWPCP would minimize impacts from storm water to local receiving water in compliance with the Sanitation existing storm water management program.

As part of Alternative 1, 30 dewatering wells would be installed around the construction area. Desilting tanks and bag filters would be installed adjacent to the construction site to reduce turbidity before discharging into the SAR. The dewatering system would install temporary discharge pipes from the treatment systems to the mouth of the SAR as shown on Figure 4.3-3. The pipes would be anchored on the riprap levees within the river mouth designed in coordination with the OCFCD in a manner that avoided impacting the integrity of the levees. A velocity dissipator would be placed in the SAR to minimize the potential for up to 30 mgd from the dewatering system to result in scouring of the river bed. When the construction area has initially been dewatered, shoring would be installed around the Short and Long Outfalls downstream of the Beach Box and the sandy soils in the area would be excavated to expose the Short and Long Outfalls. Dewatering of the excavated area would continue throughout the 5.5 month construction period. The discharge of groundwater from the desilting tanks and sand filters would be subject to a dewatering NPDES permit issued to the Sanitation District by the RWQCB. Since the groundwater in this area is essentially ocean water due to its close proximity to the shoreline, the discharge of the filtered ocean water to the mouth of the SAR is not anticipated to substantially reduce water quality in the SAR tidal prism at the SAR mouth. The discharge could increase turbidity or promote scouring as it enters the SAR. **Mitigation Measure 4.8-1b** would require that the Sanitation District install velocity dissipators in the SAR to minimize scouring. The velocity dissipators would assist in reducing turbidity caused by the discharge. Desilting tanks and sand filters would reduce the sediment from the water being discharged into the SAR, additionally, since the water to be discharged is locally derived and of similar quality to the receiving water, water quality impacts from dewatering are considered less than significant. The dewatering activity would require a dewatering NPDES permit from the RWQCB that would include water quality requirements of the discharge.

The materials excavated to accommodate the dewatering system would be stockpiled west of the dewatering system. In order to ensure the sand/sediment would not runoff or impact receiving water, the Sanitation District would be required to implement **Mitigation Measure 4.8-1a.** Additionally, vehicle parking areas would be established with drip pans to prevent oil drips onto

[1] NPDES General Permit for Storm Water Discharges Associated with Construction and Land Disturbances Activity – Fact Sheet 2009-0009-DWQ

the sand. Any fuel needed for dewatering pumps would be driven to the dewatering area and refueled onsite or 55-gallon drums would be stored at the beach parking lot within secondary containment as outlined in the SWPCP.

Mitigation Measures 4.8-1a and 4.8-1b would ensure that stormwater runoff and any activities associated with dewatering activities under Alternative 1 would not violate water quality standards or waste discharge requirements. Potential impacts to water quality resulting from storm water runoff and dewatering would be less than significant.

The Sanitation District conducted a study to determine whether a rain event in the months of January and February could result in effluent flow volumes greater than the capacity of the bypass system which could result in effluent being discharged into both the Short Outfall and the Long Outfall. This analysis also includes an assessment of the potential to exceed the Short Outfall capacity if a rain storm were to occur coincidentally with an outage at the Groundwater Replenishment System (GWRS). GWRS normally accepts 70 mgd of secondary treated effluent. The analysis included in Appendix E determined that there is sufficient capacity in the treatment and collection system to accommodate peak wet weather events without exceeding discharge capacity of the bypass structure.

Significance Level Alternative 1: Less than significant with mitigation.

Alternative 2

Alternative 2 would result in identical impacts at Plant 2 and Air Vac Station 12+05 during rehabilitation activities. **Mitigation Measure 4.8-1a** would ensure that construction activities do not impact surface water quality. Implementation of Alternative 2 does not require the construction or use of a temporary bypass structure and effluent would be diverted to the Short Outfall. Impacts to marine water quality for Alternative 2 from use of the Short Outfall are evaluated in Section 4.10 Marine Environment.

During rain storms in Orange County, both treatment plants experience increases in flow due to infiltration of rain water into the sanitary sewer collection system. The region experiences heavy rain storms for long durations generally between December and March. However, rain events are possible in any month of the year. The Sanitation District conducted a study to determine whether rain events in the months of September and October for Alternative 2 could result in effluent flows greater than the capacity of the Short Outfall. This analysis also includes an assessment of the potential to exceed the Short Outfall capacity if a rain storm were to occur coincidentally with an outage at the GWRS. The analysis included in Appendix E determined that there is sufficient capacity in the treatment and collection system to accommodate peak wet weather events without exceeding discharge capacity of the Short Outfall.

Significance Level Alternative 2: Less than significant with mitigation.

Mitigation Measures

4.8-1a: Under Alternative 1 and 2, for activities at Air Vac Station 12+05 and at the beach, a SWPCP shall be prepared prior to the initiation of any maintenance or rehabilitation activity. BMPs within the SWPCP shall control erosion, sedimentation, and other construction-related pollutants. The BMPs shall be maintained at the site for the duration of construction. The objectives of the BMPs are to identify pollutant sources that may affect the quality of stormwater discharges and to implement measures to reduce pollutants in stormwater discharges. The SWPCP shall contain the following:

- Using structural controls such as gravel bags or fiber roles retain sediment to avoid draining toward receiving waters;
- Stabilize slopes of stockpiled sand/soil to eliminate or reduce sediment dispersal from construction site to surrounding areas and surface waters;
- Store all reserve fuel supplies only within the confines of a designated construction staging area;
- The use or storage of petroleum-powered equipment shall be accomplished in a manner to prevent the potential release of petroleum materials into receiving waters;
- Oil absorbent and spill containment materials shall be located on site when mechanical equipment is in operation within 100 feet of receiving waters. If a spill occurs, no additional work shall commence until (1) the mechanical equipment is inspected by the contractor, and the leak has been repaired, (2) the spill has been contained, and (3) all appropriate agencies have been contacted and have evaluated the impacts of the spill;
- Vehicle parking areas would be established with drip pans to prevent oil drips onto the sand;
- If heavy –duty construction equipment is stored overnight adjacent to potential receiving water, drip pans will be placed beneath the machinery engine block and hydraulic systems;
- Fuel storage needed for dewatering pumps will be provided within secondary containment;
- Refueling will occur only within designated fueling zones that are equipped with secondary containment and spill clean up equipment;

4.8-1b: Under Alternative 1, prior to discharge, the Sanitation District shall install velocity dissipators at the dewatering discharge point if necessary to ensure that scour and turbidity are minimized. Design of the dewatering system (i.e.velocity dissipators, dewatering pipelines, baffles, weirs or any other structures) to be placed in the SAR, shall be approved by the Orange County Flood Control District. Once construction is completed, the velocity dissipators and any other structures shall be removed from the SAR mouth.

Groundwater Supplies

Impact 4.8-2: The proposed Project could substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level.

Alternative 1

Activities at Plant 2

Rehabilitation activities at Plant 2 occur within the Long Outfall system, no change to impervious surfaces and no dewatering would occur Plant 2, thus no interference with groundwater recharge will occur. No impact would occur.

Activities at Air Vac 12+05

Rehabilitation activities at Air Vac Station 12+05 site would occur inside the existing concrete structure, no change to impervious surfaces and would not require dewatering, therefore, no interference with groundwater recharge will occur. No impact would occur.

Activities on the Beach

Rehabilitation of Beach Box

Rehabilitation activities at the Beach Box would not require groundwater dewatering (the Long Outfall would be required to be dewatered to dry the pipeline of any effluent in order to perform the rehabilitation work). The effluent dewatered from inside of the Long Outfall and Beach Box would be conveyed to Plant 2 via an aboveground, 12-inch, pipeline stretch across the beach, from the beach box to north of PCH, along SAR Bikeway and into Plant 2 for treatment and discharge to the ocean. The rehabilitation activities would occur within the existing structures of the Beach Box. No new permanent impervious surfaces would be created. Outside the construction equipment staging area no ground disturbing activities would occur. Implementation of Beach Box rehabilitation would not affect groundwater supplies or interfere with groundwater recharge that would in turn affect the groundwater table. No impact would occur.

Construction of the Bypass Structure

The proposed excavation would be deeper than local groundwater levels and would require dewatering during construction of the bypass structure. A dewatering system would be installed adjacent to the excavation area for the bypass structure. The dewatering system would extract up to 30 mgd from the beach area and discharge it to the mouth of the SAR. Desilting tanks and sand filters would be installed adjacent to the construction site to remove particulate matter from the groundwater outside the excavation, before discharging it into the SAR. The dewatering system would depress the groundwater levels locally, but would not substantially deplete the aquifer due to the close proximity of the ocean ,or result in reduced groundwater recharge potential. Impacts to local groundwater would be less than significant. Upon completion of Alternative 1, the site would be restored to its pre-existing condition. Impacts associated with implementation of Alternative 1 to groundwater supply and recharge are less than significant.

Significance Level Alternative 1: Less than significant.

Alternative 2

Alternative 2 would result in identical impacts at Plant 2 and the Air Vac Station 12+05 during rehabilitation activities. Under Alternative 2, no groundwater dewatering would be required. The rehabilitation activities would occur within the existing structures of the Beach Box. No new permanent impervious surfaces would be created. Because no ground disturbing activities would occur other than outside construction equipment staging, implementation of Alternative 2 would not affect groundwater supplies or interfere with groundwater recharge that would in turn affect the groundwater table. No impact would occur.

Significance Level Alternative 2: No Impact

Drainage

Impact 4.8-3: The proposed Project could alter the existing drainage pattern of sites, through the alteration of the course of a stream or river, or by other means, increasing surface runoff, exceeding drainage capacity, or resulting in onsite or offsite flooding.

Alternative 1

Activities on Plant 2

Rehabilitation that would occur within Plant 2 boundaries would not alter drainage patterns since all rehabilitation activities would occur in existing structures. Therefore, the proposed activities on Plant 2 would not increase surface runoff resulting in flooding. No impact would occur.

Activities at Air Vac Station 12+05

Rehabilitation activities at Air Vac Station 12+05 would not alter drainage patterns as they would occur within the Air Vac Station 12+05 structure. Therefore, the proposed activities on Air Vac Station 12+05 would not increase surface runoff resulting in flooding. No impact would occur.

Activities on the Beach

Rehabilitation of Beach Box

The proposed Project would not alter drainage patterns at the beach since no grading would be required. No grading or excavation would occur. Upon completion of the proposed Project, the site would be returned to its original condition. There would be no impact to drainage patterns on the beach.

Construction of the Bypass Structure

Implementation of Alternative 1 would include installing a dewatering facility with a capacity of up to 30 mgd that would discharge into the SAR. This volume of water being discharged into the mouth of the SAR would affect local currents. The area is a tidally connected estuary that reaches up river approximately one half mile. The discharged water would enter the SAR and may increase flows to the ocean. Since this area is currently a channel that allows tidal surges up river,

the additional water added to the SAR mouth would not significantly change drainage patterns. The additional water discharged to the SAR would not exceed the SAR capacity. This impact is considered less than significant.

Significance Level Alternative 1: Less than significant impact.

Alternative 2

Alternative 2 would result in identical impacts at Plant 2 and Air Vac Station 12+05 during rehabilitation activities. Implementation of Alternative 2 would not alter drainage patterns. No impact would occur.

Significance Level Alternative 2: No impact.

Seiche, Tsunami, Mudflow

Impact 4.8-4: The proposed Project could expose people or structures to a significant risk of loss, injury, or death due to a seiche, tsunami, or mudflow.

Alternative 1

Activities at Plant 2

Plant 2 is adjacent to the SAR and protected from flooding by walls and levees that were constructed by the ACOE in 1995. Plant 2 is located in a Moderate Tsunami Run-Up Area (Huntington Beach, 1996). The likelihood that a tsunami large enough to inundate the plant will occur is low. The rehabilitation activities at Plant 2 would not increase existing risks associated with inundation by tsunami or sea level rise since the Project would not place new facilities in the tsunami zone or within areas expected to experience inundation by sea level rise. The proposed Project would not place people or structures within areas subject to inundation by a seiche wave or mudflow. This is a less than significant impact.

Activities at Air Vac Station 12+05

The Project area is located within an area susceptible to tsunamis due to the close proximity to the Pacific Ocean coastline. The Air Vac Station 12+05 would not be subject to hazards from seiches or mudflows. The rehabilitation activities on the Air Vac Station 12+05 would not change or increase the existing risk to the area resulting from these natural disasters. In addition, the Project would not be adversely affected by projected sea level rise. This is a less than significant impact.

Activities on the Beach

Rehabilitation of Beach Box

The Beach Box is located within an area susceptible to tsunamis due to the close proximity to the Pacific Ocean coastline. However, rehabilitation activities at the Beach Box would not change or increase the existing risk from tsunamis, seiches, or mudflows. In addition, the Beach Box would not be adversely affected by projected sea level rise since the improvements would be made

within existing facilities. There would be no impact associated with activities on the beach at the Beach Box.

Construction of the Bypass Structure

The temporary bypass structure would be located within in an area susceptible to tsunamis due to the close proximity to the Pacific Ocean coastline. If a tsunami occurred during the Project, damage to the bypass structure and both Short and Long Outfalls could occur. Under a worst-case scenario, both the Short and Long Outfall could be damaged at the Beach Box and bypass structure resulting in discharges of effluent to the beach and SAR. These discharges would occur until the Beach Box and Short and Long Outfalls were fixed. Projected rising sea levels could affect the Beach Box and the Long Outfall under existing conditions and greater if the proposed Project is not implemented. Due to the temporary nature of the bypass structure and the unlikely coincidence with a major tsunami, Alternative 1 would not result in a significant increase in the risk of adverse effect from tsunamis. The proposed Project would not increase the risks of inundation by tsunami, seiche or mudflow, there would be less than significant impact.

Significance Level Alternative 1: Less than significant.

Alternative 2

Alternative 2 would result in identical impacts at Plant 2 and the Air Vac Station 12+05, and at the beach during rehabilitation activities. The proposed Project would not increase the risks of inundation by tsunami, seiche or mud flow. There would be less than significant impact.

Significance Level Alternative 2: Less than significant.

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4.9 Land Use and Planning

This section provides an overview of the land uses at the Project site and surrounding region, the regulatory framework, an analysis of potential conflicts with existing land use plans that would result from implementation of the proposed Project, and identification of mitigation measures. The land use analysis is based on field observations, legally recorded easements, and a review of planning documents. This section addresses the relationship of the proposed Project with existing land uses and allowable uses.

Impacts associated with environmental issues (including but not limited to noise, aesthetics, traffic, recreation, and biological resources) are addressed in their respective sections of this Draft EIR. These environmental issues are discussed in this section only to the extent that they would influence the compatibility of land uses.

4.9.1 Environmental Setting

Regional Setting

Orange County encompasses approximately 798 square miles of Southern California and is bounded by Los Angeles County to the north, Riverside and San Bernardino Counties to the east, and San Diego County to the south. The County incorporates 40 miles of coastline and extends 20 miles inland, has 34 incorporated cities, 33 beaches, and serves a population of over 3 million residents. The Sanitation District service area encompasses northern and central Orange County serving over 2.6 million people.

Local Setting

Existing Land Uses

The proposed Project is located in the City of Huntington Beach (the City) near the mouth of the Santa Ana River (SAR). Plant 2 is a bounded by the SAR to the south and residential uses to the west. The Talbert Marsh is located southwest of the plant, separated by the Talbert Marsh bike trail. The SAR Marsh and a residential area of the City of Newport Beach are located across the river. The Pacific Coast Highway (PCH) separates the Talbert Marsh from the Huntington State Beach. The Coastal Bikeway runs along the northern portion of the California Least Tern Natural Preserve Area and is just north of the Beach Box. The SAR Mouth Beach is a public access County beach located south of Huntington State Beach and north of the Newport City Beach where the SAR meets the Pacific Ocean.

The nearest regional highway is Interstate 405 located north of the Project site and the nearest major arterial is PCH connecting cities of Huntington Beach and Newport Beach. Sensitive receptors in the vicinity of the proposed Project include residences in the cities of Huntington Beach and Newport Beach. In the City of Huntington Beach residential areas including the southeast City residents, are located approximately 250 feet away from the Plant 2 entrance across Brookhurst Street. In the City of Newport Beach, residential areas are located southeast of

the Beach Box site across from the mouth of SAR and on the northeast side of PCH. Open Space and Open Space-Conservation areas include the Talbert Marsh directly south of Plant 2, the Huntington State Beach, and the California Least Tern Natural Preserve located on the Huntington State Beach.

The Air Vac Station 12+05 is located on property owned by the Huntington Beach Wetlands Conservancy. The Sanitation District holds a maintenance easement for this location that allows for periodic access to the facility which is enclosed by a chain-link fence.

The Beach Box is located on property owned by State Parks. The Sanitation District holds a maintenance easement on the beach as shown on Figure 3-5. An easement was established for the Short Outfall when it was installed. An additional easement that conjoins with the old easement on the beach near the Beach Box was established when the Long Outfall was constructed.

4.9.2 Regulatory Framework

State

California State Parks

The California State Parks rules and regulations were established to protect park areas for future generations. The rules and regulations of the California State Parks are contained in the California Code of Regulations, Title 14, Section 4300, et seq. The rules and regulations include proper use of facilities; protection of animals, plants, geological features, and archaeological features; prohibiting litter, dangerous fires, weapons, traps, and fireworks; and respecting the parks and the visitors through safe activities, public decency, and sanitation.

Resource Management Plan and General Development Plan for Huntington State Beach

The Resource Management Plan and General Development Plan (Development Plan) for Huntington State Beach was adopted in 1976 by the California Department of Parks and Recreation. The Development Plan provides policies for the preservation of the natural resources of the Huntington State Beach and guidelines for future development. Its goal is to provide guidance to enhance the recreation experience of beach visitors, expand parking capacity to better serve visitors, upgrade existing facilities, and introduce landscaping features.

California Coastal Commission

The CCC was established by the State Legislature through adoption of the California Coastal Act of 1976. The CCC regulates the use of land and water in the coastal zone. Development activities, which are broadly defined by the Coastal Act to include (among others) construction of buildings, divisions of land, and activities that change the intensity of use of land or public access to coastal waters, generally require a coastal permit from either the CCC or the local government.

The Coastal Act includes specific policies that address issues such as shoreline public access and recreation, terrestrial and marine habitat protection, visual resources, water quality, public works,

and other uses. Implementation of Coastal Act policies is accomplished primarily through the preparation of local coastal programs (LCPs). Completed LCPs must be submitted to the Commission for review and approval. Development within the coastal zone may not commence until a coastal development permit (CDP) has been issued by either the Commission or a local government that has a Commission-certified LCP. After certification of an LCP, coastal development permit authority is delegated to the appropriate local government, but the Commission retains original permit jurisdiction over certain specified lands (such as tidelands and public trust lands).

California State Lands Commission

The California State Lands Commission (CSLC) was created by the California Legislature in 1938 as an independent body, composed of three members—the Lieutenant Governor and State Controller, and the Director of Finance. The CSLC was given the authority and responsibility to manage and protect the important natural and cultural resources on certain public lands within the State and the public's rights to access these lands. The public lands under the Commission's jurisdiction include sovereign land and school land. Sovereign land encompasses approximately 4 million acres. These lands include the beds of California's naturally navigable rivers, lakes and streams, as well as the State's tide and submerged lands along the more than 1,100 miles of coastline, extending from the shoreline out to 3 miles offshore.

Local

County of Orange

Orange County Flood Control District (OCFCD) has a number of areas designated as rights-of-way within the Project vicinity. The County of Orange maintains bikeways within these rights-of-way including the Talbert Marsh bike trail, the SAR Trail, and parcel number E01-la07 (shown on **Figure 4.9-4)** which OCFCD leases from the California States Lands Commission. The SAR Mouth Beach is a public access County beach located south of Huntington State Beach and north of Newport City Beach where the SAR meets the Pacific Ocean, southeast of the Beach Box site.

The Orange County General Plan guides land use decision-making in unincorporated areas of Orange County. The Orange County General Plan Land Use Element Map of 2005, designates the proposed Project site as 5, which is defined as Open Space Reserve. However, the map also qualifies that designation by stating the areas shown are generalized reserve boundaries for informational purposes only.

City of Huntington Beach General Plan

The General Plan is a policy document providing framework for the management and utilization of the City's physical, economic and human resources. It guides decision makers in decisions regarding land use, design and/or character of buildings and open spaces, conservation of existing housing and the provision of new dwelling units, provisions of supporting infrastructure and public services, protection of environmental resources, allocation of fiscal resources, and the protection of residents from natural and human-caused hazards.

Land Use Element

The Land Use Element of the General Plan contains goals, objectives, policies, and programs to provide guidance in land use decisions. The following objectives and policies contained in the General Plan are relevant to the proposed Project:

Maintenance of Environmental Quality

Objective

LU 5.1 Provide for the protection and maintenance of environmental resources as new development and redevelopment projects occur during the planning, project review and permitting process.

Policies

LU 5.1.1 Require that development protect environmental resources by consideration of the policies and standards contained in the Environmental Resources/Conservation Element of the General Plan and Federal (NEPA) and State (CEQA) regulations.

LU 5.1.2 Establish procedures, requirements, and programs for Huntington Beach's compliance with regional, State, and Federal environmental requirements, including such legislation as, but not limited to, the Clean Air Act, Clean Water Act, and the Congestion Management Plan.

LU 5.1.3 Participate in inter-jurisdictional and regional environmental management and mitigation programs.

LU 5.1.4 Protect areas that are susceptible to erosion and sediment loss from inappropriate development and redevelopment.

LU 5.1.5 Preserve or restore areas that provide water quality benefits and/or are necessary to maintain riparian and aquatic biota.

LU 5.1.6 Promote site development that limits impact on and protects the natural integrity of topography, drainage systems, and infiltration and water bodies.

LU 5.1.7 Promote integration of water quality protection into construction and post-construction activities at all development and redevelopment sites.

LU 5.1.8 Preserve and/or acquire areas of open space that have water quality significance and minimize any clearing of vegetation from those development sites.

Open Space

Objective

LU 14.1 Preserve and acquire open spaces for the City's existing and future residents that provide, maintain, and protect significant environmental resources, recreational opportunities, and visual relief from development.

Policies

LU 14.1.1 Accommodate the development of public parks, coastal and water-related recreational uses, and the conservation of environmental resources in areas designated for Open Space on the Land Use Plan Map and in accordance with Policy LU 7.1.1.

LU.14.1.5 Cooperate with the California Department of Fish and Game, United States Fish and Wildlife Service, and any other appropriate agencies in establishing programs for the protection and, where appropriate, restoration of significant environmental habitats including the Bolsa Chica wetlands, coastal marshes throughout the City and SAR drainage.

LU.14.1.6 Provide for the protection of the City's environmental resources in accordance with the National Resources and Hazards Elements of the General Plan.

Recreation and Community Services Element

Beaches

Objective

RCS 6.1 Maintain the beach resources as a fundamental element to conserve.

Policy

RCS 6.1.1 Protect and enhance local beaches and wetlands because of their inherent environmental, ecological, and/or aesthetic contributions to the community through land use regulation.

Coastal Element

The following are objectives and policies applicable to the proposed Project:

Objectives

C 1.1 Ensure that adverse impacts associated with coastal zone development are mitigated or minimized to the greatest extent feasible

C 6.1 Promote measures to mitigate the adverse impacts of human activities on marine organisms and the marine environment through regulation of new development, monitoring of existing development, and retrofitting necessary and feasible

Policies

C 6.1.1 Require that new development include mitigation measures to enhance water quality, if feasible; and, at a minimum, prevent the degradation of water quality of groundwater basins, wetlands, and surface water

C.6.1.2 Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance.

C.6.1.3 Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.

C.6.1.4 The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain organisms and for the protection of human health shall be maintained and, where feasible, restored.

C.6.1.7 Improve and maintain existing infrastructure to prevent sewage system failures that may result in the discharge of untreated sewage into coastal and ocean waters. Regular inspection of sewer lines, pump stations and preventative maintenance activities shall be undertaken to minimize the potential for ruptured lines or faulty infrastructure to cause or contribute to a sewage spill. The City shall implement management measures for its systems to prevent sewage spills, and other causes of bacterial pollution in coastal waters in response to scientific findings and recommendations resulting from monitoring and other investigations.

C.6.1.9 Coordinate with responsible agencies to investigate probable Huntington Harbor water quality impairments and establish improvement measures such as requiring boat pump out or holding tank facilities in existing and new development.

C 6.1.26 Protect, maintain and enhance, where feasible, existing natural vegetation buffer areas surrounding riparian habitats.

C 7.1.2 Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas. In the event that development is permitted in an environmentally sensitive habitat area (ESHA) pursuant to other provisions of this MCP, a “no-net-loss” policy shall be utilized.

C 7.1.3 Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.

C 7.1.4 Require that new development contiguous to wetlands or environmentally sensitive habitat areas include buffer zones. Buffer zones shall be a minimum of 100 feet setback from the landward edge of the wetland.

C 7.1.5 Notify County, State, and Federal agencies having regulatory authority in wetlands and other environmentally sensitive habitats when development projects in and adjacent to such areas are submitted to the City.

General Plan Land Use Designation

Existing City of Huntington Beach General Plan land use designations in the Project vicinity are illustrated in **Figure 4.9-1**. As shown on Figure 4.9-1, Plant 2 is designated Public (P). The area adjacent to the Air Vac Station 12+05 is designated as Open Space Conservation (OS-C). The Beach Box area and nearby water bodies are designated as Open Space Shore (OS-S) and Open Space Water (OS-W), respectively. The Land Use Element of the Huntington Beach General Plan defines the land use categories as follows:

Public (P) – Governmental administrative and related facilities, such as public utilities, schools, public parking lots, infrastructure, religious and similar uses.

Open Space Conservation (OS-C) – Properties to be retained for environmental resource conservation and management purposes (e.g., wetlands protection), Ancillary buildings, such as maintenance equipment storage, may be permitted, as determined by City review and approval.

Open Space Shore (OS-S) – Publicly owned coastal beaches. Ancillary buildings may be permitted, such as food stands and recreation equipment rentals, as determined by City review and approval.

Open Space Water (OS-W) – Lakes and other water bodies used for recreational purposes, such as boating, swimming, and water skiing.

City of Huntington Beach Local Coastal Program

The California Coastal Act (California State Public Resources Code, Division 20, Sections 30000 et seq.) allows local governments to prepare coastal land use plans for areas lying wholly or partially within the Coastal Zone. Local Coastal Programs (LCP) are reviewed and certified by the California Coastal Commission (CCC) to ensure consistency with the California Coastal Act. The LCP is divided into two components: (1) a coastal element and (2) an implementation program. The Coastal Element found in the City of Huntington Beach's General Plan includes a land use plan and policies to be used by decision makers when reviewing coastal-related issues and proposed development within the Coastal Zone boundary. The implementation program includes the zoning ordinances, zoning district maps, specific plans, and other implementing actions that must comply with the LCP, the actions can also carry out the goals and policies of the certified coastal element. City of Huntington Beach, Zoning Code, Chapter 216, Coastal Conservation District of the Zoning Code, implements the General Plan and LCP. Chapter 16

also provides policies for the protection, maintenance, restoration and enhancement of wetlands and environmentally sensitive habitat areas located in the Coastal Zone.

The proposed Project is also located within the LCP of Huntington Beach. As shown on **Figure 4.9-2**, the proposed project is located within the LCP Land Use designations 4G -Edison Plant (permitted uses public and open space conservation) for activities at Plant 2; 4F Wetlands (permitted uses wetland conservation) for activities at Air Vac Station 12+05; and 4J Beach (permitted uses coastal and recreational uses) for the activities at the State Beach

Coastal Element

The Coastal Element was certified by the CCC in 1985 and approved by the City Council and forwarded to the CCC for final certification in 1999. The purpose of the Coastal Element is to meet the requirements of the Coastal Act and guide civic decisions regarding growth, development, enhancement and preservation of the City's Coastal Zone and its resources.

The proposed Project is located in Zone 5, which extends from Beach Boulevard to the SAR. This area of the Coastal Zone encompasses approximately 611 acres. The proposed Project site contains areas designated by the LCP as habitat preservation. A CDP from the CCC is required for development activities that extend within tidelands, submerged lands, or on public trust lands, whether filled or unfilled, lying within the Coastal Zone. The proposed Project must comply with Coastal Act policies and permitting requirements for any portion of the proposed Project that may extend within the CCC's jurisdiction.

Zoning Code Designation

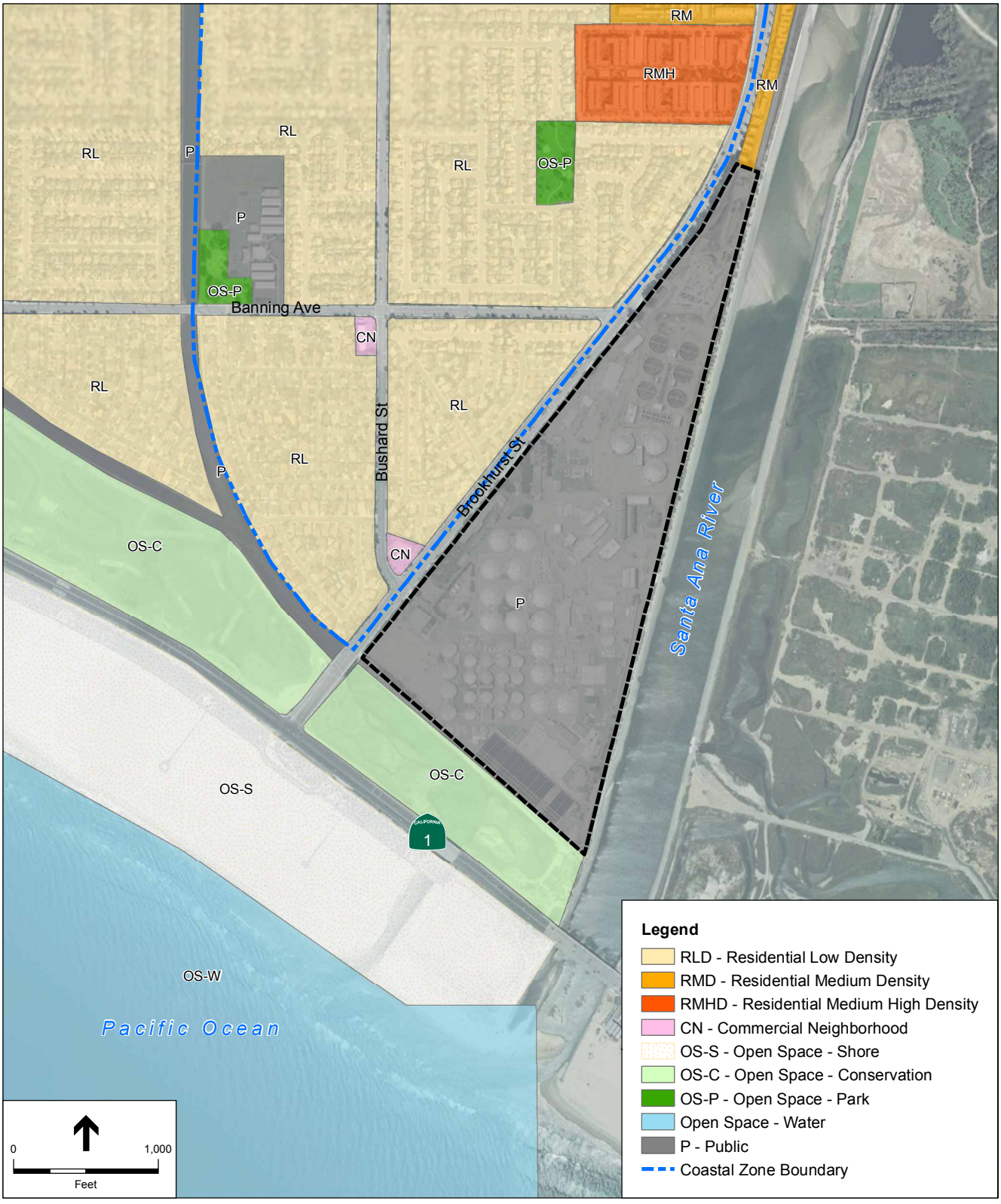
As shown on **Figure 4.9-3**, the zoning designations for the proposed Project include the following:

Industrial Limited (IL) - provides sites for moderate- to low-intensity industrial uses, commercial services and light manufacturing

Residential Agriculture with an Oil Overlay (RA-O) - The residential agriculture district is intended to serve as a transition or holding zone for property with current agricultural activities and as a zone where restricted residential development is permitted. The Oil production Overlay District and provides areas to accommodate only oil operations with no drilling.

Coastal Conservation (CC) - CC zoning implements the General Plan and Local Coastal Program land use designation of Open Space: Conservation; and provide for the protection, maintenance, restoration and enhancement of wetlands and environmentally sensitive habitat areas located within the Coastal Zone while allowing for appropriate utilization to occur

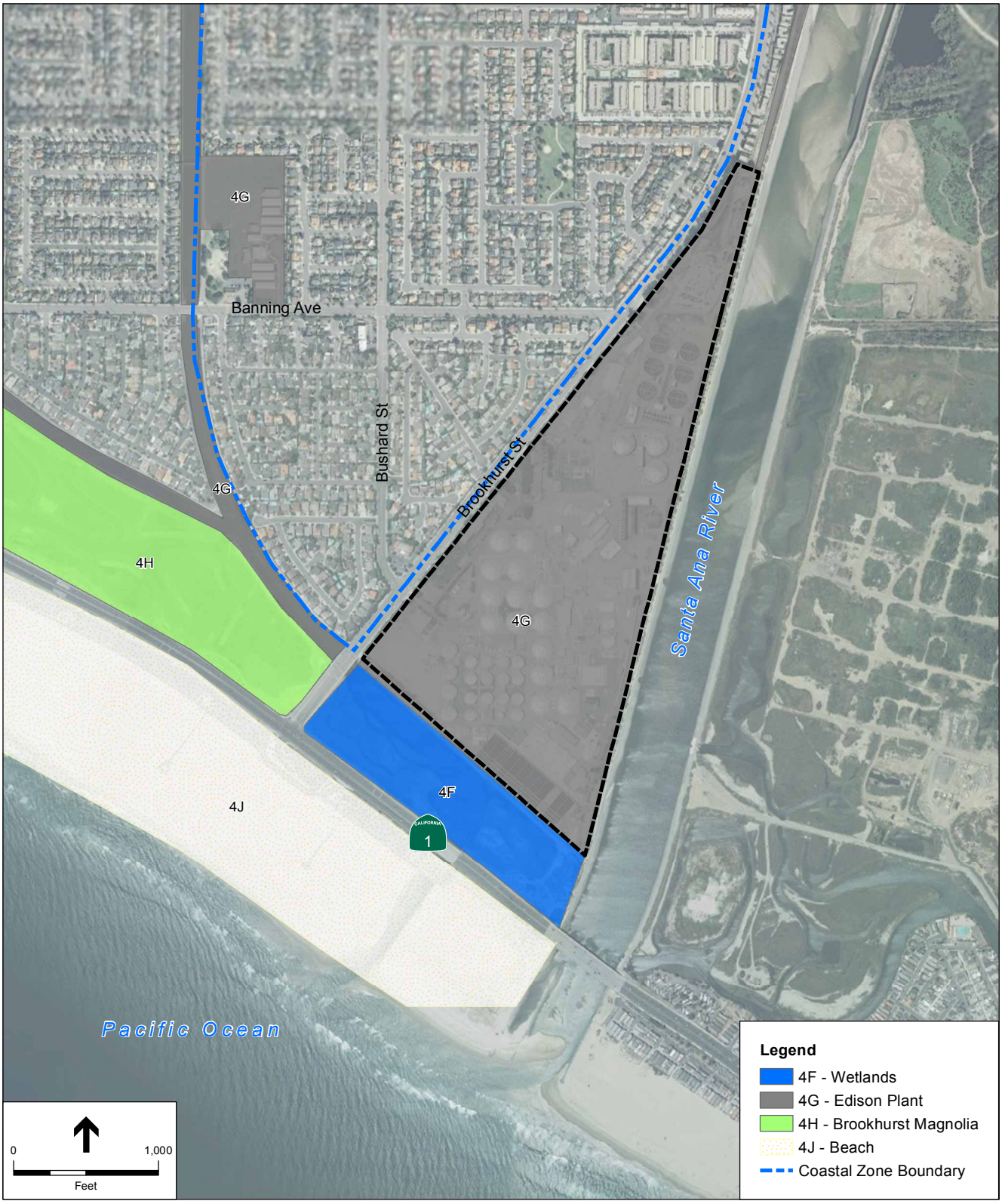
Shoreline Sub-district (OS-S) - This district provides areas for public or private use and areas for preservation and enhancement.



SOURCE: Aerials Express, 2010; City of Huntington Beach

Outfall Land Section and OOBS Piping Rehabilitation . 211261

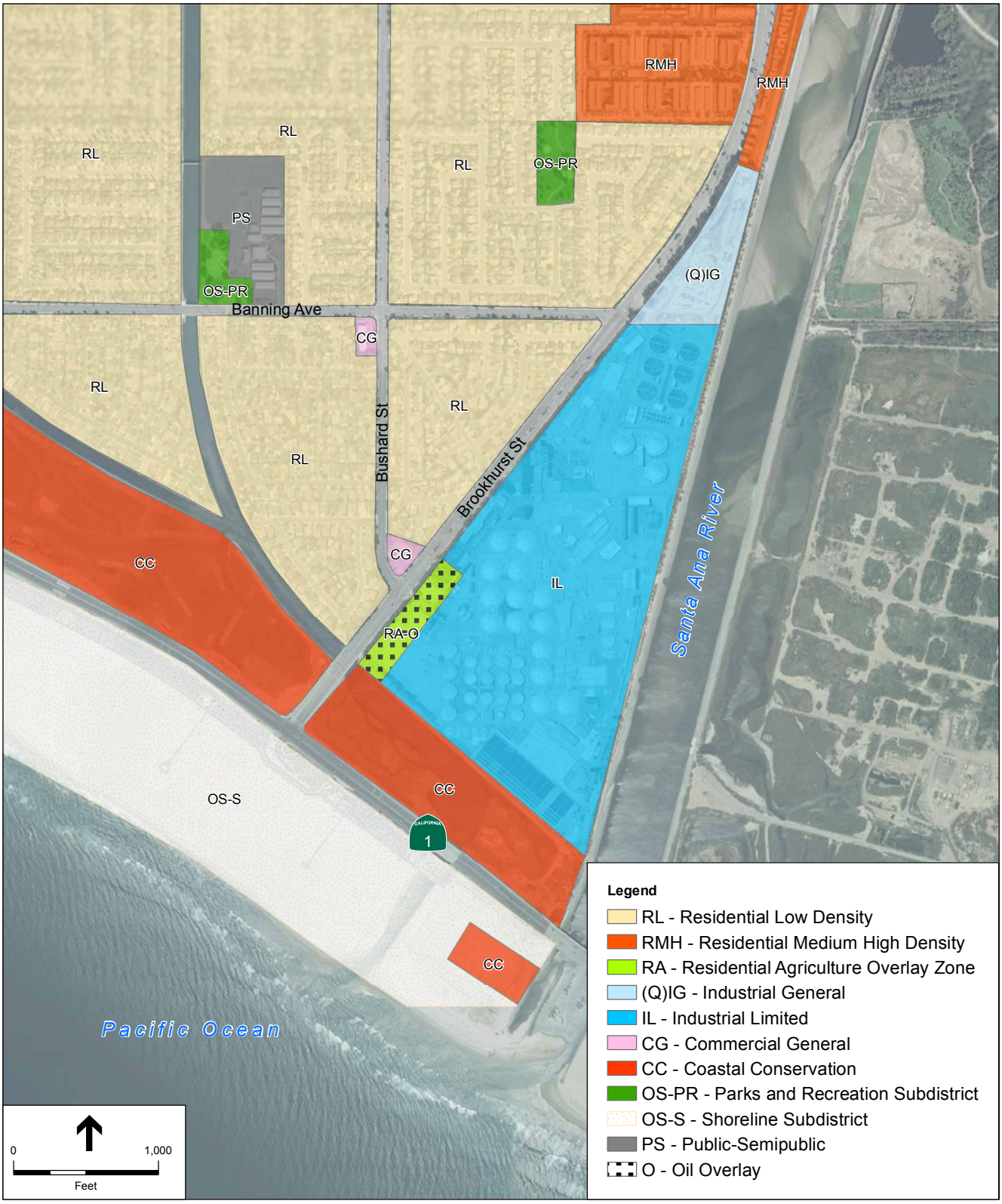
Figure 4.9-1
Land Use



SOURCE: Aerials Express, 2010; City of Huntington Beach

Outfall Land Section and OOBS Piping Rehabilitation . 211261

Figure 4.9-2
LCP Land Use



SOURCE: Aerials Express, 2010; City of Huntington Beach

Figure 4.9-3
Zoning

Plant 2 is zoned for Industrial Limited (IL) and Residential Agriculture with an Oil Overlay (RA-O). The Air Vac Station 12+05 area is zoned Coastal Conservation (CC) and the State Beach area is zone Shoreline Sub-district (OS-S) The Project area is also located in the CZ Coastal Zone Overlay District. The IL District provides designations for sites with moderate- to low-intensity industrial uses, commercial services, and light manufacturing.

City of Huntington Beach Zoning Code

Chapter 216 CC Coastal Conservation District of the Zoning Code contains the LCP implementation program and includes the zoning ordinances, zoning district maps, specific plans, and other implementation actions needed to carry out the goals and policies of the Coastal Element. The CC Coastal Conservation District implements the General Plan and LCP land use designation of Open Space: Conservation; and also provides guidance for the protection, maintenance, restoration and enhancement of wetlands and environmentally sensitive habitat areas located in the Coastal Zone. The CZ Coastal Overlay District provides supplementary provisions and specific permitted uses within the City's Coastal Zone.

Chapter 221 CZ Coastal Zone Overlay District was established to also provide provisions and specific permitted uses within the City's Coastal Zone in accordance with the California Coastal Act of 1976 (Division 20 of the Public Resources Code), the General Plan, and the LCP.

4.9.3 Impacts and Mitigation Measures

Significance Criteria

According to *CEQA Guidelines* Appendix G, the proposed Project would have a significant effect on land use if it would:

- Physically divide an established community;
- Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect; or
- Conflict with any applicable habitat conservation plan or natural community conservation plan.

Impacts Discussion

It was determined in the Draft EIR analysis the following environmental factors would have no impact. The following is a brief discussion of the analysis.

Divide an Established Community

The proposed Project does not propose development within an area that contains residential land uses and would not physically divide an established community. The proposed Project consists of the inspection, condition assessment, and the rehabilitation of corroded portions of the land

section of the Long Outfall system. Rehabilitation activities located within the boundaries of Plant 2 include rehabilitation of Surge Tower 2, Long Outfall repair pipe risers, abandonment of long outfall metering ports and vaults and replacement of an existing effluent flow meter on the Long Outfall. Rehabilitation activities that would occur outside Plant 2 boundaries include the Air Vac Station 12+05 near the Talbert Marsh and rehabilitation of the Beach Box on Huntington State Beach. None of the activities would physically divide an established community.

The proposed Project is consistent with the existing land use and zoning designations for the project site and would not physically divide an established community. At the conclusion of the rehabilitation activities, the construction zone would be returned to its existing pre-construction conditions. As construction would be temporary, no new development is proposed, and construction and rehabilitation activities would not divide an established community, no impacts would occur and no mitigation measures are required.

Significance Level: No impact.

Habitat Conservation Plan or Natural Community Conservation Plan

The proposed Project is not located within the boundaries of a habitat conservation plan or natural community conservation plan. The County of Orange Natural Community Conservation Plan and Habitat Conservation Plan (NCCP/HCP) was prepared for the Central and Coastal Subregion and the Southern Subregion of Orange County. The Central and Coastal Subregion extends from the coast near the mouth of the SAR in the City of Newport Beach to the mouth of the San Juan Creek in the City of Dana Point. The central inland boundaries follow State Route 91 along the west and El Toro Road and Interstate 5 Freeway to San Juan Creek to the east. Activities associated with the proposed Project at Plant 2, the Air Vac Station 12+05, or at the beach are not located within the Orange County Central-Coastal NCCP/HCP. The proposed Project would have no impact on the NCCP/HCP.

Significance Level: No Impact.

Consistency with Land Use Plans

Impact 4.9-1: The proposed Project could conflict with an applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect.

The proposed Project involves rehabilitating an existing vital public facility. Many of the rehabilitation and construction activities would occur on Plant 2. No new permanent structures would be built. Activities associated with effluent treatment on Plant 2 would be consistent with applicable City and County General Plans. The two offsite locations, (Air Vac Station 12+05 and Beach Box) are zoned as Coastal Conservation (CC).

Alternative 1

Activities on Plant 2

Plant 2 has a General Plan land use designation of Public (P) and is zoned for Industrial Limited (IL) and Residential Agriculture with an Oil Overlay (RA-O). Rehabilitation activities at Plant 2 would not conflict with the existing land use designations and zoning code for the site. Rehabilitation activities at Plant 2 may require a CDP under the LCP, although the activities may qualify as maintenance and repair activities.

Activities Adjacent to the Air Vac Station 12+05

The land use designation for the Air Vac Station 12+05 site is Open Space Conservation and is zoned Coastal Conservation. Access to the Air Vac Station 12+05 at the edge of Talbert Marsh would be consistent with the maintenance easements for the facilities. Activities at Air Vac Station 12+05 would not conflict with the existing land use designations and zoning code for the proposed Project site. Rehabilitation activities at Air Vac Station 12+05 may require a CDP under the LCP. Activities at Air Vac Station 12+05 would likely require the Sanitation District to obtain a permit from OCFCD as activities would occur in their right of way located at the Talbert Marsh bike trail, and the SAR Bikeway.

The proposed Project would implement **Mitigation Measure 4.9-2a,** would require the Sanitation District to obtain a right-of-entry permit, prior to the implementation of proposed Project activities associated with the Air Vac Station 12+05 rehabilitation at or near the Talbert Marsh bike trail and the SAR Bikeway.

Activities on the Beach

Rehabilitation of the Beach Box

Rehabilitation activities at the Beach Box may require a CDP under the LCP. The Sanitation District's existing maintenance easement is consistent with the existing land use and zoning designations and applicable land use policies. No new structures would be developed that would conflict with the policies and regulations under these designations.

Construction of the Bypass Structure

Construction of the bypass structure required for Alternative 1 would require a CDP from the City. Although the rehabilitation activities under Alternative 1 are for repair and maintenance, implementation of Alternative 1, would disturb more than 500 square feet and would not qualify as an exemption under Section 245.08. Additionally, as shown on **Figure 4.9-4**, development of Alternative 1 would not be entirely within the Sanitation District's easement. The Project footprint would encroach upon State Park lands requiring a right of entry permit. The groundwater dewatering system discharge pipe may also encroach upon CSLC lands leased to the OCFCD at the SAR mouth. Therefore, the Sanitation District would be required to obtain a letter of non-objection from OCFCD and SLC approval for activities on the jetty. Since the velocity dissipator or would be located within the mouth of the SAR, the CCC would likely require a CDP for activities within the tidal prism of the river. The discharge would also require a Section 404 permit from the ACOE, a Section 401 certification from the RWQCB, and a SAA from CDFG.

SOURCE: ESA, 2011.

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Figure 4.9-4

Jurisdictions, Right-Of-Ways and Easements

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The proposed Project would be subject to the conditions of each permit. However, once constructed, the property would be returned to its original condition. The existing easement allows for maintenance of the vital public utility. Alternative 1 would require more space to construct the bypass structure than is afforded by the easement. However, from a land use perspective, the objective of the Project is consistent with the City, County, and Resource Agencies' plans and policies regarding protection of a vital public utility, environmental quality, flood control, and open space resources. Therefore, the proposed Project is consistent with applicable plans and policies.

Significance Level Alternative 1: Less than significant.

Alternative 2

Alternative 2 would result in identical impacts at Plant 2 and the Air Vac Station 12+05 during rehabilitation activities. Rehabilitation activities at the Beach Box under Alternative 2 may require a CDP under the LCP. The Sanitation District's existing maintenance easement is consistent with the existing land use and zoning designations and applicable land use policies. No new structures would be developed that would conflict with the policies and regulations under these designations. Activities required for Alternative 2 would result in a less than significant impact because it would comport with all applicable land use plans, policies, and regulations of the local agencies with jurisdiction over the proposed Project.

Significance Level Alternative 2: Less than significant.

References – Land Use and Planning

City of Huntington Beach, 1996 . *City of Huntington Beach General Plan – Land Use Element.*

City of Huntington Beach. City of Huntington Beach Zoning Code

City of Huntington Beach, 1996. *City of Huntington Beach General Plan – Recreation and Community Services Element*.

City of Huntington Beach, 2001. *City of Huntington Beach General Plan – Coastal Element*.

California Department of Parks and Recreation, 1976. *Resource Management Plan and General Development Plan for Huntington State Beach*.

County of Orange, 1996. *County of Orange Natural Community Conservation Plan and Habitat Conservation Plan (NCCP/HCP) County of Orange Central and Coastal Subregion*.

4.10 Marine Environment and Public Health

This section provides an overview of the existing marine environment near the Sanitation District's outfalls, as well as an analysis of potential impacts to the marine environment that would result from implementation of the proposed Project.

The Sanitation District's 2009-2010 Ocean Monitoring Program (OMP) Annual Report, provides recent data on the conditions of the OMP study area (Sanitation District, 2011a). The Sanitation District's 2010 Operations and Maintenance Report was reviewed to provide information on the existing conditions in the marine environment (Sanitation District, 2011b). The Sanitation District's 1999 Strategic Plan Program EIR was also reviewed for background information concerning the coastal ocean environment (Sanitation District, 1999).

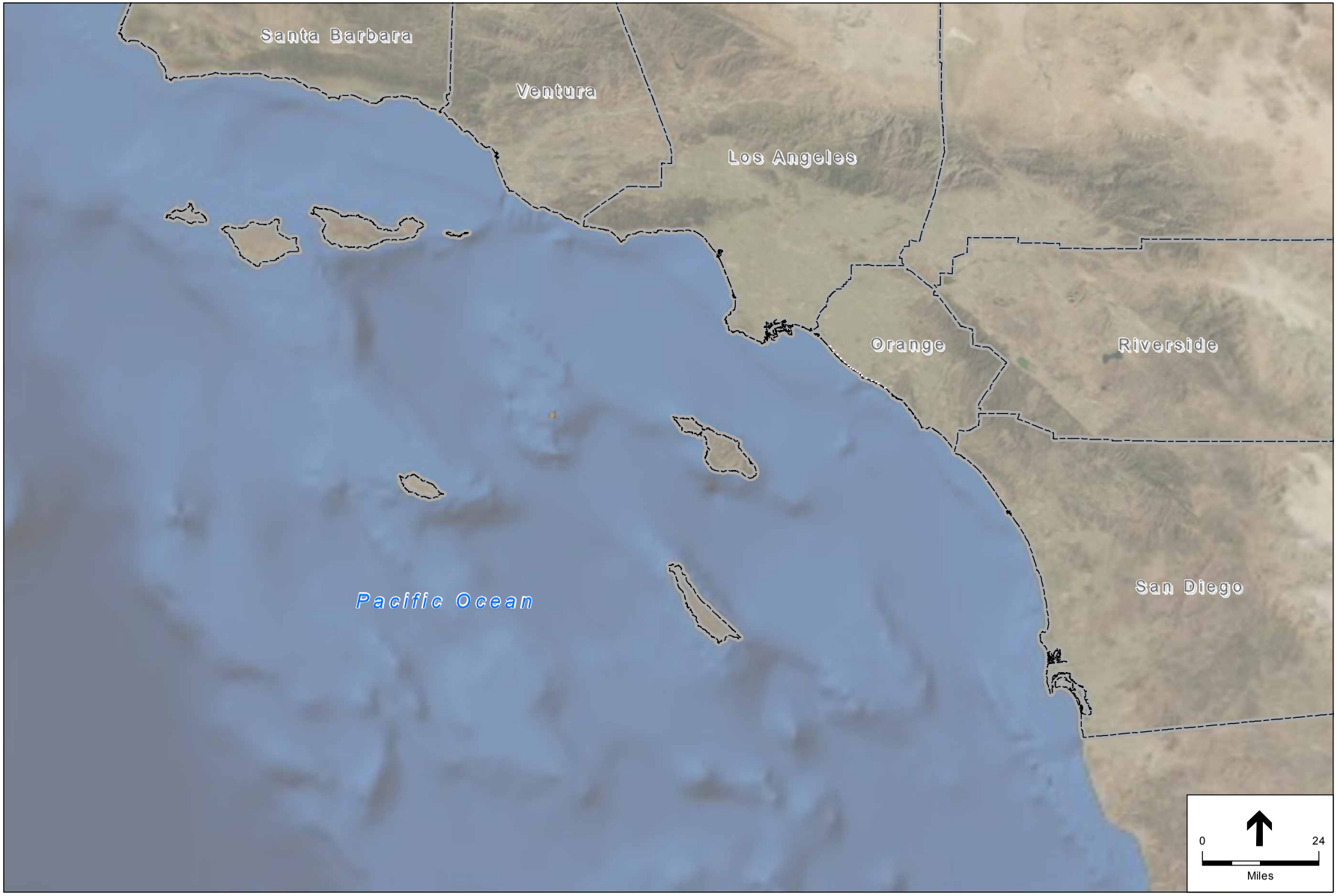
Additional studies conducted in support of this analysis include the following:

- Statistical Analysis of Multi-Year Currents at Inshore Locations in San Pedro Bay, Science Application International Corporation, October 2011 (Appendix F.1);
- Summary of Surface Currents off Orange County California, Southern California Coastal Ocean Observation System, July 2011 (Appendix F.2);
- Orange County Sanitation District Outfall Modeling , Moffat & Nichol, November 2011 (Appendix F.3);
- Receiving Water Quality in the Vicinity of the Orange County Sanitation District's 78-inch Ocean Outfall, Orange County Sanitation District Environmental Laboratory and Ocean Monitoring Division, October 2011 (Appendix F.4);
- Anticipated Biological Response to Extended Discharge from a Nearshore, Shallow Outfall, Burton H. Jones and David A. Caron, Marine and Environmental Biology Section, University of Southern California, October 10, 2011 (Appendix F.5);
- J-112 Effluent Bacteria Reduction Demonstration Project, Orange County Sanitation District, October 2011 (Appendix F.6).

4.10.1 Existing Setting

Regional Setting

The marine regional setting for the proposed Project is the Orange County coast located in the south-central portion of the Southern California Bight (SCB). The SCB extends from Point Conception in Santa Barbara County to just south of the United States and Mexico border as shown on **Figure 4.10-1**. This area is characterized by sandy beaches, rugged shoreline with complex submarine topography, and varying continental shelf widths interrupted by islands, canyons, and basins.



SOURCE: ESRI, 2011.

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Figure 4.10-1

Southern California Bight

The Sanitation District's Outfall System is located on the San Pedro Shelf, which is bounded by Newport Canyon to the southeast and by Palos Verdes Peninsula to the northwest. The San Pedro shelf is one of the broadest mainland continental shelf segments between Monterey and the United States-Mexican border. Approximately 75 to 80 percent of this shelf segment is composed of low-relief, sediment-covered sea floor, and the remaining 20 to 25 percent is composed of rock outcrop interspersed with boulders and cobbles (USGS, 2011). The sea floor consists of soft sediments, sands with silts and clays. On the shelf, the seafloor depth increases gradually from the shoreline to five miles offshore, where it reaches to a depth of approximately 200 feet, and then increases rapidly when the seafloor slopes down to the open ocean. Southeast of San Pedro Shelf, there is a narrow, steeper shelf that extends approximately one mile offshore to a depth of about 150 feet before deepening rapidly into Newport Canyon.

Climate and Meteorology

The climate of the SCB is classified as Mediterranean coastal with long warm summers and short wet winters. Annual rain fall at the Orange County coast averages approximately 11 inches per year. Most precipitation occurs between December and March.

Regional and local changes in oceanographic conditions caused by changes in climate strongly influence the southern California coastal waters on daily, seasonal, and yearly basis. Large-scale and long-term climatic events, such as the Pacific Decadal Oscillation (PDO) and El Niño/Southern Oscillation (ENSO) can alter water temperature and weather patterns that affect marine biota and local water quality conditions on decadal and multi-year timescales (Sanitation District, 2011d).

Average global temperatures are expected to increase by 3 to 9°F by 2100 (IPCC, 2007). Future temperature increases are expected to vary widely in specific locations, depending on many factors. The increase in temperature is expected to lead to higher temperature and precipitation extremes leading to increased flooding and droughts, ocean acidification from increased carbon content, and rising sea levels. Potential impacts in California associated with global climate change may include less snow pack, sea level rise, more extreme heat days, more high ozone days, more large forest fires, and more drought years (CRNA, 2009).

Winds

Winds in the Southern California Bight are influenced by weather systems that generally move in an onshore direction. The prevailing wind direction is from the northwest and winds are generally moderate. In areas with depths of 100 feet or less, the diurnal sea breeze system plays a more dominant role. The sea breeze winds strengthen in the afternoon to speeds of approximately 10-15 miles per hour and originate from the southwest (Moffat & Nichol, 2011).

Currents

Current patterns on the San Pedro outer shelf are dominated by remotely-forced continental shelf waves and currents on the inner shelf are dominated by local winds. The transition between the inner and outer shelf regimes occurs at depths between 50 to 65 feet. The Short Outfall is located within the inner shelf regime, where the prevailing flows at depths of 16 feet and 32 feet are

down-coast. At the shallower depth, currents have larger velocities, whereas currents at the 32-feet level exhibit slightly higher prevalence of up-coast flows. The patterns are consistent with those of upwelling systems driven by prevailing northwesterly local winds, and they are particularly evident during the summer. The summer flows are stronger than the annual mean, while the winter flows are weaker than the annual mean. During the winter season, the frequencies of the onshore and offshore components are roughly equivalent (SAIC, 2011). Currents from the south occur with less frequency, but show the largest contribution during August though September of 13 to 15 percent of the time.

The Southern California Coastal Ocean Observation System (SCCOOS) measures surface currents using high–frequency radar (HFR) along the southern California coast (www.sccoos.org). SCCOOS provided the Sanitation District with data products that characterized the biannual, seasonal, and monthly mean surface currents for years 2008–2009. The average seasonal (September–November) surface currents for both years 2008 and 2009 were consistent in pattern with down-coast flows inshore along Huntington Beach diverging to offshore flows in deeper waters off the San Pedro shelf. The flows differed in that for flows at the Newport Canyon and southeast of the canyon in 2009 were directed offshore. Additionally, in 2009 strong northwest surface currents (>25 cm/s) entered the study area from the southeast (Sanitation District, 2011e).

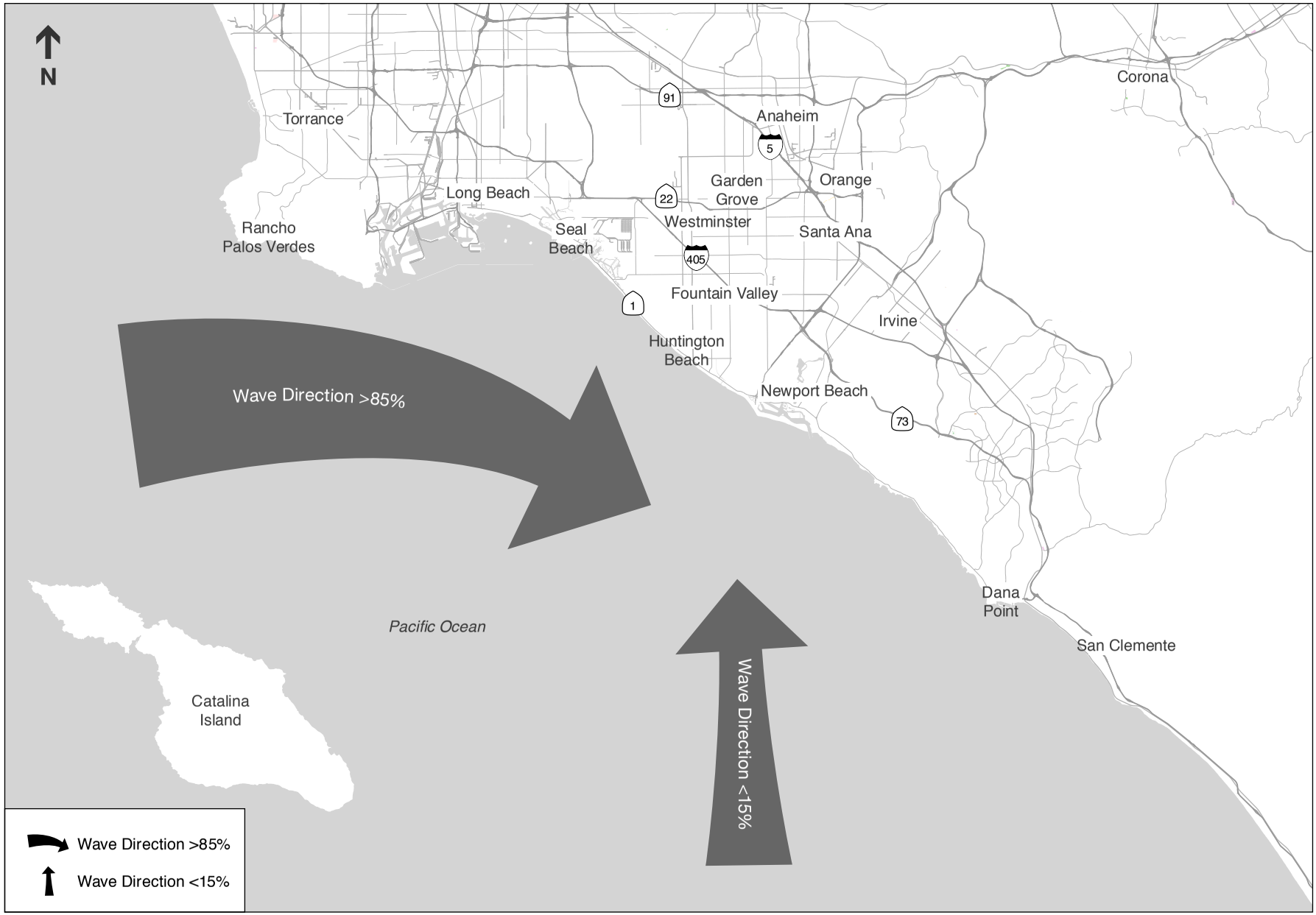
Waves

The waves at Huntington Beach can be divided into three primary categories according to origin: northern hemisphere swell, southern hemisphere swell, and seas generated by local winds. Moffat & Nichol analyzed 30 years of hindcast wave data from Global Reanalysis of Ocean Waves (GROW) station 14450 to obtain the distribution and direction of swell in the project area (Moffat & Nichol, 2011). Because of the coastline alignment and offshore islands, the primary swell directions in the project area are either from the west or the south. During the months of August to November, waves arrive predominantly (at least 85 percent of the time) from the west sector. During the late summer and fall, wave swell is typically smaller with monthly average significant wave heights between 4.0-4.5 feet (**Table 4.10-1**), but moderate sized events do occur throughout the year. When the propagation of wave energy impinges on the shoreline, it is transformed to create elevated water levels and along shore currents. **Figure 4.10-2** depicts wave direction frequencies during the months of August through September.

TABLE 4.10-1
DISTRIBUTION OF SWELL DIRECTION AT GROW STATION 14450

Month	West Sector 216° to 36°	South Sector 36° to 216°	Significant wave height (feet)	Peak period (seconds)
August	88%	12%	4.0	15.4
September	85%	15%	4.1	15.3
October	94%	6%	4.4	15.1
November	98%	2%	4.5	14.0
Annual	**93.7**%	**6.3**%		

SOURCE: Moffat & Nichol, 2011



SOURCE: ESA, 2011.

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Figure 4.10-2
Wave Direction Frequencies
September – October

Tides

The semi-diurnal, internal tide produces a sloshing of the interface between the upper and lower parts of the water column such that cold water can be transported into the surfzone, while warm, upper layer water can move seaward along the bottom. The daily surface tidal range is approximately 3 to 10 feet.

Biota

Plankton

Plankton refers to plants (phytoplankton) and animals (zooplankton) that are found in ocean currents. Phytoplankton are tiny plants that are the foundation of the food chain, using photosynthesis to grow at high rates, providing food for zooplankton and some fish that in turn feed the fish in the ocean. The most abundant phytoplankton are diatoms and dinoflagellates. Diatoms are a group of unicellular plant-like organisms that live by floating in the ocean. They are plant-like because they photosynthesize sunlight, but unlike terrestrial plants their light absorbing pigments are brown, not green. This means that diatoms are distantly related to giant kelp and other brown algae. Most dinoflagellates are unicellular with two flagella: one wraps around the cell inside a groove while the other is directed behind the cell. The flagella are used for swimming. Similar to diatoms, dinoflagellates photosynthesize light. The most common zooplankton include microscopic animals, protozoans, crustaceans, and larval forms of fish and benthic invertebrates.

Kelp Beds

Kelp beds are dominated by the large brown alga, Macrocystis pyrifera, and in waters generally less than 65 feet deep. According to the Regional Kelp Bed Survey for June 2011, there are no kelp beds in the vicinity of the Sanitation District's outfalls. Specifically, the report states that from the Huntington Flats to Newport Harbor, no kelp has been observed historically or in any survey along the shoreline past the Huntington Beach Generating Station, the Orange County Sanitation District outfalls, or along the remainder of the coastline to Newport Harbor. Kelp continues to grow on the inside west jetty of the Newport Harbor entrance and on the outside of the east jetty. These narrow bands of kelp were observed in the 2010 quarterly surveys (Central Region Kelp Survey Consortium, 2011).

Intertidal Communities

The intertidal zone is the area where land and sea meet. This habitat is covered with water at high tide, and exposed to air at low tide. The land in the project area is generally sandy but also includes rocky outcrops close to shore. The intertidal zone is divided into several zones, starting near dry land with the splash zone, an area that is usually dry, and moving down to the littoral zone, which is usually underwater. The intertidal contains a variety of species of animals and plants, many of which are invertebrates such as crabs, urchins, sea stars, sea anemones, barnacles, snails, mussels and limpets. The intertidal zone also has numerous fish, birds and seals.

Benthos

The benthos generally refers to those organisms that live in (infauna), on (epibenthic), or near (demersal) the seafloor. These organisms include invertebrate and fish species. The infauna and epibenthic biota of soft-bottom habitats have been characterized throughout the SCB. Surveys conducted on the shallow shelf have found that the core group of species utilizing the soft-bottom habitats are dominated by polychaete annelids (worms), hermit crabs, and Pacific sand dollars (Sanitation District, 1999).

The Long Outfall represents one of the largest artificial reefs in the coastal region. (Sanitation District, 2011a) It supports communities typical of hard substrates that would not otherwise be found in the area including major macroinvertebrate community groups such as polychaetes (worms), mollusks (clams and snails), crustaceans (crabs and shrimps), and echinoderms (sea stars).

Epibenthic Macroinvertebrates

Epibenthic macroinvertebrates (EMI) include shrimp, crabs, and sea stars. Three species accounted for 65 percent of the total abundance in recent surveys (Sanitation District, 2011a). Variability in the abundance of the EMI reflects changes in dominant species, such as the trailtip seapen, white sea urchin, brokenspine brittlestar, yellow sea twig, and the ridgeback rockshrimp due to oceanographic conditions and fluctuations in the dominant species (Sanitation District, 2011a).

Fish

Nearshore soft-bottom areas of the SCB support high abundances of fish species such as flatfish, surfperch, and croakers. Schooling fish are abundant just beyond the surfzone while flatfish increase with depth. The most abundant fish species near the Short Outfall include the white croaker, queenfish, longfin sanddabs, California lizard fish, northern anchovy, yellowchin sculpin, and tonguefish.

Monitoring has shown that shallow areas have the lowest abundances and the deep, farfield, downcoast areas have the highest abundances. This was also observed in the regional Bight surveys and could be related to daytime light levels, variability in environments (i.e. temperature, salinity, turbulence, food availability), and depths. In addition, fish at higher light levels and at shallow depths could also avoid fish nets (Sanitation District, 2011a).

Birds

The most recent 2009-2010 Christmas Bird Count performed by volunteers for the Audubon Society identified 230 different species within the Orange County coastal area (Audubon, 2011). Three species, the California least tern, Caspian Tern, and Elegant Tern nest only on mainland beaches. As discussed in Section 4.3, Biological Resources, the California least tern nests at the Huntington Beach State Park (the California Least Tern Natural Preserve Area), near Plant 2 at the mouth of the Santa Ana River (SAR). There are seven year-round resident species and three summer visitors known to regularly nest among the Channel Islands or Coronado Islands,

including the California brown pelican. Reproductive success of the birds is linked to food availability, and to the predictability of seasonal foraging areas (Sanitation District, 1999). The western snowy plover is a summer and winter visitor to Huntington Beach, but is not known to nest in the vicinity.

During periods of reduced food availability, fecundity declines as noted for the California brown pelican population and the relationship to Northern Anchovy abundance. Other species are year-round visitors that do not breed in Southern California but can be expected somewhere within the SCB at any time of the year. Among these are two gull species and one tern. The Black-footed Albatross may be expected in open-ocean waters at any season. Six bird species can be listed as summer visitors including the Sooty Shearwater (Sanitation District, 1999).

Nearly half the seabird species recorded for Southern California waters are winter visitors and come to the area during the months of October through April. Included in this group are several species of loons, grebes, and sea ducks, a large variety of jaegers, gulls, and terns, and several abundant species of the family Alcidae—the murres, auklets, and puffins. Pure transients include nine species that pass through Southern California waters while migrating between their wintering and breeding grounds.

Mammals

The SCB contains abundant and diverse populations of marine mammals. There have been 31 species of cetaceans and 6 pinnipeds observed in the Southern California Bight (Sanitation District, 1999). Pinnipeds are all seals, sea lions and walruses. Locally, three species of pinnipeds are commonly observed. The California sea lion is the most abundant species found in California. The nearest hauling grounds for California sea lions and Pacific harbor seals are the Newport Harbor breakwater areas and rocky areas to the south along Corona Del Mar and Laguna Beaches. They are also use offshore buoys. Northern elephant seals are sighted commonly off Orange County, especially near Laguna Beach, where they can be seen hauling out. In the area of the discharge in the deeper offshore waters, the only species that are routinely observed are gray whales, white-sided dolphins, common dolphins, bottlenose dolphins, California sea lions, and, in the nearshore area, harbor seals (Sanitation District,1999).

Threatened and Endangered Species

Table 4.3-1, in Section 4.3, Biological Resources lists the State and federal listed threatened and endangered terrestrial species in the proposed Project area. All marine mammal species are protected under the federal Marine Mammal Protection Act of 1972. There are a few marine species that have been designated as threatened, rare or endangered under various Federal and State statutes that protect wildlife.

4.10.2 Sanitation District Treatment and Outfall Systems

Treatment Facilities and Level of Treatment

In July 2002, the Sanitation District's Board of Directors approved a change in the level of treatment provided by the District from a blend of 50 percent advanced primary and 50 percent secondary effluent to full secondary treatment standards. An NPDES permit was issued to the Sanitation District requiring the construction of additional secondary treatment facilities in accordance with the schedule established in a Consent Decree issued by the Environmental Protection Agency (EPA) and the Regional Water Quality Control Board (RWQCB). All new facilities identified in the Consent Decree must be constructed and brought on line by December of 2012.

The Sanitation District currently treats approximately 210 million gallons a day (mgd) of effluent at two treatment plants. Treatment Plant No. 1 (Plant 1) is located in the City of Fountain Valley, about four miles from the coast, adjacent to the SAR. Secondary treatment capabilities are provided by a trickling filter plant and a conventional air activated sludge plant. Treatment Plant No. 2 (Plant 2) is located in the City of Huntington Beach (the City), 1,500 feet from the ocean, at the mouth of the Santa Ana. Secondary treatment capabilities are provided by a trickling filter plant and an oxygen activated sludge plant. The last secondary treatment process to be built in accordance with the Consent Decree is a conventional activated sludge plant at Plant 1 which would add additional secondary treatment capacity. This plant is expected to be started-up in the spring of 2012.

Approximately 60 – 70 mgd of effluent from Plant 1 is diverted to the Orange County Water District's Groundwater Replenishment System (GRWS) for further treatment and discharge to spreading basins, reclaimed water use and groundwater barrier protection. A net effluent flow of 140 – 150 mgd is discharged from the District's two treatment plants to the ocean.

Secondary treatment standards require effluent Biochemical Oxygen Demand (BOD) and Total Suspended Solids (TSS) concentrations of 30 mg/l. Since the start-up of the Plant 2 trickling filter plant in May of this year, the effluent quality has been better than design expectations with TSS and BOD concentrations of less than 10 mg/l.

The Sanitation District has established a Short-Term Ocean Outfall Bacteria Reduction Plan for discharge to the Long Outfall in order to protect public health. These goals are presented in **Table 4.10-2**. The Sanitation District began adding bleach (disinfection chemical) for bacteria reduction in 2002 using 24,600 gallons a day of bleach. Since the establishment of the Bacteria Reduction Plan, the goals have been consistently met. After completion of the trickling filters at Plant 2, the Sanitation District has reduced the use of bleach from 26,000 to 2,800 gallons per day. These improvements have allowed the Sanitation District to provide sustained bacterial reduction with reduced bleach usage, which has significantly reduced the production and discharge of chlorinated by-products to the ocean.

TABLE 4.10-2
SANITATION DISTRICT BACTERIA OPERATIONAL TARGETS

Parameter	Final Effluent Operational Targets (MPN/100 ml)
Total Coliforms	250,000
Fecal coliforms	50,000
Enterococci	8,750

NOTE: MPN/100 mL = most probable number of microorganisms per 100 milliliters

In order to consistently achieve the operational goals, the Sanitation District employs a reliable disinfection system with redundant feed pumps, standby power, and sufficient chemical capacities onsite. The disinfection system is completely automated. The Sanitation District provides 45 days bleach storage at Plants 1 and 31 days of storage at Plant 2. The NPDES permit has a chlorine residual limitation (disinfection chemical) of 0.36 mg/l. In order to meet this requirement, the Sanitation District adds a dechlorination chemical (sodium bisulfite) to neutralize any chlorine residual in the effluent prior to discharge to the ocean. The Sanitation District provides storage for a 95 day supply of sodium bisulfite at Plant 2.

Ocean Outfalls

Under standard operating conditions, both Plant 1 and Plant 2 effluent is discharged to the ocean through the Long Outfall. The Short Outfall is maintained to provide additional capacity during emergency overflow operations, but has not been needed for emergency discharges since 2006.

The Long Outfall is 120-inches in diameter and extends approximately 4.4 miles from the shoreline, and then angles up coast with a 1.1-mile, 503-port diffuser that terminates at a depth of approximately 197 feet. The Short Outfall is 78-inches in diameter and extends 1.4 miles offshore, and then angles upcoast with a 970-foot, 120-port diffuser that terminates at a depth of approximately 63 feet. Both the Short Outfall and the Long Outfall are buried onshore and come to the surface under the ocean at a water depth of approximately 27 feet. The outfalls lie on the seafloor ballasted with rock that replaces approximately 1.1 million square feet of subtidal and mainland shelf soft-bottom habitat with one of the largest artificial reefs in the area.

Although the Short Outfall is only used intermittently, the Sanitation District inspects, maintains, and tests this outfall as part of its regular operations and maintenance plan (Sanitation District, 2011b) to verify that the Short Outfall is in good condition. The Short Outfall was last tested in 1988 and last inspected in fiscal year 2008-2009.

The 2009 inspection found the overall structure is structurally sound and there was significant growth on the discharge ports. Sediment was identified inside the pipe. To maintain the Short Outfall in good working order the following activities were completed in 2009:

- The 101 exposed, round portholes were cleared of marine-life growth.
- Three portholes buried by ballast and/or sediments were dug out.

- The flap-gate door at the end of the pipe was propped open to help flush the 14 inches of observed fine sediments that have accumulated due to outfall long-term inactivity (Sanitation District, 2011b).

Zone of Initial Dilution

The zone of initial dilution (ZID) refers to an area affected by the effluent plume in the immediate vicinity of the outfall. In this region, the size and mixing of the plume is largely determined by the characteristics of the plume as it exits the outfall and ambient conditions in the receiving water. Pollution levels are greatest in this zone and water quality improves with distance from the outfall diffuser as the effluent plume is entrained in the ocean water and diluted. Dilution between the point of discharge (end of pipe) and the edge of the ZID is a key determinant of system performance. The Sanitation District's NPDES permit establishes end-of-pipe effluent quality requirements as well as dilution requirements to meet receiving water quality criteria beyond the ZID of the Long Outfall. The dilution ratio, the concentration at the edge of the zone divided by the concentration at the point of discharge, is known as the initial dilution ratio. This ratio is a function of the effluent and the receiving water. Since both of these vary, the initial dilution ratio also varies, often by a factor of ten or more. To be conservative in assessing potential impacts, a dilution ratio on the low end of the range is used, which results in higher estimates of pollutant levels at the edge of the ZID. Assessment of the Long Outfall has typically used 180:1 as a dilution ratio.

4.10.3 Ocean Water Quality

Changes in water temperature and salinity occur seasonally and in response to weather and currents as well as variability in depth. Key indicators of water quality monitored by the Sanitation District include dissolved oxygen, pH, water clarity/turbidity, oil and grease, nutrients, fecal indicator bacteria (FIB), and toxics. The final effluent discharge is also monitored for total suspended solids, biological oxygen demand, ammonia, chlorine residuals, chemical oxygen demand (COD), metals, organics, oil and grease, pH, settleable solids, total dissolved solids, VSS and turbidity. Based on past monitoring studies and the most recent 2009-2010 monitoring data, there has been no indication that the Sanitation District effluent practices have significantly affected water quality within the coastal waters (Sanitation District, 2011a). Effluent discharges consistently comply with the water quality requirements established by the California Ocean Plan.

Dissolved Oxygen

In general the water column is well oxygenated with no values falling below 5 mg/L in 2010. The Sanitation District's Ocean Monitoring Program has shown that dissolved oxygen (DO) and pH are highly correlated in the coastal waters and the spatial and seasonal pH patterns nearly mirror DO (Sanitation District, 2011a).

Water Clarity

Natural changes to water clarity in the study area are caused mostly by surface runoff, river discharges, and sediment loading from winter rainfall; plankton and suspended particles near the pycnocline during spring and summer; and sediment resuspension by wave action, particularly at shallow, nearshore locations. Low transmissivity is affected by rainfall events in addition to phytoplankton, plume entrainment, upwelling, and resuspension of sediments in the Newport Canyon (Sanitation District, 2011a).

Oil and Grease

Oil and grease concentrations in seawater range from <0.001 to 0.02 mg/L in the waters of the SCB. Oil and grease in the effluent are composed of both natural sources and numerous human-related activities. Natural sources include natural oil and gas seeps (Anderson et al., 1993) and natural compounds. Oil and grease can come from boat traffic, and fuel spills and leakage.

The effects of oil and grease are determined through visual observations on beaches and offshore surface waters. The Sanitation District's Ocean Monitoring Program indicates that most beach oil and grease occur from surface runoff from sources on land from non-point source pollution. In the 2009-2010 period there was no observable grease or floatable materials related to effluent discharge. The results were consistent with previous years and in compliance with the NPDES permit oil and grease criteria limit (Sanitation District, 2011a).

Nutrients

Concentrations of ammonia-nitrogen in the effluent have remained relatively constant since 1982 at about 24 to 26 mg/L (Sanitation District, 2011b). Ammonia-nitrogen in ocean water can increase phytoplankton reproduction in well lit surface water.

4.10.4 Sediment Quality

The sedimentary environment of the SCB consists of a mixture of inorganic and biogenic sediments. Terrestrial runoff, river discharges, and erosion of the continental shelf are sources of inorganic sediments. The Los Angeles, San Gabriel, and Santa Ana Rivers, along with inputs from Newport Harbor, provide the majority of sediments during storm events.

Larger particles, sands and gravels, are sorted by wave actions at the coast and redistributed to the intertidal and nearshore areas. Coarser sediments may be resuspended and moved further offshore into deeper waters during strong storm events. Finer sediments, silts and clays, are transported as suspended load following the water circulation during their slow fall through the water column. Sediment inputs are generally low except during storm events and when flooding occurs. During much of the year and during droughts, the predominant suspension particulates are of biological origin (biogenic).

The concentration of metals in sediments is related to their abundance in source minerals, contaminant sources, and subsequent mixing and dilution with sediments from other geological

sources. Because most metals have a strong attraction for fine-grained particles, the distribution and fate of metals are largely controlled by particle transport and depositional processes. Depending on the constituent, discharge to the Long Outfall has influenced sediment metal concentrations over time within 200 feet of the outfall (i.e., within the ZID) (OCSD, 2011a).

Polycyclic aromatic hydrocarbons (PAH) concentrations are elevated within the ZID and closest to the diffuser terminus. However, all total PAH concentrations in the monitoring areas were below levels where toxic effects would be observed or predicted (i.e., ERL values), demonstrating a low probability of sediment toxicity due to PAHs (OCSD, 2011a). Concentrations of DDT were higher in sediments inshore of the outfall diffuser than along the 60 meter contour. The concentration increased with depth though no relationship with the outfall has been established. PCB concentrations due to historic uses and discharges is considered a legacy contaminant within the Long Outfall ZID. Mean concentrations decreased outside the ZID with increasing distance from the outfall pipe and all non-ZID stations had total PCB concentrations below the ERL (OCSD, 2011a).

Toxicity of effluent is measured to determine the biological response of test organisms to the final effluent under various conditions ranging from undiluted to highly diluted effluent. Whole sediment toxicity testing was conducted in October 2009 and January 2010 that indicated a very low acute toxicity. In the Sanitation District's 2009-2010 Ocean Monitoring Program, no samples indicated the potential for moderate toxicity. Sediment monitoring over time has shown low toxicity in the Long Outfall ZID (Sanitation District, 2011a)

4.10.5 Beneficial Uses

The beneficial uses of the ocean protected by the California Ocean Plan (COP) include the following:

- preservation and enhancement of designated Areas of Special Biological Significance (ASBS);
- rare and endangered species;
- marine habitat;
- fish migration;
- fish spawning;
- shellfish harvesting;
- recreation;
- commercial and sport fishing;
- mariculture (cultivation of marine organisms in the natural habitats);
- industrial water supply;
- aesthetic enjoyment; and
- navigation.

Of the 42 miles of coastline in Orange County, there are about 3.5 miles of rocky shores and almost 39 miles of beaches. Huntington Beach extends 9 miles from Huntington Harbor and Sunset Beach to the SAR, and includes Huntington State Beach and Bolsa Chica State Beach; Newport and Balboa Beaches are south of SAR. For 2009-2010, the cities of Huntington Beach

and Newport Beach have jointly attracted over 18 million visitors. Average monthly visitors ranged from 4.5 million in July 2009 down to 467,116 visitors in December 2009; September saw approximately 1,800,000 visitors and October saw approximately 700,000. Swimming and surfing are the most popular water sports. Surfers, protected by wet suits, spend many hours in the water beyond the surfzone. Water-contact recreation is heavy within 300 yards of the shore off Newport Beach and Huntington Beach.

Sport and commercial fishing occurs throughout the coastal waters. CDFG manages the fisheries and issues fishing licenses. The fishery is diverse with landings of multiple fishes, mollusks, echinoderms and crustaceans recorded annually (CDFG, 2010).

4.10.6 Regulatory Framework

Federal

The Clean Water Act (CWA) is the principal statute governing water quality. The goal of the CWA is to restore and maintain the chemical, physical, and biological integrity of the nation's waters. The CWA regulates both the direct and indirect discharge of pollutants into the nation's waters.

CWA Section 301

Section 301 of the CWA prohibits the discharge into navigable waters of any pollutant by any person from a point source unless it complies with a National Pollution Discharge Elimination System (NPDES) permit.

CWA Section 311

Section 311 of the CWA regulates the discharge of oil and other hazardous substances into navigable waters and waters of the contiguous zone, as well as onto adjoining shorelines, that may be harmful to the public or to natural resources. The CWA allows the federal government to remove the substance and assess the removal costs against the responsible party. Under the CWA, removal costs include those costs associated with the restoration or replacement of the natural resources damaged or destroyed as a result of a discharge of oil or a hazardous substance.

CWA Section 319

Section 319 of the CWA addresses non-point sources of pollution. The 1987 amendments to the CWA authorized measures to address such pollution by directing states to develop and implement nonpoint pollution management programs. States were encouraged to pursue groundwater protection activities as part of their overall nonpoint pollution control efforts.

CWA Section 401

Section 401 of the CWA provides that projects that involve discharge or fill to wetlands or navigable waters must obtain certification of compliance with state water quality standards.

CWA Section 402

Section 402 of the CWA establishes the NPDES permit program. The NPDES program controls point source discharges and non-point source discharges that become point sources (e.g., stormwater run-off discharged by a publicly-owned treatment works or effluent treatment plant. Permits are typically issued by a state agency (in California, the Regional Water Quality Control Board [RWQCB]), and cannot exceed 5 years in duration. Permit compliance enforcement is shared between the state and the federal government.

Coastal Zone Management Act of 1972

The purpose of the Coastal Zone Management Act (CZMA) is to preserve, protect, and restore or enhance the nation's coastal zones. The State of California has enacted the federally approved California Coastal Act. Section 1456 of the CZMA requires that any federal action inside or outside of the coastal zone that affects any land or water use or natural resources of the coastal zone shall be consistent, to the maximum extent practicable, with the enforceable policies of approved State management programs. It states that no federal license or permit may be granted without giving the State the opportunity to concur that the project is consistent with the State's coastal policies. The associated regulations outline the consistency procedures.

Marine Mammal Protection Act

Implemented by the National Marine Fisheries Service (NMFS) the Marine Mammal Protection Act of 1972 was enacted in response to increasing concerns that significant declines in some species of marine mammals were caused by human activities. The Act established a national policy to prevent marine mammal species and population stocks from declining. NMFS is charged with protecting whales, dolphins, porpoises, seals, and sea lions.

State

California Water Code

California's Porter-Cologne Water Quality Control Act (Section 13000 ["Water Quality"] et seq., of the California Water Code), which established both the SWRCB and the present system of nine RWQCBs, directs in Chapter 4, Article 3, "Regional Water Quality Control Plans," that each Regional Board is to formulate and adopt water quality control plans for all areas within the region and is to periodically review and revise them as necessary. Each Regional Board is to set water quality objectives that would insure the reasonable protection of beneficial uses and the prevention of nuisance, with the understanding that water quality can be changed somewhat without unreasonably affecting beneficial uses.

The RWQCBs regulate all nonpoint source discharges under one of two statutory requirements: the NPDES Storm Water Permitting Program and the Coastal Nonpoint Pollution Control Program. The CWA Section 402 program is designed to regulate storm water and urban runoff (i.e., the nonpoint source discharges that become point sources).

Virtually all other nonpoint sources are subject to the Coastal Nonpoint Pollution Control Program. The RWQCBs' permit authority includes the issuance of waste discharge requirements and conditions on CWA Section 401 water quality certification authorizations. The water quality objectives for surface waters are established by Water Quality Control Plans (Basin Plans).

The standards represent maximum levels of pollutants, or acceptable ranges (for parameters such as dissolved oxygen, temperature, or pH) that allow beneficial uses of the water basin to continue unimpaired. The RWQCB has primary authority for ensuring that water resources are protected from degradation by pollutant discharges. To develop water quality standards that are consistent with the uses of a water body, each RWQCB attempts to classify historical, present, and future beneficial uses of the waters under its jurisdiction as part of the Basin Plan for its region. The Basin Plan is periodically reviewed and updated. Each RWQCB is required to identify water bodies that do not meet water quality objectives pursuant to Section 303(d) of the CWA.

California Coastal Act

The California Coastal Act (Coastal Act) was enacted by the California State Legislature in 1976 to provide long-term protection of California's 1,100-mile coastline for the benefit of current and future generations. The Coastal Act created a partnership between the State (acting through the CCC) and local government to manage the conservation and development of coastal resources through a comprehensive planning and regulatory program. New development in the coastal zone may require a permit from the CCC or the appropriate local government agency. The CCC also reviews and approves local coastal programs, which are the basic planning tools used by local governments to guide development in the coastal zone.

For the entire California coast, except San Francisco Bay, the CCC implements the federal Coastal Zone Management Act of 1972. The CCC is responsible for reviewing proposed federal and federally authorized activities to assess their consistency with the approved State coastal management program. The CCC developed the California Coastal Management Program pursuant to the requirements of the federal Coastal Zone Management Act of 1972.

California Ocean Plan (COP)

The COP was adopted by the State Water Board in 1972. The State Water Board is responsible for reviewing COP water quality standards and for modifying and adopting standards in accordance with Section 303(c)(1) of the federal Clean Water Act and Section 13170.2 of the California Water Code (CWC). The Regional Water Quality Control Board has been delegated the responsibility for administering permitted discharge into the coastal marine waters of California (Ocean Plan), which incorporates control standards that apply to all NPDES permits.

Since 1972, the COP has been amended a number of times, most recently in 2005. The COP establishes beneficial uses to be protected, water quality objectives and a program for implementation needed for achieving the water quality objectives. The COP's water quality objectives for California's ocean waters and provide basis for regulation of waste discharged into the State's coastal waters. When a discharge permit is written, the water quality objectives defined in the COP are converted into effluent limitations that apply to discharges into State ocean waters.

These effluent limitations are established on a discharge-specific basis depending on the initial dilution calculated for the facility discharge outfall. The COP's narrative and numerical water quality objectives are based on bacterial, physical, chemical, and biological characteristics as well as radioactivity. The water quality objectives in the COP are established for protection of human health from both carcinogens and non-carcinogens. Within the COP, there are 21 objectives for protecting aquatic life, 20 for protecting human health from non-carcinogens, and 42 for protecting human health from exposure to carcinogens.

The numeric objectives of the 2001 California COP, Table A, apply to discharges from the Plant No 2 and would be evaluated by the Regional Water Quality Control Board as part of the NPDES permit for the project. The NPDES permit (No. CA0110604) issued to the Sanitation District by the RWQCB includes specific ocean monitoring requirements for monitoring the discharges through the Short Outfall, when used for emergency use. Those requirements would continue to apply. The RWQCB's COP human health standards are designed to protect the beneficial use of body-contact recreation. The discharge from the Short Outfall discharge would be required to meet all COP standards regulated by the RWQCB.

Assembly Bill 411

In 1998, Assembly Bill (AB) 411 (Wayne) was chaptered into law and added Sections 115880-115915 to the California Health and Safety Code. The law authorized the creation of bacteriological ocean water quality standards that are considered protective of public health.

The AB411 standards include the following:

- Required testing of the waters adjacent to all ocean and bay public beaches for total coliform, fecal coliform, and enterococci bacteria that may indicate the presence of possible disease causing bacteria, viruses, or protozoa.
- Required maintenance and updates of the Ocean, Harbor and Bay Posting and Closure Hotline.
- Established single sample standards for total coliform, fecal coliform and enterococci bacteria which shall not exceed:
  - Total Coliform: 10,000 organisms per 100 milliliter sample.
  - Fecal Coliform: 400 organisms per 100 milliliter sample.
  - Enterococci: 104 organisms per 100 milliliter sample.
  - Fecal Coliform to Total Coliform ratio: >1,000 total coliforms if ratio exceeds 0.1
- Established 30-day geometric mean standards (of five weekly samples) for total coliform, fecal coliforms and enterococci bacteria which shall not exceed:
  - Total Coliform: 1,000 organisms per 100 milliliter sample.
  - Fecal Coliform: 200 organisms per 100 milliliter sample.
  - Enterococci: 35 organisms per 100 milliliter sample.

- When any waters adjacent to a public beach fail to meet any of the standards described above, the local health officer shall post signs on the beach to restrict access to the affected waters.
- Weekly testing is required from April 1 to October 31 if the following applies:
  - The beach is visited by more than 50,000 people annually.
  - The beach is located in an area adjacent to a storm drain that flows in the summer.
- In the case of a known release of sewage into ocean or bay waters adjacent to a public beach, the local health officer is required to:
  - Immediately close the affected ocean or bay waters until the source of the sewage is eliminated.
  - Collect bacterial samples from the affected waters.
  - Continue the closure until testing results of water samples meet the established standards.

California Department of Fish and Game

The California Department of Fish and Game (CDFG) has established the Marine Region as one of its seven regions. The Marine Region extends along the entire California coastline from border to border and approximately three nautical miles out to sea, including offshore islands. Through development of specific projects, staff provide for fisheries and habitat management, environmental review, and water quality monitoring statewide. CDFG is responsible for enforcing the Marine Life Protection Act of 1999, which establishes and manages Marine Protected Areas. CDFG also issues licenses for marine sport fishing, commercial fishing, and aqua culture.

California Department of Public Health

The California Department of Public Health (CDPH) has imposed an annual mussel quarantine throughout California from May 1 through October 31. Sport harvesting of mussels for human consumption is not allowed along the entire California coastline during this period. All bays and inlets are included in the quarantine. The purpose of this quarantine is to protect the public from toxins that may be present in bivalve mollusks, such as mussels, clams, oysters and scallops. Mussels are the most dangerous because they accumulate high levels of toxins more quickly than other mollusks and are commonly eaten without removing the digestive organs. The California quarantine applies only to mussels collected locally by sports harvesters. All commercial shellfish harvesters in California must be certified by the State and are subject to strict testing requirements.

Regional Water Quality Control Basin Plan (Basin Plan)

The Basin Plan for the Santa Ana Region is a collection of water quality goals and policies, descriptions of conditions, and discussions of solutions. It is also the basis for the RWQCB's regulatory programs. The Basin Plan establishes water quality standards for the ground and

surface waters of the region. The Basin Plan includes an implementation plan describing the actions by the Regional Board and others that are necessary to achieve and maintain the water quality standards. In addition to the Santa Ana Region Basin Plan, a number of water quality control plans and policies adopted by the SWRCB direct the Regional Board's actions.

NPDES Permit No. CA 0110604

The Sanitation District discharges effluent to the Pacific Ocean under the authority of a National Pollution Discharge Elimination System (NPDES) permit (No. CA 0110604, Order No. R8-2204-0062) issued by the US Environmental Protection Agency (USEPA) and Santa Ana Regional Water Quality Control Board (RWQCB). The Sanitation District has historically discharged a mixture of primary and secondary treated water. However, in 2002, the Sanitation District Board of Directors made the decision to upgrade the level of treatment to meet the secondary treatment requirements. The Sanitation District negotiated with the regulators to develop a plan to achieve these requirements as quickly as possible. This resulted in consent decree providing until December 31, 2012 to meet the new treatment requirements. Since 2002, the Sanitation District has initiated an ambitious ($538 million-dollar) construction program at both treatment plants that will provide secondary treatment and disinfection for the full discharge volume. The treatment upgrades will be complete and brought on line in the summer of 2012.

The Sanitation District currently treats approximately 210 million gallons a day (mgd) of wastewater at two treatment plants. Secondary treatment capabilities at Plant 1, in Fountain Valley, are provided by a trickling filter plant and a conventional air activated sludge plant. Secondary treatment at Plant 2, in Huntington Beach, is provided by a trickling filter plant and an oxygen activated sludge plant. The last secondary treatment process to be built in accordance with the Consent Decree is a conventional activated sludge plant at Plant 1 which would allow the Sanitation District to achieve 100 percent secondary treatment capacity.

During the regular 5-year renewal cycle, the Sanitation District is applying for updated NPDES permit conditions to more accurately reflect the changes in treatment and treatment technology the Sanitation District has employed. Additionally, the increased effluent quality has improved the quality of the receiving waters and ocean conditions and the Sanitation District is requesting changes to the NPDES monitoring program to reflect the changed conditions. Further, in the Sanitation District's 2009 NPDES Permit Application to USEPA and RWQCB, the Sanitation District requested that conditions be added to the NPDES Permit expressly allowing the Sanitation District to conduct planned diversion and discharge effluent from the Short Outfall up to two times during the next permit period to perform maintenance activities on the Long Outfall. These activities would include inspection and repairs to the Long Outfall, the Long Outfall risers, and the Beach Box. The Sanitation District would try to consolidate activities and minimize the duration of time that flow would need to be routed to the Short Outfall, when possible. The Sanitation District's 2009 NPDES Permit Application is still pending. For these planned diversions, the Sanitation District will submit a notification letter in advance to the RWQCB and EPA. The Sanitation District would also coordinate with the Orange County Health Care Agency (OCHCA) and other local officials prior to conducting maintenance activities that would require use of the Short Outfall.

Local

City of Huntington Beach Coastal Program

As required by the California Coastal Act (California State Public Resources Code, Division 20, Sections 30000 et seq.), local governments lying wholly or partially within the Coastal Zone are required to prepare a Local Coastal Program (LCP) for its portion of the Coastal Zone. The LCP is used to implement policies and requirements of the Coastal Act by local governments and must be reviewed and certified by the California Coastal Commission (CCC) prior to being implemented by the local government. The LCP is divided into two components: (1) a coastal element and (2) an implementation program. The Coastal Element found in the City's General Plan includes a land use plan and policies to be used by decision makers when reviewing coastal-related issues and proposed development within a jurisdiction's Coastal Zone boundary. The implementation program includes the zoning ordinances, zoning district maps, specific plans, and other implementing actions that must conform with and can carry out the goals and policies of the certified coastal element. Chapter 216 Coastal Conservation District of the Zoning Code implements the General Plan and LCP land use designation of Open Space: Conservation; and also provides policies for the protection, maintenance, restoration and enhancement of wetlands and environmentally sensitive habitat areas located in the Coastal Zone.

County of Orange Health Care Agency

As part of the OCHCA, Environmental Health's Ocean Water Protection Program is responsible for protecting the public from exposure to ocean and bay waters that may be contaminated with sewage or may cause illness along Orange County's 42 miles of open ocean coastline and 70 miles of harbor and bay frontage.

Ocean and bay waters used for body-contact recreational activities such as swimming, surfing, and diving must meet specific bacteriological standards to be considered safe for such purposes. Over the past 40 years, the OCHCA, the Sanitation District, and the South Orange County Wastewater Authority have been testing the coastal waters in Orange County for bacteria that indicate the possible presence of disease-causing organisms.

Presently, the Ocean Water Protection Program staff and the Sanitation District participate in collection of water samples at approximately 150 ocean, harbor and bay monitoring locations throughout coastal Orange County five days per week. In 2008, OHCA and the two sanitation agencies collected over 12,750 ocean, harbor, and bay water samples and performed approximately 38,500 analyses to determine the results for three indicator bacteria used for compliance purposes (i.e., total coliform, fecal coliform, and enterococcus).

The Ocean Water Protection Program staff reviews the bacteriological water samples results daily and if warranted issues ocean and bay water closures, postings and health advisories under the requirements stipulated by the California Health and Safety Code and Title 17 of the California Code of Regulations. When the results of testing indicate that one or more of the AB 411 Ocean Water-Contact Sports Standards have been exceeded, the public is notified (i.e., signs are posted at the beach, hotline and web page are updated).

TABLE 4.10-3
NPDES PERMIT DISCHARGE REQUIREMENTS AND OCSD'S ANNUAL AVERAGE INFLUENT AND FINAL EFFLUENT DISCHARGE VALUES

Constituent	OCSD's Combined Influent Annual Average 2009/2010	NPDES Permit Discharge Requirement			Final Effluent Annual Average 2009/2010[a]	Final Effluent Average July 2011-Sept. 2011[b]	OCSD's Compliance with NPDES Permit Limits
		30-Day Average	7-Day Average	Daily Maximum			
Flow, MGD	207	–	–	–	152		–
BOD, mg/L	250	100	–	–	36	9.4	Yes
BOD, MT/month	–	2,750 [2]	–	–	620	–	Yes
Suspended Solids, mg/L	309	55	–	–	30	7.3	Yes
Suspended Solids, MT/month	–	1,420[b]	–	–	518	–	Yes
Grease and Oil, mg/L	59.8	25	40	75	7.4	ND	Yes
Grease and Oil, lb/day	–	57,963	92,740	173,889	9,270	–	Yes
Settleable Solids, mL/L	–	1.0	1.5	3.0	0.3	<0.1	Yes
Toxicity, acute Tu_a	–	–	–	5.7	1.40	–	Yes
Toxicity, chronic TU_c	–	–	–	181	63.0	–	Yes
Turbidity, NTU	–	75	100	225	29	4.6	Yes
pH	7.9	6.0 to 9.0	6.0 to 9.0	9.0	7.8	7.6	Yes
Total Chlorine Residual, mg/L	–	0.36[c]	–	1.45	0.61	0.17	Yes
Total Chlorine Residual, lb/day	–	834[c]	–	3,361	765	–	Yes
Benzidine, ug/L	ND	0.01249	–	–	ND	ND	Yes
Benzidine, lb/day	–	0.0290	–	–	–	–	Yes
Chloradane, ug/L	ND	0.00416	–	–	ND	ND	Yes
Chloradane, lb/day	–	0.0097	–	–	–	–	Yes
3, 3-dichlorobenzidine, ug/L	ND	1.4661	–	–	ND	ND	Yes
3, 3-dichlorobenzidine, lb/day	–	3.3992	–	–	–	–	Yes
Hexachlorobenzene, ug/L	ND	0.0380	–	–	ND	ND	Yes
Hexachlorobenzene, lb/day	–	0.0881	–	–	–	–	Yes
PAHs, ug/l	ND	1.5928	–	–	ND	ND	Yes
PAHs, lb/day	–	3.6929	–	–	–	–	Yes
PCBs, ug/L	ND	0.0034	–	–	ND	ND	Yes
PCBs, lb/day	–	0.0080	–	–	–	–	Yes
TCDD equivalents, ug/L	NR	0.000000706	–	–	<0.000000421	–	Yes
TCDD equivalents, lb/day	–	0.000001637	–	–	<0.000000775	–	Yes
Toxaphene, ug/L	NR	0.03801	–	–	ND	ND	Yes
Toxaphene, lb/day	–	0.0881	–	–	–	–	Yes

– = Not Determined
ND = Non-detectable
NR = Not required. NPDES Permit requires monitoring and analysis of TCDD equivalents in effluent only.

[a] Based on the average of the values reported in the monthly Discharge Monitoring Report. For values based on 30-day rolling maximum averages, refer to the Benchmark section of the Source Control and Ocean Monitoring Annual Reports
[b] Metric tons/month
[c] 6-month median
SOURCE: Sanitation District, 2011a, 2011b.

4.10.7 Ocean Monitoring Program

Effluent discharged by the Sanitation District is regulated by the United States Environmental Protection Agency (USEPA) and is overseen by the Regional Water Quality Control Board (RWQCB), Region 8 under the Federal Clean Water Act, the California Ocean Plan, and the RWQCB Basin Plan. To ensure receiving water conditions are in compliance with NPDES permit issued in 2004, the Sanitation District is required to conduct an annual Ocean Monitoring Program (OMP) to determine compliance. The intent of the OMP is to document source control and treatment effectiveness in protecting coastal ocean resources. The OMP also evaluates the potential effects of effluent on public health and the environment, including water quality, bottom conditions, biological organisms, and human health. The OMP documents water quality and environmental conditions of the beaches and adjacent areas surrounding the Long Outfall. **Figure 4.10-3** identifies monitoring stations in the surfzone and offshore where data is collected on a routine basis. Data is collected from July to the following June and reported in the Sanitation District's Ocean Monitoring Annual Report. The most recently completed report is for years 2009-2010. It is incorporated in this Draft EIR by reference. **Figure 4.10-3** depicts the Water Quality Stations that are located within the vicinity of the Short Outfall and the Long Outfall.

Table 4.10-3, above, summarizes the NPDES Permit Discharge Requirements and the Sanitation District's Annual Average Influent and Final Effluent Discharge Values for 2009-2010. In May 2011, the Sanitation District brought new trickling filters on line at Plant 2 that have significantly improved effluent quality. **Table 4.10-3** includes effluent quality data from July 2011 to September 2011 that represents effluent quality since the new treatment process was installed. As shown in the Table, the new effluent quality is significantly improved for BOD, TSS, oil and grease, turbidity, and total chlorine residuals.

Table 4.10-4 provides a list of the criteria from the Ocean Monitoring Program and describes the criteria the Sanitation District met the criteria in 2010.

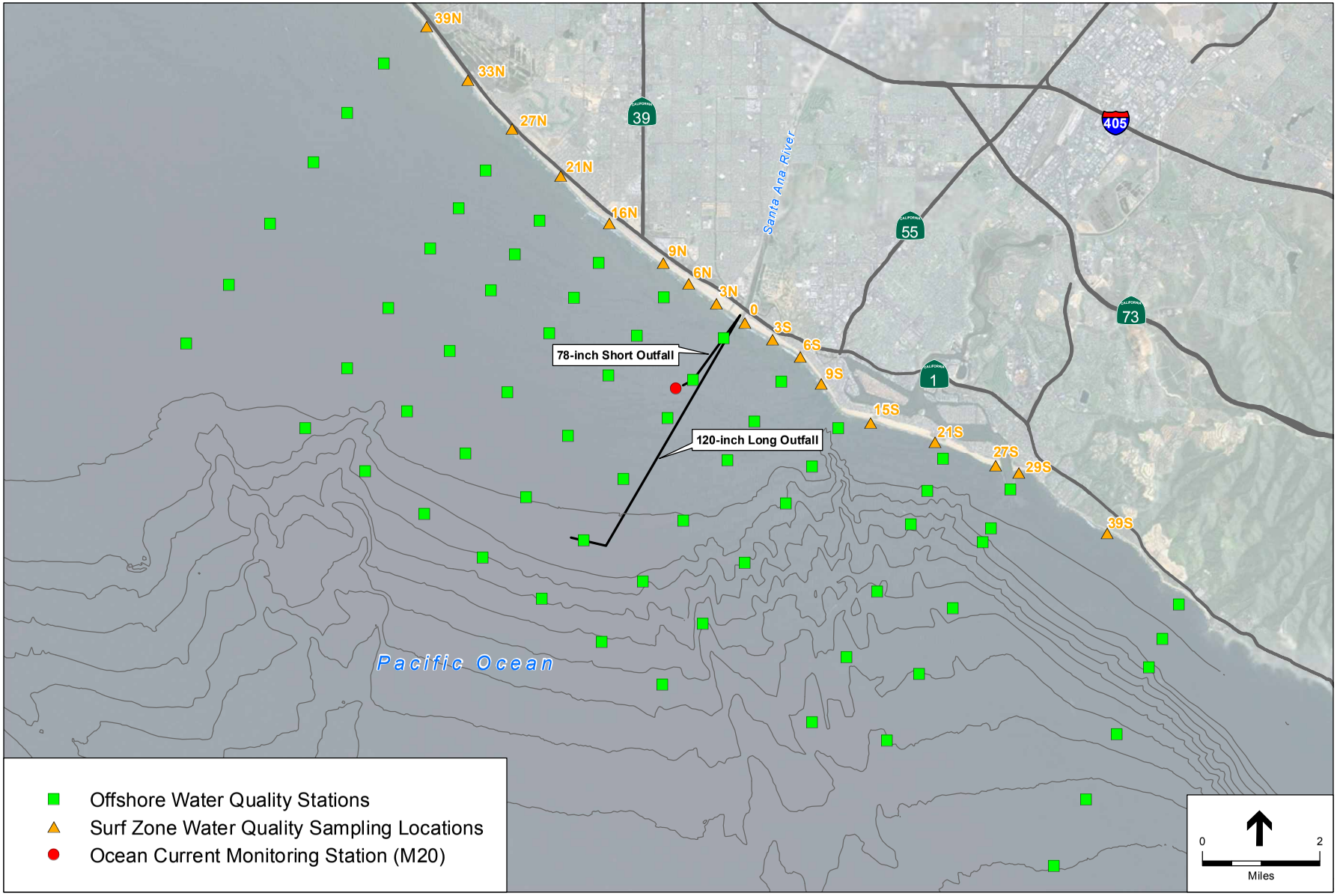
4.10.8 Impacts and Mitigation Measures

Significance Criteria

Impacts to the marine environment are considered significant if they result in non-compliance with the Sanitation District's NPDES permit, the COP, or CEQA guidelines. These regulatory requirements are summarized above.

The proposed Project would impact the Marine Environment if it would:

- Impact temperature and salinity
- Cause impacts to water color, oil and grease, DO, pH, TSS or ammonia
- Cause impacts to sediment quality in terms of organic matter, metals, or trace organics
- Cause impacts to plankton, benthos, or macroinvertebrates



SOURCE: OCSD, 2011.

Outfall Land Section and OOBS Piping Rehabilitation . 211261

Figure 4.10-3

Ocean Monitoring Program Sampling Locations
for OCSD Surf Zone and Offshore

TABLE 4.10-4
LISTING OF COMPLIANCE CRITERIA FROM NPDES OCEAN DISCHARGE PERMIT (ORDER NO. R8-2004-0062, PERMIT # CAO110604) AND COMPLIANCE STATUS FOR EACH CRITERION IN 2009–2010

Criteria	Description	Criteria Met?	Comments
Bacteria Characteristics			
C.2.a.1	Total coliform (water contact)	Yes	Compliance was achieved 100% of the time in the Offshore Zone (Chapter 3). Nearshore compliance, based on more restrictive shellfish standard (C.2.b below), was achieved 96.6% and 95.6% of the time for 30-day median and the 20% standards, respectively.
C.2.a.2	Fecal coliform (water contact)	Yes	Offshore compliance was achieved 100% of the time (Chapter 3). Nearshore samples had 100% and 98.3% compliance for the geometric mean and 10% standards, respectively.
C.2.b	Total coliform (shellfish harvesting)	Yes	Nearshore samples had 96.6% and 95.6% compliance with the 30-day median and the 10% standards, respectively.
C.2.c	Enterococci (water contact)	Yes	Monitoring only. All Offshore Zone samples met 30-day and 6-month permit limits. Nearshore samples met 30-day and 6-month permit limits 97.1% and 96.7% of the time respectively.
Physical Characteristics			
C.3.a	Floating particulates, oils and grease	Yes	No effluent particles, oils or grease were observed during the monitoring year in either the Nearshore or Offshore Zones.
C.3.b	Water clarity and discoloration	Yes	Offshore compliance standards were met 100% of the time.
C.3.c	Light transmittance	Yes	Greater than 96% of the Offshore values were in compliance. All out-o f-compliance values fell within the range of natural variability and would not cause significant environmental effects.
C.3.d	Inert Solids	Yes	There were no measured effects to sediments from discharge-related inert solids.
Chemical Characteristics			
C.4.a	Dissolved oxygen	Yes	Greater than 97% of the Offshore values were in compliance. All out-of compliance values fell within the range of natural variability and would not cause significant environmental effects.
C.4.b	Acidity (pH)	Yes	All (100%) of the values were in compliance.
C.4.c	Dissolved sulfides	Yes	Dissolved sulfide concentrations in sediments did not result in anaerobic conditions.
C.4.d	Table B substances in sediments	Yes	Several metals exceeded the Effects-Range-Low (ERL) at some stations in the submarine canyon or slope stations. No sample exceeded the Effects Range-Median concentration for any metal PCB concentrations were elevated near the outfall compared to other sites. DDT levels were elevated above the ERL at most sites. Whole sediment toxicity testing demonstrated measurable toxicity at within-ZID Station 0.
C.4.e	Organics in sediment	Yes	Sediment total organic carbon concentrations did not result in excessive organic loading or anaerobic conditions.

Criteria	Description	Criteria Met?	Comments
C.4.f	Nutrients	Yes	Ammonia values were 20 to a couple of hundred times lower than COP objectives and there were no chlorophyll/plankton associated impacts.
C.4.g	Table B substances in ZID	Yes	None of these constituents exceeded the effluent limitations established in the permit. Reported in Monthly Discharge Monitoring Reports.
Biological Characteristics			
C.5.a	Marine biological communities	Yes	Minor to moderate discharge effects were seen in infaunal assemblage near the outfall, beyond the ZID, but no sample outside of the ZID was classified as "degraded". Trawl sampling results showed that invertebrate and fish populations were generally normal and healthy beyond the ZID and the Long O outfall did not generate diseases.
C.4.b	Fish tissue (taste, odor, and color)	Yes	All collected fish exhibited normal color or odor. All fish muscle appeared normal and comparable to other areas within the SCB.
C.4.c	Fish tissue (bioaccumulation)	Yes	Seven fish had muscle tissue PCB concentrations above the state human health guidelines. Five of these were collected from the farfield site and 2 from the outfall site. All muscle tissue samples contained mercury, PCB, and DDT concentrations below state and federal human consumption guidelines.
Radioactivity Characteristics			
C.6.a	Radioactivity	Yes	Radioactivity is measured in effluent only and reported in the Discharge Monitoring Report. All limits met.

- Cause impacts to pollutants in fish tissues or impacts to fish
- Cause impacts to marine wildlife
- Cause impacts to cumulative load

Impacts are considered significant if they (1) cause a long-term, widespread measurable change in species composition; (2) reduce the population of an endangered species; (3) cause or contribute to a measurable change in function of areas of special biological significance; (4) cause a measurable change in a population or health of any (non-endangered) species of recognized commercial, recreational, or ecological concern; (5) elevate risks to public health to unacceptable levels; or (6) result in the long term closure of beaches to recreational activities.

Methodology and Assumptions

Effluent Discharge Rate

This analysis assumes that under most conditions, the effluent discharge rate to the ocean would range from a low of approximately 80 MGD at 7am to a peak of approximately 185 MGD at 3pm (Sanitation District data for July-Dec 2010, as reported in Moffat and Nichol, 2011). These rates are less than the capacity of the Short Outfall or Long Outfall. As discussed in Chapter 3.0, Project Description, in the event of rainfall during the project period, onsite storage would be

used to maintain the discharge rate below the available outfall capacity. This use of onsite storage would result in attenuated peak discharge in exchange for slightly longer periods of elevated discharge.

Enhanced Disinfection Treatment

An Effluent Bacteria Reduction Demonstration Study was conducted by the Sanitation District in July and August of 2011(see Appendix F.6). The purpose of this study was to operate the Sanitation District's treatment plants in a manner that would reduce FIB counts in the final effluent to levels at or near the geometric mean standards for beach water quality (enhanced disinfection). The bacterial reduction was expected to be achieved through a combination of increased bleach disinfection and operation of the secondary treatment processes without disruption.

It is important to note that the study showed excellent results despite the fact that the Sanitation District was still in a transition period of bringing the new trickling filter process on-line at Plant 2. With the start-up of additional secondary treatment facilities by the summer of 2012, improved bacterial reductions can be expected. The Sanitation District has sufficient disinfection system capacity to provide enhanced disinfection to the levels as described in the Effluent Bacteria Reduction Demonstration Study on a continuous basis. The bleach dosage would be further increased by 1 mg/L, as needed, during discharge through the Short Outfall for Alternative 2 in order to ensure that maximum bacterial reduction is obtained while continuing to meet the Sanitation District's chlorine residual limits.

The Effluent Bacteria Reduction Demonstration Study confirmed the Sanitation District's ability to sustain this treatment and quantifying the resulting effluent concentration. Effluent FIB concentrations during fall 2010 and during the enhanced treatment testing in 2011 are summarized in Error! Reference source not found.**5** for total coliform, fecal coliform, and enterococci. The enhanced treatment produced effluent that also met all other water quality standards, including the chlorine standard. With enhanced treatment, the indicator bacteria levels were approximately twenty to sixty times lower than in the fall 2010 effluent discharged to the Long Outfall. In fact, with enhanced treatment, indicator bacteria concentrations met 30-day geometric mean criteria at the end of the pipe, before any mixing with ocean waters. Concentrations for all non-bacterial constituents are assumed to be similar to concentrations in recent years' effluent, as summarized in Sanitation District 2010 Operations and Maintenance Report, 2011 (OCSD, 2011b).

TABLE 4.10-5
AVERAGE EFFLUENT CONCENTRATIONS OBSERVED IN FALL 2010 AND ANTICIPATED FOR ALTERNATIVE 2 ENHANCED TREATMENT, IN MPN/100 ml

Indicator Species	Fall 2010	Alternative 2 Enhanced Treatment[a]
Total coliform	41,000–47,000	632
Fecal coliform	4,400–8,800	153
Enterococci	1,200–3,600	20

[a] Sanitation District, 2011d

This analysis assumes that under Alternative 1, discharge quality would comply with the existing NPDES permit for discharge to the Long Outfall. Under Alternative 2, this analysis assumes that enhanced disinfection would be provided during the period of discharge to the Short Outfall.

Initial Dilution

An EPA-approved model, the Cornell Mixing Zone Expert System (CORMIX), was configured to predict expected initial dilution of the Short Outfall plume (Moffat and Nichol, 2011). Under a range of ocean conditions for typical fall conditions, the initial dilution ratio ranged from 34 to 190 within approximately a quarter mile of the outfall. For all conditions, an outfall discharge rate of 200 mgd was used in the model, which is higher than the average daily peak discharge of approximately 185 mgd typical of dry season conditions and hence underestimates the dilution ratio. The lowest dilution values are predicted for conditions with no ambient currents whereas the higher values are for ambient currents of 0.66 feet per second. As per the COP (SWRCB, 2005), the no ambient current case is used for evaluating potential plume impacts. In actuality, periods with no ambient currents are likely to occur only briefly; therefore, dilution estimates from this condition most likely represent lower-than-expected dilution rates. Averaging the estimated September, October, and November dilution ratio for no ambient currents yields an estimated dilution ratio of 36:1. Concentration estimates which use this value are likely to represent infrequent and higher concentration values; typical concentrations are likely to be lower. **Table 4.10-6** summarizes expected changes in receiving water for constituents of concern assuming a 36:1 dilution ratio.

TABLE 4.10-6
EXPECTED CHANGES TO TYPICAL RECEIVING WATER PARAMETERS FOLLOWING INITIAL DILUTION OF 36:1

Parameter	Final Effluent Mean[a,b]	Approx. Natural Mean[c]	Expected Change (%)[d]			COP Objective[e]
Temperature (ºC)	25.1	17.4	Increase up to	0.21	(1.2)	Not Applicable
Salinity (psu)	2.25	33.42	Decrease up to	-0.84	(2.5)	Not Applicable
Dissolved Oxygen (mg/L)	1.52	8.39	Decrease up to	-0.19	(2.2)	<10% decrease
pH	7.2	9.14	Decrease up to	-0.03	(0.3)	$\leq \pm$ 0.2 units
Ammonia (mg/L)	24.3	0.01	Increase up to	0.67	(6600)	Does not cause objectionable growth or degrade biota
Total Coliform$_{opt}$	632	10	Increase up to	17	(168)	$\leq$ 1,000
Fecal Coliform$_{opt}$	153	10	Increase up to	4	(39)	$\leq$ 200
Enterococcis$_{opt}$	20	10	Increase up to	0	(0)	$\leq$ 35

[a] Effluent values from SAIC (2001)
[b] Mean values based on log mean of final effluent data, July 25 – August 15, 2011, except ammonia, which is based on monthly average of final effluent data, July 2011 – September 2011
[c] Summer and fall mean values from Station 2202, July 1998 – May 2011
[d] Expected change formula: ((Natural value*36)+(Final Effluent value*1))/37)-Natural value
[e] Bacteria COP Objectives represent the 30-day geometric mean standards

SOURCE: Sanitation District, Table 1, 2011d.

The following sections discuss the potential effects of the proposed project to the marine environment according to the key issue areas identified in the 1999 Strategic Plan Program EIR and corresponding to the significance criteria identified above.

Impact Analysis

Alternative 1

Under Alternative 1, the full effluent flow would be discharged to the Long Outfall similar to existing conditions, except that the full flow would receive secondary treatment as required in the Time Schedule Order approved by the RWQCB. The Sanitation District would comply with its NPDES permit requirements. No changes would occur to the ocean water quality, sediment quality, biota, or public health.

A peak flow analysis was performed to determine if there would be any impacts of the capacity reduction resulting from use of the bypass structure during winter storms in January and February (see Appendix E). The analysis concluded that the potential to exceed the discharge capacity of the Long Outfall requiring an emergency discharge to the Short Outfall during rain events is nearly zero (0.003 percent), therefore discharge to the Short Outfall would not be required.

Alternative 2

Under the peak flow analysis for Alternative 2 (see Appendix E), the potential to exceed the discharge capacity of the Short Outfall during September and October requiring an emergency discharge to the SAR is nearly zero, therefore discharge to the Short Outfall would not be required.

The following analysis briefly describes how implementation of Alternative 2 would have no impact on the following environmental resources or would not alter the condition evaluated in the Sanitation District's 1999 Strategic Plan Program EIR.

Impacts to Pollutants in Fish Tissues

According to the 2010 Sanitation District Ocean Monitoring Program, observed mercury, pesticide and PCB pollutant levels in fish collected in the vicinity of the Long Outfall show no indication of impacts from these pollutants due to use of the Long Outfall. For Alternative 2, the loading of these pollutants for the Short Outfall would be the same as the pollutant loading for the Long Outfall. The difference between discharges to the Long Outfall and Short Outfall is the initial dilution of effluent at the ZID. Impacts to fish tissues are related to chronic exposure over a longer period of time. The change in location of discharge, particularly for such a short period, would not cause a significant increase to pollutant loads or be different from those currently experienced by use of the Long Outfall. It is not anticipated these changes would have any impact on pollutant pathways; therefore, there would be no changes from discharging to the Short Outfall to cause impacts to fish tissue. Additionally, the transitory ranges of fish are likely more than the distance between the Long Outfall and Short Outfall. Moreover, pollutants of concern (mercury,

pesticides, and PCBs) are not sensitive to initial dilution characteristics of the plume since these pollutants occur in trace levels within the water column and become a concern through bioaccumulation within the food chain. For these reasons, there would be no impact to pollutants in fish tissues.

Cumulative Load

Cumulative loads are analyzed at a regional scale and the proposed Project is not changing the amount of effluent being discharged to the ocean. Alternative 2 would shift the location of the discharge, but this change of location would not be significant on the regional scale. The discharge to the Short Outfall could add to the cumulative load in surfzone environments due to the reduced water quality that is caused by surface water runoff during storm events. However, the substantial dilution of 36:1 anticipated and the enhanced level of treatment would not contribute significant amounts of contaminants to the near shore environment that could result in cumulatively significant pollutant loads. Therefore, no impacts are associated with the cumulative loads.

Water Quality

Impact 4.10-1: Discharge through the Short Outfall for a period from four to six weeks would not significantly alter temperature and salinity in the marine environment near the point or discharge or beyond the zone of initial dilution.

Temperature

The effluent discharged to the ocean is generally warmer than the receiving waters. After initial dilution of 36:1, the Short Outfall's plume is predicted to increase temperatures in the receiving waters by up to 0.2°C (Sanitation District, 2011d). These plume-induced variations are considerably less than natural variation observed in the water column near the Short Outfall. For example, the standard deviation of water column temperature for the fall season (1998-2011) was 1.4°C, seven times the expected increase associated with the plume. The main effect of this warmer water is that it tends to be less dense and more buoyant than the ocean receiving waters. The buoyancy is strongest during late spring through early fall, when the water column exhibits greater vertical temperature variations. Because of its buoyancy, the plume entrains colder, deeper water and conveys it upwards. Observations of this temperature structure made during the summer and fall 2009 near the Long Outfall found that entrained temperature variations attributable to the plume were less than 1 degree Celsius. Because plume-induced temperatures changes are likely to be smaller than natural variations and constrained to the vicinity of the Short Outfall, no significant impacts on temperature are anticipated.

Salinity

The effluent discharged to the ocean is nearly freshwater, with a salinity of just over 2 practical salinity units (psu), as compared to approximately 33 psu for the receiving ocean water. Because of this lower salinity and warmer temperature, the plume is less dense and more buoyant than the receiving waters and tends to rise in the water column as it mixes.

After initial dilution of 36:1, the Short Outfall plume is predicted to reduce salinity in the receiving waters by up to 0.8 psu (Appendix F.4). This reduction in salinity is three to four times

larger than the range of natural salinity variability during the summer and fall but only a 2.5 percent change relative to ambient conditions. This is less than the annual variability during the winter when river discharges to the ocean at the Short Outfall alter salinity by more than 1 psu. Salinity differences between the plume and the ocean would become indistinguishable where mixing by ocean currents would further dilute the plume at the Short Outfall diffuser. Because the plume's influence on salinity is less than annual natural variability, the reduction in salinity due to the use of the Short Outfall is negligible, and the use of the Short Outfall would not result in a significant impact to salinity.

Significance: Less than significant.

Impact 4.10-2: Discharge through the Short Outfall for a period of up to six weeks would not significantly affect water quality parameters of dissolved oxygen, oil and grease, pH, total suspended solids, water clarity, or ammonia.

Dissolved Oxygen

The Sanitation District's effluent has a mean dissolved oxygen (DO) level of 1.5 mg/L, which is lower than the average DO of 8.4 mg/L observed in the ocean near the Short Outfall (Sanitation District, 2011d). After initial dilution of 36:1, the Short Outfall's plume is predicted to decrease the receiving water's DO by up to 0.2 mg/L, a suppression of 2.2 percent. This percent suppression is substantially less than the regulatory limit of 10 percent. In addition, this decrease is less than natural variability during the fall, which was observed to have a standard deviation of 0.7-0.9 mg/L between 1998 and 2011 (Sanitation District, 2011d). Besides the decreased DO of the effluent itself, the discharge plume entrains water from deeper and less oxygenated layers and brings it toward the surface. Observations at the Long Outfall indicate that this entrainment does not negatively affect the marine environment. In addition, the effluent averages 9.4 mg/l BOD. After the 36:1 dilution, BOD concentrations would be less than 1 mg/l. The NPDES permit limit for BOD is 100 mg/l (Sanitation District, 2011b). Because of these findings, discharge to the Short Outfall under Alternative 2 would not result in a significant impact.

Oil and Grease

The Sanitation District's NPDES permit and the COP state that the 30-day limit for oil and grease is 25 mg/L or 57,963 lbs/day and "floating particulates and oil and grease (of potential sewage origin) shall not be visible." Mass loading of oil and grease discharged to receiving waters has declined to below the detection limit (**Table 4.10-3**). This continues the long-term trend of decreasing oil and grease loading from the Sanitation District treatment plants, primarily due to source control measures. At the present treatment level of discharge, there has been no indication of any observable floatable loads in the offshore, nearshore, or surfzone, and, thus, the discharge meets all compliance objectives (Sanitation District, 2011a).

Discharge to the Short Outfall under Alternative 2 would maintain similar levels of oil and grease concentration in the effluent, and, thus, be in compliance with discharge limits. Since effluent oil and grease levels are below detection limits, the potential for discharge to the Short Outfall causing observable floatables is believed to be small even though the Short Outfall plume is

likely to reach the water surface. Due to the temporary nature of the discharge and low levels of oil and grease in the effluent, impacts would be less than significant.

pH

The Sanitation District's effluent has a mean pH of 7.6, slightly lower than the average pH of 8.1 observed in the vicinity of the Short Outfall. After initial dilution of 36:1, the Short Outfall's plume is predicted to decrease the receiving water's pH by up to 0.02. This decrease is less than natural variability during the fall, which was observed to have a standard deviation of 0.1 between 1998 and 2011 (Sanitation District, 2011d). The predicted decrease is also considerably less than the COP objective, which specifies that changes resulting from the discharge be less than 0.2. Because the anticipated changes are less than natural variation and regulatory standards, this aspect of the discharge would not result in a significant impact.

Total Suspended Solids (TSS)

As a result of treatment upgrades, effluent TSS concentrations have typically averaged 7.3 mg/L since the new treatment systems have been put in use in 2011, well below the current NPDES permit limit of 55 mg/L (Sanitation District, 2011b). Based upon an average dilution of 36:1, the expected change in TSS concentration above ambient concentrations in the receiving waters is calculated to be 0.20 mg/L. Ambient TSS concentrations in the receiving water, as measured during the Sanitation District's OMP, range from below detection limits to approximately 30 mg/L, but most overall mean values are between 2 and 5 mg/L (CSDOC, 1996a). Thus, expected increases in TSS concentrations in the receiving waters due to the effluent are well within the range of natural variability. Impacts would be less than significant.

Water Clarity

Besides TSS, the other measured effluent property that characterizes water clarity is turbidity. Average effluent turbidity was 4.6 Nephelometric Turbidity Unit (NTU), less than the NPDES permit limit of 75 NTU (Table 4.10-3). Ocean monitoring at Sanitation District Station 2202, located at the terminus of the Short Outfall, indicated negligible effect on Secchi depths, water color, and photosynthetically active radiation and minor effects on light transmissivity (Sanitation District, 2011a) and colored dissolved organic matter (CDOM) fluorescence (Sanitation District, 2011d). Discharges to the Short Outfall would not result in significant changes to water clarity.

Ammonia

The Sanitation District's effluent has a typical ammonia concentration of 24.3 mg/L, which is higher than background levels in the vicinity of the Short Outfall, which are below the non-detect limit of 0.02 mg/L. After initial dilution of 36:1, the Short Outfall's plume is predicted to increase the receiving water's ammonia by up to 0.67 mg/L (Table 4.10-6). These diluted values are substantially below the COP criteria for chronic (4 mg/L) and acute toxicity (6 mg/L).

Summary

The use of the Short Outfall under Alternative 2 would discharge secondary effluent with enhanced disinfection and dechlorination. The effluent quality would exceed the quality currently discharged to the Long Outfall due to the enhanced disinfection and the completion of the secondary treatment facilities to be placed into operation at the end of 2012. Acute water quality

degradation is not anticipated during the 4 to 6 weeks of Short Outfall use. Monitoring at the Long Outfall over decades has found negligible water quality impacts outside the ZID. The discharge would be protective of COP water quality objectives and NPDES permit discharge requirements. Impacts to ocean water quality would be less than significant.

Significance: Less than significant.

Sediment Quality and Benthic Communities

Impact 4.10-3: Discharge through the Short Outfall for a period of up to six weeks would not significantly affect sediment quality or benthic communities due to organic matter, metals, or trace organics

Use of the Short Outfall under Alternative 2 would not change the loading rate of organic matter, metals, or trace organics discharged to the ocean; these loading rates would remain the same as currently permitted. Use of the Short Outfall would shift the location of the discharge where particulates would settle onto the ocean floor near the Short Outfall. However, since deposition rates are so slow, as evidenced by the minimal impact of the Long Outfall on the bed over decades, use of the Short Outfall for 4 to 6 weeks would not significantly affect sediment quality.

An indication of the small deposition rates is the slight changes in bed sediment composition and quality caused by the Long Outfall even after almost four decades of use. Changes to sediment quality, slight as they are, are largely limited to the immediate vicinity of the Long Outfall, in an area roughly corresponding to the ZID and in some deeper, depositional areas, such as the San Gabriel Canyon (Sanitation District, 2011a). Deposition of solids from use of the Short Outfall for up to 6 weeks would not be sufficient to alter the benthic environment or negatively impact the macroinvertebrates that colonize this environment. There would be no permanent loss of benthic habitat.

The NPDES criteria for sediment quality do not impose specific numeric limits, but rather specify that discharge-sourced deposition should not degrade biota communities. To evaluate potential impacts to sediment quality, the Sanitation District employs several observation approaches: comparison of measured pollutant concentrations against non-regulatory toxicity thresholds, toxicity bioassays, and benthic macroinvertebrate assessments. In most cases, individual pollutant concentrations may be correlated with the outfall, but are below toxicity thresholds. In addition, a combined score to assess cumulative toxicity of multiple pollutants indicates a low probability of sediment toxicity outside the ZID. Toxic bioassays test benthic invertebrate survival when exposed to sediment samples. In seven years of sampling, the bioassays have only found a minor, but statistically significant increase in toxicity of sediment from a location immediately adjacent to the Long Outfall. Assessment of benthic macroinvertebrates also indicates modest decline in community health within the ZID. The proximity of these impacts indicates the plume as a likely source, but the specific aspect(s) of sediment geochemistry which may be causing the impacts are unclear. Overall, these impacts are small and localized near the outfall. In comparison, the brief, 4-6 week use of the Short Outfall under Alternative 2 is not expected to generate enough deposition to cause significant impact to sediment quality or to benthic organisms.

Significance: Less than significant.

Phytoplankton

Impact 4.10-4: Discharge through the Short Outfall for a period of up to six weeks could induce phytoplankton blooms that could be harmful to fish, shellfish marine mammals, shellfish, and via shellfish, consumption impacts to human health.

Use of the Short Outfall may increase the potential for phytoplankton blooms. An analysis conducted by USC professors for purposes of this Project (Appendix F.5) concluded that a phytoplankton bloom could occur during the use of the Short Outfall. Blooms may occur in response to effluent discharge because the plume increases nitrogen supplies in the sunlit ocean waters where phytoplankton can actively grow. Phytoplankton growth in the ocean can be limited by the lack of nitrogen, which is supplied by the discharge in the form of ammonia. Alternative 2 would not change the total amount of ammonia discharged to the ocean and the concentrations would meet permit limits. However, due to the shallow depth of the Short Outfall, the effluent plume is expected to rise to the surface which does not occur from the Long Outfall. Compared to Long Outfall discharge, ammonia in the Small Outfall plume would cause higher concentrations closer to surface, where sunlight penetrates the water to energize phytoplankton growth.

Although discharge through the Short Outfall would increase the potential for phytoplankton growth by making environmental conditions more favorable, several other factors would also influence whether growth would be rapid enough to cause a bloom. Algal growth requires ammonia and other nutrients, sufficient sunlight, and initial starter organisms in order to progress rapidly. Ocean currents reduce the potential for blooms by diluting the ammonia concentrations. The speed of the dilution would depend on the prevailing currents and weather. Phytoplankton consumers, typically zooplankton, may also graze phytoplankton sufficiently fast to limit bloom concentrations (Jones and Caron, 2011).

Phytoplankton blooms can have negative impacts on water quality and other biota by suppressing light levels or dissolved oxygen in the surface waters. Phytoplankton can suppress light levels when their concentrations are large enough to shade the water column. Suppressed dissolved oxygen can occur when a bloom collapses and creates an unbalanced oxygen demand for consumption of the residual phytoplankton biomass. Some blooms produce toxic byproducts that can affect shellfish, fish, and marine mammals. Because the byproducts typically affect only a narrow species or food chain pathway, the effects would be highly dependent on the species of phytoplankton that responds to the Short Outfall discharge with uncontrolled growth (Jones and Caron, 2011). Toxins can be passed on to human consumers of shellfish and, for this reason, there is an existing statewide ban on sport-harvested mussels. The annual mussel quarantine is issued for the entire California coastline, usually from May 1st through October 31st (CDPH, 2011). This ban is typically in place throughout the rehabilitation period for Alternative 2.

The extent of any negative impacts from toxic phytoplankton blooms would be limited by the plume's patchiness, advection out of the area by currents, waves, weather, and the duration of the

Short Outfall discharge. Because the plume disperses in different directions, creating patchiness, the contiguous areas of high ammonia concentration would intersperse with ambient ocean water (Moffat and Nichol, 2011).

Discharge to the Short Outfall increases the potential for phytoplankton blooms to occur near the discharge point due to the surfacing of the plume. However, the extent of any bloom would depend on weather, currents, and the presence and species of initial starter organisms. Since the duration of the discharge under Alternative 2 would be limited to 4 to 6 weeks the potential for large blooms to occur that would block sunlight into the water column or affect oxygen levels is limited. The potential that a toxic phytoplankton bloom would occur that could affect shellfish or marine mammals is unknown, as these species, even if present, do not always produce toxins. Due to the rapid nature of phytoplankton response to nutrients. once the discharge stops or the currents disperse the nutrients in the plume, the bloom would disperse and any adverse effects would not be chronic. Mitigation to monitor the receiving waters and to relay information to resource agencies would ensure that the potential adverse affects are detected and that measures to monitor and protect marine mammals and close shellfish beds could be implemented if needed by local marine resource agencies.

As identified above, significance thresholds for impacts to the marine environment include (1) cause a long-term, widespread measurable change in species composition; (2) reduce the population of an endangered species; (3) cause or contribute to a measurable change in function of areas of special biological significance; (4) cause a measurable change in a population or health of any (non-endangered) species of recognized commercial, recreational, or ecological concern; (5) elevate risks to public health to unacceptable levels; or (6) result in the long term closure of beaches to recreational activities. Due to the short duration of the discharge and dispersal influence of currents, the potential is low for a toxic phytoplankton bloom to exceed these thresholds including long-term measurable changes in species composition, reduction of endangered species populations, alteration of areas of special biological significance, or alteration of population or health of marine wildlife. **Mitigation Measure 4.10-4** requires the Sanitation District to monitor and rehabilitate affected wildlife. Therefore, impacts are considered less than significant with mitigation.

Mitigation Measure

> **4.10-4**: The Sanitation District shall conduct augmented ocean monitoring before, during, and after use of the Short Outfall to detect and quantify changes to phytoplankton from baseline conditions as a result of the Project. Monitoring shall include continuous sampling of the water using water quality moorings and autonomous underwater vehicles. Weekly samples from the Newport Beach and Huntington Beach Piers will be analyzed for nutrients and phytoplankton, including the presence of harmful algal species. The monitoring results will be provided to the CDPH and the OCHCA and will be posted on a publically accessible web page. If harmful algal species are detected, the Sanitation District shall coordinate a response with CDPH, NMFS, and local marine mammal rescue groups to monitor for affected animals. The Sanitation District shall develop a mitigation plan with

the marine mammal stranding network to monitor and rehabilitate animals in the event that a harmful algal bloom occurs during the 4 to 6 week discharge to the Short Outfall.

Significance after Mitigation: Less than significant with mitigation.

Biota

Impact 4.10-5: Discharge through the Short Outfall for a period of 4 to 6 weeks would not result in significant impacts to benthos, fish, shellfish, macroinvertebrates, and marine mammals.

Discharge through the Short Outfall would alter water quality in the marine environment near the Short Outfall diffuser for a period of 4 to 6 weeks. As discussed above, changes to water quality due to use of the Short Outfall would remain below regulatory limits and/or natural variability. Additionally, impacts to sediment quality from deposition of solids including metals and chemicals would be limited due to the high effluent quality and the short duration of the discharge. Epibenthic macroinvertebrates (EMI) and benthic organisms would not be adversely affected either within or outside the ZID. Similarly, fish, birds, and marine mammals can easily move within the affected areas of the Long Outfall and Short Outfall, so the discharge nearer to shore would not create a significant change from existing conditions.

Acute impacts to marine mammals would not occur directly from the discharge. However, as discussed above, if a phytoplankton species that is toxic to marine mammals proliferates and produces toxin, marine mammals could be affected. The potential for a toxic algal bloom to occur as a result of the discharge is unknown and difficult to predict. Toxic algal blooms occur periodically under natural conditions based on climatic conditions, water quality, and the diversity and dispersion of phytoplankton. **Mitigation Measure 4.10-4** would provide for enhanced monitoring for harmful algal species and notification of marine mammal rescue centers if necessary. Due to the low potential for an adverse effect, the short duration of the discharge, and the planned coordination with marine mammal rescue centers, the potential impact would be less than significant.

Mitigation

Implement **Mitigation Measure 4.10-4**

Significance after Mitigation: Less than significant with mitigation.

Public Health

Impact 4.10-6: Discharge through the Short Outfall for a period of 4 to 6 weeks could elevate pathogen concentrations in near shore waters used for water-contact activities and shellfish harvesting which could adversely affect public health.

1987 Short Outfall Test Results

In 1987, the Sanitation Districts conducted a test of the Short Outfall to evaluate its ability to serve as an emergency discharge. Effluent was sent to the Short Outfall from 8AM to 4PM on November 10, 1987. Maximum flows were calculated at 254 mgd during the test period. During the test, the effluent was disinfected and dechlorinated prior to discharge to the ocean. Surfzone and offshore monitoring was conducted to assess whether the discharge plume was detectable in areas where water contact recreation occurs. The results of the test showed that pre-discharge chlorination significantly reduced coliform concentrations in the effluent. Ocean monitoring found no detectable coliform in the surfzone attributable to the discharge. Offshore near the Short Outfall diffuser, maximum total coliforms of 300 MPN and maximum fecal coliforms of 170 MPN were detected (Sanitation District, 1987). Based on the sample results from these tests, the potential for offshore and surfzone water quality to adversely affect public health is low.

Modeling Analysis

The Short Outfall extends from Huntington State Beach approximately one mile into the open ocean, to a depth of approximately 65 feet below sea level. The diffuser at the end of the Short Outfall is approximately 960 feet long. Due to the shallow depth and proximity of the diffuser to the shoreline, effluent discharged from the Short Outfall is likely to rise to the surface and become entrained in currents that may bring the effluent plume to near-shore waters. In order to better understand the dynamics of the effluent plume from the Short Outfall discharge, Moffat and Nichol was contracted to conduct a plume dispersion model specifically to assess the plume dispersion and pathogen transport resulting from use of the Short Outfall under Alternative 2. The dispersion plume model results are included in Appendix F.3 of this Draft EIR.

The results of the Effluent Bacteria Reduction Demonstration Study were incorporated into a plume transport model for the purpose of determining if there would be any impacts to the marine environment from discharging effluent through the Short Outfall to the ocean as part of Alternative 2.

Moffat and Nichol conducted two and three-dimensional modeling of Short Outfall plume transport using commercially available software capable of assessing complex hydrodynamic conditions (MIKE). The model run was peer reviewed for this application and for use in this Draft EIR analysis by Alexandria Boehm PhD, Associate Professor Stanford University. Actual current and wave data were compiled by SAIC from a monitoring station close to the Short Outfall diffuser (Appendix F.1). The Sanitation District has collected current velocity data from this station (a bottom-mounted acoustic Doppler current profiler mooring M20, located at the end of the Short Outfall diffuser since 2004. In addition, SCCOOS compiled available surface current information from their High Frequency Radar stations (Appendix F.2). Analysis of offshore wave data indicates that during the months of September and October, waves are from the west 85-94 percent of the time and from the south 6-15 percent of the time.

In addition to the hydrodynamic modeling, Moffat and Nichol conducted “near-field” initial dilution modeling to estimate the effect of the plume’s buoyancy and ocean currents on mixing within the first few hundred yards from the Short Outfall diffuser. The EPA-approved CORMIX model was employed to assess dilution at the edge of the ZID. Ocean current data from a local

monitoring station served as model input (Appendix F.3). The model reported that an initial dilution factor of 36:1 could be expected at the edge of the Short Outfall ZID, approximately 600 feet from the diffuser. The model also predicts that for the months of August through November the plume would likely reach the ocean surface based on the water temperature and salinity dilution values.

Enhanced Disinfection Demonstration

As part of the proposed Project, to minimize the potential for bacterial indicator organisms and pathogens to reach the near shore environment, The Sanitation District is proposing to implement an enhanced disinfection treatment of the effluent discharged to the Short Outfall. The enhanced treatment is expected to significantly reduce bacterial indicator discharged at the Short Outfall. To assess the effectiveness of this proposed enhanced treatment, the Sanitation District conducted a demonstration project that applied the additional disinfection and dechlorination for a period 22 days in July and August of 2011 and assessed bacterial indicator organism concentrations including total coliform, fecal coliform and enterococci. (Appendix F.6).

The demonstration project found that the enhanced treatment process can achieve indicator bacteria concentrations (total coliforms, fecal coliforms, and enterococci) that meet the 30-day geometric mean standard at the end of the pipe, before being discharged to the ocean as shown by the values in Table 4.10-4. Applying the dilution ratio of 36:1 gives an anticipated average concentration at the edge of the ZID of 17 MPN/100 mL for total coliforms, 4 MPN/100 mL for fecal coliforms, and <1 MPN/100 mL for enterococci (see Table 4.10-6). All of these estimates are well below the COP 30-day geometric mean standards and the fecal coliform and enterococci values are below detection limits as described in the Regulatory Setting under AB 411) Thus, effluent quality at the edge of the ZID is expected to meet near shore water quality standards that are established to be protective of public health.

Outside of the ZID, approximately one mile off shore, mixing and transport of the plume is governed by ocean currents generated by waves, tides, and wind. The modeling indicates that overall plume dispersal patterns are most sensitive to wave direction. Secondary factors are tides, wave height, large-scale currents, and winds.

Indicator Bacteria

Figures 4.10-4 through **4.10-7** present results of the plume modeling that show predicted concentrations of total coliforms, fecal coliforms, and enterococci concentration under differing wave conditions, which appear to be one of the most important plume drivers. For the more frequent western waves, the hydrodynamic modeling predicts that a plume is transported southeast, parallel to shore, and is unlikely to reach the shoreline. For conditions with waves from the south, the hydrodynamic model predicts that the plume would move closer to shore toward the Huntington Beach and Newport Beach coastline.

The modeling predicts concentrations of FIB as the plume is entrained in the currents and dilution and considers bacterial die-off as a function of solar radiation (Please refer to Appendix F.3 for a discussion of important assumptions made for the plume modeling). As shown in Figures 4.10-4 through 4.10-7, the model concludes that under no conditions would concentrations of indicator

bacteria be close to AB 411 standards at the shore line, with these standards being met at the end of the pipe due to the enhanced treatment.

For the worst case conditions with waves from the south (Figures 4.10-6 and 4.10-7), the predicted peak instantaneous indicator bacteria counts at the shoreline are at or below the detection limits: 10 MPN/100 mL total coliforms, 3 MPN/100 mL fecal coliforms and less than 1 MPN/100 mL eneterococci.

The total coliform counts are significantly below the 10 percent exceedance limit for shellfish harvesting (230 MPN/100 mL) and also below the 30-day median limit (70 MPN/100 mL). There are no shellfish harvesting permit limits for fecal coliforms or enterococci.

Although the hydrodynamic modeling strongly suggests that discharging to the Short Outfall under Alternative 2 would meet indicator bacteria water standards, this does not preclude the possibility of certain brief periods where ocean conditions may result in higher concentrations of indicator bacteria than those scenarios that were modeled. For short periods of time, when ocean conditions advect the plume directly to a location within the offshore and nearshore region, instantaneous concentrations may approach the concentrations predicted for the ZID. Specific scenarios that may increase indicator bacteria concentrations include: peaks in effluent concentration, wave events, upwelling, stratification, and internal tides. However, because the ocean conditions are dynamic, not static, the plume's location would likely shift on an hourly basis, minimizing sustained peak concentrations at any one location.

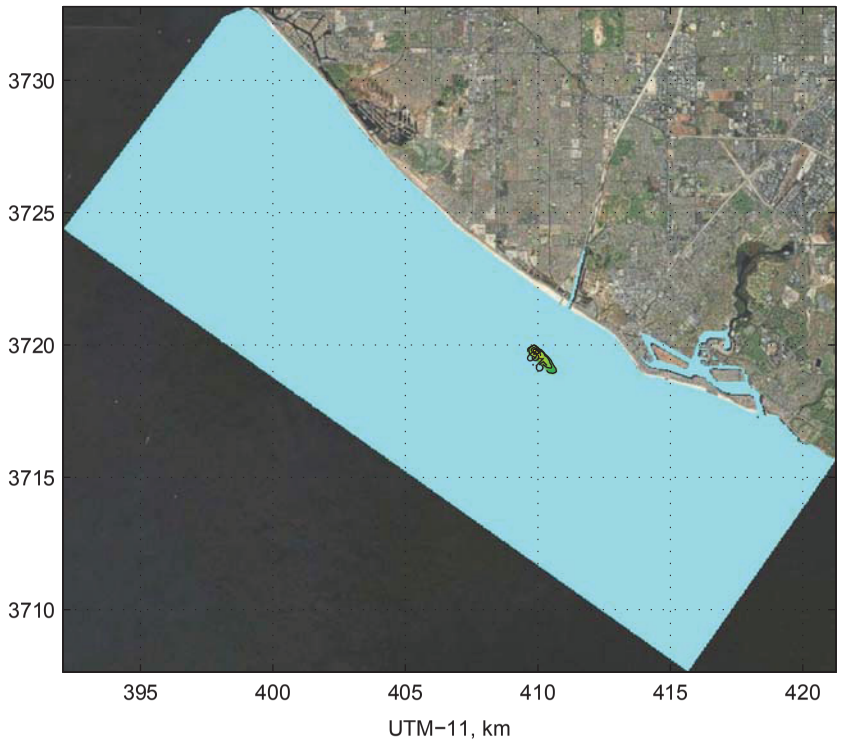
Surfzone Water Quality

The hydraulic model conducted by Moffat and Nichol have shown low potential for FIB to be encountered in the surfzone at detectable levels. Furthermore, studies conducted in 1987 as described above found no increase in surfzone FIB during a test of the Short Outfall. The OCHCA routinely monitors for FIB in the surfzone in coordination with Sanitation District. **Mitigation Measure 4.10-6b** requires the Sanitation District to implement additional monitoring during the period of discharge to the Short Outfall. Water quality sample results would be provided to OCHCA. OCHCA would be responsible for posting or closing beaches depending on the results of the water sampling. Surfzone water quality criteria are clearly established under AB 411 as described in the Regulatory Framework Section above. Compliance with AB 411 surfzone water quality criteria is protective of public health. If ocean monitoring identifies elevated levels of FIB, the OCHCA would impose access restrictions that would be protective of public health. Restricting public access to the ocean would be determined by OCHCA based on its regulatory directive to protect public health.

Shellfish Harvesting

The State of California imposes a quarantine of sport mussel harvesting from May 1 to October 31. If water quality sample results indicate elevated levels of FIB, the OCHCA would be responsible for imposing quarantines on shellfish harvesting in coastal waters. Implementation of an extended quarantine, if necessary as determined by the CDPH, would be protective of public health for the short duration of the discharge to the Short Outfall.

Total Coliform

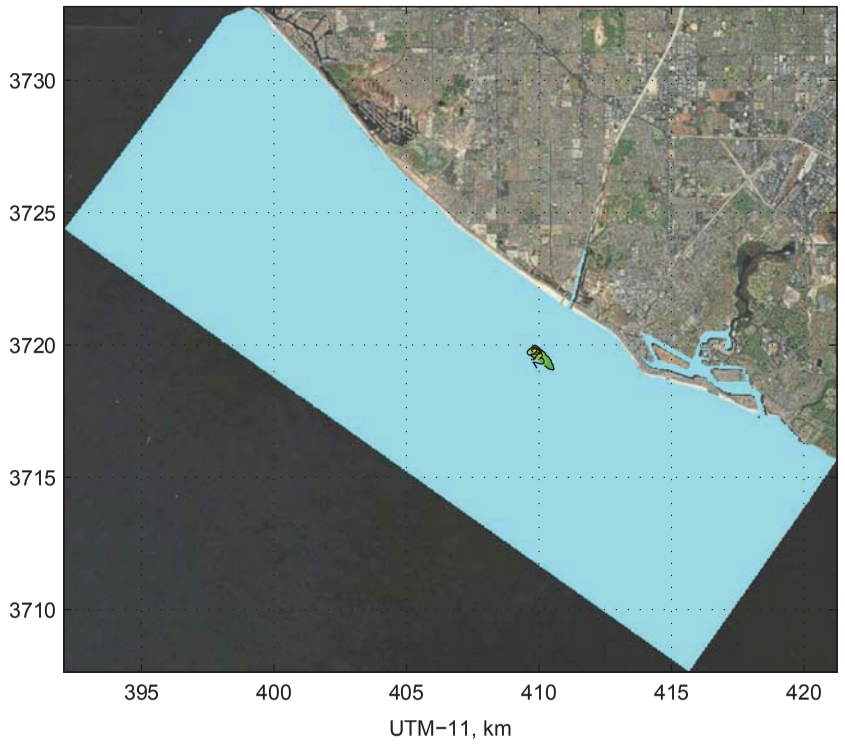


Conc. MPN/100mL

- Above 20
- 15 to 20
- 10 to 15
- Detection Limit
- 5 to 10
- 2 to 5
- 1 to 2
- 0.5 to 1
- Below 0.5

AB 411 30-day Geometric Mean
1,000/100 mL

Fecal Coliform

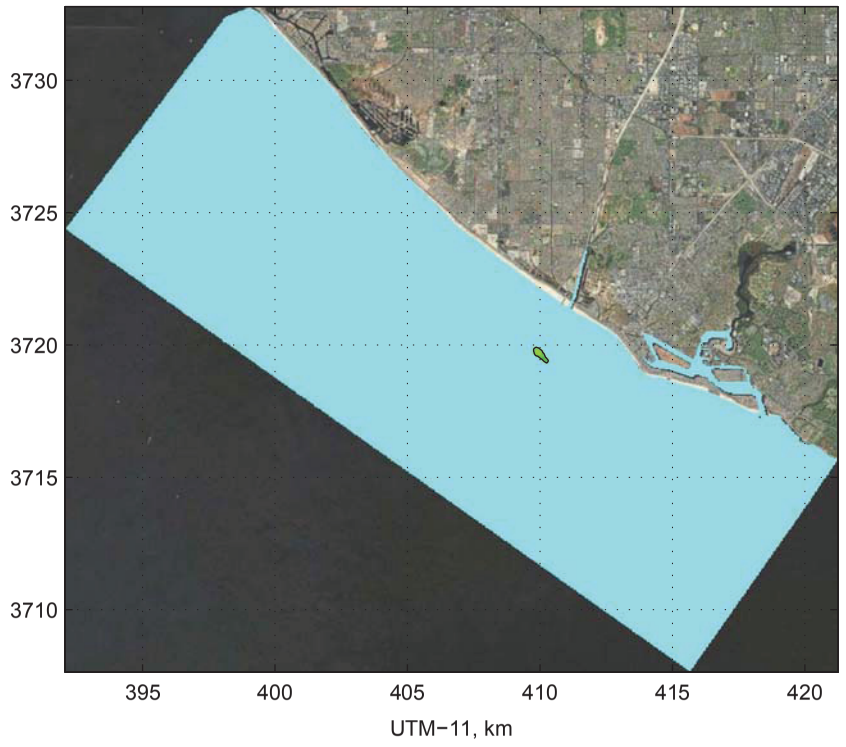


Conc. MPN/100mL

- Above 10
- Detection Limit
- 5 to 10
- 2 to 5
- 1 to 2
- 0.5 to 1
- 0.2 to 0.5
- Below 0.2

AB 411 30-day Geometric Mean
200/100 mL

Enterococci



Conc. MPN/100mL

- Detection Limit
- Above 2
- 1 to 2
- 0.5 to 1
- 0.2 to 0.5
- 0.1 to 0.2
- Below 0.1

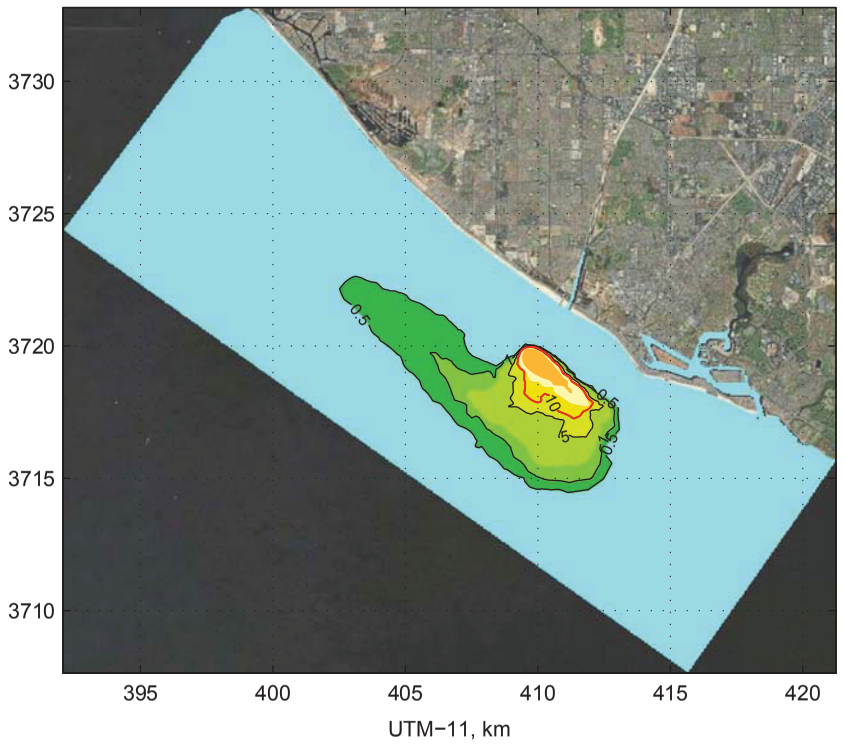
AB 411 30-day Geometric Mean
35/100 mL

CCR 7956 - 7962, Bacteriological
Ocean Water Quality Standards

SOURCE: Moffat & Nichol, 2011.

Figure 4.10-4
Geometric Mean Concentration
September – October
Typical Wave Conditions, (>85%) Westerly Swell

Total Coliform

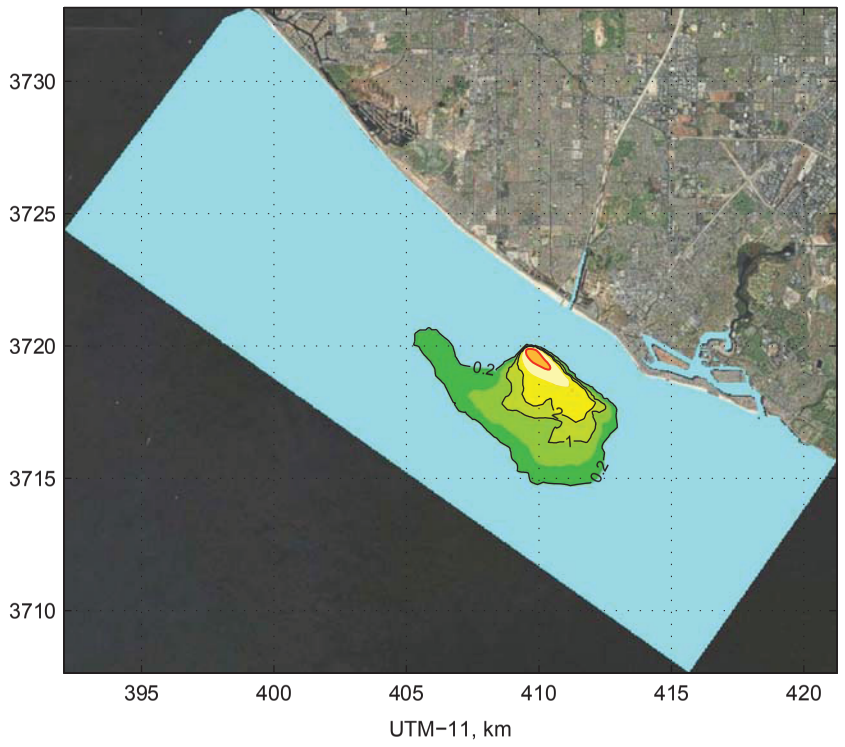


Conc. MPN/100mL

- Above 20
- 15 to 20
- 10 to 15
- Detection Limit
- 5 to 10
- 2 to 5
- 1 to 2
- 0.5 to 1
- Below 0.5

AB 411 Single Sample Standards
10,000/100 mL

Fecal Coliform

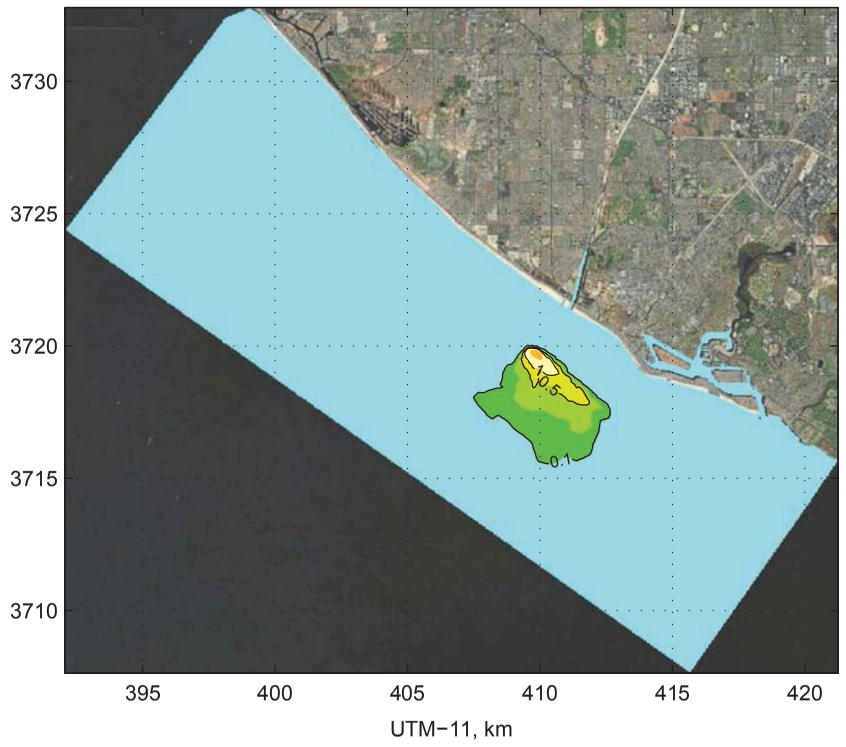


Conc. MPN/100mL

- Above 10
- Detection Limit
- 5 to 10
- 2 to 5
- 1 to 2
- 0.5 to 1
- 0.2 to 0.5
- Below 0.2

AB 411 Single Sample Standards
400/100 mL

Enterococci



Conc. MPN/100mL

- Detection Limit
- Above 2
- 1 to 2
- 0.5 to 1
- 0.2 to 0.5
- 0.1 to 0.2
- Below 0.1

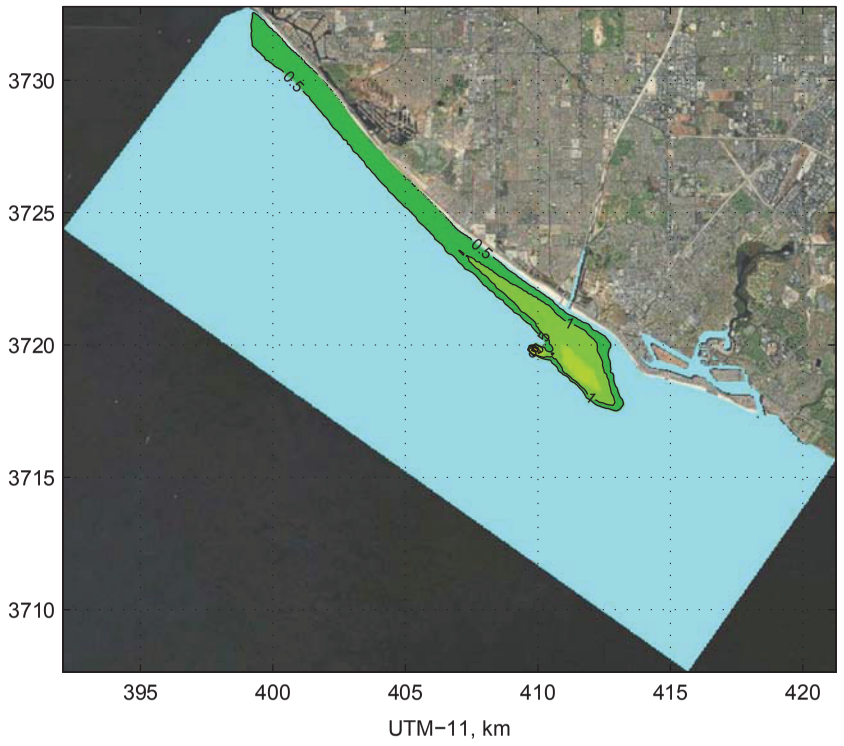
AB 411 Single Sample Standards
104/100 mL

CCR 7956 - 7962, Bacteriological
Ocean Water Quality Standards

SOURCE: Moffat & Nichol, 2011.

Figure 4.10-5
Maximum Concentration
September – October
Typical Wave Conditions, (>85%) Westerly Swell

Total Coliform

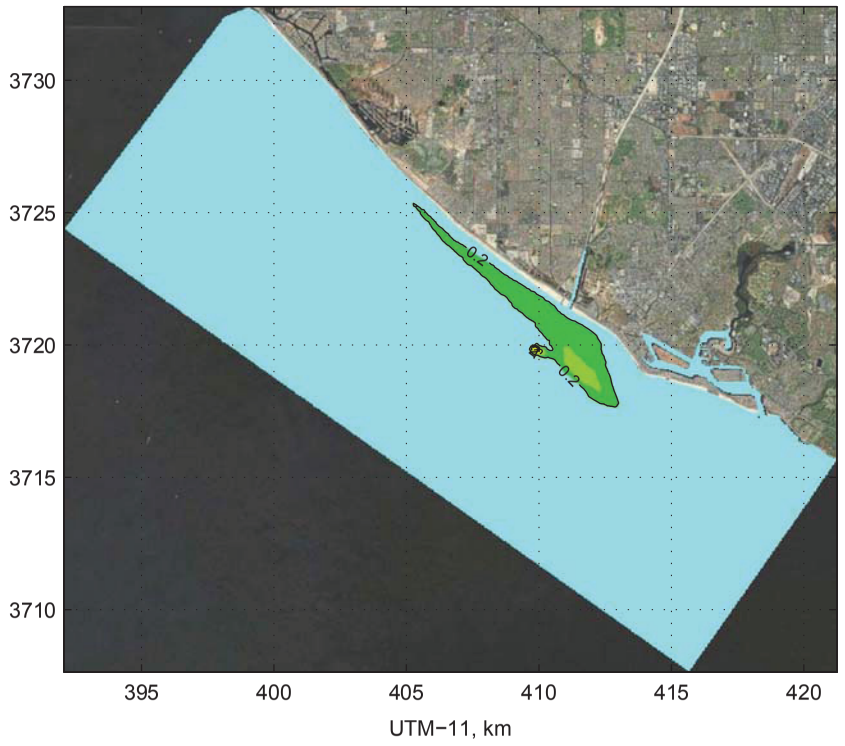


Conc. MPN/100mL

- Above 20
- 15 to 20
- 10 to 15
- Detection Limit
- 5 to 10
- 2 to 5
- 1 to 2
- 0.5 to 1
- Below 0.5

AB 411 30-day Geometric Mean
1,000/100 mL

Fecal Coliform

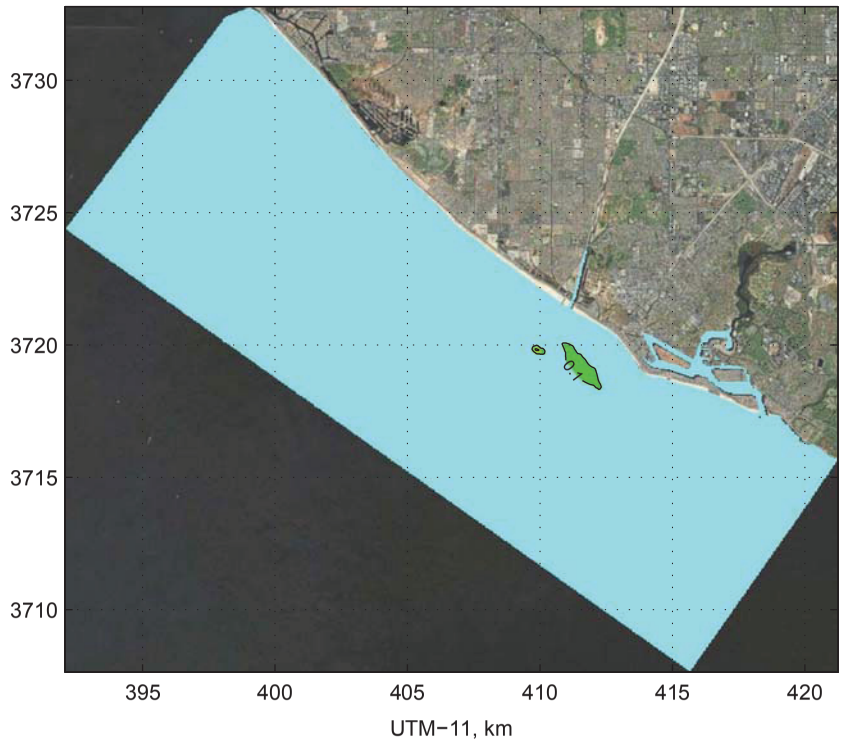


Conc. MPN/100mL

- Above 10
- Detection Limit
- 5 to 10
- 2 to 5
- 1 to 2
- 0.5 to 1
- 0.2 to 0.5
- Below 0.2

AB 411 30-day Geometric Mean
200/100 mL

Enterococci



Conc. MPN/100mL

- Detection Limit
- Above 2
- 1 to 2
- 0.5 to 1
- 0.2 to 0.5
- 0.1 to 0.2
- Below 0.1

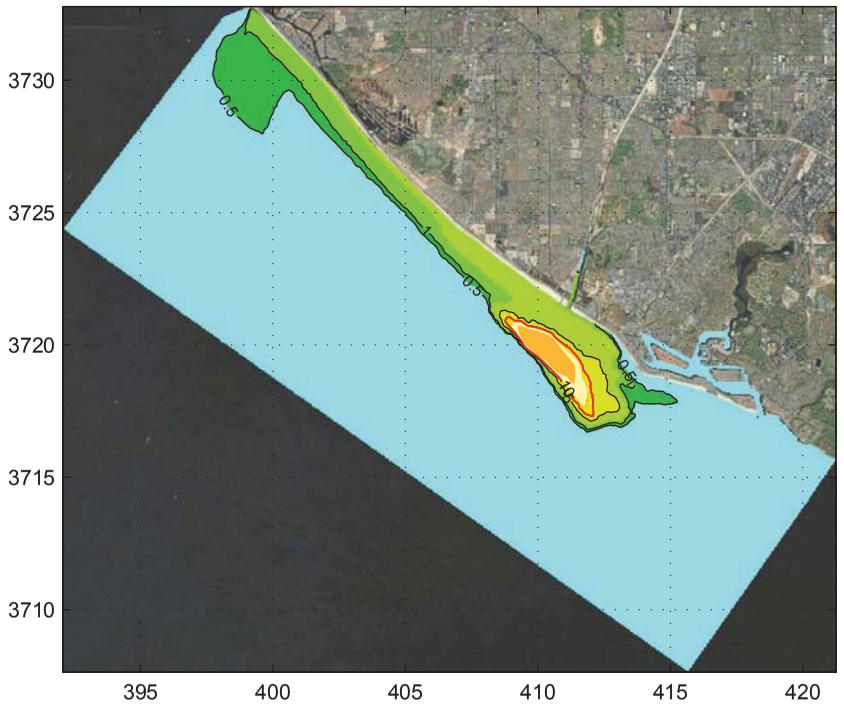
AB 411 30-day Geometric Mean
35/100 mL

CCR 7956 - 7962, Bacteriological
Ocean Water Quality Standards

SOURCE: Moffat & Nichol, 2011.

Figure 4.10-6
Geometric Mean Concentration
September – October
Worst Case Wave Conditions, (<15%) Southerly Swell

Total Coliform

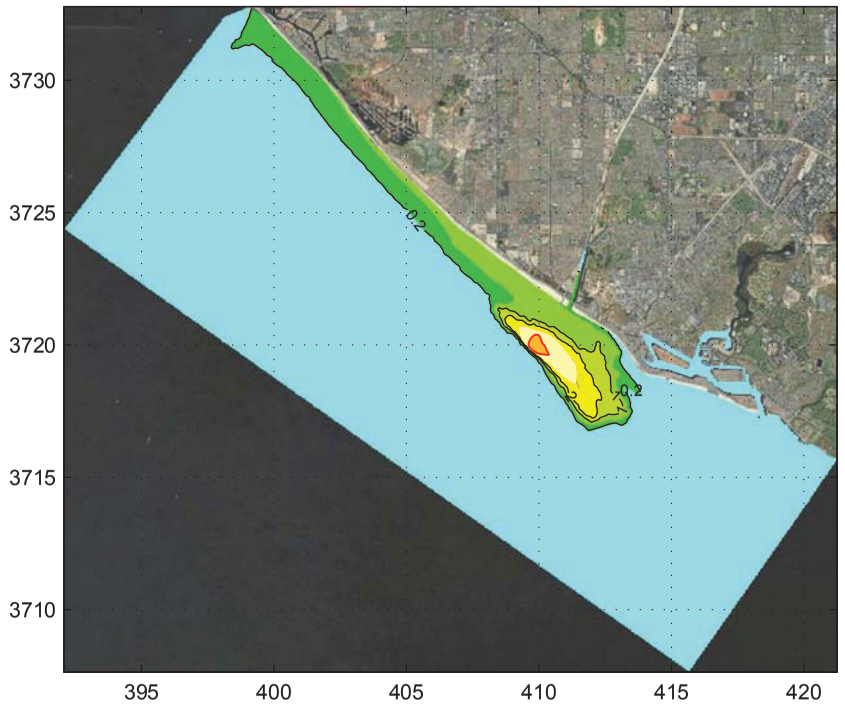


Conc. MPN/100mL

- Above 20
- 15 to 20
- 10 to 15
- Detection Limit
- 5 to 10
- 2 to 5
- 1 to 2
- 0.5 to 1
- Below 0.5

AB 411 Single Sample Standards
10,000/100 mL

Fecal Coliform

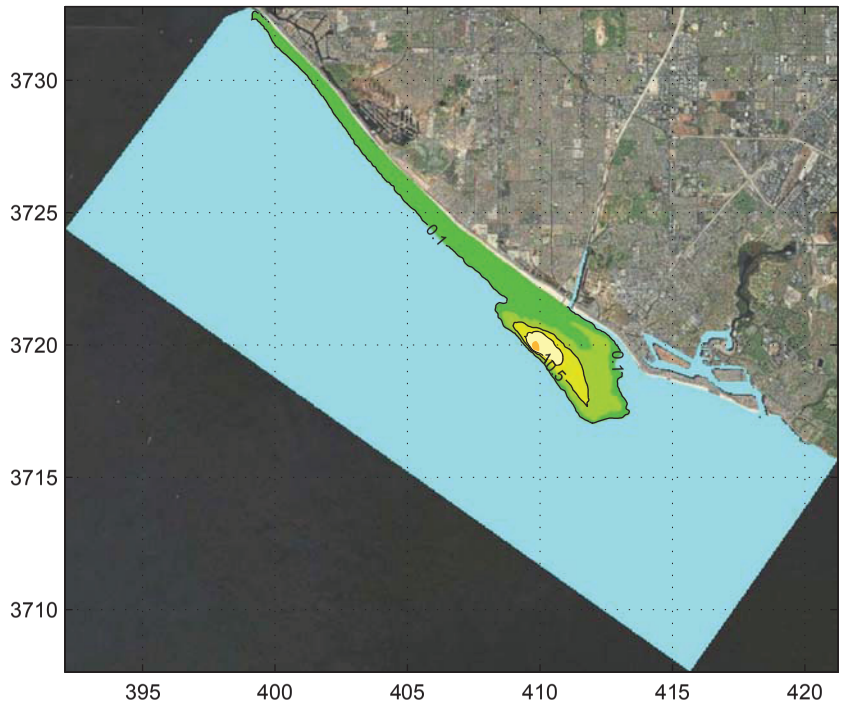


Conc. MPN/100mL

- Above 10
- Detection Limit
- 5 to 10
- 2 to 5
- 1 to 2
- 0.5 to 1
- 0.2 to 0.5
- Below 0.2

AB 411 Single Sample Standards
400/100 mL

Enterococci



Conc. MPN/100mL

- Detection Limit
- Above 2
- 1 to 2
- 0.5 to 1
- 0.2 to 0.5
- 0.1 to 0.2
- Below 0.1

AB 411 Single Sample Standards
104/100 mL

CCR 7956 - 7962, Bacteriological
Ocean Water Quality Standards

SOURCE: Moffat & Nichol, 2011.

Figure 4.10-7
Maximum Concentration
September – October
Worst Case Wave Conditions, (<15%) Southerly Swell

Summary

Bacterial indicators remain the primary monitoring tool for assessing public health. The analysis described here for FIB shows that discharging disinfected secondary-treated effluent from the Short Outfall is expected to contribute very small and probably unmeasurable FIB concentrations to the surfzone. The AB 411 thresholds utilize FIB concentrations to ensure that water quality is protective of public health.

Mitigation Measures 4.10-6a and **4.10-6b** commits the Sanitation District to enhanced disinfection treatment and augmented monitoring during the discharge to the Short Outfall. The monitoring would generate a combination of real-time offshore water quality data coupled with "nowcast" and forecasting oceanographic circulation modeling. Based on the ocean current model results, additional surfzone and offshore sampling would be conducted during periods when the currents are toward the coast. The Sanitation District would enhance monitoring in those areas identified by field sampling, ocean modeling, and surface currents, as potentially impacted. This monitoring information would be provided to agencies with authority to post or close beaches and fisheries. Therefore, the monitoring would lead directly to the protection of public health. With implementation of the enhanced treatment and monitoring program impacts to public health from the short-term discharge to the Short Outfall would be less than significant.

Mitigation Measures

4.10-6a: For the duration of the use of the Short Outfall, the Sanitation District shall implement enhanced treatment methods for effluent discharge, including full secondary and enhanced chlorination treatment.

4.10-6b: The Sanitation District shall conduct augmented ocean monitoring before, during, and after use of the Short Outfall to detect and quantify changes to indicator organisms and water quality from baseline conditions as a result of the Project. The monitoring shall include the following elements:

- Real-time tracking of discharge plume with automated underwater vehicles (AUV)
- Predictive modeling (ROMS) to provide real-time ("nowcast") and 72-hour forecast of plume movement
- Surfzone and offshore water quality sampling for FIB
  - Surfzone water quality sampling would be conducted 7 days/week
  - Offshore water quality sampling would be conducted 1 day/week
  - Additional surfzone and offshore water quality sampling would be adaptive based on modeled and/or measured plume transport direction
- Weekly water quality sampling for nutrients and phytoplankton at the Newport and Huntington Beach piers
- Offshore real-time water quality analysis at two water quality moorings for temperature, salinity, chlorophyll, DO, and turbidity
- Real-time surface current measurements
- Sediment sampling (up to 24 samples)

The monitoring results shall be presented along with ocean conditions on a publically-accessible web page updated daily and provided to OCHCA, the RWQCB, the City of Huntington Beach, the City of Newport Beach, the USACE, CDFG, CDPH, NMFS, the Pacific Marine Mammal Center, and State Parks. The OCHCA shall be responsible to restrict access to beaches and offshore recreational activities as necessary to protect public health based on sampling results provided by the enhanced monitoring program. CDFG shall be responsible for posting notices regarding shellfish beds and offshore fishing areas. The Sanitation District shall fund efforts to ensure these protective measures are implemented effectively as requested by OCHCA.

Significance after Mitigation: Less than Significant with mitigation.

Beneficial Uses

Impact 4.10-7: Discharge through the Short Outfall for a period of 4 to 6 weeks could adversely affect beneficial uses of the ocean defined in the California Ocean Plan.

The COP establishes beneficial uses for the marine environment as listed below:

- preservation and enhancement of designated Areas of Special Biological Significance (ASBS);
- rare and endangered species;
- marine habitat;
- fish migration;
- fish spawning;
- shellfish harvesting;
- recreation;
- commercial and sport fishing;
- mariculture (cultivation of marine organisms in the natural habitats);
- industrial water supply;
- aesthetic enjoyment; and
- navigation.

The COP also has identified water quality objectives necessary to support these beneficial uses. The NPDES permit commits the Sanitation District to effluent quality discharge requirements to ensure that these water quality objectives are met. Monitoring conducted as a condition of the Sanitation District's NPDES permit has shown that the existing discharge to the Long Outfall has been sufficient to meet the water quality objectives as summarized in **Table 4.10-2**. As discussed above, the Sanitation District has significantly improved effluent quality recently with construction of new treatment facilities that would provide full secondary treatment for the discharge by the fall of 2012. Under Alternative 2, the discharge to the Short Outfall would receive secondary treatment with enhanced disinfection. Discharge to the Short Outfall is expected to result in the discharge plume rising to the surface in waters that are closer to the shore than the Long Outfall. Effluent quality coupled with dilution is expected to minimize the potential for adverse water quality impacts that could adversely affect any of the designated beneficial uses

including marine environment, fish habitat, endangered species, water-contact recreation, sport fishing and commercial fishing. The Sanitation District has committed to monitoring offshore and surfzone water quality to determine whether beach closures, fishing advisories, or shellfish bed quarantines are necessary during the use of the Short Outfall (**Mitigation Measures 4.10-6a** and **4.10-6b**). If water quality monitoring identifies poor water quality during the short-term discharge, implementation of these measures by OCHCA and the California Department of Public Health would be protective of public health, environmental health, and designated beneficial uses. For these reasons, potential impacts to beneficial uses would be less than significant.

Mitigation

Implement **Mitigation Measures 4.10-6a** and **4.10-6b**

Significance after Mitigation: Less than Significant with mitigation.

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4.11 Noise

This section provides an overview of the existing noise environment at the Project site and surrounding area, the regulatory framework, an analysis of potential noise impacts that would result from implementation of the proposed Project, and mitigation measures where appropriate.

4.11.1 Environmental Setting

The noise environments that surround the proposed Project are influenced primarily by traffic along Pacific Coast Highway (PCH), wind, bicyclists, birds, and people at the beach. Noise levels away from these noise sources can be low depending on the amount of nearby human activity.

Noise Principles and Descriptors

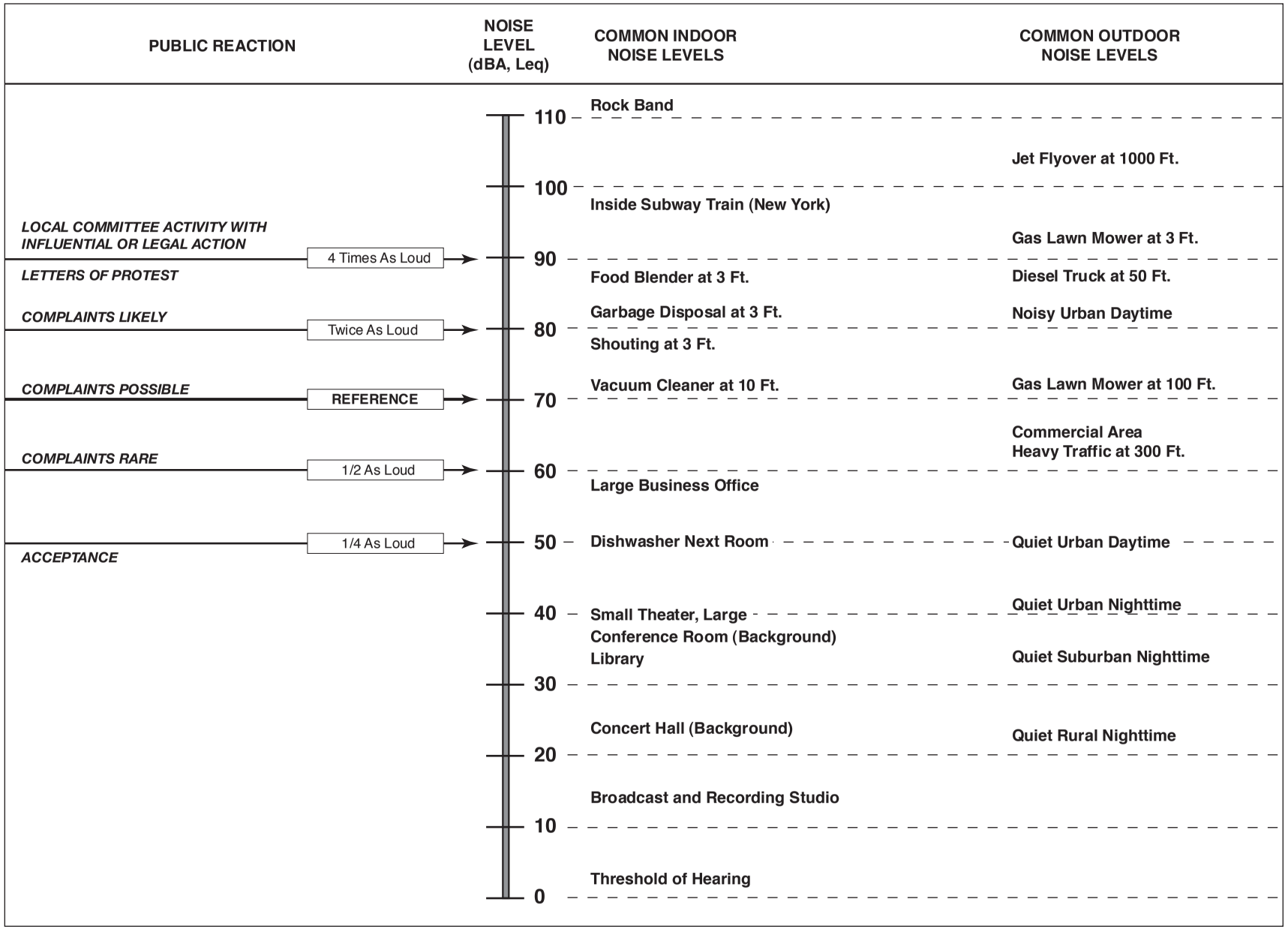
Noise is defined as unwanted sound. Sound, traveling in the form of waves from a source, exerts a sound pressure level (referred to as sound level) which is measured in decibels (dB), with zero dB corresponding roughly to the threshold of human hearing, and 120 to 140 dB corresponding to the threshold of pain. Pressure waves traveling through air exert a force registered by the human ear as sound.

Sound pressure fluctuations can be measured in units of hertz (Hz), which correspond to the frequency of a particular sound. Typically, sound does not consist of a single frequency, but rather a broad band of frequencies varying in levels of magnitude (sound power). When all the audible frequencies of a sound are measured, a sound spectrum is plotted consisting of a range of frequency spanning 20 to 20,000 Hz. The sound pressure level, therefore, constitutes the additive force exerted by a sound corresponding to the sound frequency/sound power level spectrum.

The typical human ear is not equally sensitive to all frequencies of the audible sound spectrum. As a consequence, when assessing potential noise impacts, sound is measured using an electronic filter that de-emphasizes the frequencies below 1000 Hz and above 5000 Hz in a manner corresponding to the human ears decreased sensitivity to low and extremely high frequencies instead of the frequency mid-range. This method of frequency weighting is referred to as A-weighting and is expressed in units of A-weighted decibels (dBA). Frequency A-weighting follows an international standard methodology of frequency de-emphasis and is typically applied to community noise measurements. Some representative noise sources and their corresponding A-weighted noise levels are shown in **Figure 4.11-1**.

Noise Exposure and Community Noise

The noise levels presented in Figure 4.11-1 are representative of measured noise at a given instant in time; however, they rarely persist consistently over a long period of time. Rather, community noise varies continuously over a period of time with respect to the contributing sound sources of the community noise environment. Community noise is primarily the product of many distant noise sources, which constitute a relatively stable background noise exposure, with the individual



SOURCE: Caltrans Transportation Laboratory Noise Manual, 1982; and modification by ESA.

Figure 4.11-1
Effects of Noise on People

contributors unidentifiable. The background noise level changes throughout a typical day, but does so gradually, corresponding with the addition and subtraction of distant noise sources such as traffic and atmospheric conditions. What makes community noise constantly variable throughout a day, besides the slowly changing background noise, is the addition of short-duration single-event noise sources (e.g., aircraft flyovers, motor vehicles, sirens), which are readily identifiable to the individual.

These successive additions of sound to the community noise environment vary the community noise level from instant to instant requiring the measurement of noise exposure over a period of time to legitimately characterize a community noise environment and evaluate cumulative noise impacts. This time-varying characteristic of environmental noise is described using statistical noise descriptors. The most frequently used noise descriptors are summarized below:

L_{eq}: the equivalent sound level is used to describe noise over a specified period of time, typically 1 hour, in terms of a single numerical value. The L_{eq} is the constant sound level which would contain the same acoustic energy as the varying sound level, during the same time period (i.e., the average noise exposure level for the given time period).

L_{max}: the instantaneous maximum noise level for a specified period of time.

L_{50}: the noise level that is equaled or exceeded 50 percent of the specified time period. The L_{50} represents the median sound level.

L_{90}: the noise level that is equaled or exceeded 90 percent of the specified time period. The L_{90} is sometimes used to represent the background sound level.

DNL: 24 hour day and night A-weighted noise exposure level which accounts for the greater sensitivity of most people to nighttime noise by weighting noise levels at night ("penalizing" nighttime noises). Noise between 10:00 p.m. and 7:00 a.m. is weighted (penalized) by adding 10 dBA to take into account the greater annoyance of nighttime noises.

CNEL: similar to the DNL the Community Noise Equivalent Level (CNEL) adds a 5 dBA "penalty" for the evening hours between 7:00 p.m. and 10:00 p.m. in addition to a 10 dBA penalty between the hours of 10:00 p.m. and 7:00 a.m.

As a general rule, in areas where the noise environment is dominated by traffic, the L_{eq} during the peak hour is generally equivalent to the DNL at that location (Caltrans, 2009).

Effects of Noise on People

The effects of noise on people can be placed into three categories:

- Subjective effects of annoyance, nuisance, dissatisfaction;
- Interference with activities such as speech, sleep, learning; and
- Physiological effects such as hearing loss or sudden startling.

Environmental noise typically produces effects in the first two categories. Workers in industrial plants can experience noise in the last category. There is no completely satisfactory way to

measure the subjective effects of noise, or the corresponding reactions of annoyance and dissatisfaction. A wide variation in individual thresholds of annoyance exists, and different tolerances to noise tend to develop based on an individual's past experiences with noise.

Thus, an important way of predicting a human reaction to a new noise environment is the way it compares to the existing environment to which one has adapted: the so called "ambient noise" level. In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will be judged by those hearing it. With regard to increases in A-weighted noise level, the following relationships occur:

- Except in carefully controlled laboratory experiments, a change of 1 dBA cannot be perceived;
- Outside of the laboratory, a 3 dBA change is considered a just-perceivable difference;
- A change in level of at least 5 dBA is required before any noticeable change in human response would be expected; and
- A 10 dBA change is subjectively heard as approximately a doubling in loudness, and can cause adverse response.

These relationships occur in part because of the logarithmic nature of sound and the decibel system. The human ear perceives sound in a non-linear fashion; hence the decibel scale was developed. Because the decibel scale is based on logarithms, two noise sources do not combine in a simple additive fashion, but rather logarithmically. For example, if two identical noise sources produce noise levels of 50 dBA the combined sound level would be 53 dBA, not 100 dBA.

Noise Attenuation

Stationary point sources of noise, including stationary mobile sources such as idling vehicles, attenuate (lessen) at a rate between 6 dBA for hard sites and 7.5 dBA for soft sites for each doubling of distance from the reference measurement. Hard sites are those with a reflective surface between the source and the receiver such as parking lots or smooth bodies of water. No excess ground attenuation is assumed for hard sites and the changes in noise levels with distance (drop-off rate) is simply the geometric spreading of the noise from the source. Soft sites have an absorptive ground surface such as soft dirt, grass or scattered bushes and trees. In addition to geometric spreading, an excess ground attenuation value of 1.5 dBA (per doubling distance) is normally assumed for soft sites. Line sources (such at traffic noise from vehicles) attenuate at a rate between 3 dBA for hard sites and 4.5 dBA for soft sites for each doubling of distance from the reference measurement (Caltrans, 2009).

Fundamentals of Vibration

As described in the Federal Transit Administration's (FTA) Transit Noise and Vibration Impact Assessment (FTA, 2006), groundborne vibration can be a serious concern for nearby neighbors, causing buildings to shake and rumbling sounds to be heard. In contrast to airborne noise, groundborne vibration is not a common environmental problem. It is unusual for vibration from sources such as buses and trucks to be perceptible, even in locations close to major roads. Some

common sources of groundborne vibration are trains, buses on rough roads, and construction activities such as blasting, sheet pile-driving and operating heavy earth-moving equipment.

There are several different methods that are used to quantify vibration. The peak particle velocity (PPV) is defined as the maximum instantaneous peak of the vibration signal. The PPV is most frequently used to describe vibration impacts to buildings. The root mean square (RMS) amplitude is most frequently used to describe the affect of vibration on the human body. The RMS amplitude is defined as the average of the squared amplitude of the signal. Decibel notation (Vdb) is commonly used to measure RMS. The decibel notation acts to compress the range of numbers required to describe vibration. Typically, groundborne vibration generated by man-made activities attenuates rapidly with distance from the source of the vibration. Sensitive receptors for vibration include structures (especially older masonry structures), people (especially residents, students, the elderly and sick), and vibration-sensitive equipment.

The effects of groundborne vibration include movement of the building floors, rattling of windows, shaking of items on shelves or hanging on walls, and rumbling sounds. In extreme cases, the vibration can cause damage to buildings. Building damage is not a factor for most projects, with the occasional exception of blasting and sheet pile-driving during construction. Annoyance from vibration often occurs when the vibration exceeds the threshold of perception by only a small margin. A vibration level that causes annoyance will be well below the damage threshold for normal buildings. The FTA measure of the threshold of architectural damage for conventional sensitive structures is 0.2 in/sec PPV and the FTA threshold of human annoyance to groundborne vibration is 80 RMS (FTA, 2006).

4.11.3 Existing Noise Environment

The dominant noise sources at Plant 2 are generated on site from vehicles and treatment facilities. At Air Vac Station 12+05 and the Beach Box the dominant noise source is traffic along PCH, wind, bicyclists, birds, airplanes, and people on the beach.

In order to quantify the existing ambient noise environment, ESA staff visited the Project site on August 23, 2011 and took noise measurements using two Metrosonics Model db3080 sound level meters. Two 48 hour noise level measurements and five short term measurements were taken near the Project site. The locations of the noise measurements can be seen in **Figure 4.11-2** and the results of the measurements are presented in **Table 4.11-1** and **Table 4.11-2**.

Sensitive Receptors

Some land uses are considered more sensitive to ambient noise levels than others. Residences, hotels, schools, libraries, churches convalescent homes, and hospitals are generally more sensitive to noise than commercial and industrial land uses. Neighborhood parks are not considered to be noise sensitive, but passive recreational uses such as bird watching or picnicking are considered to be noise-sensitive. The closest sensitive receptors to the proposed Project are described below.

TABLE 4.11-1
LONG TERM (LT) NOISE MEASUREMENTS

Measurement Location	Time Period: August 23, 2011 – August 25, 2011	48 hour Leq Range (dBA)	Noise Sources
LT 1 Southeast corner of the Talbert Marsh	4:00 pm to 4:00 pm	54-70	• PCH • Wind • Bicyclists
LT 2 Residences to the south, along Summit Street.	4:00 pm to 4:00 pm	51- 68	• Pedestrians • Wind • PCH

SOURCE: ESA, 2011.

TABLE 4.11-2
SHORT TERM (ST) NOISE MEASUREMENTS

Measurement Location	Time Period	Leq Range (dBA)	Noise Sources
ST 1 Southeast corner of the Talbert Marsh	3:26 pm to 3:31 pm	62 -76	• Steady traffic on PCH • Wind • Bicyclists
ST 2 Eastern side of California least tern Colony, approx 100 feet from center of PCH	3:34 pm to 3:39 pm	59- 88	• Traffic on PCH • Motorcycles
ST 3 Northern border of California least tern Colony	4:30 pm to 4:35 pm	58- 68	• Waves • Distant kids screaming • Wind • Airplane
ST 4 Southern border of California least tern Colony	4:45 pm to 4:50 pm	55-59	• Wind • Waves • Birds
ST 5 Southeastern border of California least tern Colony	4:55 pm to 5:00 pm	57- 66	• Wind • Bicyclist • Traffic on PCH

SOURCE: ESA, 2011.

The primary sensitive receptors in the Project vicinity are residential neighborhoods located east of the Project site. **Figure 4.11-3** shows the location of nearby land uses that support sensitive receptors. The closest residences are about 250 feet west of the construction staging area inside Plant 2, 634 feet east of the Beach Box site, 796 feet east from the Air Vac Station 12+05 site at the mobile home community across the Santa Ana River (SAR) and approximately 1,896 feet southeast from the construction activities that would occur within Plant 2 boundaries.

SOURCE: ESA, 2011.

Outfall Land Section and OOBS Piping Rehabilitation. 211261

Figure 4.11-2

Noise Monitoring Locations

SOURCE: ESA, 2011.

Outfall Land Section and OOBS Piping Rehabilitation. 211261

Figure 4.11-3

Sensitive Receptors

4.11.2 Regulatory Framework

Federal

Federal regulations establish noise limits for medium and heavy trucks (more than 4.5 tons, gross vehicle weight rating) under 40 CFR, Part 205, Subpart B. The federal truck pass-by noise standard is 80 dBA at 15 meters from the vehicle pathway centerline. These controls are implemented through regulatory controls on truck manufacturers.

State

The State of California establishes noise limits for vehicles licensed to operate on public roads. For heavy trucks, the State pass-by standard is consistent with the federal limit of 80 dB. The State pass-by standard for light trucks and passenger cars (less than 4.5 tons, gross vehicle rating) is also 80 dBA at 15 meters from the centerline. These standards are implemented through controls on vehicle manufacturers and by legal sanction of vehicle operators by State and local law enforcement officials.

The State has also established noise insulation standards for new multi-family residential units, hotels, and motels that would be subject to relatively high levels of transportation-related noise. These requirements are collectively known as the California Noise Insulation Standards (Title 24, California Code of Regulations). The noise insulation standards set forth an interior standard of DNL 45 dBA in any habitable room. They require an acoustical analysis demonstrating how dwelling units have been designed to meet this interior standard where such units are proposed in areas subject to noise levels greater than DNL 60 dBA. Title 24 standards are typically enforced by local jurisdictions through the building permit application process.

Local

Local noise issues are addressed through implementation of general plan policies, including noise and land use compatibility guidelines, and through enforcement of noise ordinance standards. Noise ordinances regulate such sources as mechanical equipment and amplified sounds as well as prescribe noise limits in residential and commercial zones. For the Proposed project, noise regulations and standards of the cities of Newport Beach and Huntington Beach were considered with respect to the proposed facilities and nearby sensitive receptors. County noise standards are similar to these City standards.

City of Huntington Beach Municipal Code

Chapter 8.40 of the Huntington Beach Municipal Code identifies the noise control city ordinance which provides acceptable noise threshold standards. **Table 4.11-3** presents the noise thresholds for the City. Some activities are exempt from the noise standards such as school activities located on school property; lawful activities within a public park or place; noises associated with the construction, repair, remodeling or grading of any real property, as long as such activities are not conducted between the hours of 8:00 p.m. and 7:00 a.m. Monday through Saturday. Construction activities conducted on Sunday or federal holidays are not exempt from the noise standards.

TABLE 4.11-3
HUNTINGTON BEACH EXTERIOR NOISE STANDARDS

Noise Zone	Exterior Noise Standards	Time Period
1 – Residential	55 db(A) 50 db(A)	7:00 a.m. – 10:00 p.m. 10:00 p.m. – 7:00 a.m.
2 – Office & Public Institution	55 db(A)	Anytime
3 – Commercial	60 db(A)	Anytime
4 – Industrial	70 db(A)	Anytime

SOURCE: Huntington Beach Municipal Code Section 8.40.050

City of Newport Beach Municipal Code

Chapter 10.28.040 of the Newport Beach Municipal Code identifies the City's noise control ordinance which provides acceptable noise threshold standards. **Table 4.11-4** presents the noise thresholds for the City of Newport Beach. The noise level standards have been adopted to limit unnecessary, excessive and annoying noises that may impact residential and other noise-sensitive areas. According to Newport Beach Municipal Code 10.28.040 – Construction Activity - Noise Regulations, weekday construction would be allowed between 7:00 a.m. and 6:30 p.m.; and Saturday construction would be allowed 8:00 a.m. and 6:00 p.m.

TABLE 4.11-4
NEWPORT BEACH EXTERIOR NOISE STANDARDS

Noise Zone	Exterior Noise Standards	Time Period
Single Family, Two Family, Multiple Family (Zone 1)	55 db(A)	7:00 a.m. – 10:00 p.m.
	50 db(A)	10:00 p.m. – 7:00 a.m.
Residential Portions of Mix Use Developments (Zone III)	60 db(A)	7:00 a.m. – 10:00 p.m.
	50 db(A)	10:00 p.m. – 7:00 a.m.
Commercial (Zone II)	66 db(A)	7:00 a.m. – 10:00 p.m.
	60 db(A)	10:00 p.m. – 7:00 a.m
Industrial or Manufacturing (Zone IV)	70 db(A)	7:00 a.m. – 10:00 p.m.
	70 db(A)	10:00 p.m. – 7:00 a.m
Schools, Day Care Centers, Churches, Libraries, Museums, Health Care Institutions (Zone I)	55 db(A)	7:00 a.m. – 10:00 p.m.
	50 db(A)	10:00 p.m. – 7:00 a.m.

SOURCE: City of Newport Beach General Plan – Noise Element, Table N3, 2006.

Construction activities conducted on Sunday or federal holidays are not exempt from the noise standards. Exempted activities within the City of Newport Beach include emergency building construction authorized by the Building Director; emergency repair to City facilities; or maintenance, construction, or repair authorized by the City Manager or Department Director.

Orange County Codified Ordinance

Division 6 of the Orange County Codified Ordinance (OCCO) provides the noise control standards and provisions for acceptable noise thresholds within Orange County. **Table 4.11-5** presents the noise thresholds for Orange County.

TABLE 4.11-5
ORANGE COUNTY EXTERIOR NOISE STANDARDS

Noise Zone	Exterior Noise Standards	Time Period
Residential	55 db(A)	7:00 a.m. – 10:00 p.m.
	50 db(A)	10:00 p.m. – 7:00 a.m.

SOURCE: Division 6 Orange County Codified Ordinance, Division 6 – Noise Control, codified 1973.

According to Sec. 4-6-7 of the OCCO, activities are exempted from the Noise Control Ordinance if:

> "Noise sources associated with construction, repair, remodeling or grading or any real property, provided said activities do not take place between the hours of 8:00 p.m. and 7:00 a.m. on weekdays, including Saturday, or at any time on Sunday or a Federal holiday"; or
>
> "Activities conducted on any park, or playground, provided such park or playground is owned and operated by a public entity" (Orange County Community Development, 1973)

4.11.4 Impacts and Mitigation Measures

Significance Criteria

The criteria used to determine the significance of impacts related to noise is based on Appendix G of the *CEQA Guidelines* regarding significant environmental effects. For this Draft EIR, the proposed Project would have a significant impact if it would:

- Result in exposure of persons to, or generation of, noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
- Result in exposure of persons to, or generation of, excessive groundborne vibration or groundborne noise levels;
- Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project;
- Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project;

- For a project located within an airport land use plan area, or, where such a plan has not been adopted, in an area within 2 miles of a public airport or public use airport, expose people residing or working in the area to excessive noise levels; or
- For a project located in the vicinity of a private airstrip, expose people residing or working in the project area to excessive noise levels.

Impact Discussion

The proposed Project would have no impact on the following environmental factors as described below:

Public Airports or Private Airstrips

The proposed Project is not located within an airport land use plan, nor is it located within 2 miles of a private airstrip or public airport. There are no private airstrips located within 5 miles of the proposed Project. The nearest airport is John Wayne International located at 18800 MacArthur Boulevard in the City of Irvine, approximately 5 miles northeast of the Project site. The proposed Project would not place people in areas susceptible to airport noise. Therefore, no impacts would occur from public or private airstrip noise.

Significance Level: No Impact.

Ambient Noise Levels

Upon completion of the rehabilitation work, the proposed Project would return to its existing functioning capacity. Therefore, operation of the rehabilitated facilities would not increase existing ambient noise levels permanently in the project area. In addition, with the exception of the Surge Tower 2, the Long Outfall system is below ground and no permanent aboveground noise is anticipated. Therefore, the proposed Project would not result in a permanent increase in ambient noise levels in the Project area.

Significance Level: No Impact.

Exposure of People to Noise

Impact 4.11-1: The proposed Project could result in generated noise levels in excess of standards established in the local General Plan or noise ordinance, or applicable standards of other agencies.

The proposed Project is a rehabilitation project and would not add any new stationary noise sources (e.g., pumps, transformers, emergency generators, etc.). Therefore, operation of the proposed Project would not increase operational noise. There would be no noise impact from proposed Project operation. The following analysis is limited to construction-related noise.

Alternative 1

The proposed Project would generate noise corresponding to the varying construction activities and noise-generating equipment used. Noise from construction activities generally attenuates at a rate of 4.5 to 7.5 dBA per doubling of distance. Construction noise at the nearest receptor is analyzed below for each Project component with an assumed attenuation rate of 6 dBA. Construction activity noise levels at and near the Project site would fluctuate depending on the particular type, number, and duration of uses of various pieces of construction equipment.

Activities on Plant 2

The nearest sensitive receptors to any of the proposed Project work sites are the residences along Brookhurst Street that are located about 250 feet west of the construction staging area inside Plant 2. Plant 2 has 8 foot block walls on the northern, western, and southern boundaries that separate the residences from the rehabilitation efforts. Within the staging areas, noise sources would be generated by vehicles delivering and moving construction equipment. Some activities could occur at night in this staging area, but the activities would not be significantly different from normal operations at the Plant which operates 24 hours per day. Therefore, the neighboring residences to the east would not be adversely affected by the Project.

The next nearest sensitive receptor to the construction activities occurring within Plant 2 boundaries would be approximately 1,896 feet to the southeast across the SAR in the City of Newport Beach. **Table 4.11-6** shows that the greatest noise levels during construction activities at Plant 2 are associated with the 100 ton and 75 ton cranes and the use of pneumatic tools and crane, which would be 85 dBA at a distance of 50 feet. Accordingly, attenuated at 1,896 feet, these residences of the City of Newport Beach would experience noise levels of up to 55 dBA L_{eq} during their use, which is within the City noise standards as shown on **Table 4.11-4**. The large equipment such as the cranes, generating the most noise would not be allowed to operate after 7:00 p.m. and before 7:00 a.m. The abrasive blasting (single nozzle) of Surge Tower 2 , air compressor (250 cfm), and the high pressure water blaster would have a noise level of 75 dBA at a distance of 50 feet. Attenuated at 1,896 feet, the closest residences would experience noise levels below 50 dBA L_{eq}. Sound curtains would further block noise from the Surge Tower 2 repairs. Since noise levels would remain below 55 dBA at the nearest residences, impacts would be less than significant without mitigation.

Activities at Air Vac Station 12+05

The construction schedule for activities at Air Vac Station 12+05 would be temporary but may occur on a 24-hour per day schedule, for approximately one week. Activities at Air Vac Station 12+05 would primarily be conducted within the Long Outfall. Outside Air Vac Station 12+05, the only activity would be mobilization of trucks and construction equipment. A crane would be needed to lift the Air Vac Station12+05 cover initially, but it would not be needed on a day-to-day basis.

The nearest sensitive receptors to rehabilitation activities occurring at Air Vac Station 12+05 would be residences approximately 796 feet east, at the mobile home community across the SAR. **Table 4.11-7** shows that the noise levels generated by construction activities adjacent to the Air Vac Station 12+05 would range from 50 dBA to 85 dBA.

TABLE 4.11-6
CONSTRUCTION EQUIPMENT NOISE ACTIVITIES AT PLANT 2 SITE

Equipment Piece	Equipment Items	L_{max} Noise Level at 50 feet, dBA, Slow	Equipment Use
Abrasive Blast Generator	2	50	Supply abrasive to blast nozzles.
Abrasive Blasting (Single Nozzle)	2	75	Remove coatings from inside of surge tower.
Air Compressor [250 cubic feet/ minute (cfm)]	2	75	Operate power portable tools.
Concrete Mixer Truck	2	81	Deliver grout and concrete.
Concrete Pump	1	82	Pump concrete and grout to fill voids.
Crane (100 ton)	1	85	Various uses throughout the construction period to assemble and disassemble scaffolding.
Crane (75 ton)	1	85	Lift blind flanges off riser pipes and stinger assembly.
Dehumidification Unit	2	73	Dry concrete surfaces inside the vault.
Dump Truck	1	76	Demolition waste and debris hauling to landfill.
Flatbed Truck (380 horsepower 6x4)	1	84	Deliver supplies and equipment.
Panel truck	2	74	Transport carbon fiber and resin materials and for materials preparation.
Pneumatic tools	5	85	Remove and install bolts and nuts and chip pipe coatings.
Ventilation fan	2	79	Provide air piping system for worker health and safety.
Welder	3	74	Weld patches over corrosion pits .

SOURCE: Black and Veatch, 2011.

The greatest noise levels generated would be associated with the 75 ton crane, jackhammer/chipper, and use of pneumatic tools with a noise level of 85 dBA at a distance of 50 feet. Accordingly, attenuated at 796 feet, the City of Newport Beach residences would experience noise levels of up to 61 dBA L_{eq}. During daytime construction hours, these noise levels would be acceptable. Furthermore, use of the highest noise generating construction equipment would be limited as shown in **Table 4.11-7**. The 75 ton crane would be used for short periods on 2 days during daytime hours. Similarly, the jackhammer and pneumatic tools would be used for a short period. Given the short duration of use of this equipment (less than 2 hours per day), the daily 12 hour noise standards would not be exceeded. During the day, noise would be less than significant. During nighttime, Mitigation Measure 4.11-1d would ensure that loud construction activities would only occur during daytime hours. Therefore, noise impacts would be less than significant.

The ventilation fan would generate a noise level of 79 dBA at a distance of 50 feet. Attenuated at 796 feet, the nearest residences would experience noise levels of up to 54 dBA L_{eq}. Noise insulation could be used to minimize this persistent noise source to ensure that nearby residences do not experience noise levels over 50 dBA as required in the City's Noise Ordinance.

TABLE 4.11-7
CONSTRUCTION EQUIPMENT NOISE GENERATING ACTIVITIES AT AIR VAC 12+05 STATION

Equipment Piece	Equipment Items	L_{max} Noise Level at 50 feet, dBA, Slow	Equipment use
Abrasive Blast Generator	1	50	Supply abrasive to blast nozzles.
Air Compressor (250 cfm)	1	75	Operate power portable tools.
Crane (75 ton)	1	85	Lift blind flanges off riser pipes; stinger assembly.
Dehumidification Unit	6	73	Dry concrete surfaces inside the vault.
High Pressure Water Blaster	1	75	Prepare concrete surfaces for carbon fiber application.
Jackhammer/Chipper	1	85	Remove concrete.
Panel truck	1	74	Transport carbon fiber and resin materials; materials preparation.
Pneumatic tools	1	85	Remove and install bolts and nuts and chip pipe coatings.
Ventilation fan	1	79	Provide piping system for worker health and safety.
Welder	1	74	Weld patches over corrosion pits.

SOURCE: Black and Veatch, 2011.

The abrasive blasting (single nozzle), air compressor (250 cfm), and the high pressure water blaster would have a noise level of 75 dBA at a distance of 50 feet. Attenuated at 796 feet, the residences would experience noise levels of up to 51 dBA L_{eq}. Other construction equipment used at Air Vac Station 12+05 site would include a dehumidification unit; a welder; and an abrasive blast generator. Noise levels from use of these machines would range from 50 to 75 dBA. The noise levels would be attenuated at 796 feet and residences in the City of Newport Beach would experience noise levels ranging from 26 to 40 dBA L_{eq}. Since these activities would occur within the Air Vac Station 12+05 and the Long Outfall, noise levels would be substantially less.

Mitigation Measures 4.11-1a through **4.11-1d** would ensure that noise generated at Air Vac Station 12+05 would not disturb local residences. The noise impacts resulting from work at Air Vac Station 12+05 would be less than significant.

Activities on the Beach

Rehabilitation of the Beach Box

The nearest sensitive receptor to rehabilitation activities occurring at Huntington State Beach are the residences east of the proposed Project, southeast across the SAR, approximately 634 feet from the Beach Box in the vicinity of Seashore Drive in the City of Newport Beach. The Sanitation District has three options available to repair the Beach Box, Option A, Carbon Fiber Wrap; Option B, Fiberglass Pipe Insert; and Option C, Steel Insert. Option B, Fiberglass Pipe Insert has the greatest noise levels associated with rehabilitation due to the demolition required. **Table 4.11-8** depicts the sound levels associated with the various pieces of equipment for Option B and shows that the highest noise generated would be during the use of a concrete saw and the

TABLE 4.11-8
CONSTRUCTION EQUIPMENT NOISE ACTIVITIES AT BEACH BOX (WORST CASE SCENARIO)

Equipment Piece	Equipment Items	L_{max} Noise Level at 50 feet, dBA, Slow	Equipment use
Air Compressor (250 cfm)	1	75	Power equipment; silenced.
Concrete Mixer Truck	1	81	Deliver grout and concrete.
Concrete Pump	1	82	Pump concrete and grout to fill voids.
Concrete Saw (10horse power, hp)	1	90	Demolish the structure.
Concrete Vibrator	1	80	Compact concrete.
Crane (75 ton)	1	85	Lift pipe sections into vault.
Dehumidification Unit	1	73	Dry concrete surfaces inside the vault.
Diesel-operated centrifugal dewatering pumps	1	81	Dewater pipeline.
Dump Truck (20 cylinder)	1	84	Haul debris to the landfill.
Flatbed Truck (380 hp 6x4)	1	84	Deliver pipe and equipment.
Front-end Loader	1	80	Remove debris.
Generator (100 kilowatt (kW) diesel)	1	82	Concrete saw, wall saw, and other tools.
Generator (500 kW diesel)	1	82	Power dehumidification units and various portable equipment.
High Pressure Water Blaster	1	75	Prepare concrete surfaces for carbon fiber application.
Pavement Breaker (60 lb)	1	90	Demolish concrete.
Pneumatic tools (various)	3	85	Remove and install bolts and nuts and jack equipment.
Tractor Trailer Flatbed Truck	1	80	Deliver fiberglass pipe sections to job site.
Ventilation Fan	1	79	Provide air to Beach Box for worker health and safety.
Water Tank Truck (2,000 gallons)	1	74	Dust control.

SOURCE: Black and Veatch, 2011.

pavement breaker. The construction equipment would generate a noise level of 90 dBA at a distance of 50 feet. This noise would attenuate to approximately 70 dBA at the nearest residences. The use of the high-level noise generating equipment would be limited to a few hours during the day, and would not exceed 12 hour daytime standards. Other construction activities would include vehicle movement and operating the crane to remove the top of the Beach Box. Most of the rehabilitation activities at the Beach Box would take place within the Long Outfall, which would greatly reduce noise levels at nearest sensitive receptors. Therefore, during the day, rehabilitation activities at the Beach Box would result in acceptable noise levels. However, at nighttime, noise levels from vehicle movement could result in noise levels of 80 dBA at 50 feet. This would attenuate to approximately 60 dBA at the nearest sensitive receptors which is above the 50 dBA nighttime noise standards. Construction on a 24-hour per day schedule for one week would require a variance from the City of Huntington Beach (the City) noise ordinance.

Mitigation Measures 4.11-1a through **4.11-1d** minimize impacts of nighttime noise. Despite implementation of these mitigation measures, due to the close proximity of the residences and the

activities within the Beach Box, temporary short term impacts associated with nighttime rehabilitation activities at the Beach would be significant and unavoidable because the activities associated with the rehabilitation efforts would exceed the City exterior noise standards for residential uses, and would occur on a 24 hour schedule, seven days per week. Therefore rehabilitation of the Beach Box would result in a temporary, significant and unavoidable impact.

Construction of the Bypass Structure

Alternative 1 would include the construction of a temporary bypass structure on the beach. Construction of the bypass structure would occur 7 days a week, 8 hours a day for 4 months. Nighttime construction would not be utilized to construct the bypass structure due to worker safety concerns. However, construction on Sunday would require a variance from the City noise ordinance.

The proposed bypass structure would be located on Huntington State Beach and would be constructed approximately 634 feet from the nearest sensitive receptors east of the site (Figure 4.11-3). As shown in **Table 4.11-9,** the greatest noise levels during construction of the bypass structure would be from the vibratory pile driver during the sheet pile installation with a 95 dBA at a distance of 50 feet. Accordingly, attenuated at 634 feet, the nearest residences would experience noise levels of up to 72 dBA L_{eq} during the loudest of construction activities. However, the use of the vibratory pile driver use would be limited to daytime hours.

The dewatering activities would discharge groundwater to the SAR 24 hours per day 7 days a week, for the seven month duration of the proposed Project. The discharge would generate a sound that may be audible at night at the nearest residences approximately 634 feet across the SAR in Newport Beach and could be a nuisance for the duration of the dewatering activities, particularly at night. It is anticipated that up to 30 mgd would be discharged daily through the dissipator. However, quantifying the actual noise levels from the dewatering is impossible since the effectiveness of the dissipator is unknown. Since the discharge would be constant, the noise would not be particularly disruptive or percussive. The ambient noise levels on the beach at night are dominated by sounds from the surf. The sound of discharging water would blend with the nighttime surf and may increase the ambient baseline noise level. If noise levels generated by the discharge increased ambient levels at the nearest residences by more than 5 dBA it would be a significant noise impact. **Mitigation Measure 4.11-1e** would ensure that the discharge noises are minimized at acceptable levels for the seven month duration of the proposed Project. As a result, the discharge would not significantly alter ambient nighttime noises for the closest residences.

With implementation of **Mitigation Measures 4.11-1b** through **4.11-1d** including noise reducing measures, such as a sound curtain placed around the construction site to reduce noise impacts generated from the construction equipment, noise impacts from the construction of the bypass structure would be less than significant.

Significance Level Alternative 1: Rehabilitation activities at Plant 2 would be less than significant with no mitigation required, since the noise levels would remain below 55 dBA. Rehabilitation activities at Air Vac Station 12+05 would be less than significant with mitigation. Rehabilitation activities at the Beach Box would be significant and unavoidable after mitigation. Construction of the bypass structure would be less than significant with mitigation.

TABLE 4.11-9
ALTERNATIVE 1 – BYPASS STRUCTURE CONSTRUCTION EQUIPMENT NOISE ACTIVITIES

Equipment Piece	Equipment Items	L_{max} Noise Level at 50 feet, dBA, Slow	Equipment use
Air Compressor (250 cfm)	1	75	Various uses throughout the construction period; vibrator, sheet pile driver.
Compactor	1	83	Prepare soil prior to placement of concrete, backfill, and soil.
Concrete Pump	1	82	Pour the concrete for support slabs, thrust blocks, and encasement.
Concrete Vibrator	1	80	Pouring concrete for support slabs, thrust blocks and encasement.
Concrete Mixer Truck	5	81	Deliver concrete for support slabs, thrust blocks, and encasement.
Concrete Saw (10hp)	1	90	Cut out section of the Short Outfall.
Crane (100 ton)	1	85	Various uses throughout the construction period to move equipment and materials.
Augur Drill Rig	1	84	Drill 30 dewatering wells.
Dozer	1	82	Move soil.
Dump Truck (20 cylinder)	1	84	Hauling material to and from site during excavation and backfilling process.
Excavator (5 yd)	1	72	Excavate soil around outfall and fill excavation after bypass structure removed.
Flatbed Truck (380 horsepower 6x4)	20	84	Delivery of various equipment, pipe, materials, valves; used periodically on/off.
Front-end Loader	2	80	Moving soil and debris throughout the construction period.
Generator (500 kilowatt diesel)	3	82	Powers the welders, used in welding the new pipe; dewatering pumps (the major user). Dewatering pumps would be used during and after excavation until backfilling. Assume 24 hour per day dewatering operation seven months.
Hot Tap Machinery (2400XL)	1	85	Used for line stops, continuous operation in 8 hour cycles per day.
Line Stop Machinery	1	85	Installing line stops and completion plugs.
Pneumatic tools (various)	3	85	Remove and install bolts and nuts and jack equipment in place.
Vibrating Plate Compactor	1	85	For backfill compaction. Few hours run time.
Vibratory Pile Driver (25,000 feet/lb)	1	95	Sheet piler; installed before excavation.
Water Tank (65 gallons [gal])	1	88	Dust control.
Water Tank Truck (2,000 gal)	1	74	Dust control.
Welder (300 amp)	2	74	Weld fitting line stops and bypass structure piping.

SOURCE: Black and Veatch, 2011.

Alternative 2

Alternative 2 would result in identical impacts at Plant 2, the Air Vac Station 12+05 and on the beach, during Beach Box rehabilitation activities. **Mitigation Measures 4.11-1a** through **4.11-1d** would minimize noise impacts, but nighttime noise generated at the Beach Box would remain significant and unavoidable.

Alternative 2 would not include the construction of the temporary bypass structure to divert flows. Therefore, no noise from dewatering system discharge to the SAR would occur and **Mitigation Measure 4.11-1e** would not apply.

Significance Level Alternative 2: Rehabilitation activities at Plant 2 would be less than significant with no mitigation required. Rehabilitation activities at Air Vac Station 12+05 would be less than significant with mitigation. Rehabilitation activities at the Beach Box would be significant and unavoidable after mitigation.

Mitigation Measures

4.11-1a: For Alternatives 1 and 2, prior to the commencement of rehabilitation activities at Air Vac 12+05 and Beach Box, the Sanitation District shall file an application for a noise variance with the Health Officer of the City of Huntington Beach for nighttime construction activities. The variance shall set forth in detail the approved method of achieving maximum compliance and a construction schedule.

4.11-1b: For Alternatives 1 and 2, prior to and during construction activities, the Sanitation District shall require construction contractors to implement the following measures to reduce construction-related noise impacts:

- All equipment used during construction shall be muffled and maintained in good operating condition. All internal combustion engines shall be equipped with intake and exhaust mufflers that are in good condition.
- During nighttime construction, stationary construction equipment that generates excessive noise levels shall be located as far away from residences as possible.
- No sheet driving shall be conducted during nighttime construction.
- During nighttime construction, noise monitoring at the closest sensitive receptors shall be conducted. Reports of noise monitoring shall be submitted to the City of Huntington Beach and the City of Newport Beach.
- A sound curtain shall be installed along the southeastern edge of the construction activities at Huntington State Beach to reduce the noise impacts of construction activities on residents to the south of PCH and the SAR. The generator shall be placed as far away from residences as possible.
- Impact tools (e.g., jack hammers, pavement breakers, and rock drills) used for construction shall be hydraulically or electrically powered wherever possible to avoid noise associated with compressed air exhaust from pneumatically powered tools.

4.11-1c: For Alternatives 1 and 2, prior to the beginning of construction activities, the Sanitation District in coordination with the construction contractors shall contact interested parties and neighboring properties affected by the proposed Project through the following methods:

- Construction Notification: Nearby sensitive receptors affected by construction shall be notified concerning the project timing and construction schedule including nighttime work and shall be provided a contact phone number to call for questions or complaints regarding work.

4.11-1d: For Alternatives 1 and 2, during construction activities that require the use of percussive construction methods, such as jack hammers, shall occur only during permitted daytime construction hours between 7:00 a.m. and 6:00 p.m. on weekdays, and 9:00 a.m. and 5:00 p.m. on Saturdays.

4.11-1e: For Alternative 1, OCSD shall ensure that the discharge to the SAR from the dewatering system does not increase ambient noise levels by more than 5 dBA at night at the nearest residence. To reach this standard, the dissipator design must minimize noise, and a noise shield may be needed at the end of the discharge pipe. OCSD shall conduct noise measurements to ensure noise levels do not exceed 50 dBA at the nearest residences due to the dewatering discharge.

Exposure of People to Vibration

Impact 4.11-2: The proposed Project could result in exposure of persons to, or generation of, excessive groundborne vibration.

Groundborne vibration and noise impact criteria based on the FTA's *Transit Noise and Vibration Impact Assessment* (FTA, 1995) was used to analyze potential construction and rehabilitation vibration impacts. The distance from the construction areas to sensitive land uses varies from within 634 feet to 1,896 feet, depending on the location of construction. Construction-related vibration impacts for each of the three rehabilitation locations are discussed below.

Human perception to vibration is a function of the physical setting and the type of vibration. Studies have shown that the threshold of perception for average persons is in the range of 0.2 to 0.3 millimeters per second (mm/sec) ppv. However, persons exposed to elevated ambient vibration levels, such as people in an urban environment, may tolerate a higher vibration level.

Table 4.11-10 below summarizes vibration annoyance thresholds developed by the California Department of Transportation (Caltrans). **Table 4.11-11** summarizes vibration damage thresholds for structures, also developed by Caltrans.

Upon completion of the rehabilitation work, the proposed Project would return to its existing functioning capacity, and would not add any new sources of noise and vibration. Therefore, operation of the rehabilitated facilities would not expose people to excess levels of groundborne vibration. The following analysis is limited to construction activities.

Alternative 1

Activities at Plant 2

The nearest sensitive receptors to any of the proposed Project work sites are the residences that are located about 250 feet west of the construction staging area inside Plant 2. Plant 2 has 8 foot slump block walls on the northern, western, and southern boundaries that separate the residences from the rehabilitation efforts.

TABLE 4.11-10
GUIDELINE VIBRATION ANNOYANCE POTENTIAL CRITERIA

	Maximum PPV (in/sec)	
Human Response	**Transient Sources**	**Continuous/Frequent Intermittent Sources**
Barely perceptible	0.04	0.01
Distinctly perceptible	0.25	0.04
Strongly perceptible	0.9	0.10
Severe	2.0	0.4

NOTE: Transient sources create a single isolated vibration event. Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.

SOURCE: California Department of Transportation, Transportation and Construction Induced Vibration Guidance Manual, June 2004, page 27, Table 20.

TABLE 4.11-11
GUIDELINE VIBRATION DAMAGE POTENTIAL THRESHOLD CRITERIA

	Maximum PPV (in/sec)	
Structure and Condition	**Transient Sources**	**Continuous/Frequent Intermittent Sources**
Extremely fragile historic buildings, ruins, ancient monuments	0.12	0.08
Fragile Buildings	0.2	0.1
Historic and some old buildings	0.5	0.25
Older residential structures	0.5	0.3
New residential structures	1.0	0.5
Modern industrial/commercial buildings	2.0	0.5

NOTE: Transient sources create a single isolated vibration event. Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.

SOURCE: California Department of Transportation, Transportation and Construction Induced Vibration Guidance Manual, June 2004, page 27, Table 19.

Rehabilitation activities of the Long Outfall system would be located onsite within the boundaries of Plant 2. Vibration levels resulting from the proposed rehabilitation activities would be intermittent and of short duration, especially for those rehabilitation activities that have the highest potential for producing vibration (concrete saws, etc). The nearest sensitive receptors to construction activities on Plant 2 are located approximately 1,896 feet to the southeast across the

SAR. The potential for vibration to be perceived at the nearest residences across the SAR is extremely small. Therefore, construction impacts related to ground vibration on structures or sensitive receptors would be less than significant.

Activities at Air Vac Station 12+05

The nearest sensitive receptors to Air Vac Station 12+05 are approximately 796 feet east from the proposed Project site, across the SAR in the City of Newport Beach. The proposed repairs would require the use of pneumatic tools within t Air Vac Station 12+05 and Long Outfall. However, rehabilitation methods within Air Vac Station 12+05 and Long Outfall would not generate vibration that would be perceptible to sensitive receptors or damaging to structures, because a majority of the work would be performed below ground, within the structure. Therefore, rehabilitation impacts related to ground vibration on nearby structures or sensitive receptors would be less than significant.

Activities on the Beach

Rehabilitation of Beach Box

Rehabilitation activities would create temporary groundborne vibration only if Option B at the Beach Box is implemented, because Option B requires the use of concrete saws and concrete vibrator to break through the structure. These tools generate vibration which may be perceptible to the nearest sensitive receptors located east of the proposed Project site, across the SAR at 634 feet. However, the unconsolidated sandy soils on the beach would significantly limit vibration across the SAR, reducing vibration impacts to nearby sensitive receptors. Furthermore, construction activities would not include substantial percussive methods that would generate significant vibration. Therefore, potential impacts related to ground vibration on nearby structures or sensitive receptors would be less than significant.

Construction of Bypass Structure

As discussed above, implementation of Alternative 1 would result in construction activities 7 days a week, for 8 hours a day. The construction of Alternative 1 for the bypass structure is anticipated to take approximately 4 months. Vibration can occur when forceful or ground-penetrating equipment is utilized, such as sheet pile drivers, on hard surfaces that can convey energy laterally. The proposed construction activities associated with the bypass structure include the use of pile drivers, dozers, concrete saws, plate compactors, and other equipment that has the potential to generate high groundborne vibration in the proposed Project site.

The construction activity that would cause the most vibration is use of a vibratory pile driver (25,000 ft/lb). The following equation was used to determine the vibration amplitudes produced by impact pile driver equation:[1]

PPV Impact Pile Driver = PPV Ref (25/D) ^n X (E equip/E Ref)^0.5

[1] California Department of Transportation, Transportation and Construction Induced Vibration Guidance Manual, June 2004, page 21.

Where:
PPV Ref = 0.65 in/sec for a reference pile driver at 25 feet.
D = distance from pile driver to the receiver in feet.
n = value related to the vibration attenuation rate through ground
E Ref = 36,000 ft/lb (rated energy of reference pile driver)
E equip = rated energy of impact pile driver in ft/lbs

Thus, for the proposed Project, the calculation below assumes that the nearest sensitive receptor is located 634 feet to the east, and the vibratory pile driver is 25,000 ft/lb.

$PPV = 0.65\ (25/634)^{1.4}\ X\ (25{,}000/36{,}000)^{0.5} = 0.004$ in/sec.

The calculation above shows the proposed Project would have a less than significant impact on nearby residences, because the vibration impacts on nearby residences would be below the 0.01 threshold of perceptibility.

Moreover, the PCH bridge is located approximately 250 feet from the excavation area. Using the same vibration amplitudes produced by impact pile driver equation. Impacts associated to the structure from implementation of the proposed Project would be:

$PPV = 0.65\ (25/250)^{1.4}\ X\ (25{,}000/36{,}000)^{0.5} = 0.02$ in/sec.

The proposed Project is below the 0.5 threshold established for modern industrial/commercial buildings. Therefore, impacts to structures such as the PCH bridge from vibration would be less than significant.

Significance Level Alternative 1: Less than significant.

Alternative 2

Alternative 2 would result in identical impacts at Plant 2, the Air Vac Station 12+05 and on the beach during Beach Box rehabilitation activities. Alternative 2 would not require the construction of a bypass structure on the beach. Similar to Alternative 1, rehabilitation activities would create temporary groundborne vibration only if Option B at the Beach Box is implemented, because Option B requires the use of concrete saws and concrete vibrator to break through the structure. These tools generate vibration which may be perceptible to the nearest sensitive receptors located east of the proposed Project site, across the SAR at 634 feet. However, the unconsolidated sandy soils on the beach would significantly limit vibration across the SAR, reducing vibration impacts to nearby sensitive receptors. Furthermore, construction activities would not include substantial percussive methods that would generate significant vibration. Therefore, there would be no vibration impacts to sensitive receptors or damage to buildings associated with implementation of Alternative 2 and impacts associated with vibration on nearby structures or sensitive receptors are less than significant.

Significance Level Alternative 2: Less than significant.

References – Noise and Vibration

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4.12 Recreation

This section addresses potential impacts of the proposed Project on recreational activities and facilities. For impacts associated with near shore ocean water quality please refer to Section 4.10, Marine Environment.

4.12.1 Environmental Setting

Recreational Facilities

The Community Service Department of Huntington Beach operates a total of 71 parks and public facilities throughout the City of Huntington Beach (the City) totaling approximately 752 acres. These include six mini parks, 58 neighborhood parks, seven community parks, and two regional parks. In addition to the parks and public facilities, the City also operates two publicly-owned golf courses, a 0.8-acre City Gym and Pool, the 2 acre Rodgers Senior Center, and 2community centers located in community parks. The City also has 150 acres of public beach, and includes an extensive trail system for pedestrians and bicyclists.

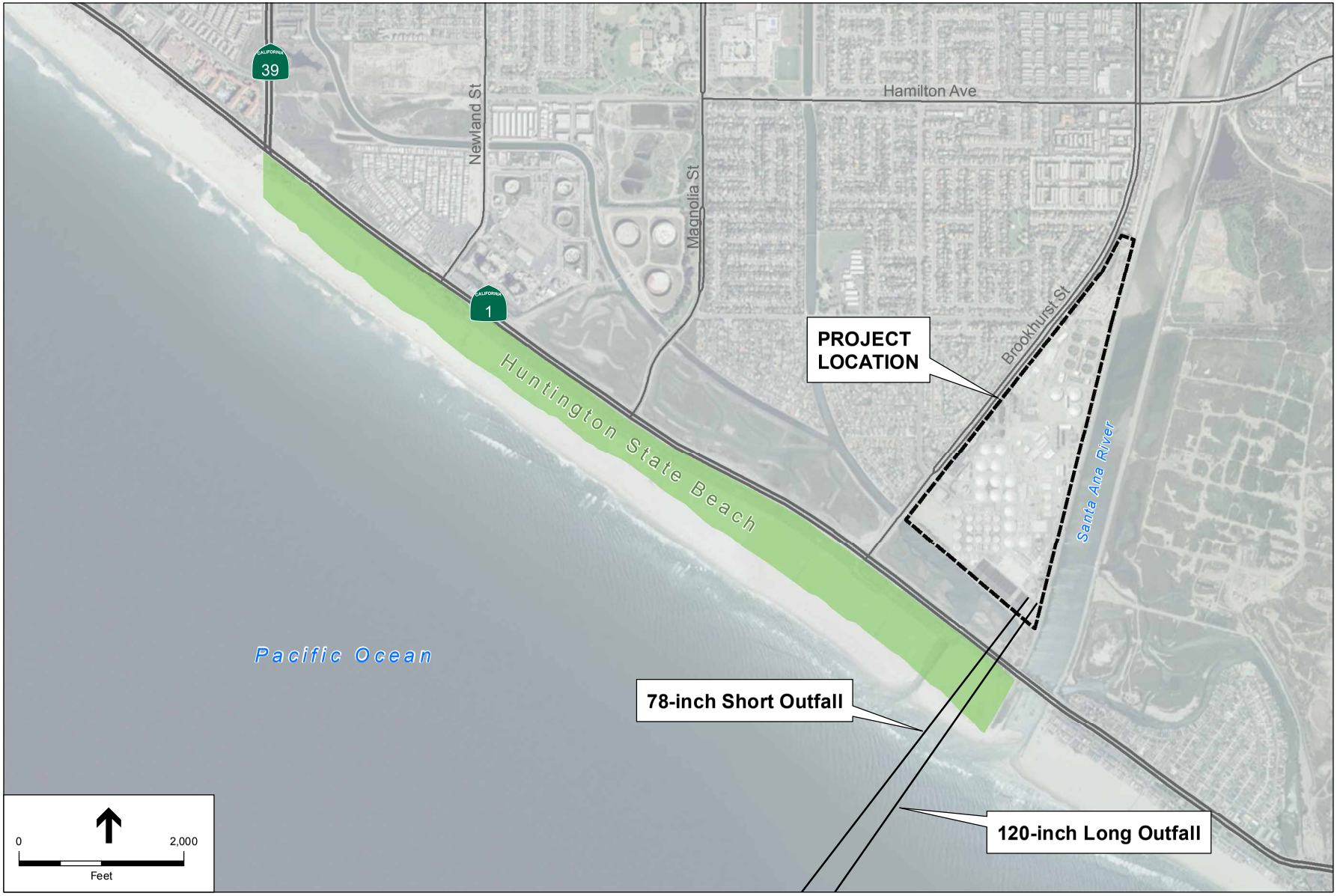
Beaches

The City includes approximately 11 miles of shoreline including the Bolsa Chica State Beach and the Huntington State Beach, both operated by the California Department of Parks and Recreation (DPR) and the Huntington City Beach, which is operated by the City. **Figure 4.12-1** illustrates the geographic extent of the Huntington State Beach. The 3 beaches in the City encompass a total of approximately 380 acres and are frequented by 15 million visitors annually. According to the Sanitation District's 2009-2010 Ocean Monitoring Report, total beach attendance at the cities of Huntington Beach and Newport Beach was over 18 million visitors for 2009-2010. Total monthly visitors ranged from 4,550,350 people in July to 467,116 people in December of 2009 (Sanitation District, 2011).

Bolsa Chica State Beach extends 3 miles from Sunset Beach to Seapoint Avenue and connects to Huntington City Beach through a 7 mile bikeway. This beach is popular for surfing and fishing. The Bolsa Chica State Beach is located across the street from the Bolsa Chica Ecological Reserve, east of the project site.

Huntington City Beach extends for 3.5 miles, including 1 mile of shoreline between the Municipal Pier and Beach Boulevard and approximately 2.5 miles of State-owned beach from the Municipal Pier to Seapoint Avenue, which are operated by the City. In this stretch of beach, the City is host to numerous surf and sport competitions including the US Open of Surfing and Association of Volleyball Professionals (AVP) Pro Beach Volleyball tournaments. In addition, the City of Huntington Beach, known as one of the best surfing areas along the west coast and is known as "Surf City, USA" (City of Huntington Beach, 2011).

Huntington State Beach is a public access State beach that extends 2 miles along the coast from Beach Boulevard in the City south to the Santa Ana River (SAR) on the Newport Beach



SOURCE: ESA, 2011.

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Figure 4.12-1

Geographic Extent of Huntington State Beach

boundary. Huntington State Beach is operated by the DPR. The Huntington State Beach features a bicycle trail, bonfire rings, surfing, skating, and surf fishing. This beach also contains the California Least Tern Natural Preserve Area, a nesting sanctuary for the federally and State-listed endangered species, the California least tern and for the threatened western snowy plover.

The California Least Tern Natural Preserve Area is dedicated as a preserve area under the Huntington State Beach General Development Plan (DPR, 1976). The California Least Tern Natural Preserve Area was originally dedicated on 2.5 acres and was fenced off with a cyclone fence to prevent predators from harassing the birds. Over the years, the California least tern's nesting area has expanded. In order to protect the site, DPR has expanded the chain-link-fenced area and has erected additional picket fencing to protect the birds from beach visitors. Currently, GIS data shows the cyclone fence area covering approximately 8.9 acres and the picket fence "front-yard" area covers an additional 3.8 acres, totaling 12.7 acres.

SAR Mouth Beach

The SAR Mouth Beach is a County beach, located in the City of Newport Beach, south of Huntington State Beach and north of Newport City Beach where the SAR meets the Pacific Ocean, southeast of the Project site. This beach is limited to the mouth of the SAR and is frequented by surfers and surf fishing enthusiasts, beachgoers, and visitors who bring their dogs.

Newport Beach

The City of Newport Beach has over 8 miles of beaches. With the exception of Corona del Mar State Beach, all beaches in Newport Beach are City beaches. The beaches are open to the public from the hours of 6 a.m. until 10 p.m. Crystal Cove State Park beaches close at sunset. Fire rings and public barbecues are available near the Balboa Pier and at Corona del Mar State Beach. [1]

Bikeways

The City of Huntington Beach contains an extensive trail system throughout the City for pedestrians and bicyclists. There are two type of bicycle lanes categorized within the City: Class I and Class II. The Class I facilities are for bicycles that travel completely separated from any street or highway, such as the bikeway that runs adjacent to the SAR. Class II facilities are striped lanes for one-way travel on streets and comprise of the majority of bike routes. Class III facilities, not yet available in the City, include bikeway routes not served by Class I or II facilities and can be shared with other motorists on roadways or pedestrians on a sidewalk and identified only by signing.

There are three regional Class I bikeways within the Coastal Zone identified by the Commuter Strategic Plan of Orange County, including: (1) the SAR Bikeway; (2) the Wintersburg Channel Bikeway; and (3) the Coastal Bikeway. The SAR Bikeway and Coastal Bikeway are located in the Project vicinity. The Coastal Bikeway runs along an 8.5 mile path that parallels Pacific Coast Highway (PCH) beginning at Warner Avenue to the north and ending near Brookhurst Avenue to the south. The bikeway then connects with the SAR Bikeway that follows the length of the SAR.

[1] Bikeways are a thoroughfare for bicycles, that are also used by on-motorized vehicles and pedestrians

The 2009 Orange County Transportation Authority (OCTA) Commuter Bikeways Strategic Plan states the City proposes to develop an additional 36.25 miles of bikeways, including two Class I, two Class II, and three Class III bikeways (OCTA, 2009). **Figure 4.12-2**, depicts the OCTA Bikeways within the Project vicinity.

The Coastal Bikeway traverses through the proposed Project construction area and is approximately 211 feet north of the Beach Box; the bikeway is south of PCH, between Huntington State Beach parking lot and SAR. As the path continues south past the SAR it is designated as a "Bike Lane and Okay to Ride on Sidewalk" by the City of Newport Beach Draft Bike Plan (City of Newport Beach, 2011).

Equestrian and Hiking Trail System

The Master Plan of Regional Riding and Hiking Trails includes 348 miles of existing and proposed trails throughout Orange County. The trails are located in unincorporated areas, incorporated areas, state parks, and the Cleveland National Forest. The regional trail system provides linkages with many local community trails throughout Orange County and trails from surrounding counties (Orange County Parks, 2007).

The City of Huntington Beach maintains approximately 2 miles of horse trails located in the Huntington Central Park available for public use, which is located in a residential area located south of Ellis Avenue between Edward Street and Golden West Street extending to the Bolsa Chica area. Two regional riding and hiking trails located in the Coastal Zone of Huntington Beach include (1) the SAR Trail and (2) the Huntington Beach Trail (City of Huntington Beach, 1996). There are no riding/equestrian trails within the Project vicinity.

Parks

Through Orange County Parks Department, the County of Orange owns or manages over 39,000 acres of regional park facilities as well as cultural-historical and natural resources. This regional park system includes 32,000 acres in 25 urban and wilderness parks, 7 miles of beaches and other coastal facilities, seven regional historic sites and parks, 7,000 acres of open space lands, 230 miles of regional riding and hiking trails and archeological and paleontological collections (Orange County Parks, 2007).

According to the City of Huntington Beach General Plan, the City contains 71 parks which encompass 577.28 acres. The parks include 6 mini parks totaling 2.7 acres, 58 neighborhood parks totaling 157.39 acres, seven community parks totaling 143.28 acres, and two regional parks (Huntington Central Park and Blufftop Park) encompassing 274 acres (City of Huntington Beach, 1996). Recreational facilities within 2 miles of the Project site include Edison Park, Seely Park, Eader Park, Gisler Park, Moffett Park, Le Bard Park, and Hawes Park in the City of Huntington Beach, and Talbert Regional Park in the City of Costa Mesa. These park facilities offer a variety of recreational amenities to City residents. The Huntington Beach Coastal Element also identifies a proposed local park, the Orange Coast River Park, located approximately 1.2 miles west the proposed Project site (City of Huntington Beach, 2001).

SOURCE: OCTA; ESA, 2011.

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Figure 4.12-2
OCTA Bikeways

Municipal Pier and Plaza

The City's Municipal Pier is located at the intersection of Main Street and PCH, north of the proposed Project site. The Main Pier Plaza includes a palm court, a 230 seat amphitheater, a spectator area, access to the beach and lawn, restrooms and concessions, bicycle parking facilities, and automobile parking. It also includes visitor services such as restaurants, community access and observation and recreational fishing platforms.

4.12.2 Regulatory Framework

State Regulations

California Department of Parks and Recreation

DPR manages more than 270 park units that include terrestrial and marine reserves, state beaches, wilderness areas, historic structures, and off-highway vehicle parks that cover 1.4 million acres, 280 miles of coast, 625 miles of lake and river frontage, 15,000 campsites and 3,000 miles of multi-use trails. The DPR was created within the California Resources Agency to "provide for the health, inspiration and education of the people of California by helping to preserve the State's extraordinary biological diversity, protecting its most valued natural and cultural resources, and creating opportunities for high-quality outdoor recreation" (DPR, 2011). The California Code of Regulations (CCR) and the Public Resources Code (PRC) charge California State Parks with accomplishing its mission through a legal mandate to "administer, protect, provide for recreational opportunity, and develop the State Park System; to interpret the values of the State Park System to the public; to operate the Off-Highway Motor Vehicle Recreation Program; to administer the California Historical Resources Protection Program; and to administer federal and state grants and bond funds to local agencies" (DPR, 2001).

Local Regulations

County of Orange General Plan

The County of Orange General Plan Recreation Element contains a Master Plan of Local Parks which articulates the goals, objectives and policies of the County and provides implementation programs to meet the local recreation needs of the unincorporated county area. In conjunction with the Local Park Code, the Master Plan for Local Parks is intended to provide for comprehensive local park planning and programming (i.e., acquisition, development, operation, maintenance, and financing).

City of Huntington Beach Local Coastal Program

As required by the California Coastal Act (California State PRC, Division 20, Sections 30000 et seq.), local governments lying wholly or partially within the Coastal Zone are required to prepare a Local Coastal Program (LCP) for its portion of the Coastal Zone. The LCP is used to implement policies and requirements of the Coastal Act by local governments and must be reviewed and certified by the California Coastal Commission (CCC) prior to being implemented by the local government. The LCP is divided into two components: (1) a coastal element and (2) an

implementation program. The Coastal Element found in the City's General Plan includes a land use plan and clear, specific policies to be used by decision makers when reviewing coastal-related issues and proposed development within a jurisdiction's Coastal Zone boundary. The implementation program is found in the Zoning Code and includes zoning ordinances, zoning district maps, specific plans, and other implementing actions that must conform to carrying out the goals and policies of the certified coastal element.

The Coastal Element of the City's General Plan was certified by the CCC in 1985, subsequently approved by the City Council which forwarded the Coastal Element to the CCC for final certification in 1999. The purpose of the Coastal Element is to meet the requirements of the Coastal Act and guide civic decisions regarding growth, development, enhancement and preservation of the City's Coastal Zone and its resources.

City of Huntington Beach General Plan Recreation and Community Service Element

The City of Huntington Beach Recreation and Community Services Element is concerned with identifying, maintaining, and enhancing local parks and recreational services and facilities.

Goal 1

Enrich the quality of life for all citizens of the City of Huntington Beach by providing constructive and creative leisure opportunities.

Objective

Encourage recreational opportunities unique to the City of Huntington Beach which will enhance visitation and economic development.

Policy

1.1.1 Provide leisure opportunities through programs and activities that serve the general population as well as the specialized needs of the disabled, children, and elderly.

Goal 2

Provide adequately sized and located active and passive parklands to meet the recreational needs of existing and future residents, and to preserve natural resources within the City of Huntington Beach and its sphere of influence.

Objective

Create an integrated park system that is complementary to existing and proposed development as well as the natural environment.

Policy

2.1.1 Maintain the current park per capita ratio of 5.0 acres per 1,000 persons, which includes the beach in the calculation.

4.12.3 Impacts and Mitigation Measures

Significance Criteria

According to *CEQA Guidelines* Appendix G, the proposed Project would have a significant effect on recreation if it would:

- Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated;
- Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse effect on the environment;

Impacts Discussion

It was determined in the Draft EIR analysis the following environmental factors would have no impact. The following is a brief discussion of the analysis.

Expansion of Recreational Facilities

The proposed Project does not propose development within an area that contains residential land uses or land uses that require the need for additional housing units. Rehabilitation activities would not result in an increase in population that would require the construction or expansion of recreational facilities, which might have an impact on the environment. Therefore, the proposed Project would not result in additional residents requiring the construction or expansion of recreational facilities and no impacts would occur.

Significance Level: No impact.

Physical Deterioration of Recreational Facilities

Impact 4.12-1: The proposed Project could cause or accelerate substantial physical deterioration of an existing neighborhood, regional park, or other recreational facility.

Alternative 1

Activities on Plant 2

Rehabilitation activities for Plant 2 would not result in an increase of population within the Project area, thereby causing the deterioration of an existing neighborhood, regional park, or other recreational facility. In addition, rehabilitation of Plant 2 would occur within the existing site and therefore would not impact any existing recreational facilities. Therefore, no impact to recreational facilities would occur from rehabilitation activities at Plant 2.

Activities at Air Vac Station 12+05

The rehabilitation activities associated with the Air Vac Station 12+05 would take place within an enclosed chain-link fenced area at the edge of the Talbert Marsh (see Land Use Section, **Figure**

4.1-2). However, construction workers and equipment would access the Air Vac Station 12+05 site by exiting Plant 2 (south gate) and crossing the Talbert Marsh bike trail and traveling south along the SAR Bikeway to the access gate. This access is currently used for routine maintenance at Air Vac Station 12+05. Additionally, an area outside of the Air Vac Station 12+05, adjacent to the SAR Bikeway would be required to stage some construction equipment. The staging of equipment on the SAR Bikeway would be temporary, and would not prevent users from accessing the trail on the east side of the river. Because vehicles currently access the bikeways for maintenance activities, and the duration of the rehabilitation activity would be limited to a week, the proposed Project would not significantly deteriorate the SAR Bikeway. Therefore, impacts to existing recreational facilities from the rehabilitation activities at Air Vac Station 12+05 would be less than significant.

Activities on the Beach

Rehabilitation of Beach Box

Huntington State Beach is part of the California State Parks system that extends 2 miles from Beach Boulevard south to the SAR. The California Least Tern Natural Preserve Area is located adjacent to the Beach Box, and safeguards nesting areas for protected species. The area is fenced off by a chain link fence, preventing the nesting area from being disturbed by pedestrians, bikers, and beach visitors. Rehabilitation of the Beach Box will require removing approximately 0.12 acres of habitat suitable for least tern nesting. The area south of the California Least Tern Natural Preserve Area is also frequented by the threatened western snowy plover. The temporary loss of beach parking would not be a significant impact, because this represents small portion of the total available parking at the beach.

As previously discussed, the Coastal Bikeway traverses the Huntington State Beach, parallels with PCH and then connects with the SAR Bikeway, via a bikeway loop at Huntington State Beach. The Coastal Bikeway is approximately 211 feet north of the Beach Box. During construction, this portion of the bikeway would be closed around the Beach Box site for the duration of construction. Construction equipment would use the Coastal Bikeway to access the Beach Box construction area. Excavated soils would be stockpiled south of the California Least Tern Natural Preserve Area as shown in **Figure 3-5**. The Huntington State Beach access would be restricted. The SAR Mouth Beach would be temporarily closed and impacted due to temporary construction, and access and staging activities. Nonetheless, other sections of the Huntington State Beach would remain open during construction and visitors would have open access. In addition, visitors would have access to the other nearby beaches including the Huntington City Beach, SAR Mouth Beach, Bolsa Chica State Beach, and Newport Beach. Therefore, impacts to recreational facilities would be temporary. However, implementation of **Mitigation Measure 4.12-1** would ensure impacts are reduced to less than significant levels.

Construction of the Bypass Structure

Construction of the bypass structure under Alternative 1 would require up to 60 construction worker vehicular roundtrips per day. This includes deliveries of construction materials and approximately 30 workers' commute for seven months. Portions of the preserve area and the area

that is frequented by the western snowy plover would be disturbed by the construction and implementation of the bypass structure for approximately seven months. Specifically, the total construction area would cover 6.56 acres, 0.23 acres (32 parking spaces at the beach parking lot), 3.55 acres would be located inside the picket fence area and 0.26 acres would be located within the natural preserve boundary. The temporary loss of beach 32 parking spaces would not be significant because this represents a small portion of the total available parking at the beach, and the activities would not occur during periods of peak beach attendance.

Access to Huntington State Beach between the Talbert Channel and the SAR would be temporarily restricted due to construction activities for up to seven months. Other sections of the Huntington State Beach would remain open during construction and visitors would have open access. However, the SAR Mouth Beach would be temporarily closed and impacted due to temporary construction. To protect public safety, a fence would be constructed on either side of the SAR that would prevent beach goers from crossing between Newport Beach and Huntington Beach (See Hazards Section 4.7). Under Alternative 1, the restriction of beach access at Huntington State Beach and the closure of SAR Mouth Beach during this period would be considered a significant and unavoidable impact of the proposed Project.

Although rehabilitation efforts would temporarily displace bikeway users, additional bikeways in the vicinity of the Project would be able to accommodate the increase in visitors and would not suffer substantial physical deterioration as a result of this increase. During the rehabilitation efforts for the proposed Project, the displaced users are not anticipated to be concentrated on one beach or bikeway and would temporarily be diffused during the 4 to 6 weeks during off-peak season, where beachgoers to both Huntington Beach and Newport Beach are significantly reduced, there would not be substantial physical deterioration of existing recreational facilities. Therefore, with the implementation of **Mitigation Measure 4.12-1**, activities impacting the bikeways are less than significant impact.

The worst-case scenario for bikeway closures is described below and shown on **Figure 4.12-3.** The Coastal Bikeway would be closed from the Huntington State Beach parking lot to the SAR Bikeway connection, and the SAR Bikeway would be closed from the Air Vac Station 12+05 site to the Huntington State Beach. The detour would require bikeway users heading east to travel north on Brookhurst Street, east through the Talbert Marsh bike trail, north on the SAR Bikeway, and north to Victoria Street. Traveling north on Victoria Street, bicyclists can then reconnect with the Newport Beach portion of the SAR Bikeway which would reconnect with the Coastal Bikeway in Newport Beach at Orange Street.

Similarly, bikeway users traveling west from Newport Beach would be directed off the Coastal Bikeway at Orange Street, over to PCH, head north on the eastern SAR Bikeway, to Victoria Street, cross the SAR, and travel south on the western SAR Bikeway, then west at the Talbert Marsh bike trail and south on Brookhurst Street, to reconnect to the Coastal Bikeway. Although the impact to the bikeways can be mitigated to less than significant levels, the restricted access to the Huntington State Beach and the closure of SAR Mouth Beach is a significant and unavoidable impact.

Significance Level Alternative 1: Significant and unavoidable.

SOURCE: ESA, 2011.

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Figure 4.12-3
Alternative Bikeway Trail Detour Route

Alternative 2

Alternative 2 would result in identical impacts at Plant 2 and at Air Vac Station 12+05 as discussed under Alternative 1, during beach box rehabilitation activities. Under Alternative 2, the rehabilitation work at the Beach Box would occur on a 24 hour, 7 days per week schedule for approximately 4 to 6 weeks. There would be approximately 14 parking spaces required in the Huntington State Beach parking lot. The total construction area would be approximately 2.26 acres, including approximately 0.17 acres inside the picket fence line of the California Least Tern Natural Preserve Area. A majority of the proposed Project rehabilitation activities would be performed within their existing easement, although the construction zone would encroach on a portion of the Huntington State Beach. Access to Huntington State Beach would be restricted for the 4 to 6 week period. The SAR Mouth Beach would be temporarily closed and impacted due to temporarily closed and impacted due to temporary construction.

The Coastal Bikeway south of PCH would be closed similar to Alternative 1. In addition, the same site for a staging area and worker parking area would be used on the State Beach parking lot; however, the footprint would be slightly smaller (0.11 acres) than under Alternative 1. Alternative 2 would require closure for up to 6 weeks. **Mitigation Measure 4.12-1** would ensure that a detour is provided for bikeway users. Following construction, the bikeways (SAR and Coastal Bikeway) north of PCH would be reopened. The temporary impact to the bikeways and beach would be a less than significant impact.

Under Alternative 2, the proposed Project would not affect an existing recreational facility such that substantial physical deterioration of the facility would occur or be accelerated. Although rehabilitation efforts would temporarily displace bikeway users, additional bikeways in the vicinity of the proposed Project would be able to accommodate the increase in visitors and would not experience substantial physical deterioration as a result of this increase. During the rehabilitation efforts for the proposed Project, the displaced users are not anticipated to be concentrated on one beach or bikeway and would temporarily be displaced during the 4 to 6 weeks during off-peak season, where beachgoers to both Huntington Beach and Newport Beach are significantly reduced. Thus, there would not be substantial physical deterioration of existing recreational facilities. Moreover, access to Huntington State Beach would be restricted for 4 to 6 weeks and the SAR Mouth Beach would remain open. Therefore, with the implementation of **Mitigation Measure 4.12-1**, this would be a less than significant impact.

The worst-case scenario for bikeway closures is described below and shown on **Figure 4.12-3.** The Coastal Bikeway would be closed from the Huntington State Beach Parking lot to the SAR Bikeway connection, and the SAR Bikeway would be closed from the Air Vac Station 12+05 site to the Huntington State Beach. The detour would require bikeway users heading east to travel north on Brookhurst Street, east through the Talbert Marsh bike trail, north on the SAR Bikeway, and north to Victoria Street. Traveling north on Victoria Street, bicyclists can then reconnect with the Newport Beach portion of the SAR Bikeway which would reconnect with the Coastal Bikeway in Newport Beach at Orange Street.

Significance Level Alternative 2: Less than significant with mitigation.

Mitigation Measures

4.12-1: Prior to the commencement of any construction activities, the Sanitation District and the construction contractor shall coordinate with California State Parks, Orange County Parks Department, City of Huntington Beach, and the City of Newport Beach to prepare and implement a bicycle/pedestrian detour plan for the duration of construction. The plan shall identify alternative routes, construction schedules, and signage for the detour plan and applicable closures dates clearly identified.

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4.13 Traffic and Circulation

This section addresses potential traffic and circulation impacts based on information supplied by the Orange County Transportation Authority (OCTA), California Department of Transportation (Caltrans), the City of Huntington Beach General Plan, the County of Orange General Plan, and the City of Huntington Beach Municipal Code.

4.13.1 Environmental Setting

Regional Setting

The proposed Project is located in the City of Huntington Beach (the City) in Orange County. The regional transportation system is comprised of an interconnected network of roadways, local transit systems, and pedestrian and bicycle facilities. Major regional roadways include the San Diego Freeway (Interstate 405) to the northeast, Beach Boulevard (State Route 39) to the west, and Pacific Coast Highway (PCH) to the south. Brookhurst Street to the west of the proposed Project site is considered a major arterial by the Huntington Beach General Plan. **Figure 4.13-1** shows regional highways and arterial roads in the vicinity of the proposed Project.

Interstate 405 (I-405), also known as the San Diego Freeway, is a major north-south Interstate in western Orange County that provides regional access to coastal cities in Orange and Los Angeles counties. It crosses the northern portion of the City

Pacific Coast Highway (SR- 1 or PCH) is a 6-lane north-south regional highway that provides access from the City of Newport Beach to the south and the City of Seal Beach to the north. PCH parallels the coast along the western area of the City of Huntington Beach. According to the OCTA 2010 Traffic Flow Legend (which receives input provided by local jurisdictions for arterials and Caltrans for freeways), there are approximately 42,000 to 43,000 average daily trips (ADT)[1] on PCH near the proposed Project (OCTA, 2009a).

There are two signalized intersections along PCH what provide access to the residential area located northeast of PCH between the Santa Ana River (SAR) to the northwest and West Newport Park located to the southeast: Orange Street and Prospect Street. The intersections of Orange Street and Prospect Street with PCH provide full all-traffic movements and are controlled by traffic signals that provide protected left-turn phasing for PCH.

Beach Boulevard (SR- 39), designated as a "Smart Street Corridor" by the OCTA, begins at PCH in the City of Huntington Beach and extends north through the cities of Westminster, Garden Grove, Buena Park, and Anaheim.

Local Roadways

The proposed Project is located south of PCH and east of Brookhurst Street. These roadways provide local access to the proposed Project site as shown in **Figure 4.13-1**.

[1] ADT represents the total number of vehicles that pass a segment of roadway in one day

SOURCE: ESA, 2011.

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Figure 4.13-1

Major Roadways in the Project Vicinity

Brookhurst Street is a-6 lane north-south major arterial north-south major arterial with a vehicle capacity of 45,000 ADT (City of Huntington Beach, 1996). The intersection of Brookhurst Street with PCH is controlled by a traffic signal that provides protected left-turn phasing and westbound right-turn overlap on PCH and split phasing for Brookhurst Street.

Traffic Volumes

OCTA collects information on average daily traffic counts on arterial roadways and freeways from the County, the 34 cities within the Orange County, and Caltrans on an annual basis. OCTA reviews the traffic volumes and adjusts the data as necessary to reflect weekday traffic. This information is published on an annual basis on a Traffic Flow Map that shows ADT in thousands of vehicles per day (OCTA, 2009a).

OCTA also monitors the level of service at highway intersections throughout the County. Through the Congestion Management Plan (CMP), OCTA rates the level of service (LOS) for designated intersections based on capacity utilization and peak-hour traffic counts during the A.M. (6:00 a.m. to 9:00 p.m.) and P.M. (3:00 a.m. to 7:00 p.m.). LOS ratings are utilized to describe traffic operations with a scale ranging from LOS A to LOS F. LOS A indicates very good, free flow traffic conditions where LOS F indicates very poor, forced flow conditions. LOS E is acceptable for CMP purposes, however, LOS D is the performance standard adopted by the City. LOS E is acceptable for freeway ramps. Additionally, in accordance with the General Plan, LOS D is the acceptable level of service for peak hour operation at City intersections. For intersections that are designated as part of the CMP Highway System, the acceptable level of service is LOS E. There are no designated CMP routes in the vicinity of the proposed Project.

According to the Caltrans Route Concept Report for State Route 1, PCH has a LOS of C at the roadway segment from Brookhurst Street to Beach Boulevard in the City (Caltrans, 2000). PCH also is LOS C from Brookhurst Street to Newport Beach (Caltrans, 2000).

Public Transportation

The City of Huntington Beach is served by the OCTA bus service. Currently, the OCTA operates 19 bus routes throughout the City, a demand response service through the “Dial-a-Ride” program, and two park-and-ride facilities. Most major streets within the City have bus service available. OCTA Route 1 runs along PCH and Route 35 runs along Brookhurst Street.

Bicycle and Pedestrian Transportation

The City of Huntington Beach has an extensive trail system that includes pedestrian and bike trails within open space corridors and along regional trails. Additionally, the County maintains a coordinated system of trails, including bikeways, hiking trails, boardwalks within the cities. The biking network in the City connects with other trails and paths in adjacent communities and throughout Orange County. OCTA has developed basic bikeway planning and design guidelines for the entire County through the OCTA Commuter Bikeways Strategic Plan 2009 (OCTA, 2009b). The following descriptions are based on the strategic plan. “Bikeway” consists of all facilities that accommodate bicycle travel. Three categories of bikeways defined by OCTA and Caltrans are:

Class I facilities are also called "bike paths" or "shared-use paths" and provides bicycle travel completely separate from any street or highway;

Class II facilities are also called "bike lanes" and are designed with striped lanes for one-way travel on streets and comprises of the majority of bike routes within the City; and

Class III facilities are known as "bike routes" and provide routes through areas that are not served by Class I or II facilities. Class III shares the street with motor vehicles or the sidewalk with pedestrians and is identified by only signage.

Currently, there are two types of bicycle lanes categorized within the City: Class I and Class II. Class III facilities are not yet available in the City. The City of Newport Beach bicycle facilities consists of all the class designation in addition to Class IV facilities, which are unpaved off-road paths (OCTA, 2009b). **Figure 4.12-2** in Section 4.12, Recreation depicts the bikeways in the Project vicinity.

There are three regional Class I bikeways within the Coastal Zone identified by the Commuter Strategic Plan of Orange County, including (1) the SAR Bikeway (2) the Wintersburg Channel Bikeway, and (3) the Coastal Bikeway. One of the most scenic trails in the City is the Coastal Bikeway, which runs along an 8.5 mile path that parallels PCH beginning at Warner Avenue to the north and ending near Brookhurst Street to the south. The Coastal Bikeway then connects with SAR Bikeway that follows the length of the SAR. The SAR Bikeway is a multi-use trail utilized by pedestrians, equestrian, and bicyclists. It has a speed limit of 10 miles per hour (mph) per Orange County Ordinance, Division 5, Revised: February 2005, Section 2-5-29(a). In addition, PCH currently has Class III bike lanes along PCH with no designated bike-only speed limit. Based on the 2009 OCTA Commuter Bikeways Strategic Plan, the City proposes to add approximately 36.25 miles of bikeways, including two Class I, 11 Class II, and three Class III bikeways (OCTA, 2009b).

Equestrian and Hiking Trail System

The City maintains approximately 2 miles of horse trails located in the Huntington Central Park available for public use. The equestrian trail systems include trails in the residential area located south of Ellis Avenue between Edward Street and Golden West Street extending as far as the Bolsa Chica area. Two regional riding and hiking trails located in the Coastal Zone of the City include the SAR Bikeway and the Huntington Beach Trail. There are no regional riding trails located within the vicinity of the proposed Project.

4.13.2 Regulatory Framework

The development and regulation of the transportation network in the vicinity of the proposed Project primarily involves State and county jurisdictions. Applicable State and local laws and regulations related to traffic and transportation issues are discussed below.

State

Congestion Management Plan

In June 1990, California voters approved Proposition 111, which established a 9 percent per gallon gas tax, staged over a 5 year period, for the purpose of funding transportation-related improvements statewide. In order to be eligible for the revenues associated with Proposition 111, the CMP legislation (originally AB 471, amended by AB 1791) requires urbanized counties in California to adopt a CMP. For Orange County, the authorized CMP agency is the OCTA. In 2009 Orange County adopted its most recent CMP (OCTA, 2009a). The purpose of the State-mandated CMP is to monitor roadway congestion and assess the overall performance of the region's transportation system.

The CMP requires that a Traffic Impact Assessment be conducted for any project generating 2,400 or more daily trips or 1,600 or more daily trips for projects that have direct access to the Congestion Management Plan Highway System (CMPHS). Per the CMP guidelines, this number is based on the desire to analyze any impacts that comprise 3 percent or more of the existing CMP Highway System facilities capacity. The CMPHS includes specific roadways, including State Highways, smart streets, and CMP arterial monitoring locations/intersections. Within the proposed Project vicinity, PCH is designated as a smart street by the 2009 CMP.

California Department of Transportation

Caltrans manages interregional transportation, including management and construction of the California highway system. In addition, Caltrans is responsible for permitting and regulation of the use of State roadways. Caltrans' construction practices require temporary traffic control planning "during any time the normal function of a roadway is suspended" (Caltrans, 2006). In addition, Caltrans requires that permits be obtained for transportation of oversized loads and transportation of certain materials, and for construction-related traffic disturbance. The Sanitation District's Traffic Management Plan would be prepared in conformance with Caltrans requirements for permitting for construction related activities concerning oversize loads. Additionally, the Sanitation District does not anticipate any work for the proposed Project that would require an encroachment permit for PCH from Caltrans.

Local

Orange County Congestion Management Program

In compliance with Proposition 111, the Orange County CMP was last updated in 2009. The CMP was created with goals to directly link land use, transportation, and air quality to promote reasonable growth management programs. The CMP contains specific strategies and improvements to reduce traffic congestion and improve the performance of a multi-modal transportation system. Examples of strategies include increased emphasis on public transportation and rideshare programs, mitigating the impacts of new development, and better coordinating land use and transportation planning decisions.

CMPHS designated roadways within the City of Huntington Beach include: PCH, Beach Boulevard, Warner Avenue, Adams Street, Bolsa Chica Street, and Bolsa Avenue (OCTA, 2009a).

2008 Regional Transportation Plan

The Regional Transportation Plan is a 25 year long-range transportation plan that focuses on improving the balance between land use and current, as well as future, transportation systems throughout the entire Southern California region. The 2008 Regional Transportation Plan: Making the Connections (RTP) was adopted in May 2008 (SCAG, 2008).

Southern California Association of Governments (SCAG) is required by federal law to create an RTP that determines the needs of the transportation system and prioritizes proposed transportation projects. The RTP is also necessary to obtain and allocate federal funding for regional transportation project (SCAG, 2008). The RTP must be updated and federally approved every 3 years. Federal approval requires a positive demonstration that RTP projects would not generate travel emissions that exceed those assumed in the applicable Air Quality Management Plan; this requirement is known as "transportation conformity.".

SCAG develops, maintains and updates the RTP on a 3 year cycle. SCAG adopted the 2008 RTP on May 8, 2008 with three subsequent amendments. The 2008 RTP is linked to OCTA and local jurisdictions' transportation plans and models in the form of shared growth and travel projections. The 2012 RTP is currently in development stages.

City of Huntington Beach

The proposed Project is located within the City of Huntington Beach and is governed by the City of Huntington Beach General Plan. The Circulation Element of the General Plan evaluates the transportation needs of the City and provides goals, objectives, and policies for future transportation planning and facilities to meet City transportation needs. The Huntington Beach Municipal Code Chapter 10.24 designates authorized streets as "truck routes" for vehicles exceeding a maximum gross weight of 5 tons.

Table 4.13-1 summarizes the delay thresholds for unsignalized intersections. Under the Highway Capacity Manual (HCM) methodology, LOS is based on the average stop delay per vehicle for all movements at all-way stop-controlled intersections. For one-way or two-way stop-controlled intersections, LOS is based on delay of the worst stop-controlled movement using the LOS ranges shown in **Table 4.13-1**.

TABLE 4.13-1
LEVEL OF SERVICE THRESHOLDS FOR UNSIGNALIZED INTERSECTIONS

Average Control Delay per Vehicle (Seconds/Vehicle)	Level of Service
0.0 ≤10.0	A
10.1 to 15.0	B
15.1 to 25.0	C
25.1 to 35.0	D
35.1 to 50.0	E
≥ 50.1	F

LOS = Level of Service. LOS is based on peak-hour traffic counts during A.M. (6:00 to 9:00) and P.M. (3:00 to 7:00) periods and volume to capacity ratios.

SOURCE: Orange County Transportation Authority, 2009a. *Congestion Management Plan.* City of Huntington Beach. *Beach and Edinger Corridors Specific Plan Draft EIR*, November 2009

The nearest intersections serving the project site with LOS ratings are shown in **Table 4.13-2**.

TABLE 4.13-2
EXISTING LEVEL OF SERVICE RATINGS FOR INTERSECTIONS IN THE PROJECT AREA

Intersection	LOS A.M. / P.M.
Beach Boulevard/Pacific Coast Highway	A / B
Beach Boulevard/Adams Avenue	A / C
Beach Boulevard/405 SB Ramp/Center Avenue	C/ D
Brookhurst Street /Garfield Avenue	A / B
Brookhurst Street/Yorktown Avenue	A / B
Brookhurst Street/Adams Avenue	D / D
Brookhurst Street/Indianapolis Avenue	A / A
Brookhurst Street/Atlanta Avenue	A / A
Brookhurst Street/Hamilton Avenue	B / B
Brookhurst Street/Banning Avenue	A / A
Brookhurst Street/Pacific Coast Highway	B / C
Magnolia Street /Pacific Coast Highway	B / B

LOS = Level of Service. LOS is based on peak-hour traffic counts during A.M. (6:00 to 9:00) and P.M.
(3:00 to 7:00) periods and volume to capacity ratios.

SOURCE: Orange County Transportation Authority, 2009a. *Congestion Management Plan.* City of Huntington Beach. *Beach and Edinger Corridors Specific Plan Draft EIR*, November 2009

The daily vehicle traffic count along the Brookhurst Street and PCH roadway segments are shown in **Table 4.13-3**.

TABLE 4.13-3
DAILY VEHICLE TRAFFIC FOR ROADWAY SEGMENTS IN THE PROJECT AREA

Roadway Segments	Daily Vehicle Traffic
Brookhurst Street	
Adams Avenue to Indianapolis Avenue	30,000
Indianapolis Avenue to Atlanta Avenue	25,000
Atlanta Avenue to Hamilton Avenue	24,000
Hamilton Avenue to Banning Avenue	14,000
Banning Avenue to PCH	12,000
Pacific Coast Highway	
Beach Boulevard to Newland Street	41,000
Newland Street to Talbert Avenue	43,000
Talbert Avenue to Bushard Street	42,000
Bushard Street / Brookhurst Street to Orange Street	43,000

SOURCE: Orange County Transportation Authority, 2010. *Traffic Flow Map.*

4.13.3 Impacts and Mitigation Measures

Significance Criteria

For the purposes of this analysis and consistent with Appendix G of the *CEQA Guidelines*, the proposed Project would result in potentially significant impacts on traffic and circulation if it would:

- Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit.
- Conflict with an applicable congestion management program, including, but not limited to, level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways.
- Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks.

- Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).
- Result in inadequate emergency access.
- Result in inadequate parking capacity
- Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

Impacts Discussion

It was determined in the Draft EIR analysis the following environmental factors would have no impact. The following is a brief discussion of the analysis:

Air Traffic Patterns

The nearest airport, John Wayne International Airport located at 18800 MacArthur Boulevard in the City of Santa Ana, between the cities of Costa Mesa, Irvine, and Newport Beach. It is approximately 5 miles northeast of the proposed Project site. The proposed Project would not affect air traffic levels nor result in the construction of buildings or structures that would interfere with air traffic. No impacts to public safety associated with air traffic patterns would occur.

Significance Level: No impact.

Design Feature Hazards and Incompatible Uses

The proposed Project would not introduce any roadway hazards due to a project design feature (i.e. sharp curves or dangerous intersections), or incompatible uses as no new roadways or roadway modifications are proposed. During construction activities, all truck trips and deliveries would utilize roadways that permit vehicle type, size, and weight in accordance with regulations by Caltrans and the City Municipal Code Chapter 10.24. This includes the I-405 Freeway, Brookhurst Street and PCH. In addition, rehabilitation, parking and staging activities that occur onsite at Plant 2 and near Air Vac Station 12+05 would utilize the internal roadway network. Construction workers and equipment would access the Air Vac Station 12+05 by crossing the Talbert March bike trail from Plant 2 (south gate) and driving down the SAR Bikeway to the Air Vac Station 12+05 gate. In addition, no roadway closures are anticipated and temporary construction parking and staging would be located at the northern end of the Huntington State Beach parking lot and not along existing roadways. Therefore, no impacts would occur to roadways resulting from design feature hazards an incompatible uses.

Significance Level: No impact.

Emergency Access

The primary fire station serving the proposed Project area is the Huntington Beach Fire Department Fire Station 4-Magnolia, located at 21441 Magnolia Street, approximately 2.5 miles northeast of the proposed Project area. The closest police station is the Huntington Beach Police Department Downtown Substation located at 205 5th Street, approximately 3.5 miles northeast of the Project area. The proposed Project would not alter roadways nor does it propose lane closures. Therefore, implementation of the proposed Project would not impede traffic or access to nearby residential land uses in the project area and would not create obstacles to emergency service providers and no impacts would occur.

Significance Level: No impact.

Consistency with Regulations for Circulation System Performance

Impact 4.13-1: The proposed Project could introduce vehicles to local roadways that could affect the performance of the circulation system.

The proposed Project is a rehabilitation project and would not add any new permanent vehicle trips to the local roadway network, therefore, the proposed Project would not conflict with the RTP, CMP or the City of Huntington Beach Circulation Element. There are no permanent traffic or circulation impacts from proposed Project operation. Therefore, the following analysis is focused on construction traffic.

Alternative 1

Activities on Plant 2

Rehabilitation activities, including the rehabilitation of Surge Tower 2, rehabilitation and internal structural strengthening of the riser connections of the Long Outfall, and the abandonment of the outfall meter ports would be located onsite within the boundaries of Plant 2. Vehicle traffic associated with construction of the proposed Project would include material deliveries and construction worker commute to the site. Access to and from the construction sites would generally be from I-405 to Brookhurst Street. It is estimated that approximately 25 to 30 construction workers would commute to the Plant 2 site with their own vehicles for the duration of the construction activities (approximately 4 to 6 weeks). Truck traffic associated with material delivery is estimated to be two additional trips. The addition of approximately 50 to 60 temporary round trip vehicular worker trips on Brookhurst Street would not significantly affect the local or regional circulation system, because of the minimal amount of traffic being added to the existing traffic volumes on Brookhurst and PCH (refer to **Table 4.13-3**). Additionally, the additional 50 to 60 temporary roundtrip vehicular trips would not impact the intersection of PCH and Brookhurst because the intersection currently operates at a LOS B in the A.M. peak hours and LOS C in the P.M. peak hours. These additional temporary trips would not reduce the LOS at the intersection and the proposed Project would have a less than significant impact.

Workforce parking would be accommodated at Plant 2 and would not impact local parking capacity. Implementation of activities at Plant 2 would have a less than significant impact to the performance of the circulation system.

Activities at Air Vac Station 12+05

It is anticipated that rehabilitation of the Air Vac Station 12+05, located west of the SAR Bikeway and at the southeastern corner outside of Plant 2, would be accessed by construction workers via Plant 2's south exit gate. Approximately 4 to 6 construction workers would be required for construction activities at Air Vac Station 12+05, resulting in up to 12 roundtrip vehicular construction trips. The addition of approximately 12 temporary round trip vehicular worker trips on Brookhurst Street would not significantly affect the local or regional circulation system, because of the minimal amount of traffic being added to the existing traffic volumes on Brookhurst and PCH (refer to **Table 4.13-3**). Additionally, the additional 12 temporary roundtrip vehicular trips would not impact the intersection of PCH and Brookhurst because the intersection currently operates at a LOS B in the A.M. peak hours and LOS C in the P.M. peak hours. These additional temporary trips would not reduce the LOS at the intersection and the proposed Project would have a less than significant impact.

Construction workers and equipment would access the Air Vac Station 12+05 by crossing the Talbert Marsh bike trail from Plant 2 (south gate) and driving down the Santa Ana River Bikeway to the Air Vac Station 12+05 gate. Truck traffic associated with material delivery is estimated to be 3 additional trips. Once equipment pieces (i.e. crawler crane, jackhammer, panel truck, generators, air compressors, etc.) are initially brought to the Air Vac Station 12+05 site, construction workers can walk to the site. The SAR Bikeway would be detoured to the Talbert Marsh bike trail from the Air Vac Station 12+05 construction area during Air Vac 12+05 construction activities, as further discussed below. The duration of construction at Air Vac Station 12+05 would be up to 1 week. Maintenance vehicles currently access the local bike trail and bikeway to maintain the flood control facilities and the Talbert Marsh. The additional trips associated with site access for the brief construction period would not significantly affect ongoing use of the bike trails as a detour to the beach is provided and construction activities would be short-term and temporary.

Furthermore, the Huntington Beach Wetland Conservancy, which owns and maintains the Talbert Marsh, would continue to have access to the Air Vac Station 12+05 area and surrounding areas of the Talbert Marsh via Brookhurst Street and through the Talbert Marsh bike trail. Construction at this location would not disrupt the local or regional circulation system.

Activities on the Beach

Rehabilitation of Beach Box

Access to and from the beach site would generally be from I-405 to Brookhurst Street to PCH. Rehabilitation of the Beach Box would require 8 to 12 constructions workers at the beach or approximately 16 to 24 average daily trips associated with construction worker commute. Truck traffic associated with material delivery is estimated to be 1 additional daily trip. The addition of 16 to 24 temporary roundtrip vehicular trips would not impact the intersection of PCH and

Brookhurst because the intersection currently operates at a LOS B in the A.M. peak hours and LOS C in the P.M. peak hours. These additional temporary trips are minimal, thus they would not reduce the LOS at the intersection and the proposed Project would have a less than significant impact. The addition of 24 temporary round trip vehicular worker trips on Brookhurst Street would not significantly affect the local or regional circulation system, because of the minimal amount of traffic being added to the existing traffic volumes on Brookhurst and PCH (refer to **Table 4.13-3**).

Additionally, construction parking would occur within the construction zone identified in **Figure 3-2** or within Huntington State Beach parking lot. Equipment and material storage would occur at the Huntington State Beach parking lot as shown in **Figure 3-2**. Repair activities at the Beach Box would have a less than significant impact on parking.

Construction of Bypass Structure

Vehicle traffic associated with construction of the bypass structure would include material deliveries, demolished material removed, and construction worker commute to the site. Construction of the bypass structure under Alternative 1 would require 15 to 20 construction workers, which would result in approximately 30 to 40 roundtrip construction vehicular trips per day for seven months. Truck traffic associated with material delivery is estimated to be 3 additional daily trips over the seven month period. The additional of 30 to 40 temporary roundtrip vehicular trips would not impact the intersection of PCH and Brookhurst because the intersection currently operates at a LOS B in the A.M. peak hours and LOS C in the P.M. peak hours. The addition of approximately 30 to 40 temporary round trip vehicular worker trips on Brookhurst Street would not significantly affect the local or regional circulation system, because of the minimal amount of traffic being added to the existing traffic volumes on Brookhurst and PCH (refer to **Table 4.13-3**).

Construction-related vehicular trips would be temporary and minimal and are not expected to impact the existing transportation circulation system. At the conclusion of the proposed Project construction and rehabilitation activities, operational trips to and from the project site would resume to pre-construction levels and return to day-to-day operational trips. Thus, impacts to regional and local roadways and intersections would be less than significant.

Construction parking during activities at the bypass structure would occur within the construction zone identified in **Figure 3-2** or within the Huntington State Beach parking lot. Equipment and material storage would occur at the Huntington State Beach parking lot as shown in **Figure 3-2**.

Significance Level Alternative 1: Less than significant.

Alternative 2

Alternative 2 would result in identical impacts at Plant 2, the Air Vac Station 12+05, and on the beach during Beach Box rehabilitation activities. Construction parking under Alternative 2 would also be located within the identified construction zone and within the Huntington State Beach parking lot.

Construction-related vehicular trips under Alternative 2 would be temporary and minimal and is not expected to impact the existing transportation circulation system. At the conclusion of the proposed Project construction and rehabilitation activities, operational trips to and from the project site would resume to pre-construction levels and return to day-to-day operational trips. Thus, impacts to regional and local roadways would be less than significant.

Significance Level Alternative 2: Less than significant.

Congestion Management Program / LOS Standard

Impact 4.13-2: The project could conflict with the Orange County Congestion Management Program, including, but not limited to, level of service standards and travel demand measures.

Alternative 1

Activities on Plant 2

Construction routes for the proposed Project would include I-405 Freeway and Brookhurst Avenue. All rehabilitation-related vehicular trips within Plant 2 would use the Plant's internal roadway network streets and would not create additional traffic impacts to public roadways. As discussed above, the increase of 50 to 60 roundtrip construction vehicular trips would be minimal and temporary and would therefore not permanently affect LOS on Brookhurst Street or the regional circulation system, because of the minimal amount of traffic being added to the existing traffic volumes on Brookhurst and PCH (refer to **Table 4.13-3**).

Furthermore, as stated in the Orange County CMP, a traffic impact analysis applies to all development projects that consist of 2,400 or more daily trips for projects adjacent to the CMP Highway System, and 1,600 or more daily trips for projects that directly access the CMP Highway System. As the proposed Project is not a development project, but rather consists of the inspection, condition assessment, and the rehabilitation of existing Plant 2 facilities and the Long Outfall system, no traffic impact analysis is required for the proposed Project.

Operation of the proposed Project would not create an increase of operational traffic and would instead return to existing normal operations and operational day-to-day worker trips. Thus, the proposed Project would be consistent with the Orange County CMP and would not affect existing roadway LOS or intersection LOS. Activities on Plant 2 would not conflict with the Orange County CMP and impacts would be less than significant.

Construction parking and staging area would be located onsite at Plant 2 and would not impact local parking.

Activities at Air Vac Station 12+05

Access to the Air Vac Station 12+05 site would be via I-405 Freeway and Brookhurst Street and through Plant 2 internal streets and to the south exit gate. As discussed above, the increase of 8 to 12 roundtrip construction vehicular trips would be minimal and would not affect LOS at the

intersection of Brookhurst Street and PCH. The addition of approximately 8 to 12 temporary round trip vehicular worker trips on Brookhurst Street would not significantly affect the local or regional circulation system, because of the minimal amount of traffic being added to the existing traffic volumes on Brookhurst and PCH (refer to **Table 4.13-3**). Activities at Air Vac Station 12+05 would not conflict with the Orange County CMP and impacts would be less than significant.

Activities on the Beach

Rehabilitation of Beach Box

Access to and from the beach site would generally be from I-405 to Brookhurst Street to PCH As discussed above, rehabilitation of the Beach Box would require 8 to 12 construction workers at the beach or approximately 16 to 24 average daily trips associated with construction worker commute. Construction parking and staging area would be located at the Huntington State Beach parking lot. The increase of 16 to 24 roundtrip construction vehicular trips would be minimal and would not affect LOS on Brookhurst Street and PCH. The intersections nearest the proposed Project would continue to operate above LOS D. Also, the addition of approximately 16 to 24 temporary vehicular worker trips on Brookhurst Street would not significantly affect the local or regional circulation system, because of the minimal amount of traffic being added to the existing traffic volumes on Brookhurst and PCH (refer to **Table 4.13-3**). Thus, the proposed Project would be consistent with the Orange County CMP and would not affect existing roadway LOS or intersection LOS. Activities at the beach would not conflict with the Orange County CMP. This would be a less than significant impact.

Construction of Bypass Structure

Construction of the bypass structure under Alternative 1 would require 15 to 20 construction workers, which would result in approximately 30 to 40 roundtrip construction vehicular trips per day for seven months. This includes deliveries of construction materials and 30 construction workers' commute for seven months. Construction parking and staging area would be located at the Huntington State Beach parking lot. The increase of 30 to 40 construction trips would be minimal and would not affect the LOS at the intersection of Brookhurst Street and PCH. Nor would the addition of approximately 30 to 40 temporary vehicular worker trips on Brookhurst Street significantly affect the local or regional circulation system (refer to **Table 4.13-3**). Construction of the bypass structure would not conflict with the Orange County CMP and impacts would be less than significant.

The Huntington State Beach parking lot would be utilized as a construction staging area and for worker parking. This would reduce parking spaces at the Huntington State Beach by a maximum of 34 parking spaces. However, since construction would be conducted in the off-peak season when beach attendance substantially is decreased, the use of the parking area for the duration of construction would not significantly reduce access to the beach. Thus, the proposed Project would be consistent with the Orange County CMP and would not affect existing roadways or intersection LOS and impacts would be less than significant. Activities under Alternative 2 would not conflict with the Orange County CMP. This would be a less than significant impact.

Significance Level Alternative 1: Less than significant.

Alternative 2

Alternative 2 would result in identical impacts at Plant 2, the Air Vac Station 12+05, and on the beach during Beach Box rehabilitation activities. Construction parking under Alternative 2 would also be located within the identified construction zone and within the Huntington State Beach parking lot.

Under Alternative 2, the increase of approximately 30 to 40 roundtrip construction vehicular trips per day for 4 to 6 months would be minimal and would not affect LOS on Brookhurst Street and PCH. As Alternative 2 would create a minimal increase of up to 40 vehicular trips per day, no traffic impact analysis is required for Alternative 2. Alternative 2 would comply with CMP regulations and is not anticipated to create heavy amounts of traffic on the existing highway and roadways. Furthermore, the streets utilized by the proposed Project would continue to operate above LOS D, which is the acceptable performance standard adopted by the City.

Construction parking and staging on the Huntington State Beach parking lot would reduce the available parking spaces at the Huntington State Beach by a maximum of 14 parking spaces. However, since construction would be conducted in the off-peak season when beach attendance substantially is decreased, the use of the parking area for the duration of construction would not significantly reduce access to the beach. Operation of the proposed Project would not create an increase of operational traffic and would instead return to existing normal operations and operational day-to-day worker trips. Thus, Alternative 2 would be consistent with the Orange County CMP and would not affect existing roadway LOS. Impacts would be less than significant.

Significance Level Alternative 2: Less than significant.

Public Transportation Facilities

Impact 4.13-3: The proposed Project could conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

The proposed Project is a rehabilitation project and would not add any new permanent vehicles or other activities that would impact public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities requiring parking. There are no impacts to public facilities from proposed Project operation. Therefore, the following analysis is focused on construction activities.

Alternative 1

Activities on Plant 2

Public transportation in the City of Huntington Beach is served by OCTA. There are approximately 15 OCTA bus stops located in proximity to Plant 2. The proposed Project would not affect bus routes located along Brookhurst Street and PCH as no construction would be

conducted in the streets and construction-related vehicular traffic would be minimal. In addition, all construction parking and staging located at Plant 2 would not impact public transit routes. Thus, no impacts would occur.

Activities at Air Vac Station 12+05

Construction activities at Air Vac Station 12+05 would not impact bus routes as no construction would be conducted in the streets and construction-related vehicular traffic would be minimal. Furthermore, parking and staging would be located at Plant 2 and would not impact public transit routes.

However, construction activities at Air Vac Station 12+05 would close a portion of the SAR Bikeway from the Air Vac Station 12+05 location to the Huntington State Beach and along the Coastal Bikeway. It is anticipated that flag men would be posted at both ends of the Coastal Bikeway to prevent cyclist and pedestrians from entering the portion of bike path and construction zone. Detour signage would also be placed at strategic locations throughout the detour route.

The proposed bikeway detour route is shown on **Figure 4.12-3**. The Coastal Bikeway would be closed from the Huntington State Beach parking lot to the SAR Bikeway connection, and the SAR Bikeway would be closed from the Air Vac Station 12+05 location to the Huntington State Beach. The detour would require bikeway users heading east to travel north on Brookhurst Street, east through the Talbert Marsh bike trail, north on the SAR Bikeway, and north to Victoria Street. Traveling north on Victoria Street, bicyclists can then reconnect with the Newport Beach portion of the SAR Bikeway which would reconnect with the Coastal Bikeway in Newport Beach at Orange Street. Similarly, bikeway users travelling west from Newport Beach would be directed off the Coastal Bikeway at Orange Street, over to PCH, head north on the eastern SAR Bikeway, to Victoria Street, cross the SAR, then travel south on the western SAR bikeway, west at the Talbert Marsh bike trail and south on Brookhurst Street, to reconnect to the Coastal Bikeway

At the end of rehabilitation at Air Vac Station 12+05, the bike path and bikeway would be reopened and returned to its existing condition. The bikeway closures would be temporary. Additionally, **Mitigation Measure 4.12-1** discussed in Section 4.12, Recreation, would ensure that appropriate detours are established and finalized for the duration of construction. Although the bikeway closure would temporarily inconvenience bikeway users, implementation of the detour would ensure that impacts to bike traffic would be less than significant.

Activities on the Beach

Rehabilitation of Beach Box

Construction activities at Huntington State Beach would not impact bus routes as no construction would be conducted in the streets and construction-related vehicular traffic would be minimal. Furthermore, parking and staging would be located in the adjacent Huntington State Beach parking lot and would not impact public transit routes.

Rehabilitation activities at the Beach Box would close a segment of the Coastal Bikeway, which is located approximately 211 feet north of the Beach Box construction area and traverses

Huntington State Beach, paralleling with PCH and connecting with the SAR Bikeway. It is anticipated that flag men would be posted at both ends of the Coastal Bikeway to prevent cyclist and pedestrians from entering the portion of bike path and construction zone. Detour signage would also be placed at strategic locations throughout the detour route. During rehabilitation activities at the Beach Box, the same bikeway detour discussed above would also be in effect. The detour would be in effect for seven months under Alternative 1.

At the end of rehabilitation activities at the Beach Box, the bike path and bikeway would be reopened and returned to its existing condition. Although the construction area of the Huntington State Beach would be closed for construction access and activities, other sections of the Huntington State Beach would remain open during construction and visitors would have open access. The bikeway closure would be temporary. Additionally, **Mitigation Measure 4.12-1** discussed in Section 4.12, Recreation, would ensure that appropriate detours are established and finalized for the duration of construction. Although the bikeway closures would temporarily inconvenience bikeway users, implementation of the detour would ensure that impacts to bike traffic would be less than significant.

Construction of Bypass Structure

Construction of the bypass structure would occur concurrently with the rehabilitation of the Beach Box. The proposed bikeway detour would continue during construction of the bypass structure. The detour would be in effect for seven months under Alternative 1.

At the end of construction of the bypass structure, the bikeways would be reopened and returned to its existing condition. Although the construction area of Huntington State Beach would be closed for construction access and activities, other sections of the Huntington State Beach would remain open during construction and visitors would have open access. The bikeway closure would be temporary. Additionally, **Mitigation Measure 4.12-1** discussed in Section 4.12, Recreation, would ensure that appropriate detours are established and finalized for the duration of construction. Although the bikeway closure would temporarily inconvenience bikeway users, implementation of the detour would ensure that impacts to bike traffic would be less than significant.

Alternative 2

Alternative 2 would result in identical impacts at Plant 2, the Air Vac Station 12+05, and on the beach during Beach Box rehabilitation activities. However, construction of the bypass structure would not occur under Alternative 2. The bikeway detour would be in effect for 4 to 6 weeks under Alternative 2. Implementation of **Mitigation Measure 4.12-1** discussed in Section 4.12, Recreation, would ensure that appropriate detours are established and finalized for the duration of construction. Although the bikeway closure would temporarily inconvenience bikeway users, implementation of the detour and mitigation measure would ensure that impacts to bike traffic would be less than significant.

Mitigation Measure

4.12-1: Prior to the commencement of any construction activities, the Sanitation District and the construction contractor shall coordinate with California State Parks, Orange County Parks Department, City of Huntington Beach, and the City of Newport Beach to prepare and implement a bicycle/pedestrian detour plan for the duration of construction. The plan shall identify alternative routes, construction schedules, and signage for the detour plan and applicable closures dates clearly identified.

Significance Level: Less than significant after mitigation.

References

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Southern California Association of Governments (SCAG), 2008. *Regional Transportation Plan, Making the Connections*, 2008. Available online: http://www.scag.ca.gov/rtp2008/pdfs/finalrtp/f2008RTP_Complete.pdf, accessed November 2011.

4.14 Utilities and Service Systems

This section discusses existing utilities and public services in the vicinity of the proposed Project, presents the associated regulatory framework, and provides an analysis of potential impacts to public services and utilities that would result from the inspection, condition assessment, and the rehabilitation activities. Public utilities in the Project area include: water, wastewater, solid waste services, telecommunications, and energy facilities.

4.14.1 Environmental Setting

Water Facilities

The Huntington Beach Public Works Department (Public Works Department) is responsible for operating and maintaining wells, reservoirs, imported water connections, distribution pipelines, fire hydrants, water meters, and related water utilities infrastructure. The Public Works Department has owned and operated its own water utility since 1964. The City of Huntington Beach (the City) has water systems that serve approximately 28 square miles and a population of over 200,000 people. There are over 480 miles consisting of 52,000 water lines ranging from ¾ inch to 10 inch in diameter. The City also provides water services to the Sunset Beach area in the unincorporated area of Orange County.

Wastewater Facilities

The Sanitation District provides wastewater services to approximately 2-6 million people within a 480 square mile service area in central and northwest Orange County, which includes 21 cities and three special districts. It operates the third largest wastewater system on the West Coast and consists of over 580 miles of sewers and two regional wastewater treatment plants.

The ocean outfall facilities consist of two ocean outfalls, the Long Outfall and Short Outfall. The Short Outfall, is a 1 mile, 78 inch diameter standby emergency outfall has been out of service since the Long Outfall was installed in 1971. Currently, the Short Outfall (Discharge Serial No. 002) is maintained for emergency overflow operations, except for periodic testing. The Sanitation District presently operates two outfall pump stations, the Ocean outfall Booster Station (OOBS) and the Effluent Pump Station Annex (EPSA), both located at Plant 2. Under normal flow conditions, the Sanitation District discharges effluent into the Pacific Ocean through the 120 inch diameter Long Outfall (Discharge Serial No. 001) that extends 5 miles offshore. The Outfall System has two overflow weirs at Plant 2 that are only used during extreme emergencies to discharge to the Santa Ana River (SAR). The Ocean Permit considers both 50 foot long weirs to be one facility (Discharge Serial No. 003).

In July 2002, the Sanitation District's Board of Directors approved a change in the level of treatment provided by the District from a blend of 50 percent advanced primary and 50 percent secondary effluent to full secondary treatment standards. An NPDES permit was issued to the Sanitation District requiring the construction of additional secondary treatment facilities in accordance with the schedule established in a Consent Decree issued by the Environmental Protection Agency (EPA) and the Regional Water Quality Control Board (RWQCB). All new

facilities identified in the Consent Decree must be constructed and brought on line by December of 2012.

The Sanitation District currently treats approximately 210 million gallons a day (mgd) of effluent at two treatment plants. Treatment Plant No. 1 (Plant 1) is located in the City of Fountain Valley, about four miles from the coast, adjacent to the SAR. Secondary treatment capabilities are provided by a trickling filter plant and a conventional air activated sludge plant. Treatment Plant No. 2 (Plant 2) is located in the City of Huntington Beach (the City), 1,500 feet from the ocean, at the mouth of the Santa Ana. Secondary treatment capabilities are provided by a trickling filter plant and an oxygen activated sludge plant. The Sanitation District actually achieved 100 percent secondary treatment in May 2011 through the additional of the trickling filter plant at Plant 2. The last secondary treatment process to be built in accordance with the Consent Decree is a conventional activated sludge plant at Plant 1 which would add additional secondary treatment capacity. This plant is expected to be started-up in the spring of 2012.

Approximately 60 – 70 mgd of effluent from Plant 1 is diverted to the Orange County Water District's Groundwater Replenishment System (GRWS) for further treatment and discharge to spreading basins, reclaimed water use and groundwater barrier protection. A net effluent flow of 140 – 150 mgd is discharged from the District's two treatment plants to the ocean.

Secondary treatment standards require effluent Biochemical Oxygen Demand (BOD) and Total Suspended Solids (TSS) concentrations of 30 mg/l. Since the start-up of the Plant 2 trickling filter plant in May of this year, the effluent quality has been better than design expectations with TSS and BOD concentrations of less than 10 mg/l.

The Sanitation District has established a Short-Term Ocean Outfall Bacteria Reduction Plan for discharge to the Long Outfall in order to protect public health. These goals are presented in **Table 4.10-2**. The Sanitation District began adding bleach (disinfection chemical) for bacteria reduction in 2002 using 24,600 gallons a day of bleach. Since the establishment of the Bacteria Reduction Plan, the goals have been consistently met. After completion of the trickling filters at Plant 2, the Sanitation District has reduced the use of bleach from 26,000 to 2,800 gallons per day. These improvements have allowed the Sanitation District to provide sustained bacterial reduction with reduced bleach usage, which has significantly reduced the production and discharge of chlorinated by-products to the ocean.

TABLE 4.10-2
SANITATION DISTRICT BACTERIA OPERATIONAL TARGETS

Parameter	Final Effluent Operational Targets (MPN/100 ml)
Total Coliforms	250,000
Fecal coliforms	50,000
Enterococci	8,750

NOTE: MPN/100 mL = most probable number of microorganisms per 100 milliliters

In order to consistently achieve the operational goals, the Sanitation District employs a reliable disinfection system with redundant feed pumps, standby power, and sufficient chemical capacities onsite. The disinfection system is completely automated. The Sanitation District provides 45 days bleach storage at Plants 1 and 31 days of storage at Plant 2. The NPDES permit has a chlorine residual limitation (disinfection chemical) of 0.36 mg/l. In order to meet this requirement, the Sanitation District adds a dechlorination chemical (sodium bisulfite) to neutralize any chlorine residual in the effluent prior to discharge to the ocean. The Sanitation District provides storage for a 95 day supply of sodium bisulfite at Plant 2.

Storm Drainage Systems

The City's storm drainage systems are operated by the Public Works Department and the Orange County Flood Control District (OCFCD). The storm drainage system protects residents and development from flooding by removing water runoff from streets and transporting it to the ocean. OCFCD owns, operates, and maintains the region's flood control facilities while the City is responsible for its own sub-regional and local drainage facilities. The City owns and operates 15 storm drainage channel pumping stations that pumps runoff into the channels and ocean. Recent improvements to the storm drainage system have increased its capacity to accommodate a 100-year storm event.

Solid Waste Management

The City's Public Works Department is responsible for weekly residential and commercial trash collection services and contracts with Rainbow Disposal Company, Inc. All trash collected by the City's refuse services are sorted and processed at a Materials Recovery Facility. Rainbow Disposal Company operates a Transfer Station located at 17121 Nichols Street with a design capacity of approximately 2,800 tons per day.

The Orange County Integrated Waste Management Department (OCIWMD) owns and operates three active landfills serving the Orange County region. These include the Frank R. Bowerman Landfill (11002 Bee Canyon Access Road, Irvine); Olinda Alpha Landfill (1942 N. Valencia Avenue, Brea), and the Prima Deshecha Landfill (32250 La Pata Avenue, San Juan Capistrano). The Olinda Alpha Landfill and the Prima Deshecha Landfill are open to the public while the Frank Bowerman Landfill is for commercial use only. All three landfills are permitted as Class III landfills. Class III landfills accept only non-hazardous municipal solid waste for disposal; no hazardous or liquid waste can be accepted. **Table 4.14-1** describes the maximum permitted capacity of the serving landfills.

Electricity

The Sanitation District energy supplies are derived from various sources: digester gas, natural gas purchased from offsite suppliers, electricity purchased from Southern California Edison (SCE), and electricity produced by the onsite central generation facility (CGS) at each Plant facility. The Sanitation District has converted its operating machinery to natural gas or electric power. However, emergency back-up generators are equipped to operate on diesel fuel. Many onsite vehicles use electric power or compressed gas. The Sanitation District's energy supply is derived

TABLE 4.14-1
CAPACITY OF ORANGE COUNTY LANDFILLS

Landfill	Daily Maximum (tons)	Maximum Capacity (Cubic Yards)	Remaining Capacity (Cubic Yards)
Frank R. Bowerman	11,500	127,000,000	59,411,872
Olinda Alpha	8,000	76,900,000	38,578,383
Prima Deshecha	4,000	172,900,000	87,384,799

SOURCE: CalRecycle.ca.gov, 2011.

from onsite co-generation using bio gas, natural gas, and the grid. Huntington State Beach is supplied electricity from power lines along PCH.

4.14.2 Regulatory Framework

Federal

Clean Water Act

The Federal Water Pollution Control Act, also known as the Clean Water Act (CWA), was amended in 1972 to require National Pollutant Discharge Elimination System (NPDES) permit prior to the discharge of pollutants to waters of the United States. In 1987 the CWA was amended and required that the United States Environmental Protection Agency (US EPA) establish regulations for municipal and industrial stormwater discharges. In 1990, the US EPA published final regulations that establish application requirements for specific categories of industries, including construction projects encompassing more than or equal to 5 acres of land.

In December 1999, Phase II Rule became final and expanded regulated construction sites to those greater than or equal to 1 acre. This required that discharge from municipal separate stormwater sewer system (MS4s) to surface waters be regulated by an NPDES permit. An MS4 is a conveyance or system of conveyances that is: (1) owned by a state, city, town, or other public entity that discharges to waters of the U.S.; (2) designed or used to collect or convey stormwater (including storm drains, pipes, ditches, etc.); (3) not a combined sewer; and 4) not part of a Publicly Owned Treatment Works (sewage treatment plant) (EPA, 2011). MS4s include a system of conveyances, consisting of roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels, or storm drains. The main overall objective of the CWA is to "restore and maintain the chemical, physical, and biological integrity of the Nation's water", and to make United States water "fishable and swimmable." (EPA, 2011)

State

California State Water Resource Control Board

The California State Water Resource Control Board and (SWRCB) the Regional Water Quality Control Boards (RWQCB) are responsible for implementing the CWA and the State Porter-

Cologne Water Quality Act. There are nine RWQCB regions in California; the City of Huntington Beach is located in the Santa Ana Region (Region 8).

The Porter Cologne Water Quality Control Act directs overall responsibility for water rights and water quality protection to the SWRCB and directs each of the nine RWQCB to develop a Water Quality Control Plan (Basin Plan) for all areas located in that respective region. The Basin Plan is the basis for each RWQCB's regulatory program. Because the City is located in the Santa Ana Region, the City is required to comply with applicable elements of the Santa Ana Region Basin Plan in addition to the Porter-Cologne Water Quality Control Act.

California Integrated Waste Management Act of 1989

The California Integrated Waste Management Act of 1989 (PRC, Division 30), enacted through Assembly Bill (AB) 939 and modified by subsequent legislation, required all California cities and counties to implement programs to reduce, recycle, and compost at least 50 percent of wastes by the year 2000 (PRC Section 41780). The State determines compliance with this mandate to "divert" 50 percent of generated waste (which includes both disposed and diverted waste) through a complex formula. This formula requires cities and counties to conduct empirical studies to establish a "base year" waste generation rate against future diversions.

The City met and exceeded the mandated benchmarks set by AB 939 and had a diversion rate of 67 percent in the year 2000.

Urban Water Management Planning Act

The Urban Water Management Planning Act was developed due to concerns over potential water supply shortages throughout California. It requires information on water supply reliability and water use efficiency measures. In accordance with the act, urban water suppliers are required, to develop and implement Urban Water Management Plans (UWMP) to provide a description of efforts made to promote efficient water use and to manage water resources. The City's 2005 UWMP is intended to serve as a document that periodically can be updated to reflect changes in the Orange County water supply trends, and conservation and water use efficiency policies. The UWMP, along with the City's Water Master Plan and other City planning documents, is used by City staff to guide the City's water use and management efforts through the year 2010, when the UWMP is required to be updated.

California Water Code Section 10910 through 10915 (SB 610 and Water Supply Assessment Requirements)

Senate Bills (SB) 610 and 221 (Chapters 643 and 642, respectively, Statutes of 2001) amended State law, effective January 1, 2002, to improve the link between information on water supply availability and certain land use decisions made by cities and counties. The bills were meant to promote more collaborative planning between local water suppliers and cities and counties, by requiring detailed information regarding water availability to be provided to the city and county decision-makers prior to approval of certain projects. SB 221 applies to residential subdivisions, and is not further relevant to this maintenance and rehabilitation project.

Under SB 610, a water supply assessment (WSA) must be furnished to local governments for inclusion in any environmental documentation for certain projects subject to CEQA, where "project" is defined in Water Code §10912 [a] as follows:

(a) ''Project'' means any of the following:

(1) A proposed residential development of more than 500 dwelling units.

(2) A proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space.

(3) A proposed commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space.

(4) A proposed hotel or motel, or both, having more than 500 rooms.

(5) A proposed industrial, manufacturing, or processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area.

(6) A mixed-use project that includes one or more of the projects specified in this subdivision.

(7) A project that would demand an amount of water equivalent to, or greater than, the amount of water required by a 500 dwelling unit project.

(b) If a public water system has fewer than 5,000 service connections, then ''project'' means any proposed residential, business, commercial, hotel or motel, or industrial development that would account for an increase of 10 percent or more in the number of the public water system's existing service connections, or a mixed-use project that would demand an amount of water equivalent to, or greater than, the amount of water required by residential development that would represent an increase of 10 percent or more in the number of the public water system's existing service connections.

The definitions provided above are currently undergoing legal challenges and scrutiny within the court system, wherein the definition of project may become more inclusive for some project categories. Nevertheless, the proposed Project does not meet any of the aforementioned criteria for the requirements to prepare a WSA.

NPDES Permit No. CA 0110604

The Sanitation District discharges effluent to the Pacific Ocean under the authority of a National Pollution Discharge Elimination System (NPDES) permit (No. CA 0110604, Order No. R8-2204-0062) issued by the US Environmental Protection Agency (USEPA) and Santa Ana Regional Water Quality Control Board (RWQCB). The Sanitation District has historically discharged a mixture of primary and secondary treated water. However, in 2002, the Sanitation District Board of Directors made the decision to upgrade the level of treatment to meet the secondary treatment requirements. The Sanitation District negotiated with the regulators to develop a plan to achieve these requirements as quickly as possible. This resulted in consent decree providing until December 31, 2012 to meet the new treatment requirements. Since 2002, the Sanitation District

has initiated an ambitious (or $538 million-dollar) construction program at both treatment plants that will provide secondary treatment and disinfection for the full discharge volume. The treatment upgrades will be complete and brought on line in the summer of 2012.

The Sanitation District currently treats approximately 210 million gallons a day (mgd) of wastewater at two treatment plants. Secondary treatment capabilities at Plant 1, in Fountain Valley, are provided by a trickling filter plant and a conventional air activated sludge plant. Secondary treatment at Plant 2, in Huntington Beach, is provided by a trickling filter plant and an oxygen activated sludge plant. . The last secondary treatment process to be built in accordance with the Consent Decree is a conventional activated sludge plant at Plant 1 which would allow the Sanitation District to achieve 100% secondary treatment capacity.

During the regular 5-year renewal cycle, the Sanitation District is applying for updated NPDES permit conditions to more accurately reflect the changes in treatment and treatment technology the Sanitation District has employed. Additionally, the increased effluent quality has improved the quality of the receiving waters and ocean conditions and the Sanitation District is requesting changes to the NPDES monitoring program to reflect the changed conditions. Further, in the Sanitation District's 2009 NPDES Permit Application to USEPA and RWQCB, the Sanitation District requested that conditions be added to the NPDES Permit expressly allowing the Sanitation District to conduct planned diversion and discharge effluent from the Short Outfall up to two times during the next permit period to perform maintenance activities on the Long Outfall. These activities would include inspection and repairs to the Long Outfall, the Long Outfall risers, and the Beach Box. The Sanitation District would try to consolidate activities and minimize the duration of time that flow would need to be routed to the Short Outfall, when possible. The Sanitation District's 2009 NPDES Permit Application is still pending. For these planned diversions, the Sanitation District will submit a notification letter in advance to the RWQCB and EPA. The Sanitation District would also coordinate with the Orange County Health Care Agency (OCHCA) and other local officials prior to conducting maintenance activities that would require use of the Short Outfall.

Local

City of Huntington Beach City of Huntington Beach Energy Action Plan

In April 2011, the city of Huntington Beach adopted an Energy Action Plan to protect the environment and to be more sustainable. The Energy Action Plan outlines the city's history and commitment to (a) eliminating energy waste, (b) preparing for peak oil production and (c) reducing greenhouse gas emissions. The Energy Action Plan includes:

- Utility Bill audits and expenditure tracking
- Developing and managing energy efficiency projects
    - Utility partnerships
    - Monitoring Based Commissioning (MBCx)
    - IS energy efficiency
    - Energy efficiency retrofits/upgrades
    - HVAC and controls retrofits

- Managing Federal, State and utility grants and incentive programs
- Developing and managing renewable energy programs
- Developing energy & sustainability guidelines/policies
- Design best practices and resource sharing regionally through Local Government Energy Management Services Program (LGEMSP)

4.14.3 Impacts and Mitigation Measures

Significance Criteria

For the purposes of this analysis and consistent with Appendix G of the *CEQA Guidelines*, the proposed project would result in potentially significant impacts if it would:

- Conflict with wastewater treatment requirements of the applicable Regional Water Control Board;
- Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;
- Require or result in the construction of new stormwater drainage facilities, or expansion of existing facilities, the construction of which could cause significant environmental effects;
- Have sufficient water supplies available to serve the Project from existing entitlements and resources, or are new or expanded entitlements needed;
- Result in a determination by the Project's wastewater treatment provider that it has adequate capacity to serve the Project's Projected demand in addition to the provider's existing commitments;
- Be served by a landfill with sufficient permitted capacity to accommodate the Project's solid waste disposal needs; or
- Comply with federal, state, and local statues and regulations related to solid waste;
- Result in a substantial increase in overall or per capita energy consumption;
- Result in wasteful or unnecessary consumption of energy;
- Require or result in the construction of new sources of energy supplies or additional energy infrastructure capacity the construction of which could cause significant environmental effects; or
- Conflict with applicable energy efficiency policies or standards

Impacts Discussion

It was determined in the Draft EIR analysis the following environmental factors would have no impact. The following is a brief discussion of the analysis:

Construction of New Stormwater Drainage Facilities

The proposed Project construction and rehabilitation activities would not require new stormwater drainage facilities or an expansion of its existing facilities. It is not expected that new offsite

stormwater drainage facilities would be required to accommodate runoff from the proposed Project. The proposed Project is a maintenance and rehabilitation project that is temporary in nature. In addition, all stormwater runoff associated with the Plant 2 is currently captured, treated at the treatment plant, and disposed through the ocean outfall, thus a new storm drain system is not need. As described in Section 4.8 (Hydrology and Water Quality), all activities at Air Vac Station 12+05 and at the Beach Box, would conform with **Mitigation Measure 4.8-2a**, which requires the Sanitation District to prepare and implement a Stormwater Pollution Control Plan (SWPCP) at both sites. Therefore, all of the construction activities would implement best management practices (BMPs) to accommodate any runoff associated with the temporary rehabilitation activities and no new stormwater drainage facilities would be required. No impacts would occur.

Significance Level: No impact.

Sufficient Water Supply and Water Facilities

According to SB 610 and Section 10912 of the Water Code, the proposed Project does not require a submittal of water supply assessment as the proposed Project does not meet the criteria for a required assessment. Water needs during rehabilitation and construction activities of the proposed Project would be required for the rehabilitation activities. Existing water resources would be sufficient to meet those needs. A water truck would be onsite during rehabilitation activities and would provide water for washdown and water blasting. Water from a Plant 2 fire hydrant would be used by the water truck and for washdown. Because of the minimal water requirements for the rehabilitation activities, the Sanitation District would have adequate and sufficient water supply to support the proposed Project. No new water facilities or impacts to the existing water suppliers would occur.

Significance Level: No impact.

Adequate Wastewater Treatment Capacity and Facilities

The Sanitation District's 1999 Strategic Plan was developed to accommodate future needs and future capacity for the Sanitation District's treatment of wastewater. The rehabilitation activities would not require the construction of new wastewater treatment facilities or an expansion of the existing facilities that would cause adverse effects. The existing wastewater treatment facilities have adequate capacity to serve current treatment demands. No impacts would occur.

Significance Level: No impact.

Energy

Impact 4.14-1: The proposed Project could result in an increase of energy consumption.

Alternative 1

Activities on Plant 2

Primary energy demand for rehabilitation activities located onsite within the boundaries of Plant 2 would include gasoline and diesel-powered mobile construction equipment and use of automobiles to transport workers to and from the construction sites. Electricity would also be used for construction lighting, field services (trailers), and electrically driven construction devices. Rehabilitation activities located within the boundaries of Plant 2 would have a temporary increase in energy consumption; however, electricity produced onsite by the Sanitation District's Central Generation System (CGS) would be adequate to serve the rehabilitation activities. Additionally, due to the temporary nature of the rehabilitation activities, the proposed Project will not conflict with goals and policies of the City of Huntington Beach City Energy Action Plan. Impacts from energy consumption would therefore be less than significant at Plant 2.

Activities at Air Vac Station 12+05

Use of energy supplies for rehabilitation activities located adjacent to the Air Vac Station 12+05 site would be minimal, limited, and short term. The maintenance and rehabilitation activities would require the use of diesel generators to power the equipment at the site. Therefore, the energy use from such activities would not impact existing energy supplies, require new sources of energy. Additionally, due to the temporary nature of the rehabilitation activities, the proposed Project will not conflict with goals and policies of the City of Huntington Beach City Energy Action Plan. Impacts from energy consumption would therefore be less than significant at Air Vac Station 12+05.

Activities on the Beach

Rehabilitation of Beach Box

Maintenance and rehabilitation activities at the beach would cause a temporary increase in energy consumption. Use of energy supplies for maintenance and rehabilitation activities on the beach would be minimal, limited, and short term. The maintenance and rehabilitation activities would require the operation of a 100 kW diesel generator and a 500 kW diesel generator to power the equipment at the site. Energy use from such activities would not impact existing energy supplies, require new sources of energy. Operation of the current system would resume to pre-construction condition levels after the rehabilitation work is completed. Due to the temporary nature of the rehabilitation activities, the proposed Project will not conflict with goals and policies of the City of Huntington Beach City Energy Action Plan. Impacts to energy consumption would therefore be less than significant at the Beach Box.

Construction of Bypass Structure

Constructing the bypass structure under Alternative 1 would require the operation of a 100 kW electrical generator and a 500 kW electrical generator. Energy use from such activities would not impact existing energy supplies, require new sources of energy, or conflict with any energy efficiency policies or standards. Operation of the current system would resume to pre-construction condition levels after the rehabilitation work is completed. Therefore, it is not anticipated that the proposed Project would result in wasteful or unnecessary consumption of energy or require new sources of energy. Additionally, due to the temporary nature of the

rehabilitation activities, the proposed Project will not conflict with goals and policies of the City of Huntington Beach City Energy Action Plan. Impacts from energy consumption would therefore be less than significant.

Significance Level Alternative 1: Less than significant

Alternative 2

Alternative 2 would result in identical impacts at Plant 2 and at Air Vac Station 12+05, during rehabilitation activities. The maintenance and rehabilitation activities at the Beach Box would require the operation of a 100 kW diesel generator and a 500 kW diesel generator to power the equipment at the site. Energy use from such activities would not impact existing energy supplies, require new sources of energy. Operation of the current system would resume to pre-construction condition levels after the rehabilitation work is completed. Impacts from energy consumption would therefore be less than significant. Additionally, due to the temporary nature of the rehabilitation activities, the proposed Project will not conflict with goals and policies of the City of Huntington Beach City Energy Action Plan.

Significance Level Alternative 2: Less than significant.

Wastewater Treatment Requirements

Impact 4.14-2: The proposed Project could conflict with wastewater treatment requirements of the applicable Regional Water Quality Control Board.

Alternative 1

Activities on Plant 2

Rehabilitation activities located onsite at Plant 2 would not create additional wastewater treatment or conflict with the RWQCB discharge permit. The proposed Project would not conflict with wastewater treatment requirements of the applicable RWQCB and the Sanitation District would conform to all requirements of their NPDES permit. Activities at Plant 2 would not conflict with wastewater treatment requirements. Impacts would be less than significant.

Activities at Air Vac Station 12+05

Rehabilitation activities located onsite at Air Vac Station 12+05 would not create additional wastewater treatment or conflict with the RWQCB discharge permit. As discussed in Section 4.8, Hydrology and Water Quality, the proposed Project would not conflict with wastewater treatment requirements of the applicable RWQCB and the Sanitation District would conform to all requirements of their NPDES permit. Activities at Air Vac Station 12+05 would not conflict with wastewater treatment requirements and impacts would be less than significant.

Activities on the Beach

Rehabilitation of Beach Box

Impacts to wastewater treatment requirements are not anticipated at this site as construction and rehabilitation activities would be minimal and short-term and would not generate additional

wastewater. The proposed Project would conform to all requirements of the NPDES permit. Activities at the Beach Box would not conflict with wastewater treatment requirements, impacts would be less than significant.

Construction of the Bypass Structure

Rehabilitation activities would be minimal and short-term and would not generate additional wastewater. The proposed Project would conform to all requirements of the NPDES permit. Implementation of the bypass structure would not result in a conflict with wastewater treatment requirements of the applicable Regional Water Quality Control Board requirements. This is a less than significant impact.

Significance Level Alternative 1: Less than significant.

Alternative 2

Alternative 2 would result in identical impacts at Plant 2 and at Air Vac Station 12+05 during rehabilitation activities. Discharge to the Short Outfall for 4 to 6weeks is not currently allowed in the Sanitation District's NPDES permit. Use of the Short Outfall is allowed only to provide extra capacity during high flow, wet weather events. The Sanitation District has applied for an updated NPDES permit from the RWQCB that includes a provision for short term maintenance discharges to the Short Outfall. Prior to implementing Alternative 2, the updated NPDES permit is expected to be approved by the RWQCB. As discussed in Section 4.10 Marine Environment, the effluent quality would be superior to the existing effluent quality due to the completion of secondary treatment facilities and the enhanced disinfection to be provided during the rehabilitation activities under Alternative 2. With RWQCB approval of the discharge, this would be a less than significant.

Significance Level Alternative 2: Less than significant.

Landfill Capacity

Impact 4.14-3: Be served by a landfill with sufficient permitted capacity to accommodate the proposed Project's solid waste disposal needs.

Alternative 1

Activities on Plant 2

Landfills in the Project vicinity include the Frank R. Bowerman Landfill, Olinda Alpha Landfill, and Prima Deshecha Landfill, all of which have sufficient capacity to accommodate the solid waste disposal needs of the proposed Project. The closest landfill is the Frank R. Bowerman Landfill located at 11002 Bee Canyon Access Road in the City of Irvine, which currently serves the existing needs of Plant 2. The Frank R. Bowerman Landfill has a remaining capacity of 59,411,872. The proposed Project activities at Plant 2 is not anticipated to generate a significant amount of solid waste. It is anticipated that minimal waste would be generated with the Surge Tower 2 rehabilitation and the replacement of the existing effluent flow meter on the Long

Outfall. Activities at Plant 2 would not significantly reduce capacity at the nearby landfills. Impacts would be less than significant.

Activities at Air Vac Station 12+05

The proposed Project work at Air Vac Station 12+05 is rehabilitation work and is not anticipated to generate a significant amount of solid waste. Activities at Air Vac Station 12+05 would not significantly reduce capacity at the nearby landfills. Impacts would be less than significant.

Activities on the Beach

Rehabilitation of Beach Box

The proposed Project work at the beach is rehabilitation work and is not anticipated to generate a significant amount of solid waste. It is anticipated that up to eight truckloads or 46 cubic yards of debris would be generated from the rehabilitation work at the beach, due to the Beach Box concrete removal. The Sanitation District has three options available to repair the Beach Box, Option A, Carbon Fiber Wrap; Option B, Fiberglass Pipe Insert; and Option C, Steel Insert. Option B, Fiberglass Pipe Insert has the greatest debris generated associated with rehabilitation due to the demolition required. If Option B is implemented, requiring additional removal of Beach Box materials, three additional haul trucks would be required. Rehabilitation of the Beach Box is anticipated to have a less than significant impact on local land fill capacity.

Construction of the Bypass Structure

If Alternative 1 is implemented and a bypass structure is constructed, it is anticipated approximately 47 truckloads or 422 cubic yards of debris, would be generated from the creation of the concrete block encasements for the Long Outfall and the Short Outfall.

As discussed above, the nearest landfill serving the proposed Project is the Frank R. Bowerman Landfill, which has a remaining capacity of 59,411,872 cubic yards. Alternative 1 would generate a total of 468 cubic yards of debris (422 cubic yards for concrete block encasements and 46 for other construction debris) , which is a minor amount of debris to contribute to the landfill. The minimal amount of materials and the disposal of this material would not have a significant impact on landfill capacity within the proposed Project area.

Significance Level Alternative 1: Less than significant.

Alternative 2

Alternative 2 would result in identical impacts at Plant 2 and at Air Vac Station 12+05, during rehabilitation activities. Under Alternative 2, approximately eight truckloads or 46 cubic yards of debris would be generated by the proposed Project. This is a minor amount of debris to contribute to the landfill. The minimal amount of materials and the disposal of this material would not have a significant impact on landfill capacity within the proposed Project area.

Significance Level Alternative 2: Less than significant.

Compliance with Regulations

Impact 4.14-4: Comply with federal, state, and local statues and regulations related to solid waste.

Any solid waste generated by the proposed Project would be hauled from the site, diverted and recycled, in accordance with the California Integrated Waste Management Act of 1989. If any hazardous materials are encountered, the Sanitation District would coordinate with the City of Huntington Beach, the Huntington Beach Fire Department and the Orange County Health Care Agency's Certified Unified Program Agency to ensure that all hazardous wastes are disposed of properly. The proposed Project would comply with federal, state, and local statues and regulations related to solid waste. Impacts would be less than significant under either Alternative.

Significance Level Alternative 1: Less than significant.

Significance Level Alternative 2: Less than significant.

References – Utilities and Service Systems

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U.S. Environmental Protection Agency (US EPA), 2011. National Pollution Discharge Elimination System. Available online: http://cfpub.epa.gov/npdes/stormwater/munic.cfm, accessed November 2011.

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CHAPTER 5
Cumulative Impacts

5.1 CEQA Analysis Requirements

A cumulative impact is an impact created as a result of the combination of the project's impacts evaluated in an EIR together with other closely related projects. The *CEQA Guidelines* require that EIRs discuss the cumulative impacts of a project when the project's incremental effect is "cumulatively considerable," meaning that the project's incremental effects are considerable when viewed in connection with the effects of past, current, and probable future projects.[1] According to *CEQA Guidelines* §15130(a) and (b), the purpose of this chapter is to provide a discussion of significant cumulative impacts which reflects "the severity of the impacts and their likelihood of occurrence." As applicable to this cumulative impact analysis, the *CEQA Guidelines* indicate that the discussion of cumulative impacts should include:

(1) Either:

   a) a list of past, present, and probable future projects producing related or cumulative impacts, include if necessary, those projects outside the control of the agency; or

   b) a summary of projections contained in an adopted general plan or similar document, or in an adopted or certified environmental document, which described or evaluated conditions contributing to a cumulative impact. Any such planning document shall be referenced and made available to the public at a location specified by the lead agency;

(2) A discussion of the geographic scope of the area affected by the cumulative effect and provide a reasonable explanation for the geographic limitation used;

(3) A summary of expected environmental effects to be produced by these projects with specific reference to additional information stating where the information is available; and,

(4) A reasonable analysis of the cumulative impacts of the relevant projects. An EIR shall examine reasonable, feasible options for mitigating or avoiding the project's contribution to any significant cumulative effects.

The analysis of cumulative effects in this chapter focuses on the effects of concurrent construction of the proposed Project with other spatially and temporally proximate projects. As such this analysis relies on a list of projects that have the potential to contribute to cumulative impacts in the Project area.

[1] *CEQA Guidelines* Section 15130, 15065, as amended January 1, 2000.

5.2 Geographic Scope

The geographic area affected by cumulative projects varies depending on the environmental topic. For example, construction noise impacts would be limited to areas directly affected by construction noise, whereas the area affected by a project's air emissions is a regional issue and generally includes the entire air basin. Impacts associated with aesthetics would include the affected viewshed.

The proposed Project is located in the City of Huntington Beach (the City) and is adjacent to the City of Newport Beach. Other public agencies that have jurisdictional authority over land near the proposed Project include the following:

- The California Department of Parks and Recreation (Huntington State Beach)
- The California State Lands Commission
- The California Department of Transportation (Pacific Coast Highway)
- Orange County Flood Control District (Santa Ana River)
- Orange County Orange County Parks Department (Santa Ana River Trail)

This chapter considers the potential cumulative effects of the proposed Project in combination with other past, current or probable future projects in the area.

5.3 Project Timing

Projects considered in this analysis include those that have recently been completed, are currently under construction, or are in planning stages. Construction schedule is particularly relevant to the consideration of cumulative construction-related impacts, since construction impacts tend to be relatively short-term. However, for future projects, construction schedules are often broadly estimated and can be subject to change. This analysis assumes these related projects would be implemented concurrently with construction of the proposed Project beginning Fall 2014 under Alternative 1 and in Fall 2012 under Alternative 2, due to the immediate need for the Beach Box repair and the expedited schedule.

5.4 Type of Projects Considered

The environmental impacts associated with implementation of the proposed Project are short term and related to maintenance, rehabilitation and construction activities, rather than long term project operation. Therefore, the proposed Project would contribute to cumulative construction effects when considered in combination with impacts of other construction projects in the vicinity of the proposed Project. For the purposes of this analysis, other past, present, and reasonably-foreseeable future construction projects, particularly other infrastructure and commercial projects, in the area have been identified and are analyzed in conjunction with the proposed Project for their potentially cumulatively considerable impacts.

5.5 List of Cumulative Projects

Table 5-1 lists current and proposed projects that could potentially contribute to cumulative impacts within the 2 miles of the proposed Project. In addition to the related projects listed in **Table 5-1**, additional development that has not been identified as of this time, could occur within the Project area, nearby cities or other agencies with jurisdictional decision-making authority within the project area.

TABLE 5-1
CUMULATIVE PROJECTS

Project Name	Project Type	Project Location	Distance from Project Site	Project Status / Construction Dates
Orange County Sanitation District Projects				
Phase 2 SAR Levee Repair Project	Infrastructure repair and rehabilitation	City of Huntington Beach / City of Newport Beach along the SAR	2,000 feet upstream of the proposed Project	Permitting phase / anticipated to be constructed in 2012
Bitter Point Pump Station	New pump station	City of Newport Beach 33°37'32"N 117°56'46" W	0.80 miles east	Construction Phase / Spring 2012
Other Infrastructure and Improvement Projects				
Semeniuk Slough Dredging	Infrastructure rehabilitation and construction	City of Newport Beach 33°37'50" N 117°57'06" W	0.38 miles east	Planning Phase
West Coast Hwy Vision Plan	Aesthetic improvements	City of Newport Beach 33°37'29" N 117°56'37" W	1.0 mile east	Design Phase
West Coast Hwy Landscaping	Landscaping Improvements	City of Newport Beach 33°37'29" N 117°56'37" W	1.0 mile east	Planning Phase
Corp Yard Fleet Shop Hoist Mod	Replacement of in-ground hoist with aboveground hoist	33° 37'54"N 117° 55'37 W	1.1 miles east	Planning Phase
Sunset Ridge Park	13.367-acre new park	33°37'54" N 117°55'37" W	1.1 miles east	Planning Phase
Oil Field Improvement Program	Improvements to City's existing oil infrastructure	33°37''29" N 117°56'37" W	1.1 miles east	Planning Phase
Huntington Beach Desalination Facility	Potable water infrastructure project	17°27'12"N 118° 53' 50"W	1.5 mile west	Approval phase

SOURCES: City of Newport Beach, Orange County Sanitation District, City of Huntington Beach, 2011.

5.6 Cumulative Impacts

Aesthetics

The cumulative setting for visual resources and light and glare includes construction anticipated within the viewshed. The viewshed includes Pacific Coast Highway (PCH), the Santa Ana River (SAR) bikeways, the SAR bridge, the Huntington State Beach, residential land uses, and from the Costa Mesa Bluffs. As discussed in Section 4.1, the City of Huntington Beach, County of Orange and City of Newport Beach all have established visual resource protection measures.

Scenic Vistas and Visual Character

Alternative 1

Rehabilitation activities at Plant 2, the Air Vac Station 12+05, and at the beach would not result in significant impacts to scenic vistas or visual character. The short term activities requiring staging of equipment for work within a pipeline would not alter the existing condition significantly. The nearest project that may have a cumulative impact to scenic vistas when considered in a cumulative context with the proposed Project is the Sanitation District's Phase 2 SAR Levee Repair project. However, this project would not occur at the same time as the proposed project and would not add to cumulative impacts on visual resources.

Construction of the bypass structure at the beach under Alternative 1 would have temporary significant and unavoidable impact to scenic vistas and the visual character of the area resulting from the construction of the bypass structure. This would include installation two 60 inch (5 feet diameter) overhead/aboveground pipes approximately 6 feet above ground. The top elevation of the machinery used to install the isolation gates (line stops) would be approximately 55 feet above ground. As described in Section 4.1, Aesthetics, the proposed Project's impacts on visual resources and visual character of the area are significant and unavoidable direct impacts, due to the larger footprint for the proposed Project, project duration, and amount of equipment required for the construction and implementation of the bypass structure. However, the proposed Project would not result in a permanent visual impact to the beach. Once construction is completed, the site would return to its original condition. The SAR Levee Repair Project is located north of the PCH bridge and is not visible from the Beach Box and would not occur at the same time as the proposed Project. Because there are no other projects within the proposed Project's immediate vicinity that would occur concurrent with the proposed Project and because the significant aesthetic impact would be temporary, it would not result in a cumulatively significant impact.

Significance Level Alternative 1: Less than significant.

Alternative 2

Rehabilitation activities at Plant 2, the Air Vac Station 12+05, and at the beach would not result in significant impacts to scenic vistas or visual character. The short term activities requiring staging of equipment for work within the Long Outfall system would not alter the existing condition significantly. The nearest project that may have a cumulative impact to scenic vistas

when considered in a cumulative context with the proposed Project is the Sanitation District's Phase 2 SAR Levee Repair project, which could be developed concurrent with Alternative 2. However, due to the short duration of both projects and that both sites would be returned to their pre-construction conditions, this would not be considered cumulatively significant.

Significance Level Alternative 2: Less than significant.

Light and Glare

Alternative 1

Rehabilitation activities at Plant 2, the Air Vac Station 12+05 and on the beach to repair the Beach Box would include nighttime lighting. The lighting would be visible from long range views and from PCH, the nearby walkways and bikeways, the SAR bridge, and the nearby residents in Newport Beach. The lights from Plant 2 would blend in with ambient light from internal and adjacent land uses. The Air Vac Station 12+05 construction lighting and Beach Box construction lighting would be required to face downward. Additionally, the Sanitation District would be required to erect a visual screen at the beach to reduce visual impacts to nearby residents. The construction of the bypass structure would not occur at nighttime, therefore, no impacts associated with light would occur from bypass structure implementation.

Aboveground structures, such as Surge Tower 2 and the bypass structure would be coated with a non-reflective surface to reduce glare. Although the work may contribute to the visible lights in the area, and could add to the nighttime construction lighting, the cumulative result would be temporary and would not change the existing conditions and the incremental impacts associated with implementation of Alternative 1 would not be cumulatively considerably.

Significance Level Alternative 1: Less than significant

Alternative 2

Alternative 2 would result in identical impacts at Plant 2, the Air Vac Station 12+05, and the beach. The proposed Project would not contribute to a cumulatively significant impact for light and glare at Plant 2 or at Air Vac Station 12+05 or at the beach. Nighttime lighting on the beach would be visible to the neighboring residences across the river in Newport Beach. Construction lighting would be required to face downward. Additionally, on the beach the light would be blocked by a visual screen. No other construction projects on the beach are planned that would contribute nighttime light or daytime glare. Although the work may contribute to the visible lights in the area, and could add to the nighttime construction lighting, the cumulative result would be temporary and would not change the existing conditions and the incremental impacts associated with implementation of Alternative 2 would not be cumulatively considerably.

Significance Level Alternative 2: Less than significant.

Air Quality

The cumulative setting for air quality impacts includes cumulative projects in the City of Huntington Beach and within the South Coast Air Basin (Basin).

Alternative 1

The rehabilitation and maintenance activities would temporarily contribute to reducing air quality within the Basin. As shown in **Table 4.2-3**, the Basin is in non-attainment status for Ozone, $PM_{10,}$ $PM_{2.5}$, and $NO_{x,.}$ As discussed in Section 4.2 of the Draft EIR, construction air emissions would be less than significant as emissions would not exceed SCAQMD's significant thresholds. Even if all the project components are conducted simultaneously, the emissions would be less than the significance thresholds. As air quality impacts would be minimal and short-term, the proposed Project's contribution the cumulative condition is not considered significant. The project would not result in a cumulatively significant impact to air quality.

Operational air impacts would be similar to existing conditions. The project would not have a significant long-term cumulative air quality impact because project emissions during operation would be similar to the emissions currently generated by the existing wastewater treatment facility. Therefore, there would be no net increase in pollutant emissions over time.

Biological Resources

The cumulative setting includes biological resources in the Orange County coastal region, including the Talbert Marsh, Huntington State Beach, the SAR, and the Pacific Ocean.

Alternative 1

As described in Section 4.3, the rehabilitation and maintenance activities would not result in significant impacts to biological resources. Activities at Plant 2 occur in a highly urbanized area that has been developed to accommodate wastewater treatment facilities and therefore has no value for wildlife habitat. No special status animals, plants or plant communities occur within Plant 2. Work within this area in conjunction with other projects in the areas would have no cumulative impacts on biological resources.

Activities at Air Vac Station 12+05 would be at the edge the Talbert Marsh which is primarily composed of tidal waters, mudflats, coastal salt marsh, and coastal scrub. The upland area east of Talbert Marsh which is adjacent to portions of the proposed area contains coastal scrub. There is a dirt road leading to the Air Vac Station 12+05 and there are no plant communities within the disturbed access area. In order to prevent any impacts to vegetation surrounding the Air Vac Station 12+05, the Sanitation District would install silt fencing at the site. Therefore, the proposed Project, in conjunction with other projects within the vicinity would not have a cumulatively considerable impact on coastal scrub.

The Beach Box would be accessed through the Sanitation District's existing easement on Huntington State Beach. The Huntington State Beach is frequented by the California least tern and western snowy plover. It also supports the sensitive coastal woolly-head.

Alternative 1 would require the Sanitation District to temporarily remove least tern habitat in order to access the Beach Box and utilize the bypass structure and dewatering system, specifically, 0.26 acres of the California Least Tern Natural Preserve Area behind chain link fence and 3.55 acres of adjacent nesting sites within the temporarily fenced areas. The impact to this habitat would require consultation with the USFWS.

There are no other projects within the vicinity of the proposed Project that may have an impact to the California least tern, western snowy plover or coastal woolly-head. Alternative 1 would be implemented outside of the nesting season and upon completion of the rehabilitation activities, the site would be restored to its existing condition. Because the nesting area would be returned to its original condition, the proposed Project would not result in cumulatively considerable impacts to biological resources.

Significance Level Alternative 1: Less than significant.

Alternative 2

Alternative 2 would result in identical impacts at Plant 2, the Air Vac Station 12+05, and the beach. The proposed Project would not contribute to a cumulatively considerable impact. All work at the beach where the sensitive species occur, would be performed in highly disturbed areas and within the Sanitation District's existing easement. Because the vegetated area near the Beach Box would be returned to its pre-construction condition, the proposed Project would not result in cumulatively considerable impacts to biological resources.

Significance Level Alternative 2: Less than significant.

Cultural and Paleontological Resources

The cumulative setting associated with the proposed Project includes proposed, planned, reasonably foreseeable, and approved projects within the project area. These resources include archaeological resources associated with Native American activities and historic resources associated with settlement and development.

Alternative 1

As described in Section 4.4 of this Draft EIR, no potential impact to cultural or paleontological resources would occur at Plant 2, at Air Vac Station 12+05, or for work on the Beach Box, as no excavation, removal of vegetation, or other ground disturbing activities would occur. No related projects would occur within these vicinities. Thus, proposed Project impacts to cultural and paleontological resources would not be cumulatively considerable.

The proposed Project under Alternative 1 would consist of excavation and ground disturbing activities at the beach to accommodate the bypass structure. The excavation and ground disturbing activities could impact known or unknown cultural and paleontological resources. However, mitigation measures would be implemented to reduce impacts to less than significant levels and ensure impacts are minimized. Similar to the proposed Project, cumulative projects would also be required to comply with local, regional, and State regulations and standards

relating to cultural, paleontological, and historical resources to ensure impacts to such resources are mitigated and impacts minimized to less than significant levels. Thus, potential impacts under Alternative 1 would not be cumulatively considerable.

Significance Level Alternative 1: Less than significant.

Alternative 2

Alternative 2 would result in identical impacts at Plant 2, the Air Vac Station 12+05, and the beach. The proposed Project would not contribute to a cumulatively considerable impact to cultural or paleontological resources as no excavation, removal of vegetation, or other ground disturbing activities would occur. Thus, potential impacts under Alternative 2 would not be cumulatively considerable.

Significance Level Alternative 2: Less than cumulatively considerable.

Geology, Soils, and Seismicity

Impacts associated with geology and soils generally are site-specific (determined by a particular site's soil characteristics, topography, and proposed land uses) rather than cumulative in nature. However, surficial deposits, namely erosion and sediment deposition, can be cumulative in nature, depending on the type and amount of development proposed in a given geographical area. The cumulative setting for soil erosion consists of existing, planned, proposed, and reasonably foreseeable land use conditions in the region. However, construction constraints are primarily based on specific sites within a proposed development and on the soil characteristics and topography of each site.

Alternative 1

As described in Section 4.5 of this Draft EIR, the proposed Project would not result in significant impacts regarding geologic conditions and soils. Although the site may be subject to ground shaking, fault rupture, liquefaction and/or seismic ground shaking during work that occurs on Plant 2, at Air Vac Station 12+05, and the beach, it would mostly occur in existing structures and doesn't involve the construction of new facilities. There would be no cumulative impacts associated with rehabilitation and maintenance activities in these areas.

Under Alternative 1, the footprint for the bypass structure excavation pit would be approximately 65-feet wide by 80-ft long and 20 to 25 feet deep. In total, the bypass structure would require substantial excavation volume of approximately 4,350 cubic yards of beach sand/soil. Implementation of Alternative 1, would require the Sanitation District to prepare a site specific geotechnical investigation, prior to final design. Because impacts associated with geology and soils are generally site-specific and Alternative 1 would be required to prepare a site specific geotechnical investigation and no other projects are located within the beach vicinity, no other cumulative project would modify the geologic condition in the area that could cumulatively affect the region. Thus, impacts to the proposed Project from geologic conditions, soils conditions, and seismicity would not be cumulatively considerable.

Significance Level Alternative 1: Less than significant.

Alternative 2

With the exception of construction of the bypass structure, Alternative 2 would result in identical impacts at Plant 2, the Air Vac Station 12+05, and the beach. Thus, impacts to the proposed Project from geologic conditions, soils conditions, and seismicity would not be cumulatively considerable.

Significance Level Alternative 2: Less than significant.

Greenhouse Gas Emissions

Global climate change is a broad term used to describe any worldwide, long-term change in the earth‘s climate. Greenhouse gas emissions are inherently a cumulative impact and as such are evaluated in Section 4.5 of the Draft EIR. The geographic context for the cumulative impact is global. Under both Alternative 1 and Alternative 2, the proposed Project’s GHG emissions would be consistent with plans, polices, and regulations regarding GHG emissions, and impacts regarding GHG emissions would not be cumulatively considerable.

Significance Level Alternatives 1 and 2: Less than significant.

Hazards and Hazardous Materials

The cumulative setting for hazards associated with the proposed Project includes proposed, planned, approved or reasonably foreseeable projects planned by the Sanitation District, within the City, or any projects listed in **Table 5.1**.

Alternative 1

The proposed Project would not increase permanent use of hazardous materials or result in onsite contamination that would contribute to cumulative hazardous waste in the immediate area or region. The proposed Project is a rehabilitation and maintenance project. The use of hazardous materials is temporary. Moreover, with the implementation of the proposed Project, the Sanitation District would prepare a contingency plan in the event there is an accidental discharge. Thus, with the implementation of the contingency plan and with adherence to applicable regulations during construction, development, and operations, the proposed Project impacts regarding hazards and hazardous materials would not be cumulatively considerable.

The discharge of up to 30 mgd of groundwater water into the SAR from the dewatering activities could affect river currents and offshore surf that could potentially increase risk to recreational users at the mouth of the SAR. Public access at the Huntington State Beach would be restricted. The SAR Mouth Beach would need to be closed to keep the public safe during the duration of the dewatering activities. There are no other projects planned for the area that would affect river currents or surf. The dewatering activities would be temporary. Therefore, the proposed Project would not contribute to a cumulatively significant impact to public safety associated with the dewatering system.

Significance Level Alternative 1: Less than significant.

Alternative 2

Alternative 2 would result in identical impacts at Plant 2, the Air Vac Station 12+05, and the beach. The proposed Project would not increase permanent use of hazardous materials or result in onsite contamination that would contribute to cumulative hazardous waste in the immediate area or region. The proposed Project is a rehabilitation and maintenance project and the hazardous materials associated with the utilization of construction equipment is temporary. Under Alternative 2, the time the Sanitation District would discharge to the Short Outfall, more sodium bisulfate would be used to increase the dechlorination prior to discharge. The additional sodium bisulfate would be brought to Plant 2 and stored at the site. The Sanitation District regularly stores sodium bisulfate at the site, and the increase during the 4 to 6 week discharge period would not be significant.

Additionally, with the implementation of Alternative 2, the Sanitation District would also prepare a contingency plan in the event there is an accidental discharge. Thus, the proposed Project impacts regarding hazards and hazardous materials would not be cumulatively considerable.

Significance Level Alternative 2: Less than significant.

Hydrology and Water Quality

The cumulative hydrology and water quality setting for the proposed Project is the SAR Basin, along the coast, and within the urbanized area including the mouth of the river, the surf, and the Talbert Marsh.

Alternative 1

Rehabilitation activities would not result in significant impacts to drainage or water quality. Rehabilitation and maintenance activities at Plant 2 would be subject to the Sanitation District's Onsite Stormwater Management Plan. Activities at Air Vac Station 12+05 and the beach would be controlled by Best Management Practices. Cumulative projects would also be subject to construction runoff controls. Combined, the proposed project and cumulative projects would not result in cumulatively considerable water quality impacts.

Dewatering required for Alternative 1 would discharge to the SAR. The Sanitation District Levee Repair Project would also discharge dewatered river water. However, this project would be subject to dewatering permits from the Regional Water Quality Control Board which would regulate water quality impacts, therefore, cumulative impacts to water quality would not be significant.

Significance Level Alternative 1: Less than significant.

Alternative 2

Alternative 2 would result in similar impacts at Plant 2, the Air Vac Station 12+05, and the beach. The proposed Project would not contribute to a cumulatively considerable impact resulting from hydrology and water quality, as most rehabilitation and maintenance activities would occur in existing structures. Additionally, activities at Plant 2 would implement the Onsite Stormwater Management Plan and activities at Air Vac Station 12+05 and the beach would be controlled by BMPs.

Significance Level Alternative 2: Less than significant.

Land Use and Planning

The cumulative setting for land use and planning within the proposed Project vicinity is the City of Huntington Beach, City of Newport Beach, and County of Orange. Cumulative projects include existing, approved, proposed, and reasonably foreseeable development within the vicinity.

Alternative 1

The proposed Project would not divide a community or impact the existing Orange County Central/Coastal NCCP/HCP. The construction and rehabilitation activities at Plant 2 and the Air Vac Station 12+05 would be consistent with the applicable General Plan, Zoning Code and LCP for the City of Huntington Beach. Direct impacts would be less than significant or reduced to less than significant levels with mitigation measures.

Implementation of the proposed Project would likely require the Sanitation District to acquire a Coastal Development Permit (CDP) for activities at Plant 2, Air Vac Station 12+05 and at the beach. Additionally, the construction of the bypass structure would require the Sanitation District to acquire a Coastal Development Permit CDP. In addition to the Sanitation District's need to encroach upon State Park lands, the groundwater dewatering system may also encroach upon State Lands Commission lands leased to the Orange County Flood Control District at the SAR mouth. Implementation of Alternative 1 would require permits from the State Parks and State Lands Commission. However, due to the short duration and that the site would be returned to its pre-construction condition, the Project would not contribute to a cumulatively considerable impact.

Significance Level Alternative 1: Less than significant.

Alternative 2

Alternative 2 would result in similar impacts at Plant 2, the Air Vac Station 12+05, and similar impacts to the beach. However, rehabilitation of the Beach Box under Alternative 2 would be contained within the Sanitation District's maintenance easement. Due to the short duration and that the site would be returned to its pre-construction condition, the Project would not contribute to a cumulative impact.

Significance Level Alternative 2: Less than cumulatively considerable.

Marine Environment

The marine regional setting for the proposed Project is the Orange County coast located in the south-central portion of the Southern California Bight (SCB). The SCB extends from Point Conception in Santa Barbara County to just south of the United States and Mexico border.

Alternative 1

Alternative 1 would include the construction of a bypass structure to continue discharge to the Long Outfall. Because Alternative 1 would implement the use of the bypass structure, the existing marine environment would not change and Alternative 1 would not contribute to an incremental effect and would not have a cumulatively considerable impact.

Significance Level Alternative 1: Less than significant.

Alternative 2

Alternative 2 would discharge to the Short Outfall for a period of 4 to 6 weeks. This discharge would be in place of the routine discharge to the Long Outfall, and would contribute to the cumulative effluent and storm water discharges to the ocean. However, as determined through research by contacting local agencies,[2] it was determined no other cumulative project would modify the existing discharges during the Project time period that could result in cumulative near shore water quality changes. The Huntington Beach Desalination Plant would not be operational for several years. Discharge from implementation of Alternative 2 would be short term and temporary, thus, the proposed Project would not result in cumulatively considerable impacts to the marine environment or near shore water quality.

Significance Level Alternative 2: Less than significant.

Noise

The cumulative setting for noise includes receptors within 1,000 feet of the proposed Project site. Future cumulative noise levels in the vicinity of the project site would be primarily influenced by vehicle traffic along area Pacific Coast Highway and local roadways.

Alternative 1

Alternative 1 would include the rehabilitation and maintenance activities at Plant 2, the Air Vac Station 12+05 and at the beach. Noise impacts associated with nighttime rehabilitation activities at the Beach Box on Huntington State Beach would be significant and unavoidable, due to the rehabilitation activities occurring outside of the noise control limits set by the City of Huntington Beach noise control ordinance. Alternative 1 also includes the daytime construction of a bypass structure to continue discharge to the Long Outfall, the operation of which would temporarily

[2] OCHCA, the RWQCB, the City of Huntington Beach, the City of Newport Beach, the USACE, CDFG, CDPH, NMFS, the Pacific Marine Mammal Center, and State Parks

increase ambient noise levels within the project vicinity. Additionally, because the noise impacts would be short term, the proposed Project would not result in a cumulatively significant noise impact.

Significance Level Alternative 1: Less than significant.

Alternative 2

Alternative 2 includes the same rehabilitation activities as Alternative 1 at Plant 2, the Air Vac Station 12+05 and the beach. As discussed above, noise impacts associated with nighttime rehabilitation activities at the beach would be significant and unavoidable. No other cumulative project would be located near enough to the proposed Project site to cumulatively contribute to significant noise emissions. Since the impact would be short term, the proposed Project would not result in a cumulatively significant noise impact.

Significance Level Alternative 2: Less than significant.

Recreation

The cumulative setting for recreational uses includes the Huntington State Beach, the SAR Mouth Beach, the SAR, and the Coastal and SAR Bikeways located in the cities of Huntington Beach and Newport Beach.

Alternative 1

Alternative 1 includes rehabilitation and maintenance activities at Plant 2, the Air Vac Station 12+05 and the beach. In order to ensure adequate public safety from potentially hazardous conditions on the SAR Bikeway, the proposed Project would result in detours to the SAR Bikeway. **Mitigation Measure 4.12-1** would ensure that bikeway bicycle/pedestrian detours are designed in coordination with the cities of Huntington Beach and Newport Beach and Orange County. With this coordination along with internal Sanitation District coordination, closure of the bikeways and trails would be managed effectively. Additionally, implementation of Alternative 1 would require the construction of a bypass structure, which would restrict access at the Huntington State Beach, and beach closures at the mouth of SAR to accommodate the dewatering system. Visitors to the beach would have open access to the other nearby beaches including the Huntington City Beach, Bolsa Chica State Beach, and Newport Beach. Although the impacts would be cumulative, they would not be significant since the closures would be short term and temporary. Although rehabilitation activities at the beach and construction of the bypass structure under Alternative 1 would affect beach access, no other projects on the cumulative list would affect beach access at this location. Therefore, the proposed Project would not result in a cumulatively considerable impact.

Significance Level Alternative 1: Less than significant.

Alternative 2

Alternative 2 would result in similar impacts at Plant 2, the Air Vac Station 12+05, and the beach. Alternative 2 would not require the construction of a bypass structure, and thus no potential for beach closures at the mouth of SAR to accommodate a dewatering system. The SAR Levee Repair Project would also result in bikeway closures and bicycle/pedestrian detours concurrent with implementation of Alternative 2. If these detours were to occur at the same time, a cumulative impact would occur. **Mitigation Measure 4.12-1** would ensure that bikeway bicycle/pedestrian detours are designed in coordination with the cities of Huntington Beach and Newport Beach and Orange County. Alternative 2 would temporarily affect beach access, no other projects on the cumulative list would affect beach access at this location. Therefore, the proposed Project would not result in a cumulatively considerable impact

Significance Level Alternative 2: Less than cumulatively considerable.

Traffic and Circulation

The cumulative setting for transportation and circulation impacts is the City of Huntington Beach roadway network and the nearby City of Newport Beach roadway network.

Alternative 1

Under Alternative 1, the proposed Project would add approximately 136 additional construction worker vehicle trips to the local roadway network for approximately seven months. As discussed in the Traffic impact analysis, this would not add substantial volumes of traffic to PCH or neighboring arterial roads. No road or lane closures would occur. Therefore, the implementation of the proposed Project and other projects within the vicinity would not contribute to a cumulatively significant impact on traffic.

Impacts to the Coastal Bikeway and SAR Bikeway would occur under the proposed Project and the SAR Levee Repair Project. As discussed in Recreation above, **Mitigation Measure 4.12-1** would reduce impacts to less than significant levels, and impacts would not be cumulatively considerable.

Short term construction staging at the Huntington State Beach would impact approximately 32 spaces in the parking lot and would not significantly impact existing parking since the major summer holiday periods would be avoided and beach parking is available elsewhere. No other cumulative projects would affect Huntington State Park parking. Therefore, the proposed Project would not result in a cumulatively considerable impact to parking.

Significance Level Alternative 1: Less than significant.

Alternative 2

The proposed Project would add approximately 96 additional construction vehicle trips to the local roadway network for approximately 4 to 6 weeks. As discussed in the Traffic impact analysis, this would not add substantial volumes of traffic to PCH or neighboring arterial roads.

No road or lane closures would occur. Therefore, the proposed Project would not contribute to a cumulatively significant impact on traffic.

Impacts to the Coastal Bikeway and SAR Bikeway would occur under the proposed Project and the SAR Levee Repair Project. As discussed in Recreation above, **Mitigation Measure 4.12-1** would reduce impacts to less than significant levels, and impacts would not be cumulatively considerable.

Short term construction staging at the State Beach would impact approximately 14 spaces in the parking lot and would not significantly impact existing parking since the major summer holiday periods would be avoided and beach parking is available elsewhere. No other cumulative project would affect the State Park parking. Therefore, the proposed Project would not result in a cumulatively considerable impact to parking.

Significance Level Alternative 2: Less than significant.

Utilities and Service Systems

The cumulative setting for electrical, natural gas, and telephone services impacts is in the City of Huntington Beach and the nearby City of Newport Beach.

Alternative 1

Rehabilitation activities under Alternative 1 would not impact existing utilities and infrastructure service systems, because the proposed Project is temporary and short-term. Alternative 1would not require permanent infrastructure to support the rehabilitation and maintenance activities. Thus, the proposed Project would not contribute to impacts that would be cumulatively considerable.

Significance Level Alternative 1: Less than significant.

Alternative 2

Rehabilitation activities under Alternative 2 would not impact existing utilities and infrastructure service systems, because the proposed Project is temporary and short term and would not require permanent infrastructure to support the rehabilitation and maintenance activities. All work will be performed within the existing framework of the Beach Box and existing Long Outfall at Air Vac 12+05. Thus, the proposed Project would not contribute to impacts that would be cumulatively considerable.

Significance Level Alternative 2: Less than significant.

Summary of Impact Conclusions

No significant and unavoidable cumulative impacts would occur as a result of implementation of either Alternative 1 or Alternative 2. The rehabilitation activities at Plant 2, at Air Vac Station 12+05, and activities at the beach would not create a cumulatively considerable impact because

there are no projects within the project vicinity taken together with the proposed Project that would contribute to cumulative impacts in the area, and because the proposed Project would return the site locations construction areas to their pre-construction condition upon completion of the proposed Project.

CHAPTER 6
Growth Inducement and Other CEQA Considerations

6.1 Direct and Indirect Growth Inducement

The *CEQA Guidelines* (§15126.2(d)) require that an EIR evaluate the growth inducing impacts of a proposed action. Section 15126.2(d) calls for the EIR to:

> *Discuss the way in which a proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects which would remove obstacles to population growth (a major expansion of a reclaimed water treatment plant might, for example, allow for more construction in service areas). Increases in the population may tax existing community service facilities, requiring construction of new facilities that could cause significant environmental effects. Also discuss the characteristic of some projects which may encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively. It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment.*

A project can have direct and/or indirect growth inducement potential. Direct growth would result if a project, for example, involved construction of new housing. A project would have indirect growth inducement potential if it established substantial new permanent employment opportunities (e.g., commercial, industrial or governmental enterprises) or if it would involve a substantial construction effort with substantial short-term employment opportunities and indirectly stimulate the need for additional housing and services to support the new employment demand. Similarly, a project would indirectly induce growth if it would remove an obstacle to additional growth and development, such as removing a constraint on a required public service.

A project that is determined to be growth inducing can result in subsequent environmental effects as a result of such growth. These environmental effects are considered indirect secondary effects of growth. Secondary effects of growth can result, for example, in significant increased demand on community and public service infrastructure; increased traffic and noise; degradation of air and water quality; and conversion of agricultural land to urban uses.

Implementation of the proposed Project would have no potential to directly foster population growth or to result in the construction of additional housing. Project construction is not expected to create substantial employment opportunities beyond the level normally available to construction workers in the area. Therefore, the proposed Project would have no direct impacts on growth.

Rehabilitation of the Long Outfall System is necessary to avoid failure of the wastewater discharge system. The Long Outfall System Beach Box must be taken out of service for access, proper inspection, and rehabilitation. Rehabilitation of the Long Outfall System would provide improved reliability of the wastewater treatment discharge system that in turn would decrease potential water quality impacts and potential beach closures in Huntington Beach and Newport Beach. The proposed Project would not require imported water supplies and does not require or result in an increase of treatment capacity of the existing Plant 2. The proposed Project would not result in the removal of an obstacle to growth, and thus, would not indirectly induce growth nor would it induce secondary effects caused by growth.

6.2 Irreversible/Irretrievable Commitment of Resources

The *CEQA Guidelines* (Section 15126.2(c)) require that an EIR identify significant irreversible environmental changes that would be caused by the proposed Project. Construction of the proposed Project under both Alternatives would consume fossil fuels, a non-renewable resource, to power construction vehicles. Alternative 1 would also require materials to build the bypass structure including steel and concrete. Once construction is complete, the proposed Project would not increase the use of fossil fuels from existing conditions. Under Alternative 1, both outfalls would be permanently modified to include valve flanges where the bypass structure is attached, these valves would require periodic maintenance to assess corrosion.

CHAPTER 7
Alternatives Analysis

7.1 Introduction

7.1.1 CEQA Requirements

CEQA requires that an EIR describe and evaluate a reasonable range of feasible alternatives to a project or to the location of a project that would avoid or substantially lessen significant project impacts and attain most of the project objectives. The *CEQA Guidelines* (§15126.6) and CEQA case law set forth the following guidance for alternatives:

Identifying Alternatives. The range of alternatives is limited to those that would avoid or substantially lessen any of the significant effects of the project, attain most of the objectives of the project, and are feasible to implement. Factors that may be considered when addressing the feasibility of an alternative include site suitability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries, economic viability, and whether the proponent can reasonably acquire, control or otherwise have access to the alternative site. An EIR need not consider an alternative whose impact cannot be reasonably ascertained and whose implementation is remote and speculative. CEQA Guidelines also requires consideration of the No Project Alternative, which addresses the impact of not implementing the project and addresses what could occur in the foreseeable future if the project is not approved. The EIR should also identify alternatives considered but rejected as infeasible and briefly explain the reasons underlying such determination.

Range of Alternatives. An EIR need not consider every conceivable alternative, but must consider a reasonable range of alternatives that will foster informed decision-making and public participation. The "rule of reason" governs the selection and consideration of EIR alternatives, requiring that an EIR set forth only those alternatives necessary to permit a reasoned choice.

Evaluation of Alternatives. An EIR is required to include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the project. Matrices may be used to display the major characteristics of each alternative and significant environmental effects of each alternative to summarize the comparison. If an alternative would cause one or more significant effects in addition to those that would be caused by the project as proposed, the significant effects of the alternative must be described, but this description can be in less detail than the analysis of significant effects of the proposed project.

7.1.2 Organization

This chapter first reviews the project objectives (Section 7.2) and the significant impacts associated with the proposed project (Section 7.3) as this information is central to the evaluation of how alternatives compare to the proposed project. There are two main project alternatives, Bypass with No Use of Short Outfall and Alternative 2, No-Bypass – Use of the Short Outfall (preferred alternative), and these are evaluated at an equal level of detail in the main body of the Draft EIR (Chapter 4). This chapter describes the No Project Alternative, which is required by CEQA, and evaluates the potential impacts associated with this Alternative (Section 7.4). Section 7.5 presents a comparison of the two project alternatives and the No Project Alternative. As Alternative 2 represents the Proposed Project, the environmental effects of Alternative 1 (Bypass) and the No Project Alternative are described in comparison to Alternative 2. Section 7.6 describes one alternative that was eliminated from further consideration. Section 7.7 describes three construction options that the Sanitation District is considering for the Beach Box repair, which would apply to either Alternative 1 or Alternative 2. Section 7.8 identifies the environmentally superior alternative and Section 7.9 presents the Sanitation District's preferred alternative. Section 7.10 presents the results of the alternatives screening based on key environmental and implementation criteria.

7.2 Project Objectives

As described in Chapter 3.0, Project Description, the proposed Project objectives are as follows:

- Rehabilitate the Beach Box as soon as possible to minimize the possibility of system failure; and minimize potential spills;
- Minimize disruption to residential communities and commercial areas
- Minimize disruption to recreational users during construction;
- Maintain compliance with the Sanitation District's National Pollutant Discharge Elimination System (NPDES) permit;
- Maintain the highest quality effluent possible during construction to minimize beach closures;
- Minimize disruption to biological resources on the beach; and
- Minimize impacts to marine environment.

7.3 Significant Impacts of the Project

Chapter 4 of this Draft EIR identifies potential impacts associated with the proposed Project for each environmental issue area including long-term and short-term impacts for the rehabilitation efforts at Plant 2, the Air Vac Station 12+05, and the Beach Box associated with implementation of either Alternative 1 or Alternative 2. Mitigation measures have been identified to reduce potential environmental impacts to less than significant levels where possible.

As summarized in **Table 7-1**, the analysis in Chapter 4 concludes that Alternative 1 would have temporary significant unavoidable impacts associated with visual resources at the beach, and

TABLE 7-1
SIGNIFICANT IMPACTS OF THE PROJECT

Alternative	Significant and Unavoidable Impacts
Alternative 1	1. Visual resources due to construction of bypass structure 2. Noise during nighttime construction at Beach Box 3. Beach access restricted for 7 months
Alternative 2	1. Noise during nighttime construction at Beach Box

SOURCE: ESA 2011.

restricted beach access for 7 months. Both Alternatives 1 and 2 would result in significant and unavoidable impacts resulting from noise during nighttime construction on the beach during the rehabilitation efforts of the Beach Box. No other impacts have been identified as significant and unavoidable for either Alternative.

7.4 No Project Alternative

Pursuant to Section 15126.6(e)(2) of the *CEQA Guidelines*, the No Project Alternative shall:

> *…discuss the existing conditions at the time the notice of preparation is published, or if no notice of preparation is published, at the time the environmental analysis is commenced, as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services.*

Under the No Project Alternative, the Sanitation District would not implement the Outfall Land Section and OOBS Piping Rehabilitation Project. The rehabilitation and construction Project elements would not be completed. The rehabilitation of Surge Tower 2, inspection and rehabilitation of the land section of the Long Outfall, abandonment of the Long Outfall metering ports and vaults, replacement of the existing effluent flow meter on the Long Outfall, and rehabilitation of the Beach Box would not occur. The existing conditions of the Long Outfall system would remain unchanged. For purposes of this assessment, it is assumed that although none of the rehabilitation activities would occur as planned, the Beach Box would eventually fail, requiring an emergency repair effort that would require effluent to be diverted to the Short Outfall to repair the Beach Box. The duration of the repair work may be longer than under Alternative 2, since the emergency effort may require replacement of the entire Beach Box and additional repairs to the outfall may be required. Construction methods may include percussive activities such as jack hammering or pile driving, and the emergency activities could occur at any time of year.

Ability to Meet Project Objectives

Under the No Project Alternative, none of the Project objectives would be achieved. The rehabilitation of the Long Outfall System would not be accomplished. At some point, the Beach

Box would fail, and the project would become an emergency repair project. Without proactive repair of the Beach Box structure as proposed under Project Alternatives 1 and 2, it may not be possible to prevent a spill associated with the eventual failure of this structure. This would not meet one of the main project objectives and would also represent a regulatory compliance issue. If emergency repair of Beach Box is required, the construction approach may or may not be able to address some or any of the other project objectives established to minimize the effects of repairing the Beach Box as well as the other Project elements.

Impact Analysis

The following section describes the potential effects of the No Project Alternative. Section 7.5, below, presents a summary comparison of the No Project Alternative to Alternatives 1 and 2.

Aesthetics

Under the No Project Alternative the Project sites on Plant 2, at Air Vac Station 12+05, and at the beach would remain in their existing condition and would not experience any change. However, the land portion of the Long Outfall and Beach Box would continue to degrade and would ultimately fail. If the Beach Box were to fail, emergency construction activities that may require nighttime lighting, glare, and the presence of construction materials and vehicles, would impact the area aesthetically. During the emergency repair project, visual screens may not be utilized since the project would not be subject to mitigation measures under an emergency repair situation. The emergency repair would be temporary, but impacts to aesthetics under the No Project Alternative would be greater than the proposed Project for either r Alternative 1 or 2.

Air Quality and Greenhouse Gases

Under the No Project Alternative, no rehabilitation activities including construction of the bypass structure would occur, therefore no new construction-related air pollutants would be generated. In the short term, greenhouse gas emissions would be avoided and air quality in the Project vicinity would remain the same as under current conditions. However, the failure of the Beach Box would require emergency construction activities that would result in air quality impacts greater than the proposed Project for either Alternative 1 or 2.

Biological Resources

Under the No Project Alternative, no rehabilitation activities or construction of the bypass structure would occur. Construction-related impacts and encroachment on to the adjacent California Least Natural Tern Preserve area would not occur. However, if the Beach Box fails, effluent could be discharged into the SAR and onto the beach for a period of time before the effluent could be diverted to the Short Outfall. The California Least Tern Nature Preserve and western snowy plover could be adversely affected by the effluent release and construction activities on the beach. If emergency repairs occurred during the nesting season, it would significantly impact both species directly based on the release into the SAR and onto the beach and the emergency repairs that would ensue. Therefore, impacts to biological resources under the

No Project Alternative would be greater than the proposed Project for Alternatives 1 or 2 since the emergency repairs may be necessary during the breeding season.

Cultural and Paleontological Resources

Under the No Project Alternative, no rehabilitation or construction-related activities of the bypass structure would occur. No cultural and paleontological resources would be affected. However, if the Beach Box fails and emergency repairs are required, cultural resources or paleontological resources may be affected if excavation is required. Therefore, impacts to cultural and paleontological resources would be similar to Alternative 2. Since the bypass structure would not be constructed, impacts to cultural resources under Alternative 1 would be greater than under the No Project Alternative.

Geology, Soils, and Seismicity

Under the No Project Alternative, no rehabilitation or construction-related activities would occur that would result in soil erosion, topsoil loss or impacts to soil stability or facilities placed on expansive soils. However, if the Beach Box fails, an uncontrolled release of effluent onto the beach for a period of time before it could be diverted to the Short Outfall could lead to soil erosion or topsoil loss at the beach. Furthermore, the Beach Box may be more vulnerable to seismic impacts if not rehabilitated. Therefore, impacts related to soil erosion and seismic impacts would be greater under the No Project Alternative than under Alternative 1 or 2.

Hazards and Hazardous Materials

Under the No Project Alternative, the use of hazards or hazardous materials associated with the rehabilitation activities would be avoided. However, if the Beach Box fails, emergency repairs would likely be longer than 4 to 6 weeks. In addition, if effluent is released into the SAR or onto the beach for a period of time before the effluent could be diverted to the Short Outfall, cleanup of contaminated sand/soils may be required. Due to the potential for effluent releases and emergency repair efforts, the No Project Alternative would result in greater impacts than either Alternative 1 or 2.

Hydrology and Water Quality

Under the No Project Alternative, potential impacts to storm water runoff quality and local drainages from construction would be avoided. However, if the Beach Box fails, effluent may be released into the SAR or onto the beach for a period of time before the effluent could be diverted to the Short Outfall resulting in violations of the Sanitation District's NPDES permit. The local beaches would likely be closed to protect public health for the duration of the repair efforts. The surfzone water quality would be degraded until the repairs were completed. In addition construction runoff could potentially transport residual petroleum based chemicals from emergency equipment into the SAR or onto the beach since mitigation would likely not be used under an emergency repair. The repair efforts would likely take longer than Alternative 2. Due to the potential for effluent releases and emergency repair efforts, the No Project Alternative would result in greater impacts than either Alternative 1 or 2.

Land Use and Planning

Under the No Project Alternative, there would be no effect to land uses. Routine maintenance of the Beach Box would continue within the existing easement pursuant to the existing permits and Coastal Development Permit. However, if the Beach Box fails, the portion of the beach from the SAR to the Talbert Channel would likely be closed to the public until the repairs were made which would likely be for a longer duration than Alternative 2. In addition, the beaches would likely be closed until the repairs were completed. Due to the potential for effluent releases and beach closures, the No Project Alternative would result in greater impacts than either Alternative 1 or 2.

Marine Environment

Under the No Project Alternative, the Sanitation District would continue to discharge pursuant to the NPDES permit through the Long Outfall. However, if the Beach Box fails, effluent may be released into the SAR or onto the beach for a period of time before the effluent could be diverted to the Short Outfall. During the emergency repairs, it is likely that the beach would be closed for recreational use due to water quality and public health concerns. The Short Outfall would be used exclusively for discharges while the Beach Box was repaired under an emergency construction effort. Water quality impacts resulting from the short term use of the Short Outfall to fish and benthic organisms would be less than significant, similar to Alternative 2. However, since effluent may be released onto the beach, the No Project Alternative would result in greater impacts to surfzone water quality and public health than either Alternative 1 or 2.

Noise

Under the No Project Alternative, the significant and unavoidable construction noise associated with nighttime construction on the beach would be avoided until the Beach Box fails. Emergency construction activities that would require nighttime construction with high noise generating activities could occur, in conflict with the City of Huntington Beach noise ordinance. During the emergency repair project, mitigation may not be utilized due to time constraints of the emergency repairs. Since the construction duration may be greater and the type of construction methods may require louder machines such as jack hammers and pile drivers, noise impacts under the No Project Alternative would be greater than the proposed Project for either Alternative 1 or 2.

Recreation

The No Project Alternative would avoid construction impacts on the beach including bike trail closures and beach access restrictions during rehabilitation and construction-related activities. However, if the Beach Box fails, effluent may be released into the SAR or onto the beach for a period of time before the effluent could be diverted to the Short Outfall, which would likely result in beach closures for the entire emergency repair activities. In addition, the existing bike trails along the Huntington State Beach and SAR may also be impacted to accommodate emergency maintenance activities in the event of the potential failure of the Beach Box. Therefore, impacts to recreation facilities under the No Project Alternative would be greater than the proposed Project for either Alternative 1 or 2.

Traffic and Circulation

The No Project Alternative would avoid impacts to traffic and parking of the proposed Project. However, if the Beach Box fails, emergency access to the repair project would likely affect local traffic more than either Alternative 1 or 2 for the duration of the emergency repairs. If the repair activities occurred during the summer months when the parking lot and beach is most heavily used, this impact would be greater than under either Alternative 1 or 2.

Utilities and Service Systems

Under the No Project Alternative, no new construction or rehabilitation activities would occur that could disrupt utility services. However, if the Beach Box fails, police services would be required to isolate the beach and keep the public from hazardous areas. The beach, between the Talbert Channel and the SAR, would likely be closed for the duration of repair efforts. The vital public wastewater discharge system would be in jeopardy until emergency repairs were completed. This would result in greater impacts to public services and utilities than either Alternative 1 or 2.

Impact Summary

The No Project Alternative would not meet any of the Project Objectives since the failure of the Beach Box would eventually occur resulting in greater impacts to the environmental resource analyzed.

7.5 Comparison of Project Alternatives

Ability to Meet Project Objectives

Table 7-2 below provides a summary comparison of the No Project Alternative, Alternative 1, Bypass – No Use of the Short Outfall, and Alternative 2, No-Bypass – Use of the Short Outfall, with respect to the ability of each alternative to meet the Sanitation District's project objectives.

Impact Analysis

The rehabilitation activities proposed for Plant 2, the Air Vac Station 12+05, and the Beach Box are shared features of both Alternatives 1 and 2. Therefore, impacts associated with these activities as described in Chapter 4 of this Draft EIR would be identical under either Alternative. The only difference between the two Alternatives is that Alternative 1 would construct the bypass structure on Huntington State Beach and perform rehabilitation activities during the months of September 2014 to March 2015. Alternative 2 would avoid all the impacts of constructing the bypass structure, but would require diverting effluent into the Short Outfall for a period of four to six weeks in September and October 2012. The following analysis summarizes the differences between the two Alternatives.

TABLE 7-2
COMPARISON OF PROJECT ALTERNATIVES WITH PROJECT OBJECTIVES

Project Objectives	No Project Alternative	Alternative 1 (Bypass)	Alternative 2 (No Bypass, Use of Short Outfall)
Rehabilitate the Beach Box as soon as possible to minimize the possibility of system failure and minimize potential spills;	No	No	Yes
Minimize disruption to residential communities and commercial areas;	No	No	Yes
Minimize disruption to recreational users during construction;	No	No	Yes
Maintain compliance with the Sanitation District's National Pollutant Discharge Elimination System (NPDES) permit;	No	Yes	Yes
Maintain the highest quality effluent possible during construction to minimize beach closures;	No	Yes	Yes
Minimize disruption to biological resources on the beach; and	No	No	Yes
Minimize impacts to marine environment.	No	Yes	Yes

NI = No Impact
LTS = Less than Significant
LTSWM = Less than Significant with Mitigation
SU = Significant and Unavoidable

SOURCE: ESA 2011.

Aesthetics

Construction of the bypass structure under Alternative 1 would have a temporary significant and unavoidable impact to visual resources for the residents east of the beach site and beach goers. Although the Sanitation District would implement **Mitigation Measure 4.1-1**, requiring the use of a visual screen to reduce the impacts of construction on the beach, the bypass structure would be visible for up to 7 months. Under Alternative 2, the visual screen would substantially reduce the effect to visual resources. Since the bypass structure would not be constructed, this significant impact to visual resources would be avoided under Alternative 2.

Neither Alternative would be visible within a designated Scenic Route. Both alternatives would utilize nighttime lighting for the Beach Box rehabilitation, but the construction of the bypass structure would occur within daylight hours, so no additional light or glare impact would occur under Alternative 1.

Air Quality

Since construction of the bypass structure under Alternative 1would need more equipment for a longer period, it would result in more air emissions, including criteria pollutants and greenhouse gases. As described in Chapter 4, daily air emissions would not be significant under either Alternative. However, under Alternative 1 construction emissions would occur over a 7 month

period compared with up to 6 weeks under Alternative 2. Alternative 1 would result in considerably more construction emissions.

Biological Resources

Construction of the bypass structure under Alternative 1 would require a dewatering system occupying an extensive footprint in areas currently used by California least terns for nesting. Although the disturbance of this area would occur when the birds are not present, the alteration of the area from existing conditions may disturb subsequent year's breeding colony. If the disturbance were to reduce the number of birds returning to breed the next year, impacts could be considered significant. Formal consultation with the USFWS would be required to ensure the area was adequately managed and returned to conditions suitable to the least terns in order to avoid a reduction of returning breeding pairs. The Draft EIR concludes that measures could be imposed to reduce impacts to less than significant levels, but USFWS concurrence would be required under the authority of the Endangered Species Act. Alternative 1 would require conducting formal consultation with the USWFS pursuant to the federal Endangered Species Act prior to construction.

The disruption over a 7 month period would be considerably more impactful to the preserve area than under Alternative 1. Since Alternative 2 would not construct the bypass structure, disturbance to the California Least Tern Natural Preservation Area would be minimal and would likely not require formal consultation with the USFWS.

Similarly, the larger construction footprint and duration needed under Alternative 1would result in greater disturbance to wintering snowy plover that use the beach for foraging in the winter. Alternative 2 would minimize this potential disturbance.

Cultural and Paleontological Resources

Construction of the bypass structure under Alternative 1 would require excavation to expose the Short and Long Outfalls. As a result, there is a greater potential that cultural or paleontological resources could be encountered, requiring recordation and recovery. Under Alternative 2, since the bypass structure would not be constructed, this potential impact would be avoided.

Geology, Soils, and Seismicity

Construction of the bypass structure under Alternative 1 would require excavation to expose the Short and Long Outfalls. The bypass structure would also require a stable foundation to support its function. As a result, there is a potential that subsurface soils may be insufficiently compacted to support the bypass structure. In addition, since excavation is required under Alternative 1, shoring would be necessary to prevent trench walls from sloughing. The bypass structure would be designed for stability even during strong seismic earth shaking, but would be more vulnerable to seismic hazards than under existing conditions due to the complexity of the bypass and due to the exposure of the Short and Long Outfalls. Since Alternative 2 avoids constructing the bypass structure, it would be less vulnerable to seismic hazards.

Hazards and Hazardous Materials

Construction of the bypass structure under Alternative 1 would require the use of more equipment that would require fueling for a longer period of time. Since Alternative 2 avoids constructing the bypass structure, , the risk for potential spills on the beach would be reduced.

Discharging dewatered groundwater to the mouth of the SAR under Alternative 1 could result in modified currents in the SAR and increased flow to the ocean across the beach that is visited by many beach goers. This could create a safety risk for beach goers. Posting signs and fencing on the beach near the mouth of the SAR on either side as well as providing security guards is needed to notify people about the safety risks. Alternative 2 would avoid this potential safety risk.

Hydrology and Water Quality

Construction of the bypass structure under Alternative 1 would require more equipment for a longer duration that could potentially increase runoff from the construction site to add petroleum product residuals and sediment to local receiving waters including the SAR and the ocean. Alternative 2 would minimize this potential effect due to the reduced construction and the completion of the project before the rainy season.

The dewatering system could increase turbidity in the SAR and could result in scouring of the river channel during discharge. In addition, placing velocity dissipators (or baffles) in approximately four pipelines that would discharge groundwater into the river could affect SAR flows and river quality. This system would require a number of permits as noted in **Table 7-4**. Alternative 2 would avoid this potential impact.

For a discussion of ocean water quality see Marine Environment section below.

Land Use and Planning

Construction of the bypass structure under Alternative 1 would require excavation, soil stockpiling, and a dewatering system that would result in a construction footprint substantially larger than the existing maintenance easement. Prior to beginning construction, the Sanitation District would need to obtain encroachment permits from the State Lands Commission and the State Parks. Construction activities on the beach under Alternative 2 would be contained within the existing easement resulting in less impact to State property.

Marine Environment

Under Alternative 2, the effluent from the OOBS would be discharged out the Short Outfall for 4 to 6 weeks. The Short Outfall has not experienced prolonged use since the Long Outfall was put into service in 1971. Since the plume would likely surface quickly, the plume dynamics would differ from the existing condition at the Long Outfall which terminates in deeper waters. The Draft EIR concludes that with the full secondary treatment and enhanced disinfection, the discharge would not significantly affect water quality or sediment quality near the Short Outfall or adversely affect the surrounding marine environment as the effluent plume is entrained in the ocean currents. As a result, impacts to aquatic biota and benthic organisms would be minimal. Discharge plume modeling conducted by the Sanitation District concludes that the potential to

adversely affect surfzone water quality is extremely unlikely. In addition, the Sanitation District would implement a special ocean water quality monitoring program during the project period. The Orange County Health Care Agency would determine whether to post or close beaches during the use of the Short Outfall based on the results of the monitoring program. Construction of the bypass structure under Alternative 1 would avoid the use of the Short Outfall.

Noise

Construction of the bypass structure under Alternative 1 would prolong daytime noise associated with the bypass structure construction for up to four months. Both Alternatives would generate noise from the beach during the Beach Box nighttime repairs, but the construction of the bypass structure would prolong the noise effect. Alternative 2 would generate less noise for a shorter duration of 4-6 weeks.

Recreation

Construction of the bypass structure under Alternative 1 would restrict areas of the beach, between the Talbert Channel and the SAR for 7 months. This is considered a significant and unavoidable impact of the Alternative 1. Under Alternative 2, areas of the beach that would be restricted from public access would be minimal. As a result, Alternative 2 would avoid a significant impact of Alternative 1. It would result in fewer impacts to recreational uses at the beach for a shorter duration.

Alternative 1 would close the Coastal Bikeway for 7 months as opposed to 4 to 6 weeks under Alternative 2. Alternative 1 would also require the construction of a fence on both sides of the mouth of the SAR on both Huntington State Beach and Newport City Beach to protect beach goers from the modified currents that could result from the discharge of dewatering flows into the SAR. Signs would be posted and security guards would be provided as mitigation measures. Fencing, signs and security guards would not be required for Alternative 2.

Traffic and Circulation

Construction of the bypass structure under Alternative 1 would require more worker commute and equipment deliveries over a longer period of time than Alternative 2. However, neither Alternative would substantially affect traffic or circulation. A portion of the Huntington State Beach parking lot area, adjacent to the Least Tern Natural Preserve Area would be closed to the public during a 7 month period. This includes 4 to 6 weeks for rehabilitation activities and the rest of the time allocated to bypass construction under Alternative 1. Approximately 32 parking spaces under Alternative 1 would be temporarily removed from service in Huntington State Beach during the 7-month construction period. Under Alternative 2, the parking lot area would be closed to the public for 4 to 6 weeks. Under Alternative 2, there would be 14 parking spaces temporarily removed from service for up to 6 weeks.

Utilities and Service Systems

Neither Alternative would significantly impact public services and Utilities. Construction of the bypass structure under Alternative 1 would produce more construction waste requiring disposal at

a land fill. Alternative 1 would similarly require more fuel and electricity due to the prolonged construction period. But neither Alternative would be substantively different.

Summary of Alternatives

Table 7-3 summarizes the impact comparisons discussed above. Alternative 1 would have greater impacts for most of the environmental resource areas due to the construction of the bypass structure on the beach that would substantially increase the proposed Project footprint and duration. Alternative 2 would have fewer impacts associated with construction activities and footprint effects and would allow the Beach Box to be rehabilitated as soon as possible to minimize the possibility of system failure and minimize potential spills.. Furthermore, discharge to the Short Outfall would not result in significant water quality impacts.

7.6 Alternatives Eliminated from Further Consideration

An EIR must briefly describe the rationale for selection and rejection of alternatives. The Lead Agency may make an initial determination as to which alternatives are potentially feasible and, therefore, merit in-depth consideration, and which are not feasible. Alternatives that are remote or speculative, or the effects of which cannot be reasonably predicted, need not be considered (*CEQA Guidelines*, Section 15126.6(f)(3)). Factors that may be considered when addressing the feasibility of an alternative include site suitability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries, economic viability, and whether the proponent can reasonably acquire, control or otherwise have access to the alternative site.

This section identifies the alternative considered by the Sanitation District, but rejected as infeasible, and provides a brief explanation of the reasons for their rejection.

Alternative 3 – 24 hour Construction of Bypass

During the planning process, the Sanitation District considered a modification to Alternative 1 that would construct the bypass structure on a 24 hour, 7 days per week to shorten the schedule. This alternative would meet three of the proposed Project objectives. However, the Sanitation District rejected Alternative 3 out of safety concerns. Hot tapping into a ten-foot diameter live effluent pipeline that is conveying 150 mgd to the ocean requires precision that cannot be guaranteed with nighttime lighting. The prospect of an error in the procedure due to the difficulties of nighttime construction would be unacceptable. A failure of the hot tapping procedure could result in effluent spills, resulting in damage to the outfall and the discharging effluent onto the beach and into the SAR for an indefinite period of time before a fix is implemented. Due to the risks to worker safety, critical infrastructure, and environmental consequences to the beach and SAR under these nighttime conditions, Alternative 3 was rejected from further consideration.

TABLE 7-3
COMPARISON OF IMPACT ANALYSIS FOR EACH ALTERNATIVE

	No Project Alternative	Alternative 1 (Bypass)			Alternative 2 (No Bypass, Use of Short Outfall)
Issue Area	**Impact Compared to Alt 2**	**Impact Level**	**Impact Compared to Alt 2**	**Reason for Conclusion**	**Impact Level**
Aesthetics	+	SU	+	• Bypass structure and construction activities visible for 7 months.	LTSWM
Air Quality	+	LTS	+	• Air emissions would occur for 7 months as opposed to 4 months.	LTS
Biological Resources	+	LTSWM	+	• Larger footprint would affect the California Least Tern Natural Preserve Area. • Any delay in schedule could affect breeding birds • Consultation with USFWS under the Endangered Species Act required (Section 7).	LTSWM
Cultural Resources	+	LTSWM	+	• Excavation could encounter previously unknown resources.	LTS
Geology, Soils, and Seismicity	+	LTSWM	+	• Excavation would require shoring and hot tapping equipment would require stabilization to protect against seismic and other geologic hazards.	LTS
Hazards and Hazardous Materials	+	LTSWM	+	• Longer construction period would result in greater potential for fuel spills and oil drips on sand. • Dewatering could modify SAR currents creating potential hazards to beach goers and surfers.	LTS
Hydrology and Water Quality	+	LTSWM	+	• Dewatering could affect SAR water quality and would require a NPDES dewatering permit. • Longer construction period during winter storms would increase potential to adversely affect storm water runoff from construction site.	LTSWM
Land Use	+	LTS	+	• Larger construction footprint would encroach beyond existing OCSD maintenance lease requiring permits from SLC, State Parks, and CCC.	LTS
Marine Environment	+	NI	-	• Would avoid discharging to Short Outfall.	LTSWM
Noise	+	SU	+	• Longer construction period would extend noise exposure.	SU

TABLE 7-3
COMPARISON OF IMPACT ANALYSIS FOR EACH ALTERNATIVE – (CONT.)

	No Project Alternative	Alternative 1 (Bypass)			Alternative 2 (No Bypass, Use of Short Outfall)
Issue Area	**Impact Compared to Alt 2**	**Impact Level**	**Impact Compared to Alt 2**	**Reason for Conclusion**	**Impact Level**
Recreation	+	SU	+	• Longer construction period and larger footprint would result in closed beach access for public safety. • Bikeways closed for 7 months as opposed to 6 weeks.	LTSWM
Transportation and Traffic	+	LTSWM	+	• Longer construction period and more equipment needs would require more delivery and worker trips.	LTSWM
Utilities and Service Systems	+	LTS	=	• Both Alternatives would repair a vital utility and avoid increases in public services or disruptions in utilities.	LTS

NI = No Impact
LTS = Less than Significant
LTSWM = Less than Significant with Mitigation
SU = Significant and Unavoidable
+ = greater impact
- = lesser impact
= = similar impact

SOURCE: ESA 2011.

7.7 Beach Box Repair Options

The Sanitation District is considering three alternative construction methods for implementing the Beach Box rehabilitation. Options A, B, or C, are described in Chapter 3 of this Draft EIR. Under each of the Options, the Long Outfall would be removed from service and dewatered. Option A would require removing the Beach Box concrete cover with a crane, then mobilizing equipment and workers into the Beach Box and Long Outfall to apply a carbon fiber resin within the inside of the Beach Box. Option A requires minimal staging or heavy off road equipment at the surface. Option B would involve removing the Beach Box concrete cover with a crane as well, but then would require some demolition of the intermediate floor of the Beach Box structure to provide enough room to insert five 3.5-foot long, 9-foot diameter fiberglass pipe inserts. These inserts would be lowered into the Beach Box through the opening and inserted into the Long Outfall upstream and downstream of the Long Outfall and conjoined with a new manhole access to connect to the Long Outfall. This method would require some staging of the large diameter pipeline segments on the beach but within the Sanitation District's maintenance easement. Option C would be similar to Option B but would use steel pipe inserts but would not require demolition of the Beach Box intermediate floor.

Each of these options for rehabilitating the Beach Box would occur within the existing easement. Options B and C would require a larger staging area than Option A, and they would require slightly more equipment delivery trips. Option B would also require some demolition that could increase noise and dust emissions for a very short duration. As a result, Option A would result in the fewest impacts, mostly due to the minimal area needed to complete the work. However, the difference between the three Options in terms of environmental impacts is minor, and none of the Options would avoid or substantially lessen environmental effects of any other Option. Each Option would meet all the Project Objectives.

7.8 Environmentally Superior Alternative

The *CEQA Guidelines* (Section 15126.6(e)(2)) require that an EIR identify which project Alternative would result in the fewest environmental impacts and therefore be the environmentally superior Alternative. **Table 7-3** provides a comparison of each of the alternatives with respect to the potential for resulting in significant environmental effects. As shown in the Table 7-3, the No Project Alternative would result in the greatest potential impacts due to the high probability that without rehabilitation, the Beach Box would fail at some point in the future resulting in uncontrolled effluent discharge to the SAR and the beach. Under this emergency situation, the Sanitation District would divert flows to the Short Outfall and would mobilize an emergency repair effort on the beach that would not be subject to the mitigation measures identified in this Draft EIR. The impacts and duration of this effort are uncertain, but as summarized in **Table 7-3**, would likely be greater than either Alternative 1 or 2 as described in this chapter.

Both Alternatives 1 and 2 would implement the identical rehabilitation efforts at Plant 2, the Air Vac Station 12+05, and the Beach Box. Impacts associated with these project elements would be

identical, including effects of 24-hour 7-days per week construction. The Draft EIR finds nighttime construction noise at the beach during the Beach Box rehabilitation to be a significant and unavoidable effect of the Project under both Alternative 1 and 2. Nighttime lighting would also occur under both Alternative 1 and 2.

The principal difference between Alternative 1 and 2 is that Alternative 1 would construct a bypass structure on the beach over a period of approximately 4 months prior to implementing the Long Outfall rehabilitation projects. The additional construction efforts required for this bypass structure would substantially increase the environmental impacts at the beach compared to Alternative 2. In particular, the size of the construction footprint near the California Least Tern Natural Preserve Area and the length of time needed to construct and de-mobilize the repair effort during the non-breeding season would increase the potential for adverse effects to this endangered species. In addition, construction of the bypass structure would result in a significant and unavoidable impact to visual resources since the 55- foot tall line stops, 6-foot tall bypass structure, and dewatering tanks would be in place for 7 months on the Huntington State Beach. In addition, the dewatering discharge could impact the SAR currents which could affect beach goers on the beach and in the surfzone.

Alternative 2 would discharge to the Short Outfall for a period of 4 to 6 weeks. As noted in Chapter 4 of this Draft EIR, the short term use of the Short Outfall to discharge secondary treated effluent with enhanced disinfection would not significantly impact water quality, fish or benthic organisms. Nor would the temporary discharge adversely affect public health or have a high chance to result in beach closures. Alternative 2 would utilize a smaller footprint than Alternative 1 resulting in less disruption to biological resources.

As summarized in **Table 7-3**, due to the additional impacts associated with constructing the bypass structure compared to the limited effects of discharging to the Short Outfall for four to six weeks, Alternative 2 is the environmentally superior alternative.

Of the three Beach Box Rehabilitation Options A, B, or C, Option A would be the environmentally superior alternative since it requires the smallest staging area and would not require demolition of any parts of the existing Beach Box. Each option would include nighttime construction noise. However, the difference between Options A and C are slight. Option B would require demolition of the intermediate floor of the Beach Box which would result in slightly greater air emissions and noise.

7.9 Preferred Alternative

Alternative 1 would not meet four of the seven Project Objectives including to implement the Beach Box repair as soon as possible, to minimize disruption to residential communities and commercial areas, to minimize disruption to recreational uses and to minimize disruption to biological resources. Alternative 2 would meet all the Project Objectives and avoid the significant and unavoidable impact to visual resources and recreational beach access resulting from implementation of Alternative 1.

The Sanitation District's Preferred Alternative is Alternative 2. The preferred construction methodology to be implemented for the Beach Box rehabilitation is either Option A or C.

7.10 Results of Alternatives Screening for Key Environmental and Implementation Criteria

Table 7-4 provides a detailed comparison of Alternatives 1 and 2 that was used by the Sanitation District to assist in determining the preferred alternative. **Table 7-4** is divided into two sections: Key Environmental Criteria and Implementation Criteria. The analysis is consistent with the results of the Draft EIR which provides a comprehensive environmental review of all potential environmental effects summarized in **Table 7-3**. However, the Key Environmental Criteria in **Table 7-4** are intended to further distinguish or highlight environmental factors that were considered in establishing the Sanitation District's preferred alternative. In addition, to assist with evaluating the true impacts of the Alternatives, **Table 7-4** includes a comparison of Implementation Criteria, which are not expressly required by the CEQA Guidelines to be included in an EIR. These criteria are included here for purposes of evaluating overall impacts of the two Alternatives including safety, constructability, schedule and cost.

A scoring system has been employed to measure the two Alternatives. The scoring from 1 to 5 is based on a common sense evaluation of the criteria as it relates to Alternative 1 and 2 with the lowest score being the best. The results are meant to serve as an indicator of significance rather than a definitive, quantified conclusion. In addition, a weighting factor has been assigned to each category, to ensure distinguishing Project factors are adequately reflected in the results. The weighting system reflects the highest importance of public safety and protection of endangered species. The following sections provide a discussion on the derivation of the scores to that assisted the Sanitation District in determining a preferred alternative. The alternative screening summary below is provided in addition to the alternative analysis required under the *CEQA Guidelines.*

Key Environmental Criteria

Aesthetics/Lighting

The temporary bypass structure would be visible for 7 months under Alternative 1. This is considered a significant and unavoidable impact of Alternative 1 that would be avoided under Alternative 2. Otherwise, the nighttime construction would be of similar duration for both Alternatives since the Beach Box rehabilitation would require the same activities for each Alternative. Impacts to aesthetics are given a medium weighting score since they are nuisances but not impactful to public safety.

Air Quality/Emissions

Although neither Alternative 1 or 2 would emit significant amounts of air pollutants (including greenhouse gases), Alternative 1 would emit considerably more emissions since it would require 7 months of construction activities. Impacts to air emissions are given a low weighted score, since

the results are not impactful to public safety based on the SCAQMD daily emissions thresholds of significance. Alternative 2 would have a slightly lower score due to the short construction duration.

Biological Resources

Alternative 1 would encroach onto approximately 0.26 acres of the California Least Tern Natural Preserve Area and would affect 6.56 acres of habitat used by the endangered species. This potential effect is scored and weighted high due to the importance of protecting endangered species.

Hydrology and Water Quality

In order to implement the bypass structure under Alternative 1 dewatering at Huntington State Beach would be required. The dewatering could affect SAR water quality and would require a NPDES dewatering permit. This category is weighted due to the potential water quality impacts and the permitting requirements.

Marine Environment

Alternative 2 would discharge through the Short Outfall. Due to the full secondary treatment and enhanced disinfection provided the effluent, the discharge would not adversely affect water quality either within the zone of initial dilution or in the near shore water. This category is weighted high due to the importance of protecting public health during water contact activities.

Noise

Alternative 1 would require three more months of construction. Impacts to noise are given a medium weighting score, since noise impacts are nuisances but not impactful to public safety. Alternative 2 would have a slightly lower score due to the short construction duration.

Recreation/Beach Access/Bike Path

Alternative 1 would close the bikeways and beach access for 7 months as opposed to 6 weeks. Impacts to recreation are given a medium weighting score, since the effects are nuisances but not impactful to public safety. Alternative 1 has a higher weighted score than Alternative 2 due to the longer construction period.

Key Implementation Criteria

Permitting Requirements

Alternative 1 would require considerably more permits from resource and land use agencies. The effect is weighted medium since the impact mostly affects the Project cost and schedule but does not otherwise affect public safety or environmental quality. Alternative 1 has a higher weighted score than Alternative 2 due to the number of permits that must be required.

Constructability

Alternative 1 would require unearthing portions of the Long and Short Outfall and attaching two new 60-inch valves using a "hot-tapping" construction method. Although a proven technology that would achieve the desired result of connecting the bypass structure, construction is complex and there is inherent risk in conducting the procedure on a 40-year old, 10-foot diameter pipeline throughout a winter season. **Table 7- 4** acknowledges that the construction effort would be difficult, and that it elevates the construction risk compared with the rehabilitation activities needed for Alternative 2.The effect is weighted medium-to-low since the solution is technically feasible.

Alternative 2 has a lower weighted score than Alternative 1 since there is less complex construction.

Safety

Alternative 1 would be considerably more difficult, and with that difficulty would be more risky to worker safety. In addition, discharging up to 30 mgd to the SAR could create a hazard in near shore currents and the SAR. Due to the prolonged schedule, the risk of Beach Box failure increases with the additional two years of preparation time. This category is weighted high due to the importance of protecting worker and public safety and in protecting the Long Outfall system prior to an uncontrolled release. Alternative 1 has a higher weighted score than Alternative 2 due to safety issues related to the dewatering system.

Schedule

Alternative 1 would require considerably more time to implement. Manufacturing the bypass structure would require a year of lead time. The necessary permits may take over a year or longer. The effect is weighted medium since the impact to schedule does not in and of itself affect public safety. Alternative 1has a much higher weighted score than Alternative 2 due to the fact that it takes 2 more years to implement and would significantly delay the repairs to the Beach Box that are needed as soon as possible to minimize the possibility of system failure and potential spills.

Cost

Alternative 1 would be considerably more expensive. The effect is weighted medium since the cost does not affect public safety. Alternative 1 has a much higher weighted score than Alternative 2 as the cost difference is $17.5 M.

TABLE 7-4
SUMMARY OF ALTERNATIVE SCREENING RESULTS

Screening Criteria	Weighting Factor (1-5 multiplier)	Alternative 1			Alternative 2		
		Project Specifics	Score (1-5)	Weighted Score[a]	Project Specifics	Score (1-5)	Weighted Score[a]
Key Environmental Criteria							
Aesthetics/Lighting	1	• Nighttime lighting during rehabilitation work (4-6 weeks). • Industrial structure and construction activities on beach for 7 months. • Line stop reaches height of up to 55 feet and bypass structure up to 6 feet.	3	3	• Nighttime lighting during rehabilitation work (4-6 weeks). • No new structures above ground	2	2
Air Quality/Emissions	1	• Construction emissions for 7months.	2	2	• Construction emissions for 4-6 weeks.	1	1
Biological Resources	5	• Impacts to large area of least tern habitat and least tern preserve for 7 months. • Disruption near snowy plover wintering area for 7 months.	5	25	• Impacts to small area of least tern habitat for 4 to 6 weeks. • Disruption near snowy plover wintering area for 4 to 6 weeks.	3	15
Surfzone Water Quality/Public Health/Beach Closure	5	• Use of Long Outfall for discharge	1	5	• Use of Short Outfall for 4-6 weeks. • Low risk of beach water quality violations • Low risk of beach closures.	3	15
Noise	3	• Noise on beach 24hr/day; 7 days/week for a rehabilitation period of 4-6 weeks. • Noise on beach during day 8-hrs/day, 7 days/week for up to 7 months.	4	12	• Noise on beach 24hr/day;7 days per week for rehabilitation period of 4-6 weeks	2	6
Recreation/Beach Access/Bike Path	4	• Bike trail detour for 7 months. • Restricted access to large area of beach and surf for 7 months. • Dewatering 30 mgd could affect surf at SAR Mouth Beach requires beach closure - fencing, signage and security.	4	16	• Bike trail detour for 4-6 weeks. • Restricted access to small area of beach for 4-6 weeks. • No dewatering is required	2	8

Screening Criteria	Weighting Factor (1-5 multiplier)	Alternative 1 Project Specifics	Alternative 1 Score (1-5)	Alternative 1 Weighted Score[a]	Alternative 2 Project Specifics	Alternative 2 Score (1-5)	Alternative 2 Weighted Score[a]
Implementation Criteria							
Permitting Requirements	1	• USACOE – 404. • USFWS – Section 7. • State Parks – Use Permit for parking lot and beach. • State Lands Commission – encroachment. • CCC – CDP • CDFG – 1600, 2080. • RWQCB – 401, NPDES for dewatering. • County of Orange Flood Control – encroachment. • City of Huntington Beach – LCP CDP.	5	5	• City of Huntington Beach – LCP CDP. • State Parks – Use Permit for parking lot and beach • County of Orange Flood Control – encroachment	1	1
Constructability	1	• Complex construction project. • Two 60-inch diameter bypass pipelines and valves • Hot tapping Long Outfall full live pipe. • Dewatering up to 30 mgd may require placing velocity dissipator and/or pipes with baffles in river • Condition of Long Outfall System unknown	4	4	• No excavation or new structures. • Work within pipeline.	1	1
Safety	5	• Condition of pipelines and Beach Box unknown. • Dewatering discharge of 30 mgd could affect SAR current and could affect beach goers and surfers. • Completion date of March 2015 prolongs risk of Beach Box failure. • Confined space work.	4	20	• No new structures. • Confined space work.	1	5
Schedule	3	• 7 months of construction in 2014-2015 • Two years for design and fabrication of line stops • Delay in schedule could impact breeding least tern nesting season	5	15	• 4 months total construction in fall of 2012. • 4-6 weeks of actual rehabilitation work.	1	3
Cost	3	• Estimated at $23 million.	5	15	• Estimated at $5.5 million.	1	3
Total Score Weighted				**123**			**60**

[a] Scale of screening level is 1-5, the lower the score the more favorable the score. Weighting factor ranges from 1-5.

SOURCE: ESA, October 2011.

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CHAPTER 9
Acronyms

A.D.	Anno Domino
AB	Assembly Bill
AB 1493	Assembly Bill 1943
AB 1807	Assembly Bill 1807
AB 2588	Assembly Bill 2588
AB 32	Assembly Bill 32
AB 939	Assembly Bill 939
ACI	American Concrete Institute
ACOE	U.S. Army Corps of Engineers
AISC	American Institute of Steel Construction
Amsl	Above Mean Sea Level
APA	Administrative Procedure Act
APCD	Air Pollution Control District
AQMD	Air Quality Management District
ASBS	Areas of Special Biological Significance
ASCE	American Society of Civil Engineers
AST	Aboveground Storage Tank
Basin	South Coast Air Basin
BAU	Business As Usual
Beach Box	Ocean Outfall Beach Junction Box
BMP	Best Management Practice
BRI	Benthic Response Index
Business Plan Act	California Hazardous Materials Release Response Plans and Inventory Law
CAA	Clean Air Act
Cal/OSHA	California Occupational Safety and Health Administration

CalARP	California Accidental Release Prevention
CalEEMod	California Emissions Estimator Model
CalEPA	California Environmental Protection Agency
Caltrans	California Department of Transportation
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CAT	California Climate Action Team
CBC	California Building Code
CC	Coastal Conservation
CCA	California Coastal Act
CCAA	California Clean Air Act
CCC	California Coastal Commission
CCR	California Code of Regulations
CDC	California Department of Conservation
CDFG	California Department of Fish and Game
CDP	Coastal Development Permit
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
CESA	California Endangered Species Act
CFC	Halocarbon
CFR	Code of Federal Regulations
CFRP	Carbon Fiber Reinforced Polymer
CGS	California Geological Survey
CH4	Methane
CHL	California Historical Landmarks
CMP	Congestion Management Program
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CO	Carbon Monoxide

CO2	Carbon Dioxide
CO2e	CO2 equivalents
COP	California Ocean Plan
CRFP	Carbon Fiber Reinforced Polymer
CUPA	Certified Unified Program Agency
CWA	Clean Water Act
Cy	Cubic Yards
dB	Decibel
dBA	A-weighted Decibels
DDE	Dichlorodiphenyl Dichloroethylene
DDT	Dichloro Diphenyl Trichloroethane
Development Plan	General Development Plan
diesel PM	Diesel-Fueled Engines
DMP	Discharge Monitoring Plan
DNL	Day-night Average Sound Level
DO	Dissolved Oxygen
DPM	Diesel Particulate Matter
DPR	Department of Parks and Recreation
Draft EIR	Draft Environmental Impact Report
DTSC	Department of Toxic Substances Control
DWR	Department of Water Resources
EIR	Environmental Impact Report
EMFAC	Emission Factors
EPSA	Effluent Pump Station Annex
ERL	Effects Range Low
ERP	Emergency Response Plan
ESA	Endangered Species Act
ESHA	Environmentally Sensitive Habitat Areas
ESPA	Effluent Pump Station Annex
FCAA	Federal Clean Air Act
FCAAA	Federal Clean Air Act Amendments
FEMA	Federal Emergency Management Agency

FESA	Federal Endangered Species Act
FIP	Federal Implementation Plan
FTA	Federal Transit Administration
GHG	Green House Gas
GWP	Global Warming Potential
GWRS	Groundwater Replenishment System
H2O	Water Vapor
HAPs	Hazardous Air Pollutants
HBFD	Huntington Beach Fire Department
HCA	Health Care Agency
HCP	Habitat Conservation Plan
HDPE	High Density Polyethylene
HFC	Hydrofluorocarbon
HMD	Hazardous Materials Disclosure
HRI	Historic Resources Inventory
HWCL	Hazardous Waste Control Law
Hz	Hertz
IBC	International Building Code
ICS	Incident Command System
IERP	Integrated Emergency Response Program
IL	Industrial Limited
IRWD	Irvine Ranch Water District
ITI	Infaunal Trophic Index
JOS	Joint Outfall Sewer
KVP	Key Vantage Points
kW	Kilowatt
kWH	Kilowatt Hour
LCFS	Low Carbon Fuel Standard
LCP	Local Coastal Program
LOS	Level of Service
LUST	Leaking Underground Storage Tank
M&I	Municipal And Industrial

MATES-III	Multiple Air Toxics Exposure Study
MBTA	Migratory Bird Treaty Act
Metropolitan	Metropolitan Water District of Southern California
MGD	Million Gallons Per Day
MLD	Most Likely Descendant
MMI	Modified Mercalli Intensity
MMRP	Mitigation Monitoring and Reporting Program
MS4s	Municipal Separate Storm Sewer Systems
MSHCP	Multiple Species Habitat Conservation Plan
MWDOC	Municipal Water District of Orange County
N2O	N2O
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NCCP	Natural Community Conservation Plan
NEPA	National Environmental Policy Act
NESHAP	National Emission Standards for Hazardous Air Pollutants
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NO	Nitric Oxide
NO2	Nitrogen Dioxide
NOC	Notice of Completion
NOI	Notice of Intent
NOP	Notice of Preparation
NOx	Nitrogen Oxide
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
NRCS	National Resources Conservation Service
NSWA	Hazardous and Solid Waste Act
O_3	Ozone
OAL	Office of Administrative Law
OCFA	Orange County Fire Authority
OCFCD	Orange County Flood Control District

OCIWMD	Orange County Integrated Waste Management Department
OCTA	Orange County Transportation Authority
OCWD	Orange County Water District
OEHHA	Office of Environmental Health Hazard Assesment
OHM	Office of Hazardous Materials Safety
OHP	Office of Historic Preservation
OMP	Ocean Monitoring Program
OOBS	Ocean Outfall Booster Pump Station
OPR	Office of Planning and Research
OS-C	Open Space Conservation
OSHA	Occupational Safety and Health Administration of 1970
OS-S	Open Space Shore
OS-W	Open Space Water
OS-WR	Water Recreation Subdistrict
P	Public
PAH	Polycyclic Aromatic Hydrocarbons
PCB	Polychlorinated Biphenyls
PCH	Pacific Coast Highway
PFC	Perfluorocarbon
PHI	Points of Historical Interest
Plant 2	Treatment Plant No. 2
PM_{10}	Coarse Particulate Matter
$PM_{2.5}$	Fine Particulate Matter
PPV	Peak Particle Velocity
PR	Public Resources
PRC	Public Resources Code
proposed Project	Outfall Land Section and Ocean Outfall Booster Pump Station Piping
PSI	per square inch
Public Works Department	Huntington Beach Public Works Department
PUST	Permitted Underground Storage Tank
RA	Residential Agriculture

RCA	Regional Conservation Authority
RCP	Reinforced Concrete Pipe
RCRA	Resource Conservation and Recovery Act
RMS	Root Mean Square
ROG	Reactive Organic Gases
ROV	Remote Operate Vehicles
RTP	Regional Transportation Plan
RWQCB	Regional Water Quality Control Board
Sanitation District	Orange County Sanitation District
SAR	Santa Ana River
SB 211	Senate Bill 211
SB 610	Senate Bill 610
SB 97	Senate Bill 97
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCB	Southern California Bright
SCCIC	South Central Coastal Information Center
SCE	Southern California Edison
SDC A	Very Small Seismic Vulnerability
SDC E	Very High Seismic Vulnerability and Near A Major Fault
SDC	Seismic Design Category
SF6	Sulfur Hexafluoride
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SLF	Sacred Lands File
SO_2	Sulfur Dioxide
SO_X	Sulfur Oxide
SRA	Special Resources Areas
SVP	Society of Vertebrate Paleontology
SWLF	Solid Waste Landfill
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board

TACs	Toxic Air Contaminants
TDS	Total Dissolved Substances
THD	Total Dynamic Head
TMDL	Total Maximum Daily Load
TSCA	Toxic Substances Control Act
TSS	Total Suspended Solids
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	United States Geological Survey
UST	Underground Storage Tank
UWMP	Urban Water Management Plan
Vdb	Decibel Notation
VMT	Vehicle Miles Traveled
VOC	Volatile Organic Compound
WDR	Waste Discharge Requirement
ZID	Zone of Initial Dilution