Draft

ORANGE COUNTY SANITATION DISTRICT BIOSOLIDS MASTER PLAN PROJECT NO. PS15-01

Program Environmental Impact Report
State Clearinghouse Number 2017071026

Prepared for
Orange County Sanitation District

February 2018

ESA

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Acronym List

ACM	asbestos containing materials
ACTM	Airborne Toxic Control Measure
ADT	average daily traffic
Amsl	above mean sea level
AP Zone	Alquist-Priolo Earthquake Fault Zone
APCD	Air Pollution Control District
AQMD	Air Quality Management District
ASF	Age Sensitivity Factors
ATCM	Airborne Toxic Control Measure
AWWA	American Water Works Association
BACT	Best Available Control Technology
BFP	belt filter presses
BMP	Biosolids Master Plan
CAA	Clean Air Act
CAAWS	California Ambient Air Quality Standards
CAFE	Corporate Average Fuel Economy
CALARP	California Accidental Release Prevention
CalEEMod	California Emissions Estimator Model
CalRecycle	California Department of Resource Recycling and Recovery
CalTrans	California Department of Transportation
CARB	California Air Resources Board
CAT	California Climate Action Team
CBC	California Building Code
CCC	California Coastal Commission
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CDP	Coastal Development Permit
CDPH	California Department of Health
CEC	California Energy Commission
CEMA	California Emergency Management Agency
Cen Gen	Central Generation System
CEPT	chemically-enhanced primary treatment
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CGP	Construction General Permit
CGS	California Geologic Survey
CHRIS	California Historical Resources Information System
CI	compression ignition
CMAD	conventional mesophilic anaerobic digestion
CMP	Congestion Management Plan

CMPHS	Congestion Management Plan Highway System
CMU	Concrete Masonry Unit
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CO	carbon monoxide
CPUC	California Public Utilities Commission
CWA	Clean Water Act
DAF	Dissolved Air Flotation
dB	decibels
dBA	A-weighted decibels
DFF	Digester Feed Facility
DHS	California Department of Health Services
DOC	Department of Conservation
DPF	diesel particulate filters
DPM	diesel particulate emissions matter
DTSC	Department of Toxic Substances Control
EIR	Environmental Impact Report
EOP	Emergency Operations Plan
EPA	Environmental Protection Agency
ESC	Electric Service Center
ESHA	environmentally sensitive habitat area
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Maps
FMP	Facilities Master Plan
FTA	Federal Transit Administration
FVMC	Fountain Valley Municipal Code
FVSD	Fountain Valley School District
FVWU	Fountain Valley Water Utility
GAP	Green Acres Project
GHG	greenhouse gas
GVWR	gross vehicle weight rating
GWP	global warming potentials
GWRS	Groundwater Replenishment System
HAP	hazardous air pollutants
HBFD	Huntington Beach Fire Department
HBMC	Huntington Beach Municipal Code
HBPD	Huntington Beach Police Department
HBUHSD	Huntington Beach Union High School District
HCA	Health Care Agency
HCP	habitat conservation plan
HEX	Heat Exchangers
HFC	hydrofluorocarbons
HMBP	Hazardous Materials Business Plan
HMD	Hazardous Materials Disclosure
HP	horsepower

HRA	health risk assessments
HVAC	Heating, ventilation, and air conditioning
Hz	hertz
IBC	International Building Code
ICS	Incident Command System
IERP	Integrated Emergency Response Program
IGP	Industrial General Permit
IPaC	Information for Planning and Consultation
JOS	Joint Outfall Sewer
kV	kilovolts
LACM	Natural History Museum of Los Angeles County
LBP	lead-based paint
LCFS	Low Carbon Fuel Standard
LCP	local coastal programs
LGEMSP	Local Government Energy Management Services Program
LRBMP	Long Range Biosolids Management Plant
LUP	linear underground projects
LUST	Leaking Underground Storage Tank
MAD	Mesophilic anaerobic digestion
MATES IV	Multiple Air Toxics Exposure Study
MBTA	Migratory Bird Treaty Act
Mgd	million gallons per day
MLD	Most Likely Descendant
MMI	Modified Mercalli Intensity
MMRP	Mitigation Monitoring and Reporting Program
MMT	million metric tons
MPO	Metropolitan Planning Organization
MRF	Materials Recovery Facility
MT	metric tons
Mw	magnitude
MWDOC	Municipal Water District of Orange County
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NBP	National Biosolids Partnership
NCCP	Natural Communities Conservation Plan
NEHRP	National Earthquake Hazards Reduction Program
NFIP	National Flood Insurance Program
NH3	ammonia
NHTSA	National Highway Traffic Safety Administration
NMFS	National Marine Fisheries Service
NO2	nitrogen dioxide
NOP	Notice of Preparation
NOx	oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System
OCFA	Orange County Fire Authority

OCFCD	Orange County Flood Control District
OCHCA	County of Orange Health Care Agency
OCIWMD	Orange County Integrated Waste Management Department
OCSD	Orange County Sanitation District
OCWD	Orange County Water District
OEHHA	Office of Environmental Health Hazard Assessment
OHP	California Office of Historic Preservation
OSHA	Occupational Safety and Health Administration
OSSWMP	On-Site Stormwater Management Plan
PCB	polychlorinated biphenyls
PCH	Pacific Coast Highway
PEIR	Program Environmental Impact Report
PFC	perfluorocarbons
PM10	particulate matter with an aerodynamic diameter of 10 micrometers or less
PM2.5	particulate matter with an aerodynamic diameter of 2.5 micrometers or less
PPV	peak particle velocity
PPWD	Huntington Beach Public Works Department
PS	Primary Sludge
PSD	Prevention of Significant Deterioration
PW	plant water
RCNM	Roadway Construction Noise Model
RCRA	Resource Conservation and Recovery Act
RHNA	Regional Housing Needs Assessment
RMP	Risk Management Plan
ROG	reactive organic gases
RTP/SCS	Regional Transportation/Sustainable Communities
RW	reclaimed water
RWQCB	Regional Water Quality Control Board
SAAAB	Santa Ana Army Air Base
SALS	Steve Anderson Lift Station
SAR	Santa Ana River
SB	Senate Bill
SBF	Sludge Blending Facility
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCCIC	South Central Coastal Information Center
SCE	Southern California Edison
SF6	sulfur hexafluoride
SIP	State Implementation Plan
SLF	Sacred Lands File
SLM	Sound Level Meter
SO2	sulfur dioxide
SO3	sulfur trioxide
SoCAB	South Coast Air Basin
Sox	sulfur oxides

SR	State Route
SRA	source receptor areas
SSO	Source Separated Organics
SVP	Society of Vertebrate Paleontology
SWPPP	Storm Water Pollution Prevention Plan
TAC	Toxic Air Contaminants
TDS	total dissolved solids
THP	Thermal hydrolysis process
TMDL	Total Maximum Daily Load
TPAD	Temperature Phased Anaerobic Digestion
TRIP	Regional Transportation Improvement Program
TWAS	Thickened Waste Activated Sludge
UN/NF	Ultrafiltration/Nanofiltration
USACE	U.S. Army Corps of Engineers
USDOT	United States Department of Transportation
USFWS	U.S. Fish and Wildlife Service
UST	Underground Storage Tank
VDECS	Verified Diesel Emission Control Strategies
VMT	vehicles miles traveled
VOC	volatile organic compounds
WDR	Waste Discharge Requirements
WQO	water quality objectives
wtpd	wet tons per day

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EXECUTIVE SUMMARY

ES.1 Introduction

To comply with the California Environmental Quality Act (CEQA) of 1970, the Orange County Sanitation District (OCSD) has developed a Biosolids Master Plan (BMP) Program Environmental Impact Report (PEIR). The BMP would implement nine projects that are necessary to upgrade Plant No. 2 biosolids handling facilities, including a relocation of a collection yard to Plant No. 1. These nine projects would be implemented over the next 20 years and would provide for flexible and sustainable biosolids handling in the future. OCSD, as the Lead Agency, has prepared this Draft PEIR to provide the public and trustee agencies with information about the potential effects on the local and regional environment associated with implementation of the proposed activities under the BMP (proposed program). This Draft PEIR has been prepared in compliance with the CEQA (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.

ES.2 Background

OCSD 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. In 1971, the 120-inch diameter, 5-mile ocean outfall was installed and the 1-mile outfall was retained for emergency use only. Currently, OCSD treats approximately 185 million gallons of wastewater each day through two connected treatment plants located adjacent to the Santa Ana River (SAR): Treatment Plant No. 1 in Fountain Valley and Treatment Plant No. 2 in the City of Huntington Beach.

OCSD previously identified the need to repair or replace process equipment and perform structural rehabilitation on 18 aging digesters to maintain reliable operation at Plant No. 2. OCSD has concerns with the structural deterioration of the digester domes, as the digesters date back from 1959 through 1979 and were constructed either without protective liners or liners with a history of failure. Anticipating the need for structural improvements, including dome replacements for multiple digesters, OCSD moved forward with various structural/seismic hazard evaluation studies.

OCSD previously determined that the digesters at Plant No. 2 were in need of significant rehabilitation. Prior to commencing rehabilitation projects, OCSD initiated a study (SP-186) that identified liquefaction concerns and structural deficiencies of the existing infrastructure.

Assessments concluded that a seismic event could lead to several inches of settlement and structural failure for several digesters. The SP-186 study also evaluated and compared the costs associated with rehabilitating the existing digesters versus constructing new digesters to mitigate these seismic risks. Based upon these results, OCSD decided to replace the existing digesters and associated facilities. The purpose of the BMP is to evaluate and select the future digestion process and associated new infrastructure to replace the existing facilities.

In addition to addressing the structural integrity of existing biosolids handling facilities at Plant No. 2, the BMP provides a roadmap and framework for developing sustainable biosolids management options over a 20-year planning period.

ES.3 Program Objectives

The primary objectives of the proposed program are to:

- Replace aging facilities and mitigate the structural and seismic risks for onsite biosolids structures;
- Phase-out the diversion of biosolids organics as an alternative daily cover for landfills;
- Transition from Class B to Class A biosolids quality at Plant No. 2 to increase biosolids management diversity for end users of biosolids; and
- Receive pre-processed food waste (source separated organics) for co-digestion to assist in diverting organics from landfills and to increase digester gas production used as a renewable energy.

ES.4 Project Description

The proposed program consists of nine projects that are necessary to upgrade Plant No. 2 solid handling facilities to align with OCSD's goals and objectives. These nine projects would be implemented over the next 20 years. OCSD facilities are located in northwestern Orange County, California as depicted on **Figure ES-1**. All proposed projects would be located within OCSD Plant No. 1 and Plant No. 2 boundaries. Therefore, for purposes of this PEIR, the "program area" includes Plant No. 1 and No. 2 as seen in **Figure ES-2**. Plant No. 1 is located in the City of Fountain Valley and bound by Ellis Avenue to the north, Ward Street to the west, Garfield Avenue to the south, and the Santa Ana River (SAR) and SAR Trail to the east. Residential neighborhoods are located west of Ward Street. Plant No. 2 is located in the City of Huntington Beach and bound by a residential uses are located approximately 375 feet north of the intersection of Baybreeze Drive and Brookhurst Street to the north, Brookhurst Street and residential uses to the west, the Santa Ana River (SAR) and SAR Trail to the east, and Talbert Marsh, Pacific Coast Highway (PCH) and the Pacific Ocean to the south.

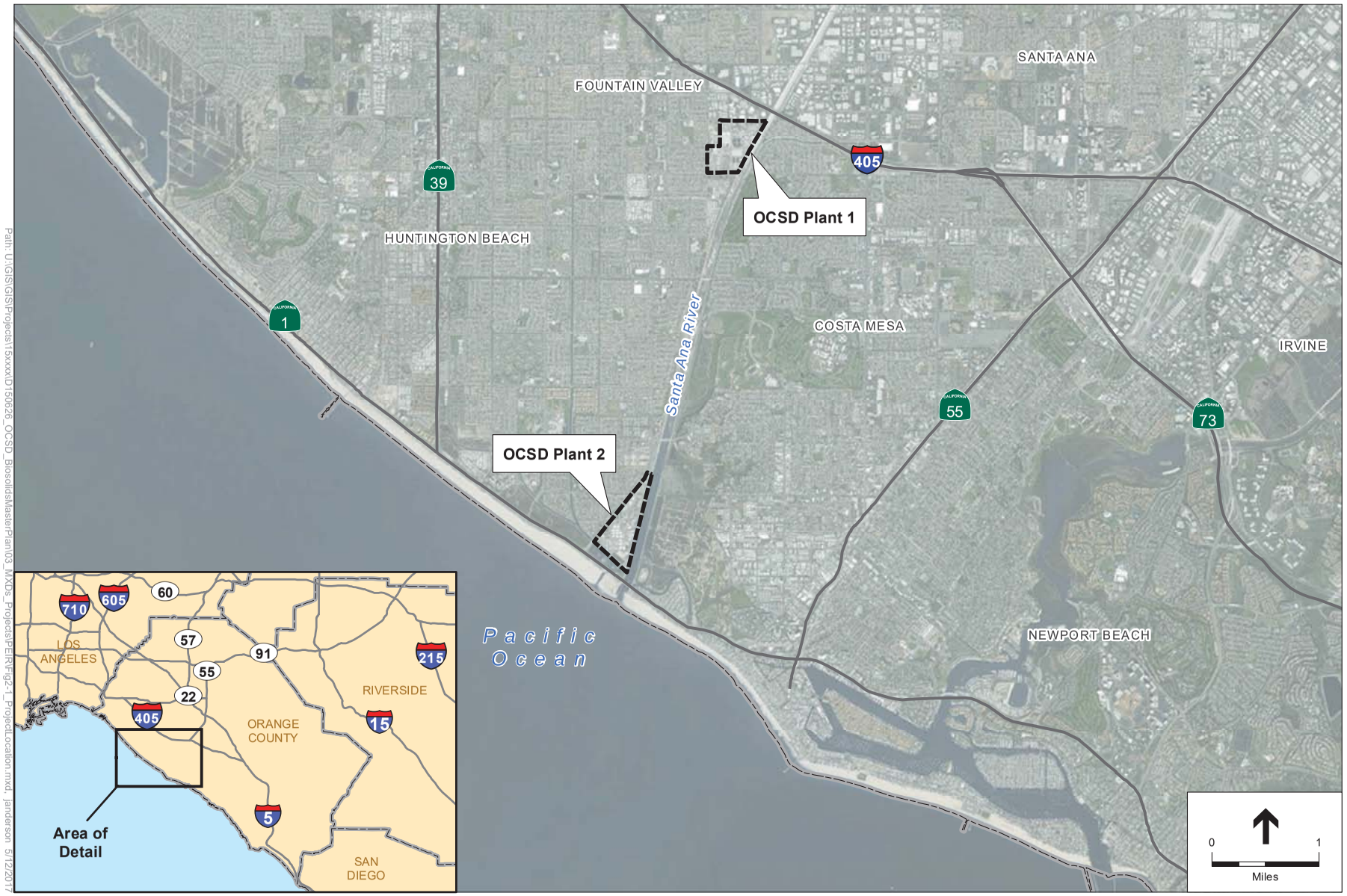
The majority of the proposed program components would be constructed entirely within the existing Plant No. 2 property. The proposed facilities would be implemented within the southwest corner of Plant No. 2 adjacent to the existing biosolids handling facilities. Within Plant No. 2, the proposed program area encompasses approximately 16 acres. Within Plant No. 1, the proposed program area encompasses approximately 2 acres.

Table ES-1 below summarizes the individual BMP projects. The area proposed to be graded as part of the proposed program is illustrated on **Figure ES-3** and **Figure ES-4**.

TABLE ES-1
OCSD BMP PROJECTS

OCSD Funding No.	Project No.	Project Name	Description	Construction Years
P2-125	P2-501	Plant No. 2 Southwest Perimeter Screening	P2-501 would improve or replace the perimeter screening to provide a visual buffer for all proposed facilities and associated construction activities along Brookhurst Street and Talbert Marsh. The perimeter screening would be extended along Brookhurst Street and up to approximately 1,030 feet along Talbert Marsh.	2019 to 2020
P2-124	P2-502	Interim Food Waste Receiving Facility	An interim food waste facility with a capacity up to 250 wet tons per day will be built to satisfy initial co-digestion needs. The food facility would include two 20,000-gallon tanks and ancillary facilities such as pumps and odor control treatment. The interim food waste facility will be replaced with an ultimate food waste facility (P2-506).	2018 to 2020
P2-126	P2-503A	Plant No. 2 Warehouse Relocation	The existing 21,000-sq. foot, above-grade warehouse would be demolished and then reconstructed at a new location on Plant No. 2 approximately 1,600 feet north of the existing facility.	2021 to 2023
P2-127	P2-503B	Plant 2 Collections Yard Relocation	The existing 38,000-sq. foot collections yard (parking lot) would be relocated, potentially to Plant No. 1. The specific location is not known at this time. The relocated collections yard would provide adequate space and truck paths to and from Plant No.1 or Plant No. 2, similar to the existing footprint.	2021 to 2023
P2-128	P2-504, 504A, 504B	Temperature Phased Anaerobic Digestion (TPAD) Digester Facility at Plant No. 2	This project would construct six 110-foot diameter, 40-foot tall (above ground) digesters designed to operate in either mesophilic or thermophilic operation, and TPAD sludge cooling facilities which include a pump station, ultrafiltration/nanofiltration facilities, sludge cooling heat exchangers, and a power building. All new digesters (pairs) would share an electrical control room that would house various pumps, fans, pipelines, and other ancillary facilities. Six 400,000-gallon, 37-feet above ground, Class A batch tanks would be constructed to produce Class A biosolids per Environmental Protection Agency (EPA) 503 regulations through batch holding over a specified time and temperature. The Class A batch tanks would require other ancillary equipment such as pumps, heat exchangers and grinders. The proposed 33-foot diameter, 30-foot high (above ground) Digester Feed Facility (DFF) would replace the existing Sludge Blending Facility where primary sludge and scum is blended and fed to the digesters. The DFF would include thickened sludge tanks, and ancillary facilities such as fans, grinders, pumps, and carbon and bioscrubbers.	2025 to 2030

OCSD Funding No.	Project No.	Project Name	Description	Construction Years
P2-129	P2-504C, P2-505	Digester P, Q, R, and S Replacement	P2-504C would relocate the existing ferric facility, which currently feeds three digester segments. The new structure would be 38 by 51 feet. The relocation will include all of the match pumps, tanks, and existing equipment.	2038 to 2040
			P2-505 would consist of the demolition of four existing digesters (P, Q, R, and S) and Power Building C. Digesters P, Q, R, and S will be rebuilt in place, two at a time. Digesters P, Q, R and S would have an inner diameter of 105 feet and height of 38 feet above ground.	2028 to 2033
P2-506	P2-506	Ultimate Food Waste Receiving Facility	Following operation of the interim food waste receiving facility (P2-502), P2-506 will allow for expansion of the Source Separated Organics (SSO) receiving program through construction of a larger capacity food waste receiving station to replace the interim facility. The ultimate food waste facility would include a total of four, 12-foot diameter, 30-foot tall 20,000 gallon tanks, recirculation and digester feed pumps, and odor control treatment carbon canisters.	2035 to 2037
P2-507	P2-507	Replace Digesters I, J, K (Relocate Digester Holders)	P2-507 would consist of the demolition of seven digesters (I, J, K, M, N, O, and T) and relocation of three digesters (I, J, and K) with a diameter of 84 feet and height of 37 feet (above ground). These new digesters would serve as mesophilic digesters and holders capable of operation as mesophilic digesters. An above-grade equipment room would be built between each pair of digesters. The equipment rooms would house ancillary facilities such as fans, pumps and pipelines. Each equipment room would be 40 feet by 50 feet and up to 40 feet in height above ground.	2033 to 2038
P2-508	P2-508	Digester Demolition	P2-508 demolishes the six remaining digesters, Digesters C, D, E, F, G, and H, to free up site footprint for future treatment process facilities.	2035 to 2040



SOURCE: ESA, ESRI.

OCSD Biosolids Master Plan . 150626

Figure ES-1
Program Location

SOURCE: ESA, ESRI.

OCSD Biosolids Master Plan . 150626

Figure ES-2
Program Area

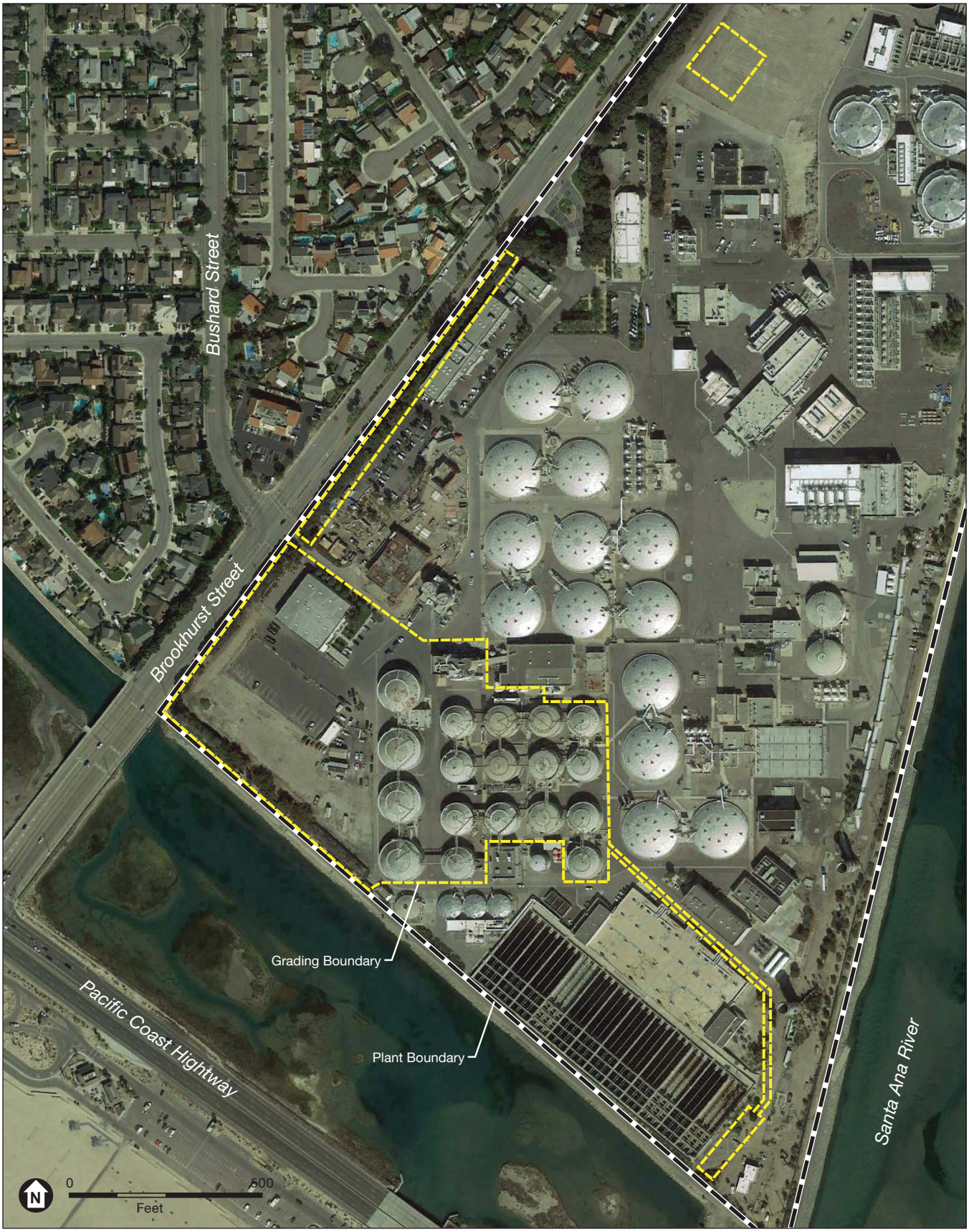
SOURCE: ESA, 2017

OCSD Biosolids Master Plan

Figure ES-3

Potential Grading Areas for Plant No. 1

ESA



SOURCE: ESA, 2017

OCSD Biosolids Master Plan

Figure ES-4

Proposed Grading Areas for Plant No. 2

ESA

ES.5 Summary of Impacts

Table ES-2 presents a summary of the impacts and mitigation measures identified for the PEIR. The complete impact statements and mitigation measures are presented in Chapter 3. 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 3. Significant impacts are those adverse environmental impacts that meet or exceed the significance thresholds; less than significant impacts do not exceed the thresholds. Table ES-2 indicates the measures that will avoid, minimize, or otherwise reduce significant impacts to a less than significant level.

The proposed program would 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, could result in potentially significant and cumulatively considerable hazard impacts to the public or the environment. However, mitigation measures have been incorporated in this Draft PEIR to avoid or minimize impacts associated with hazardous waste to less than significant. Further, potentially significant impacts to aesthetics, air quality, biological resources, and cultural resources have been identified at the program level. Mitigation measures have been incorporated in this Draft PEIR to avoid or minimize impacts associated with these resources to less than significant levels.

TABLE ES-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE BIOSOLIDS MASTER PLAN

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
3.1 Aesthetics			
Impact 3.1-1: The proposed program would have less than significant and less than cumulatively considerable effects on a scenic vista.	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.1-2: The proposed program would have a less than significant and less than cumulatively considerable impacts on the existing visual character or quality of the sites and their surroundings.	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.1-3: The proposed program could create new sources of substantial light or glare and could result in significant and cumulatively considerable adverse effects on day or nighttime views in the program area.	Potentially Significant	**AES-1:** All new permanent exterior lighting associated with proposed program components shall be shielded and directed downward to avoid any light intrusion to surrounding uses. **AES-2:** Development of the proposed program and associated facilities shall comply with existing and future lighting ordinances for the cities of Fountain Valley and Huntington Beach.	Less than Significant
3.2 Air Quality			
Impact 3.2-1: The proposed program could have significant and cumulatively considerable effects on implementation of the South Coast Air Quality Management Plan (AQMP) because the proposed program could conflict with or obstruct implementation of the AQMP.	Potentially Significant	**AQ-1:** Mobile off-road construction equipment (wheeled or tracked) used during construction of the individual projects of the proposed program shall meet the USEPA Tier 4 final standards, either as original equipment or equipment retrofitted to meet the Tier 4 final standards. A copy of each unit's certified tier specification or model year specification shall be available upon request at the time of mobilization of each applicable unit of equipment.	Less than Significant
Impact 3.2-2: The proposed program could have significant and cumulatively considerable effects because the proposed program could violate an air quality standard or contribute substantially to an existing or projected air quality violation.	Potentially Significant	Implementation of Mitigation Measure AQ-1 is required.	Less than Significant
Impact 3.2-3: The proposed program could result in a cumulatively considerable net increase of a criteria pollutant.	Potentially Significant	Implementation of Mitigation Measure AQ-1 is required. **AQ-2:** When grading activities associated with the nine projects of the proposed program occur within 50 meters of the nearest sensitive receptors, the number of scrapers active onsite is restricted to a maximum of 5 and the number of dozers is restricted to a maximum of 2.	Less than Significant
Impact 3.2-4: The proposed program could result in significant and cumulatively considerable effects associated with the exposure of sensitive receptors to substantial pollutant concentrations.	Potentially Significant	Implementation of Mitigation Measures AQ-1 and AQ-2 is required.	Less than Significant

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
Impact 3.2-5: The proposed program would result in less than significant and less than cumulatively considerable effects from the creation of objectionable odors affecting a substantial number of people.	Potentially Significant	**AQ-3**: OCSD shall ensure that contractors remove salvaged/demolished equipment associated with the proposed program from the treatment plants to minimize potential odors during the removal of existing facilities. Staging areas shall not be used to store salvaged/demolished equipment.	Less than Significant
3.3 Biological Resources			
Impact 3.3-1: The proposed program could have significant and cumulatively considerable effects on some avian species during nesting activities but would not have an adverse effect, either directly or through habitat modifications, on species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS.	Potentially Significant	**BIO-1:** If removal of onsite trees and vegetation associated with the proposed program occurs during the non-nesting season (September 1 to February 14 for songbirds; September 1 to January 14 for raptors), no nesting survey or biological monitor are required. If the removal of onsite trees and vegetation associated with the proposed program occurs during the nesting season (February 15 to August 31 for songbirds; January 15 to August 31 for raptors), a qualified biologist shall conduct a survey prior to vegetation removal activities to determine if there are active nests within the onsite trees and vegetation proposed for removal. If an active nest is not found, no biological monitor is required. If active nests are detected, a minimum buffer (e.g., 300 feet for songbirds or 500 feet for raptors) around the nest shall be delineated and flagged, and no construction activity shall occur within the buffer area until a qualified biologist determines the nesting species have fledged and is no longer active or the nest has failed. The buffer may be modified (i.e., increased or decreased) and/or other recommendations proposed (e.g., a temporary soundwall) as determined appropriate by the qualified biologist to minimize impacts. The qualified biologist shall monitor the removal of onsite trees and vegetation. Nest buffer distance will be based on species, specific location of the nest, the intensity of construction activities, existing disturbances unrelated to the proposed program present in the program area, and other factors. If grading/excavation or pile driving activities associated with the proposed program are scheduled outside the nesting season, no nesting survey or biological monitor are required. If grading/excavation or pile driving activities associated with the proposed program are scheduled during the nesting season, a qualified biologist shall conduct a survey, prior to grading/excavation or pile driving activities, of suitable nesting habitat within 500 feet of construction activities for the presence of nesting birds. If no active nests are detected, no biological monitor is required. If an active nest is detected, a minimum buffer (e.g., 300 feet for songbirds or 500 feet for raptors) around the nest shall be delineated and the active nest shall be flagged, and no construction activity shall occur within the buffer area until a qualified biologist determines the nesting species have fledged and is no longer active or the nest has failed. The qualified biologist shall monitor the activities of the active nests within the buffer area. The buffer may be modified (i.e., increased or decreased) and/or other recommendations proposed (e.g., a	Less than Significant

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		temporary soundwall) as determined appropriate by the qualified biologist to minimize impacts. Nest buffer distance will be based on species, specific location of the nest, the intensity of construction activities, existing disturbances unrelated to the proposed program present in the program area, and other factors. If there is a lapse of construction activities associated with the proposed program during the nesting season for seven days or more, an additional nesting bird survey shall be conducted to determine if a nest is present prior to construction activities resuming. The procedure identified above for no active nest and an active nest shall be followed.	
Impact 3.3-2: The proposed program would have less than significant and less than cumulatively considerable effects on the movement of species because the program would not 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.	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.3-3: The proposed program would have no effects and would not contribute to cumulative effects on biological resources because the program would not conflict with local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.	No Impact	No mitigation measures are required.	No Impact
3.4 Cultural Resources			
Impact 3.4-1: The proposed program would not result in a program impact or contribute to a cumulative impact on a historic resource because there are no historical resources as defined in CEQA Guidelines Section 15064.5 on or in the vicinity of the proposed program area.	No Impact	No mitigation measures are required.	No Impact
Impact 3.4-2: The proposed program could result in a significant and cumulatively considerable effect on an archaeological resource because the proposed program has the potential to cause a substantial adverse change in the significance of an archeological resource pursuant to Section CEQA Guidelines 15064.5.	Potentially Significant	**CUL-1:** Prior to start of grading or excavation activities associated with the proposed program and within Plant No. 1 and Plant No. 2, OCSD shall retain a qualified archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for archaeology (U.S. Department of the Interior 2008) to carry out all mitigation related to archaeological resources. **CUL-2:** Prior to start of grading or excavation activities associated with the proposed program and within Plant No. 1 and 2, the qualified archaeologist (or an archaeologist working under the direct supervision of the qualified archaeologist) shall conduct cultural resources sensitivity training for all construction personnel. Construction personnel shall be	Less than Significant

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		informed of the types of archaeological resources that may be encountered, the proper procedures to be enacted in the event of an inadvertent discovery of archaeological resources or human remains, and safety precautions to be taken when working with archaeological monitors. OCSD shall ensure that construction personnel are made available for and attend the training and retain documentation demonstrating attendance. **CUL-3:** Archaeological and Native American monitoring shall be conducted for grading or excavation activities associated with the proposed program at Plant No. 1 and Plant No. 2. Archaeological monitoring shall be conducted by an archaeologist familiar with the types of archaeological resources that could be encountered within the program area, and under the direct supervision of the qualified archaeologist. The frequency of monitoring shall take into account the rate of excavation and grading activities, the materials being excavated (native verses artificial fill soils and older verse younger soils), and the depth of excavation. The frequency of the monitoring shall be determined by the qualified archaeologist in consultation with the Native American monitor and in coordination with OCSD. The Native American monitor shall be selected from a tribe that is culturally and traditionally affiliated with the program area as indicated by the NAHC. In the event that archaeological resources are unearthed during ground-disturbing activities, the archaeological monitor and/or Native American monitor shall be empowered to halt or redirect ground-disturbing activities away from the vicinity of the discovery until OCSD, a qualified archaeologist, and a Native American monitor have evaluated the discovery and determined appropriate treatment (as prescribed in CUL-4). The archaeological monitor shall keep daily logs detailing the types of activities and soils observed, and any discoveries. After monitoring has been completed, the qualified archaeologist shall prepare a report that details the results of monitoring for submittal to OCSD, the South Central Coastal Information Center, and any Native American tribe that requests a copy. **CUL-4:** In the event of the unanticipated discovery of archaeological materials during grading or excavation activities associated with the proposed program, OCSD shall immediately cease all work activities in the area (within approximately 100 feet) of the discovery until it can be evaluated by the qualified archaeologist. Construction shall not resume until the qualified archaeologist has conferred with OCSD on the significance of the resource. In the event that preservation in place is determined to be infeasible and data recovery through excavation is the only feasible mitigation available, an Archaeological Resources Treatment Plan shall be prepared and implemented by the qualified archaeologist in consultation with OCSD that provides for the adequate recovery of the scientifically consequential information contained in the archaeological resource. OCSD shall consult with appropriate Native American representatives in determining treatment	

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		for prehistoric or Native American resources to ensure cultural values ascribed to the resource are considered.	
Impact 3.4-3: The proposed program could result in a significant and cumulatively considerable effect on a unique paleontological resource because the proposed program could directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.	Potentially Significant	**CUL-5:** Prior to start of excavation activities associated with the proposed program that exceed 10 feet in depth in previously undisturbed sediments, OCSD shall retain a qualified paleontologist meeting the Society for Vertebrate Paleontology (SVP) Standards (SVP 2010) to carry out all mitigation related to paleontological resources. The qualified paleontologist shall be selected from the list of County of Orange certified paleontologists. **CUL-6**: Prior to start of excavation activities associated with the proposed program that exceed 10 feet in depth in previously undisturbed sediments, , the qualified paleontologist, or his or her designee, shall conduct training for construction personnel regarding the appearance of fossils and the procedures for notifying paleontological staff should fossils be discovered by construction staff. OCSD shall ensure that construction personnel are made available for and attend the training and retain documentation demonstrating attendance. **CUL-7:** Paleontological resources monitoring shall be performed during excavation activities associated with the proposed program that exceed 10 feet in depth in previously undisturbed sediments by a qualified paleontological monitor (or cross-trained paleontological/archaeological monitor) meeting the standards of the SVP 2010 under the direction of the qualified paleontologist. The monitor shall have the authority to temporarily halt or divert work away from exposed fossils in order to recover the fossil specimens. The qualified paleontologist, based on observations of subsurface soil stratigraphy and/or other factors, may increase, reduce, or discontinue monitoring in coordination with OCSD, as warranted. If construction or other project personnel discover any potential fossils during construction, regardless of the depth of work, all work shall cease at that location (within 100 feet) until the qualified paleontologist has assessed the discovery and made recommendations as to the appropriate treatment and re-assessed the depth at which monitoring shall be required. **CUL-8**: In the event of a fossil discovery by the paleontological monitor or construction personnel associated with the proposed program, all work in the immediate vicinity of the find shall cease. The qualified paleontologist shall evaluate the find before restarting construction activity in the area. If it is determined that the fossil(s) is (are) scientifically significant, the qualified paleontologist shall recover significant fossils following standard field procedures for collecting **and curating** paleontological resources, as described by the SVP (2010).	Less than Significant

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
Impact 3.4-4: The proposed program could result in a significant and cumulatively significant effect on human remains because the proposed program could disturb human remains, including those interred outside of dedicated cemeteries.	Potentially Significant	**CUL-9:** If human remains are encountered during construction activities associated with the proposed program, OCSD or its contractor shall halt work in the vicinity (within 100 feet) of the find and contact the Orange County Coroner in accordance with PRC Section 5097.98 and Health and Safety Code Section 7050.5. If the County Coroner determines that the remains are Native American, the NAHC will be notified in accordance with Health and Safety Code Section 7050.5, subdivision (c), and PRC Section 5097.98. The NAHC will designate a Most Likely Descendant (MLD) for the remains per PRC Section 5097.98. Until the landowner has conferred with the MLD, OCSD shall ensure that the immediate vicinity where the discovery occurred is not disturbed by further activity, is adequately protected according to generally accepted cultural or archaeological standards or practices, and that further activities take into account the possibility of multiple burials.	Less than Significant
3.5 Geology, Soils, and Seismicity			
Impact 3.5-1: The proposed program would have a less than significant and less than cumulatively considerable effect on exposing people or structures to adverse geologic effects, including the risk of loss, injury or death involving strong seismic ground shaking, or seismic-related ground failure, including liquefaction.	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.5-2: The proposed program would have a less than significant impact and less than cumulatively considerable impacts from soil erosion or the loss of topsoil.	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.5-3: The proposed program would have a less than significant impact and less than cumulatively considerable instability impact because the program could be located on a geologic unit or soil that is unstable or that would become unstable as a result of the proposed program and potentially result in on-or off-site landslide, subsidence, or collapse.	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.5-4: The proposed program would have a less than significant impact and less than cumulatively considerable impact to life or property due to expansive soils or corrosive soils.	Less than Significant	No mitigation measures are required.	Less than Significant
3.6 Greenhouse Gas Emissions			
Impact 3.6-1: The proposed program would result in less than significant and less than cumulatively considerable effects associated with greenhouse	Less than Significant	No mitigation measures are required.	Less than Significant

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
gas emissions because the proposed program would not generate greenhouse gas emissions, either directly or indirectly, that would have a significant impact on the environment.			
Impact 3.6-2: The proposed program would result in less than significant and less than cumulatively considerable effects on a greenhouse gas plan because the proposed program would not conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.	Less than Significant	No mitigation measures are required.	Less than Significant
3.7 Hazards and Hazardous Materials			
Impact 3.7-1: The proposed program would have a less than significant and less than cumulatively considerable hazards to the public or the environment through the routine transport, use, or disposal of hazardous materials.	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.7-2: The proposed program would have less than significant and less than cumulatively considerable hazards to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.7-3: The proposed program would have less than significant and less than cumulatively considerable impacts from emitting hazardous emissions or handling hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.7-4: The proposed program would 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 result in potentially significant and cumulatively considerable hazard impacts to the public or the environment.	Potentially Significant	**HAZ-1:** Prior to the initiation of any construction requiring ground-disturbing activities associated with the proposed program, OCSD shall complete an environmental assessment of the proposed site to locate the potential for soil and groundwater contamination in the program area. The recommendations set forth in the site assessment shall be implemented to the satisfaction of applicable agencies before and during construction.. **HAZ-2:** If the site assessments determine that the site has contaminated soil and/or groundwater, a Soil and Groundwater Management Plan shall be prepared that specifies the method for handling and disposing of contaminated soil and groundwater prior to demolition, excavation, and construction activities. OCSD shall be responsible for ensuring implementation of the Plan in compliance with applicable regulations.	Less than Significant

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
Impact 3.7-5: The proposed program would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan, and as a result would result in less than significant and less than cumulatively considerable emergency impacts.	Less than Significant	No mitigation measures are required.	Less than Significant
3.8 Hydrology and Water Quality			
Impact 3.8-1: The proposed program would have less than significant and less than cumulatively considerable water quality impacts when compared to water quality standards or waste discharge requirements or related to water quality degradation.	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.8-2: The proposed program would have less than significant and less than cumulatively considerable groundwater impacts due to potentially depleting groundwater supplies or interfering with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level.	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.8-3: The proposed program would result in less than significant and less than cumulatively considerable impacts due to potentially altering the existing drainage pattern of a site or area, including the alteration of the course of a stream or river, in a manner that would result in substantial erosion, siltation, or flooding on-or off-site.	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.8-4: The proposed program would have less than significant and less than cumulatively considerable flooding impacts on structures because the program would not place the proposed structures within a 100-year flood hazard area structures that could impede or redirect flood flows.	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.8-5: The proposed program would have less than significant and less than cumulatively considerable impacts from the exposure of 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.	Less than Significant	No mitigation measures are required.	Less than Significant

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
Impact 3.8-6: The proposed program could have significant and cumulatively considerable impacts from the exposure of people or structures to a significant risk of loss, injury, or death involving inundation by seiche, tsunami, or mudflow.	Less than Significant	No mitigation measures are required.	Less than Significant
3.9 Land Use and Planning			
Impact 3.9-1: The proposed program would have no impact and would not contribute to a cumulative environmental impact associated with an applicable land use plan, policy, or regulation of an agency with jurisdiction over the program.	No Impact	No mitigation measures are required.	No Impact
3.10 Noise			
Impact 3.10-1: The proposed program would result in less than significant and less than cumulatively considerable noise impacts resulting from the 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.	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.10-2: The proposed program would result in less than significant and less than cumulatively considerable vibration impacts resulting from the exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.10-3: The proposed program would have a less than significant and less than cumulatively considerable impact resulting from permanent increases in ambient noise levels in the program vicinity above levels existing without the program.	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.10-4: The proposed program would result in a less than significant and less than cumulative considerable impact regarding the temporary or periodic increase in ambient noise levels in the program vicinity above levels existing without the program.	Less than Significant	No mitigation measures are required.	Less than Significant
3.11 Traffic and Transportation			
Impact 3.11-1: Implementation of the proposed program would have a less than significant impact and less than cumulatively considerable impact on an applicable plan, ordinance, or policy	Less than Significant	No mitigation measures are required.	Less than Significant

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
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.			
Impact 3.11-2: Implementation of the proposed program would have a less than significant impact and less than cumulatively considerable impact on an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards and travel demand measures, or other standards established by the county congestion management agency for designated road or highways.	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.11-3: The proposed program would have a less than significant impact and less than cumulatively considerable emergency access impact.	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.11-4: The proposed program would have a less than significant impact and a less than cumulatively considerable impact on adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance of safety of such facilities.	Less than Significant	No mitigation measures are required.	Less than Significant
3.12 Tribal Cultural Resources			
Impact 3.12-1: Implementation of the proposed program would not have an impact or contribute to a cumulative impact on a tribal cultural resource defined in Public Resources Code section 21074.	No Impact	No mitigation measures are required	No Impact
3.13 Utilities, Service Systems, and Energy			
Impact 3.13-1: The proposed program would have less than significant and less than cumulatively considerable effects regarding wastewater treatment requirements of the applicable Regional Water Quality Control Board.	Less than Significant	No mitigation measures are required.	Less than Significant

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
Impact 3.13-2: The proposed program would have less than significant and less than cumulatively considerable environmental effects from the construction of new stormwater drainage facilities or expansion of existing facilities.	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.13-3: The proposed program would have less than significant and less than cumulatively considerable effects from new or expanded water supply resources or entitlements.	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.13-4: The proposed program would have a less than significant impact and less than cumulatively considerable impacts on solid waste disposal facilities.	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.13-5: The proposed program would have a less than significant impact and less than cumulatively considerable impacts associated with solid waste federal, state, and local statutes and regulations.	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.13-6: The proposed program would improve methane capture and on-site energy generation and would not increase OCSD's total energy consumption. The program would not impact local and regional energy supplies, and would result in less than significant and less than cumulatively considerable impacts associated with energy supplies and consumption.	Less than Significant	No mitigation measures are required.	Less than Significant

ES.6 Areas of Known Controversy

Pursuant to Section 15123(b)(2) of the *CEQA Guidelines,* a lead agency is required to include areas of controversies raised by agencies and the public during the public scoping process in the EIR. Areas of controversy have been identified for the PEIR based on comments made during the 30-day public review period in response to information published in the NOP. Commenting parties have expressed concern for visual impacts, odor, and noise. These issues have been considered during preparation of this Draft PEIR.

ES.7 Significant Irreversible Environmental Changes

Public Resources Code Section 21100(b)(2) and CEQA Guidelines Section 15126.2(b) require that any significant effect on the environment that would be irreversible if the proposed program is implemented must be identified. Construction and operation of the individual projects, that are part of the proposed program, would require the use and consumption of nonrenewable resources, such as steel and other metals. Renewable resources, such as lumber and other wood byproducts, would also be used. Unlike renewable resources, nonrenewable resources cannot be regenerated over time. Construction of facilities would require the commitment of a relatively small amount of building materials. The small quantity of building materials used during implementation of proposed facilities that are part of the proposed program would result in a less than significant impact because these types of resources are anticipated to be in adequate supply into the foreseeable future.

Energy would be consumed during both construction and operation of the proposed program. Nonrenewable resources and energy would also be consumed during the manufacturing and transportation of building materials, preparation of the site, and construction and site restoration activities. The proposed program would not result in the wasteful, inefficient or unnecessary consumption of energy during construction or operation. The proposed program would result in the irretrievable and irreversible commitment of energy resources in the form of diesel fuel, gasoline and electricity during construction and operation. However, these types of resources are anticipated to be in adequate supply into the foreseeable future. Further, the proposed Interim and Ultimate Food Waste facilities would introduce SSO food waste to future digester operation. This food waste would increase the amount of organic matter being digested and increase the amount of biogas being released which would be captured and sent to the Plant No. 2 Cen Gen facility to be converted to energy. This increase in energy generated would offset any energy needs required by new facilities proposed within the BMP. Therefore, impacts due to these irretrievable and irreversible commitments of resources are considered less than significant.

ES.8 Program Alternatives

In accordance with *CEQA Guidelines* (Section 15126.6), an EIR must describe and compare a range of reasonable alternatives to a project, or alternative locations for a project, that could feasibly attain most of the basic project objectives but avoid or substantially lessen any significant environmental impacts associated with the project. An EIR must consider a reasonable range of feasible alternatives to facilitate informed decision making and public participation. An EIR need not consider every conceivable alternative to a project and is not required to consider alternatives

which are infeasible. The lead agency shall select a range of project alternatives and disclose its reasoning for selecting those alternatives.

Overview of Alternatives Process

In the development of the Draft BMP, OCSD conducted an extensive review of alternative markets and technologies to achieve biosolids handling objectives. The process began with selecting the most viable product and market pairings to be coupled with onsite treatment technologies. Biosolids market criteria were established based off the following scenarios: whether or not the market was realistic and/or proven; how large the market size was; if the market had proven value; the future market capacity; resiliency to regulatory change associated with biosolids; and year-round dependability.

Biosolids products were evaluated on the following criteria: management costs; marketability; product safety and reliability; compatibility with OCSD's biosolids management goals, policy, and operations; regulatory requirements; carbon footprint; potential impacts from negative side streams and emissions; and enhancement of community relations. Once the criteria were established for the products, OCSD established weights for each criterion to reflect the most important factors in creating a successful biosolids end-use program. **Table ES-3** summarizes the results of the end use product and market screening process. These results are detailed in Technical Memorandum 3 of the BMP.

TABLE ES-3
BEST RANKED PRODUCTS AND MATERIALS

Product	Highest-Scoring Markets (by Product)
Class A Compost	Soil Blending
	Bulk Agriculture, California
	Bulk Agriculture, Arizona
	Bulk Horticulture/Landscaping
	Distribution as Bagged Product
	Golf Course and Other Specialty
Class B Cake	Bulk Agriculture, Arizona
Class A Cake	Bulk Agriculture, California
	Bulk Agriculture, Arizona
	Land Reclamation
Class A THP Soil Blend	Bulk Horticulture/Landscaping
Class A THP Cake	Bulk Agriculture, California
	Soil Blending
	Land Reclamation
Class A Soil Blend	Bulk Horticulture/Landscaping

Product	Highest-Scoring Markets (by Product)
Class A High Quality Granule	Bulk Agriculture, California
	Bulk Agriculture, Arizona
	Bulk Horticulture/Landscaping
	Distribution as a Bagged Product
	Fertilizer Blending
Partially Dried Class B Cake	Bulk Agriculture, Arizona
Class A Partially Dried Cake	Bulk Agriculture, Arizona
	Bulk Agriculture, California
Class A THP Partially Dried Product	Bulk Agriculture, California
	Bulk Agriculture, Arizona
	Soil Blending
	Bulk Horticulture/Landscaping
	Land Reclamation

NOTES:
Class A – Class A Biosolids are dewatered and heated sewage sludge that is not allowed to have detectable pathogens, it meets pollutant concentration limits for Biosolids and meets vector attraction reduction requirements.
Class B – Class B Biosolids are treated sewage sludge that is allowed to have detectable pathogens and have restrictions for its application on land used for harvesting crops and turf.
THP – Thermal hydrolysis process

Following the assessment of realistic market end uses, OCSD conducted an evaluation of technology alternatives available to produce products that are part of a flexible, reliable and cost effective marketplace. A detailed alternatives screening was conducted. The technologies evaluated included the following:

Thickening Technologies

- Primary clarifier thickening (for primary sludge only)
- DAFT thickening (for secondary sludge only)
- Centrifuge thickening (combined sludge)

Digestion Technologies

- Class B Mesophilic anaerobic digestion (MAD)
- Class B Staged MAD
- Class A or B thermophilic anaerobic digestion
- Class A or B temperature phased anaerobic digestion (TPAD)
- Class A Thermal hydrolysis process (THP)

Post-dewatering Technologies

- Thermal drying – Rotary drum drying with high quality Class A granules

- Partial drying – Paddle or belt dryer with cake blending to yield partially dried Class A or B product

These technology alternatives were further evaluated along the following criteria:

1. End use market compatibility
2. Proven technology performance
3. Energy/resource recovery
4. Operations and Maintenance (O&M) impacts
5. Safety impacts
6. Environmental impacts
7. Community impacts
8. Flexibility
9. Project site compatibility

The alternatives screening process resulted in the selected alternative that included: Class B mesophilic digestion, Class A TAD, Class A TPAD, and Class A THP with mesophilic digestion. No thickening technologies or post-dewatering technologies other than the existing technologies at both Plant No. 1 and Plant No. 2 were considered because these existing technologies were preferred to remain. The alternative digestion technologies had scoring differences. The BMP originally considered ten different digestion technologies. Based on an initial non-economic criteria evaluation, the ten technologies were reduced to the five digestion technologies listed above. A conceptual design was then performed for the digestion technologies in order to develop conceptual cost estimates (capital and operational and maintenance) for these alternatives. A second detailed non-economic evaluation of the combined technology-product alternatives then led to a ranking of these digestion alternatives. Based on the economic and non-economic analysis of each alternative technology, it was recommended that 6 new thermophilic digesters and a design basis of TPAD be adopted for implementation at Plant No. 2.

Program Alternatives

Three alternatives were selected for detailed analysis. The goal for selecting these alternatives is to identify alternatives that would avoid or lessen the significant environmental effects of the program, while attaining most of the program objectives. A general description of each alternative to the proposed program is provided below.

Alternative 1: No Program Alternative

- An analysis of the No Program Alternative is required under CEQA Guidelines Section 15126.6(e). According to Section 15126.6(e)(2) of the CEQA Guidelines, the "no program" analysis shall discuss:

  > *what is 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.*

The No Program Alternative represents a "no build" scenario in which the proposed program would not be constructed or operated. It assumes that all proposed facilities along with other elements of the program would not be implemented and no program components would be constructed. Under the No Program Alternative, OCSD would continue to treat wastewater at Plant No. 1 and Plant No. 2. There would be no change in the type of biosolids handling facilities being used and no updates to the efficiency of the technology, structural integrity of the structures, or diversification of biosolids end-uses.

Alternative 2: Baseline, Mesophilic Digestion, Class B

- The Baseline, Mesophilic Digestion, Class B Alternative represents a scenario in which the proposed program facilities associated with the TPAD process would not be constructed or operated. This alternative would not construct the following facilities that are included in the proposed program: six, new thermophilic digesters; Class A batch tanks; Digester Feed Facility, and TPAD Sludge Cooling facilities. These specific facilities are contained within the following proposed projects: P2-504/504A/504B, TPAD Digester Facility at Plant No. 2.

Furthermore, project P2-503A, Plant No. 2 Warehouse Relocation and P2-503B, Plant No. 2 Collections Yard Relocation would not be implemented. These projects were proposed as part of the proposed program to provide space for the construction and operation of the thermophilic digesters and Class A batch tank facilities.

Alternative 2 would implement project P2-124 and P2-506, which include the construction and operation of food waste facilities. In addition, Alternative 2 would implement project P2-505, Digester P, Q, R, and S Replacement. The four existing mesophilic digesters would be demolished and reconstructed to current California Building Code standards in order to address existing structural impairments. Furthermore, the remaining digesters (L, M, O, T, J, K, N, I, E, H, C, F, and G) would be demolished and rebuilt at the same location as they require extensive structural modifications and ground improvements to mitigate potential seismic risks. Digester D would be demolished and relocated to the west side of Digester S. This would be necessary to ensure that no digesters or other facilities would be constructed and operated on a fault line (as shown in Figure 3.5-1).

A total of 10 acres would be graded for Alternative 2. Under Alternative 2, OCSD would continue to treat wastewater at Plant No. 2 with mesophilic digestion and would continue to produce Class B biosolids. There would be no change in the type of biosolids handling facilities being used and no diversification of biosolids end-uses. However, this alternative would allow for the mitigation of structural and seismic risk for onsite biosolids at Plant No. 2 facilities over time. This alternative would meet two of the four objectives of the proposed program: the Alternative would not meet the objective to phase out the diversion of biosolids used as daily cover for landfills, nor would it support the transition from Class B to Class A biosolids.

Alternative 3: Proposed Program Without Food Waste Facilities

- The Reduced TPAD Alternative represents the proposed program without the incorporation of food waste facilities. This alternative would not construct the proposed Interim and Ultimate food waste receiving and ancillary facilities. These facilities are contained within

the following individual projects: P2-502 Interim Food Waste Facility, and P2-506 Ultimate Food Waste Facility.

Under Alternative 2, OCSD would transition into treating wastewater at Plant No. 2 with thermophilic digestion and would begin to produce Class A biosolids. This alternative would change the type of biosolids handling facilities being used, update the efficiency of the technology, and diversify biosolids end-uses. However, this alternative would not receive pre-process food waste (source separated organics) for co-digestion to assist in diverting organics from landfills. This alternative would meet three of the four objectives of the proposed program. It would not accommodate the object to receive pre-processed food waste for co-digestion.

A total of 16.5 acres would be graded for Alternative 3. Because the food waste facilities would not be implemented under Alternative 2, the amount of excavation and grading would be reduced. By not implementing the new food waste facilities, there would be a reduction in the total amount of cubic yards of soil that would need to be excavated. Furthermore, trucks would no longer need to enter Plant No. 2 to deliver the pre-process food waste.

The addition of SSO to the digestion process increases the amount of biogas generated that can be captured, converted, and used as energy to operate facilities on Plant No. 2. Alternative 3 would not incorporate SSO (food waste), and therefore, digestion would result in less biogas being generated. Although less biogas would be generated, this alternative would not require offsite energy for the proposed facilities.

Environmentally Superior Alternative

CEQA requires that an EIR identify an environmentally superior alternative of a project other than the No Project Alternative (CEQA Guidelines Section 15126.6(e)(2)). Table 5-3 shows an impact determination comparison for potentially significant impacts of the proposed program to all the proposed program alternatives. The following is a summary of the impacts associated with each proposed program alternative compared to the proposed program.

The No Program Alternative (Alternative 1) would reduce or eliminate most proposed program impacts, but it would result in new potentially significant impacts that could result from aging equipment including process malfunctions and inefficiencies that could result in geologic hazards, hazardous material spills, increased energy usage, and increased air emissions.

Alternative 2 would reduce but not eliminate potential significant impacts of the proposed program. By not implementing all individual projects within the proposed program, there would be a reduction in the total amount of construction; therefore, impacts to air quality, cultural resources, and other environmental resources would be proportionately reduced. However, the transition from Class B biosolids to Class A biosolids ultimately results in a reduction of vehicle miles traveled (VMT) because Class A biosolids can be transported to closer end-users. Alternative 2 would result in continuation of Class B biosolids being generated and transported to end-users in Arizona. Alternative 2 would not decrease the amount of VMT; therefore, the amount of truck trips/VMT would stay the same as existing conditions and have a potentially greater impact on greenhouse gases and traffic than the proposed program. Alternative 2 would meet three of the four proposed program objectives; however, it would not meet the objective of

transitioning from Class B to Class A biosolids quality at Plant No. 2 and would not be able to increase biosolids management diversity for end users of biosolids.

Alternative 3 would reduce but not eliminate potential significant impacts of the proposed program. By not implementing all individual projects within the proposed program, there would be a reduction in the total amount of construction; therefore, impacts to air quality, cultural resources, and other environmental resources would be proportionately reduced. However, the inclusion of food waste facilities significantly increases the amount of renewable energy that can be used for Plant No. 2 facilities. Alternative 3 would not generate as much biogas as the proposed program and therefore could result in a potentially greater impact on energy. Alternative 3 would meet three of the four proposed program objectives; however, it would not meet the objective of receiving pre-processed food waste for co-digestion to assist in diverting organics from landfills and to increase digester gas production used as a renewable energy.

Based on the comparative analysis provided in Section 5.6 above, Alternative 2 (Baseline, Mesophilic Digestion, Class B Alternative), would result in less significant environmental effects compared to the proposed project and other alternatives. Alternative 2 would lessen the proposed program's environmental impacts in areas such as aesthetics, air quality, biological resources, cultural resources, geology, soils and seismicity, greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality, noise and vibration, traffic and transportation, tribal cultural resources, and utilities and service systems. This alternative would be the environmentally superior alternative. Alternative 2 would meet three of the four proposed program objectives, but it would not meet the objective of transitioning from Class B to Class A biosolids quality at Plant No. 2, and would not be able to increase biosolids management diversity for end users of biosolids.

ES.9 Organization of this PEIR

This Draft PEIR has been organized into the following chapters:

ES. Executive Summary. This chapter summarizes the contents of the Draft PEIR.

1. Introduction. This section discusses the CEQA process and the purpose of the Draft PEIR.

2. Project Description. This section provides an overview of the proposed program, describes the need for and objectives of the proposed program, and provides detail on the characteristics of the proposed program.

3. Environmental Setting, Impacts and Mitigation Measures. This chapter describes the environmental setting and identifies impacts of the proposed program for each of the following environmental resource areas: Aesthetics; Air Quality; Biological Resources; Cultural Resources; Geology and Soils; Greenhouse Gas Emissions; Hazards and Hazardous Materials; Hydrology and Water Quality; Land Use and Planning; Noise; Population and Housing; Traffic and Transportation; Tribal Cultural Resources and Utilities, Service Systems, and Energy. Measures to mitigate the impacts of the proposed program are presented for each resource area.

4. **Other CEQA Sections.** This chapter describes the effects that were found not to be significant and those that were found to be significant and unavoidable. In addition, this section discusses the significant irreversible environmental changes and growth-inducing impacts associated with the program.

5. **Alternatives Analysis.** This chapter presents an overview of the alternatives development process and describes the alternatives to the proposed program that were considered.

6. **Report Preparation.** This chapter identifies the key staff at OCSD and the authors involved in preparing this Draft PEIR.

CHAPTER 1
Introduction

1.1 Introduction

To comply with the California Environmental Quality Act (CEQA), the Orange County Sanitation District (OCSD) has developed a Biosolids Master Plan (BMP) Program Environmental Impact Report (PEIR). The BMP would implement nine projects that are necessary to upgrade Plant No. 2 biosolids handling facilities, including a relocation of a collection yard to Plant No. 1. These nine projects would be implemented over the next 20 years and would provide for flexible and sustainable biosolids handling in the future. OCSD, as the Lead Agency, has prepared this Draft PEIR to provide the public and trustee agencies with information about the potential effects on the local and regional environment associated with implementation of the proposed activities under the BMP (proposed program). This Draft PEIR has been prepared in compliance with CEQA (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.

1.2 Purpose of the Environmental Impact Report

This PEIR has been prepared to address the potential environmental impacts associated with implementing the proposed program. Since the BMP consists of numerous planning initiatives that involve implementation of projects over a long time period, a Program EIR (PEIR) has been prepared. The *CEQA Guidelines*, Section 15168, states that a PEIR may be used to evaluate a plan or program that has multiple components (projects and actions) or addresses a series of actions that are related:

- Geographically;
- As logical parts in the chain of contemplated actions;
- In connection with the issuance of rules, regulations, plans, or other general criteria to govern the conduct of a continuing program; or
- As individual activities carried out under the same authorizing statutory or regulatory authority and having generally similar environmental affects that can be mitigated in similar ways.
- A PEIR can provide the following additional advantages:
- Provide for a more exhaustive consideration of effects and alternatives than would be practical in an EIR on an individual action;

- Ensure consideration of cumulative impacts that might not be evident in a case-by-case or project-by-project analysis;
- Avoid duplicative consideration of basic policy issues;
- Allow the lead agency to consider broad policy alternatives and program-wide mitigation measures early in the process when the agency has greater flexibility to deal with basic problems or cumulative impacts; and
- Facilitate a reduction in paperwork.

A PEIR may be prepared for a plan before the details of each and every project within the long-term plan have been developed. For the proposed program, various supporting initiatives are in the concept development or planning phase. The PEIR analysis is not intended to focus on the site-specific construction and operation details of individual actions. Rather, this PEIR serves as a first-tier environmental document that focuses on the overall effects of implementing the proposed program as a plan with some project-level detail, to provide for future biosolids handling of Orange County.

1.3 CEQA Environmental Review Process

1.3.1 CEQA Process Overview

The basic purposes of CEQA are to (1) inform the public and governmental decision makers regarding potential significant environmental effects of proposed activities, (2) identify ways in which potential environmental damage can be avoided or significantly reduced, (3) prevent significant, avoidable environmental damage by requiring changes in projects through the use of alternatives or mitigation measures, and (4) disclose to the public the reasons why a governmental agency approved the project if significant environmental effects are involved.

An Environmental Impact Report (EIR) should use a multidisciplinary approach applying social and natural sciences to provide a qualitative and quantitative analysis of all the foreseeable environmental impacts that a proposed project would exert on the surrounding area. As stated in *CEQA Guidelines* Section 15151:

> *An EIR should be prepared with a sufficient degree of analysis to provide decision-makers with information which intelligently takes account of environmental consequences. An evaluation of the environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in the light of what is reasonably feasible.*

This PEIR was prepared to comply with CEQA regulations and is to be used by local regulators and the public in their review of the potential environmental impacts of the proposed program, alternatives, and mitigation measures that would minimize or avoid the potential environmental effects. OCSD will consider the information presented in this PEIR, along with other factors, prior to approving the BMP and related projects for implementation.

1.3.2 Notice of Preparation

On July 14, 2017, in accordance with Sections 15063 and 15082 of the *CEQA Guidelines*, the OCSD published a Notice of Preparation (NOP) of a Draft PEIR, and circulated it to governmental agencies, organizations, and persons who may be interested in this program. The NOP requested comments on the scope of the Draft PEIR, and asked that those agencies with regulatory authority over any aspect of the program describe that authority. The comment period extended through August 13, 2017. The NOP provided a general description of the proposed program, a description of the proposed program area, and an Initial Study. A copy of the NOP, Initial Study, and responses to the NOP are included in this Draft PEIR in **Appendix A**. Four comment letters were received in response to the NOP. Specific environmental concerns that were raised in the comments received on the NOP are discussed in **Table 1-1**, below.

TABLE 1-1
SUMMARY OF NOP COMMENTS

Commenter/Date	Summary of Environmental Issues Raised in Comment Letter	Applicable PEIR Section
Notice of Preparation – July 14, 2017		
Native American Heritage Commission (NAHC)	Provides AB52 Tribal consultation requirements for CEQA and impacts to Tribal Cultural Resources	See Section 3.4 Cultural Resources and Section 3.12 Tribal Cultural Resources
July 24, 2017	Provides Native American Heritage Commission (NAHC) recommendations for Cultural Resources Assessments	See Section 3.4 Cultural Resources and Section 3.12 Tribal Cultural Resources
Department of Toxic Substances Control	Evaluate historic uses at the project site that may result in release of hazardous wastes/substances	See Section 3.7, Hazards and Hazardous Materials
July 31, 2017	Evaluate whether demolition of existing structures would release lead-based paints (LBPs) and asbestos containing materials (ACMs)	See Section 3.7, Hazards and Hazardous Materials
	Discuss compliance with discharging wastewater and National Pollutant Discharge Elimination System (NPDES) permitting	See Section 3.7, Hazards and Hazardous Materials and Section 3.8, Hydrology and Water Quality
	Identify underground storage tank (UST) and leaking-underground storage tank (LUST) sites and potential groundwater contamination and vapor intrusion	See Section 3.7, Hazards and Hazardous Materials
	Identify soil import/export and potential soil contamination	See Section 3.7, Hazards and Hazardous Materials
	Identify appropriate regulations and government agencies overseeing potential soil and/or groundwater contamination	See Section 3.7, Hazards and Hazardous Materials
CalRecycle, Department of Resources Recycling and Recovery	Provided general comments on specific solid waste regulatory requirements for Plant No. 1	Comment is noted. This is not an environmental issue and not addressed in the PEIR.
August 14, 2017	Stated that CalRecycle unaware of regulatory oversight for solid waste for Plant No. 2	Comment is noted. This is not an environmental issue and not addressed in the PEIR.
	Stated that it was unclear what specific projects are included in the Program	See Chapter 2.0 Project Description

Commenter/Date	Summary of Environmental Issues Raised in Comment Letter	Applicable PEIR Section
	CalRecycle requests to be included in "Other Public Agencies Whose Approval is Required"	See Chapter 2.0 Project Description
	Requests clarification on anticipated amount of Solid Waste from Plant No. 1 and Plant No. 2	See Section 3.13, Utilities, Service Systems, and Energy
	Requests clarification on interim and ultimate food waste facilities' "new waste streams"	See Chapter 2.0 Project Description
	Solid Waste Regulatory Oversight	See Section 3.13, Utilities, Service Systems, and Energy
	CalRecycle requests any further notices or program updates	Comment is noted. This is not an environmental issue and is not addressed in the PEIR. A copy of the Draft PEIR will be provided to the CalRecycle.
Lena Hayashi August 2, 2017	Stated that the Maintenance Building along Brookhurst St. blocks morning sun and is an eyesore	Comment is noted. This is an existing facility and not proposed within the BMP. The visual impacts of the existing maintenance building will not be addressed in the PEIR.
	Comment expresses concern for offensive odors emanating from Plant No. 2	See Section 3.2, Air Quality
	Comment expresses concern for particulates in air and dust from trucks that could impact the health of residents	See Section 3.2, Air Quality
	Comment expresses concern for excessive and long durations of noise	See Section 3.10, Noise
	Comment expresses concern for vibration and potential damage to homes	See Section 3.10, Noise
	Requests that drought tolerant trees be used for perimeter screening	Comment is noted. This is not an environmental issue and not addressed in the PEIR.
	Requests that Program resolve any issues with sea level rise	See Section 3.8, Hydrology and Water Quality

1.3.3 Scoping Meetings

On July 26, 2017, in accordance with CEQA Section 21083.9,[1] the OCSD held a public scoping meeting to describe the program, identify the environmental topics that would be addressed in the PEIR, and describe the CEQA process for the PEIR. The OCSD provided an opportunity for attendees to provide written comments on the scope of the environmental evaluation; however, there were no written comments provided at the scoping meeting. There was a request that written comments be provided no later than August 13, 2017. Various verbal comments were raised during the scoping meeting which included concerns about visual impacts, odor, and construction noise. These verbal comments were reflected in the written comments received on the NOP.

[1] CEQA Section 21083.9 requires that a lead agency call at least one scoping meeting for a project of statewide, regional, or area-wide significance.

1.3.4 Draft PEIR

As described above, a PEIR can be prepared on a series of related actions characterized as one large project or program (*CEQA Guidelines* Section 15168(a)). Prior to implementation, each action in the program must be evaluated to determine if additional environmental documentation is required (*CEQA Guidelines* Section 15168(c)). If the environmental effects resulting from an action are fully covered by the analysis in this PEIR and no new mitigation measures are required, then the action is within the scope of this PEIR, and no additional environmental documentation is necessary (*CEQA Guidelines* Section 15168(c)(2)). If an action would result in significant or more severe significant environmental effects or new mitigation measures not included in the PEIR then additional environmental documentation, such as a Mitigated Negative Declaration or EIR, would be required (*CEQA Guidelines* Section 15168(c)(1)). The mitigation measures developed in a PEIR may be incorporated into subsequent environmental documents (*CEQA Guidelines* Section 15168(c)(3)).

This Draft PEIR describes the proposed program and the existing environmental setting, identifies short-term, long-term, and cumulative environmental impacts, identifies mitigation measures for impacts found to be significant, and provides an analysis of program alternatives. Significance criteria have been developed for each environmental resource analyzed in this Draft PEIR.

1.3.5 Known Areas of Controversy and Issues of Concern

Pursuant to Section 15123(b)(2) of the *CEQA Guidelines,* a lead agency is required to include areas of controversies raised by agencies and the public during the public scoping process in the EIR. Commenting parties have identified issues of concern. These issues include odor, noise, and visual impacts.

1.3.6 Public Review

In accordance with Section 15105 of the CEQA Guidelines, the Draft PEIR is available for public review and comment for a 45-day review period. The Draft PEIR has been circulated to federal, state, and local agencies and interested parties, who may wish to review and provide comments on its contents. Please send all comments to:

Kevin Hadden
Orange County Sanitation District
Engineering Planning
10844 Ellis Avenue
Fountain Valley, CA 92708
Email: CEQA@ocsd.com

1.3.7 Final PEIR Publication and Certification

Written and oral comments received on the Draft PEIR will be addressed in a Response to Comments document which, together with changes and corrections to the Draft PEIR, will constitute the Final PEIR. Following review of the Final PEIR, the OCSD will decide whether to

certify the Final PEIR. If the PEIR identifies environmental impacts that are considered significant and unavoidable, OCSD must state, in writing, the reasons for approving the project despite its significant environmental effects in a Statement of Overriding Considerations, which will be included in the record of the program approval, and cited in the Notice of Determination (*CEQA Guidelines* Section 15093(c)).

1.3.8 Mitigation Monitoring and Reporting Program

Public Resources Code Section 21081.6(a) requires lead agencies to "adopt a reporting or monitoring program for the changes made to the project or conditions of project approval, adopted in order to mitigate or avoid significant effects on the environment." Throughout the PEIR, mitigation measures are clearly identified and presented in language that will facilitate establishment of a monitoring and reporting program. Any mitigation measures adopted by the OCSD will be included in a Mitigation Monitoring and Reporting Program (MMRP) to verify compliance. The MMRP will be included within the Final PEIR.

1.4 Approach to this PEIR

This PEIR evaluates impacts that could result from implementation of the proposed program as compared to existing conditions. CEQA requires that before a decision can be made to approve a project with potentially significant environmental impacts, an EIR must be prepared that fully describes the environmental impacts of the project and identifies feasible mitigation for significant impacts. The PEIR is a public information document for use by governmental agencies and the public to identify and evaluate potential environmental consequences of a proposed project, to recommend mitigation measures to lessen or eliminate adverse impacts, and to examine feasible alternatives to the project. The information contained in the PEIR is reviewed and considered by the governing agency prior to the ultimate decision to approve, disapprove, or modify the proposed program.

CEQA requires that a lead agency shall neither approve nor implement a project as proposed unless the significant environmental impacts of that project have been reduced to less than significant levels, which essentially involves "eliminating, avoiding, or substantially lessening" the expected impacts. If the lead agency approves the project despite residual significant adverse impacts that cannot be mitigated to less than significant, the agency must state the reasons for its action in writing.

Section 15093 of the *CEQA Guidelines* requires the lead agency to adopt a Statement of Overriding Considerations if the lead agency determines impacts are significant and approves the project. As required by Section 15093 of the *CEQA Guidelines*, a Statement of Overriding Considerations shall be adopted by a lead agency if the agency finds that the benefits of a project outweigh significant, unavoidable adverse impacts and decides to approve a project even though these impacts cannot be mitigated to less than significant levels.

1.5 PEIR Organization

This Draft PEIR is organized into the following chapters:

Executive Summary. This chapter summarizes the contents of the Draft PEIR.

Chapter 1, Introduction. This chapter discusses the CEQA process and the purpose of the PEIR.

Chapter 2, Project Description. This chapter provides an overview of the proposed program, describes the need for and objectives of the proposed program, and provides detail on the characteristics of the proposed program.

Chapter 3, Environmental Setting, Impacts and Mitigation Measures. This chapter describes the environmental setting and identifies impacts of the proposed program for each of the following environmental resource areas; Aesthetics; Air Quality; Biological Resources; Cultural Resources; Geology, Soils, and Seismicity; Greenhouse Gas Emissions; Hazards and Hazardous Materials; Hydrology and Water Quality; Land Use and Planning; Noise; Transportation and Traffic; Tribal Cultural Resources; and Utilities, Service Systems, and Energy. Measures to mitigate the impacts of the proposed program are presented for each resource area.

Chapter 4, Other CEQA Sections. This chapter describes the effects that were found not to be significant and those that were found to be significant and unavoidable. In addition, this section discusses the significant irreversible environmental changes and growth-inducing impacts associated with the program.

Chapter 5, Alternatives. This chapter presents an overview of the alternatives development process and describes the alternatives to the proposed program that were considered.

Chapter 6, Report Preparation. This chapter identifies the key staff at OCSD and the authors involved in preparing this Draft PEIR.

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CHAPTER 2
Project Description

2.1 Introduction

The OCSD, as the Lead Agency pursuant to CEQA, is proposing to implement the BMP (proposed program) which includes upgrades to and construction of new biosolids handling facilities to be implemented over an approximately 20-year planning period. The individual projects that would be implemented under this BMP would provide for flexible and sustainable biosolids handling in the future. As detailed in this project description, some of the projects that make up the BMP are in the concept development or planning phase. This PEIR primarily focuses on the plan level implementation, but also includes specific construction and operation details of individual projects proposed within the BMP. The BMP is located in **Appendix F** of this PEIR.

2.2 Project Location

OCSD facilities are located in northwestern Orange County, California as depicted on **Figure 2-1**. All proposed projects would be located within OCSD Plant No. 1 and Plant No. 2 boundaries. Therefore, for purposes of this PEIR, the "program area" includes Plant No. 1 and No. 2 as seen in **Figure 2-2**. Plant No. 1 is located at 10844 Ellis Avenue, Fountain Valley, CA 92708 and bound by Ellis Avenue to the north, Ward Street to the west, Garfield Avenue to the south, and the Santa Ana River (SAR) and SAR Trail to the east. Residential neighborhoods are located west of Ward Street. Plant No. 1 is located within the City of Fountain Valley. The Fountain Valley General Plan designates Plant No. 1 as a Specific Plan Area and is zoned as Specific Plan-Orange County Sanitation District.

Plant No. 2 is located at 22212 Brookhurst Street, Huntington Beach, CA 92646 and bound by residential neighborhoods located approximately 375 feet north of the intersection of Baybreeze Drive and Brookhurst Street to the north, Brookhurst Street and residential neighborhoods to the west, the SAR and SAR Trail to the east, and Talbert Marsh, Pacific Coast Highway (PCH) and the Pacific Ocean to the south. The City of Huntington Beach General Plan designates Plant No. 2 as a Public (P) land use and zoned for Industrial Limited (IL) and Residential Agriculture with an Oil Overlay (RA-O). The program area is also located within the City of Huntington Beach's Coastal Zone and is subject to the City's Local Coastal Program.

The majority of the proposed program components would be constructed entirely within the existing Plant No. 2 property. The proposed facilities would be implemented within the southwest corner of Plant No. 2 adjacent to the existing biosolids handling facilities. Within Plant No. 2, The program area encompasses approximately 16 acres. Within Plant No. 1, the program area encompasses approximately 2 acres.

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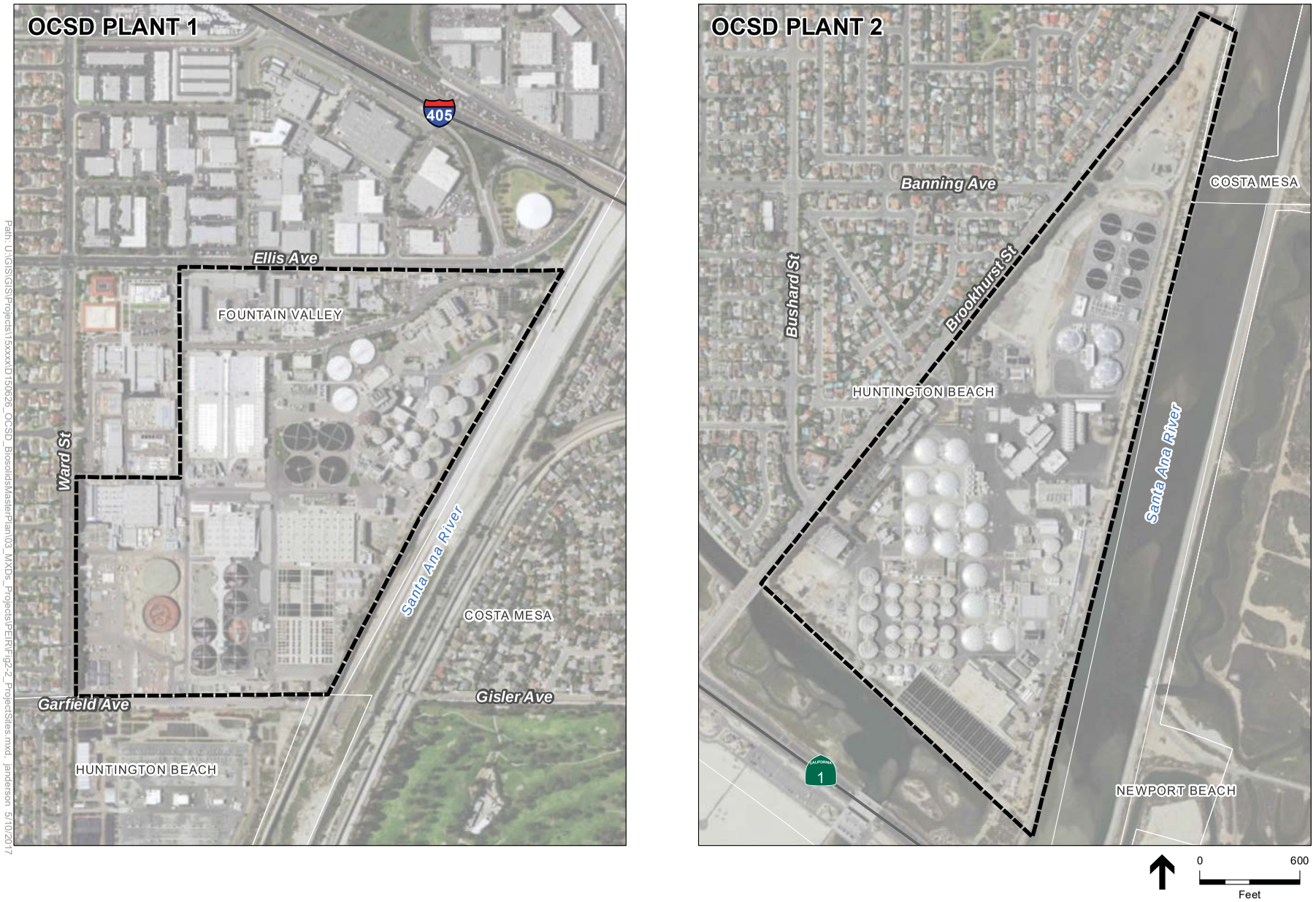
SOURCE: ESA, ESRI.

OCSD Biosolids Master Plan . 150626

Figure 2-1
Program Location



SOURCE: ESA, ESRI.

OCSD Biosolids Master Plan . 150626

Figure 2-2
Program Area

2.3 Program Background

This section includes a summary of OCSD responsibilities, the purpose and need for the proposed BMP, and existing planning documentation that was reviewed and used in developing the proposed program.

2.3.1 OCSD Overview

OCSD 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. In 1971, the 120-inch diameter 5-mile ocean outfall was installed and the 1-mile outfall was retained for emergency use only. Currently, OCSD treats approximately 185 million gallons of wastewater each day through two connected treatment plants located adjacent to the SAR: Treatment Plant No. 1 in Fountain Valley and Treatment Plant No. 2 in the City of Huntington Beach.

OCSD is responsible for collecting, treating, disposing, and recycling wastewater from residential, commercial, and industrial sources for more than 2.6 million residents within a 471 square mile service area located in northern and central Orange County. OCSD's service area includes 20 cities, 4 special districts, and the County. OCSD is governed by a 25-member board of directors consisting of elected officials from each member agency located in OCSD's service area. OCSD currently operates 396 miles of sewers, 15 pumping stations, and two treatment plants. OCSD has joined the Orange County Water District (OCWD) in recycling wastewater by developing the Groundwater Replenishment System (GWRS), which is a water purification project.

2.3.2 Purpose and Need for the Program

OCSD previously identified the need to repair or replace process equipment and perform structural rehabilitation on 18 aging digesters to maintain reliable operation at Plant No. 2. OCSD has concerns with the structural deterioration of the digester domes, as the digesters date back from 1959 through 1979 and were constructed either without protective liners or liners with a history of failure. Anticipating the need for structural improvements, including dome replacements for multiple digesters, OCSD moved forward with various structural/seismic hazard evaluation studies.

OCSD previously determined that the digesters at Plant No. 2 were in need of significant rehabilitation. Prior to commencing rehabilitation projects, OCSD initiated a study (SP-186) that identified liquefaction concerns and structural deficiencies of the existing infrastructure. Assessments concluded that a seismic event could lead to several inches of settlement and structural failure for several digesters. The SP-186 study also evaluated and compared the costs associated with rehabilitating the existing digesters versus constructing new digesters to mitigate these seismic risks. Based upon these results, OCSD decided to replace the existing digesters and associated facilities. The purpose of the BMP is to evaluate and select the future digestion process and associated new infrastructure to replace the existing facilities.

In addition to addressing the structural integrity of existing biosolids handling facilities at Plant No. 2, the BMP provides a roadmap and framework for developing sustainable biosolids management options over a 20-year planning period.

2.3.3 Existing OCSD Planning Documents

OCSD previously developed planning-level documents to evaluate the current state of their facilities and to determine future needs. One of the key goals of the OCSD, as described in the *2013 Five Year Strategic Plan*, was to recommend future biosolids management options and capital improvements for an approximately 20-year planning period. To meet this goal, the BMP provides a framework for sustainable biosolids management over the next 20 years. When developing the proposed BMP, OCSD consulted a number of planning documents, including the *2003 Long-Range Biosolids Master Plan* (LRBMP), *2009 Facilities Master Plan* (FMP), and the *OCSD Solids Loading Projections White Paper* (White Paper). A brief description of each document follows.

2003 Long Range Biosolids Management Plan

In 2003, OCSD prepared a Long-Range Biosolids Management Plan (LRBMP) which identified sustainable biosolids product markets, steps necessary to produce those products, an economic analysis of the product technologies, and an assessment of implementation factors such as public perception. The plan identified: the long-term potential for Southern California Class A biosolids products and product markets; onsite and offsite facility options for manufacturing marketable products; a flexible implementation plan for positioning OCSD to be able to participate in multiple markets; and future conformance with the National Biosolids Partnership (NBP) Code of Good Practice. The LRBMP developed recommendations that were considered when developing the BMP. One of the recommendations in the LRBMP was to replace the existing belt presses with centrifuges to improve the dewatering process and reduce solids storage and truck hauling costs.

2009 Facilities Master Plan

OCSD developed the 2009 FMP to identify capital improvements projects for OCSD facilities to be implemented through 2030. Chapter 7 of the FMP describes the existing OCSD solids facilities, performance statistics, design criteria, flow projections, issues and recommendations, and planned upgrades to solids and gas handling facilities. Some of the projects proposed within the FMP are crucial to the sequencing and operation of facilities proposed within the BMP.

OCSD Solids Loading Projections, White Paper

OCSD prepared the White Paper in 2016 to forecast solids loading from the raw sewage influent to OCSD Plants, establish methods to forecast the solids loadings to the major treatment processes, and set the loading criteria for future solids handling facilities, which the BMP recommends.

2.4 Program Objectives

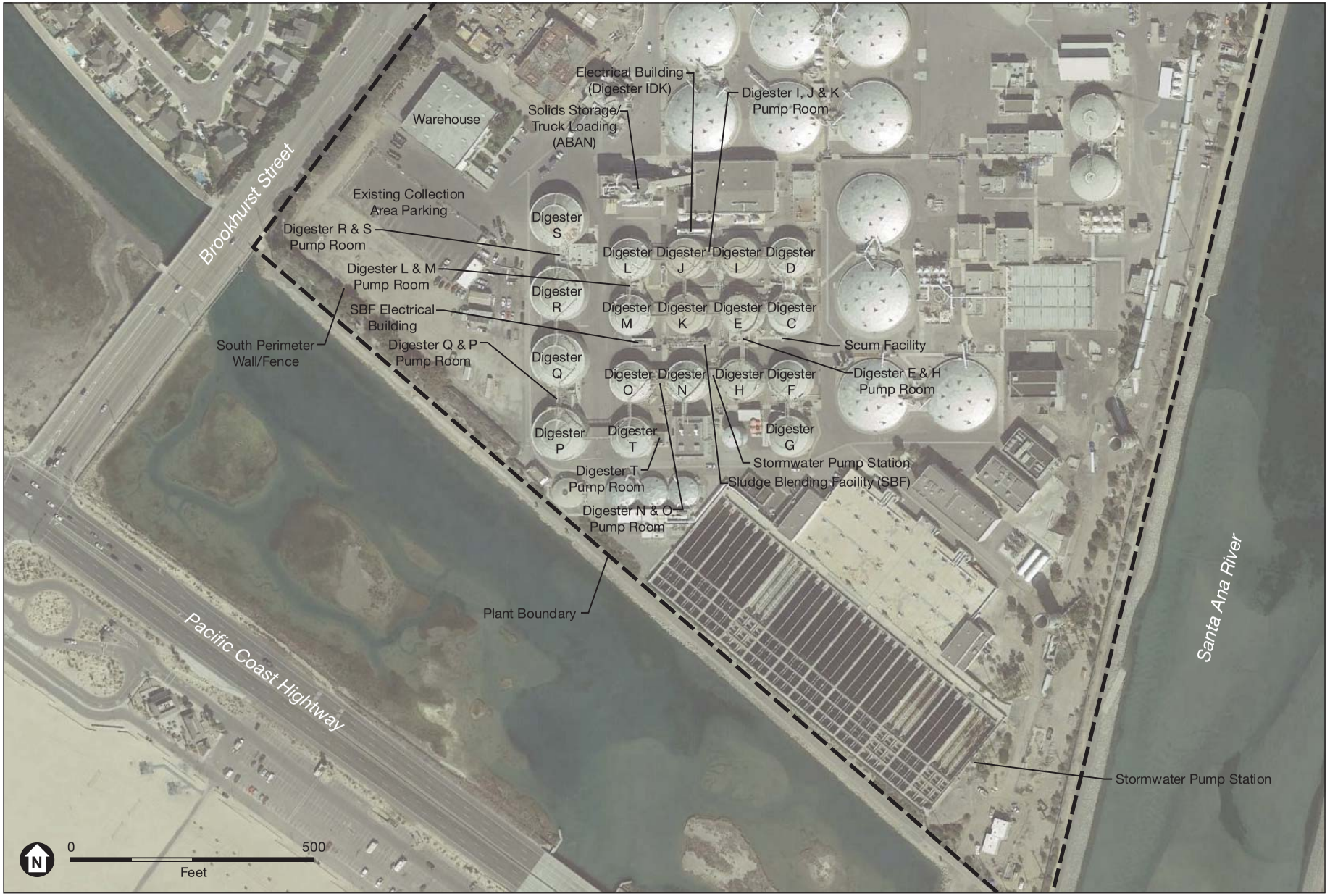
The primary objectives of the proposed program are to:

- Replace aging facilities and mitigate the structural and seismic risks for onsite biosolids structures;
- Phase-out the diversion of biosolids organics as an alternative daily cover for landfills;
- Transition from Class B to Class A biosolids quality at Plant No. 2 to increase biosolids management diversity for end users of biosolids; and
- Receive pre-processed food waste (source separated organics[SSO]) for co-digestion to assist in diverting organics from landfills and to increase digester gas production used as a renewable energy.

2.5 Existing Biosolids Facility Overview

OCSD owns and operates Plant No. 1 and Plant No. 2 to treat wastewater from their service area. Upon receipt of the wastewater, wastewater solids are separated from the liquid stream by various unit processes, and are thickened prior to further treatment. The untreated solids are referred to as wastewater sludge. The sludge is then treated through an anaerobic digestion process to create a product referred to as biosolids. Following digestion, the biosolids are dewatered and transported to management sites. OCSD previously approved centrifuges at both plants (P1-101 and P2-92) which included the replacement of the older sludge dewatering and odor control systems. These approved projects are currently under construction and planned to be in operation by 2020. The new dewatering centrifuges are considered "existing" for the evaluation of the proposed BMP program.

Physical modifications to the existing biosolids facilities at Plant No. 2 are proposed. **Figure 2-3** illustrates the location of the existing biosolids facilities at Plant No. 2. Because there are no physical modifications proposed to the existing biosolids facilities at Plant No. 1, the existing biosolids facilities at Plant No.1 are not illustrated. **Table 2-1** below describes the estimated biosolids quantities without and with the proposed BMP. The projected biosolids quantities without the proposed BMP and with the proposed BMP assume the implementation of the centrifuges that improve the dewatering of the biosolids and reduce truckloads of biosolids leaving both Plant No. 1 and Plant No. 2. In addition, the projected biosolids quantities without the proposed BMP and with the proposed BMP assume a reduction in influent solids conveyed to OCSD from Irvine Ranch Water District (IRWD) due to a new IRWD biosolids processing facility that is currently under construction at their Michelson Water Recycling Plant. Projections to the year 2040 are provided because the proposed BMP program would be completed in approximately 20 years.



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SOURCE: ESA, 2017

OCSD Biosolids Master Plan

Figure 2-3
Plant 2 Existing Biosolids Facilities

ESA

TABLE 2-1
BIOSOLIDS QUANTITIES WITHOUT AND WITH PROPOSED BIOSOLIDS MASTER PLAN

Scenario	Total Plant No. 1 and Plant No. 2 Without Implementation of Proposed BMP			Total Plant No. 1 and Plant No. 2 With Implementation of Proposed BMP			Difference Between Without and With Implementation of Proposed BMP		
	Raw Wastewater Influent	Biosolids Leaving Plant No. 1 and Plant No. 2	Number of Truckloads	Raw Wastewater Influent	Biosolids Leaving Plant No. 1 and Plant No. 2	Number of Truckloads	Raw Wastewater Influent	Biosolids Leaving Plant No. 1 and Plant No. 2	Number of Truckloads
	Annual Average Daily Flow (mgd)	Annual Production (Wet Tons per Year)[1]	Annual Loads (truckloads per Year)[2]	Annual Average Daily Flow (mgd)	Annual Production (Wet Tons per Year)[1]	Annual Loads (truckloads per Year)[2]	Annual Average Daily Flow (mgd)	Annual (Wet Tons per Year)	Annual Loads (truckloads per Year)
Year 2016									
Actual Flow/Volume	183	284,633	11,172	183	284,633	11,172	0	0	0
Year 2020									
Projected Flow/Volume	196	207,320	8,293	196	214,828[3]	8,593	0	7,508[3]	300
Year 2030									
Projected Flow/Volume	216	220,095	8,804	216	227,603[3]	9,104	0	7,508[3]	300
Year 2040									
Projected Flow/Volume	240	233,600	9,344	240	258,629[3]	10,345	0	25,029[3]	1,001

[1] Current (Year 2016) Biosolids generated at Plant No. 1 and Plant No. 2 are from belt press dewatering process. The solids content in the biosolids cake at Plant No. 1 is 18% and the solids content in the biosolids at Plant No. 2 is 21%. After the centrifuge dewatering facilities are online at Plant No. 1 in 2018 and online at Plant No. 2 in 2019, the biosolids cake generated from Plant No. 1 and Plant No. 2 will be at 25-30%. The projected numbers above are based on 28% solids content.

[2] The cake storage silos at each Plant have 3-4 days' storage time. Currently, trucks traveling to Plant No. 1 are scheduled at seven days per week, and trucks traveling to Plant No. 2 are scheduled at six days per week. The schedule for the trucks traveling to Plant No. 2 could be revised to 7 days a week, as needed. The truck schedule could be affected by holidays, maintenance, and construction activities. The reduction of operating days one week would result in the increase of truck trips per day for the following week. The average daily truck trips to Plants No. 1 and No. 2 in 2016 is 31 trucks. The load limits for each truck in 2016 was approximately 25.5 wet tons, and the load limit projected for 2020, 2030 and 2040 is 25 wet tons.

[3] The increase in annual biosolids is from receiving food waste at Plant No. 2. The Interim Food Waste Facility is proposed to process 150 wet tons per day (wtpd) by the Year 2020 and the Ultimate Food Waste Facility is proposed to process 500 wtpd by the Year 2040. The total annual biosolids from receiving food waste is based on the following assumptions: (1) total solids fraction of food waste is 12%, (2) volatile solids fractions of food waste is 85%, (3) volatile solids reduction from the TPAD process is 80%, and (4) dewatering solids concentration is 28%.

2.5.1 Plant No. 1

Plant No. 1 is located in the City of Fountain Valley, California at the corner of Ellis Avenue and Ward Street (Figure 2-2). Plant No. 1 receives flow primarily from the eastern and inland parts of the service area, which consist of residential, commercial, and industrial users. In 2015, the average Plant No. 1 influent flow rate was 103 million gallons per day (mgd). The processes at Plant No.1 include preliminary, chemically-enhanced primary treatment (CEPT), and secondary treatment (activated sludge and trickling filters) as well as biosolids treatment and gas recovery. **Table 2-2** below summarizes the major solids handling and gas treatment facilities at Plant No. 1.

TABLE 2-2
SUMMARY OF EXISTING SOLIDS PROCESSING AND HANDLING FACILITIES AT PLANT NO. 1

Facilities	Number of Units
Dissolved Air Flotation (DAF) Thickeners	6 (to be discontinued)
Thickening Centrifuges	3
Digesters and Holding Tanks	10 digesters (Nos 7, 8, 9, 10, 11, 12, 13, 14, 15, and 16) 2 holding tanks (No. 5 and 6)
Dewatering Centrifuges	3
Cake storage bins	4 cake storage silos
Digester Gas Storage and Compression	1 low pressure gas holder 3 gas compressors 18’ diameter high pressure gas line connecting Plant No. 1 and Plant No. 2
Central Generation System (Cen Gen)	Three 2,500 kilowatt (kW) gas-fueled combustion engine generators
Digester Gas Flares	3

A major rehabilitation of the digesters was completed in 2016 under project P1-100. The project included replacement of aging sludge pumping, heating, and other structural, mechanical, electrical and control systems to improve reliability, increase existing treatment capacity, and restore lost capacity. The project provided additional capacity to accommodate increased sludge production associated with the expanded secondary treatment (under project P1-102). Even with the additional capacity, some primary sludge (PS) from Plant No. 1 is currently sent to Plant No. 2 due to inadequate digester capacity, until the new sludge thickening centrifuges are complete and brought into service. New sludge dewatering centrifuges are also nearing completion to replace existing belt filter presses (BFPs) at Plant No. 1.

2.5.2 Plant No. 2

Plant No. 2 is located in the City of Huntington Beach, California at the corner of Brookhurst Street and PCH (Figure 2-2). Plant No. 2 receives flow primarily from the western and coastal parts of OCSD’s service area, which consist of residential, commercial, and industrial users. In 2015, the average Plant No. 2 influent flow rate was 85 mgd. A portion of the flow normally tributary to Plant No. 2 can be diverted to Plant No. 1 using the Steve Anderson Lift Station (SALS). Up to approximately 50 mgd can be diverted from the Bushard/Knott Trunkline to SALS for use at OCWD’s GWRS.

The processes at Plant No. 2 include preliminary, CEPT, and secondary treatment (high purity oxygen waste-activated sludge and trickling filters/ solids contact) as well as biosolids treatment and gas recovery. Project P2-92 (planned for completion in 2018) will install centrifuges at Plant No. 2 for sludge dewatering due to anticipated increases in solids loading, and will replace the dewatering BFPs with dewatering centrifuges. The new dewatering centrifuge facilities have been approved, are currently under construction and are considered "existing" for the proposed BMP program. **Table 2-3** below summarizes the major solids handling and gas treatment facilities at Plant No. 1.

TABLE 2-3
SUMMARY OF EXISTING SOLIDS PROCESSING AND HANDLING FACILITIES AT PLANT NO. 2

Facilities	Number of Units	Dimensions
Dissolved Air Flotation (DAF) Thickeners	4	55 ft. diameter by 34 ft. by 20 ft. in height (14 ft. below ground)
Digesters and Holding Tanks	15 digesters (C, D, E, F, G, H, I, M, N, O, P, Q, R, S, T)	Digesters C, D, E, F, G, H, L, M, N, O, T – 80 ft. diameter by 60 ft. in height (22 ft. below ground)
		Digesters P, Q, R, and S – 105 ft. diameter by 60 ft. in height (22 ft. below ground)
	2 digesters/holding tanks (I and J)	80 ft. diameter by 57 ft. in height (20 ft. below ground)
	1 holding tank (K)	80 ft. diameter by 57 ft. in height (20 ft. below ground)
Dewatering Centrifuges	1 Building (includes 5 centrifuges)	13,000 sq. ft. and 51 ft. in height
Ferric Chloride Facility	Containment area containing 2 tanks	12 ft. diameter and 18 ft. in height
Cake (dried biosolids) storage bins	2 cake storage bins (A and B)	105 ft. by 75 ft. by 57 ft. in height (9.5 ft. below ground)
Digester Gas Storage and Compression	1 Gas Compressor Building (includes 1 low pressure gas holder and 3 gas compressors).	60 ft. in width by 80 ft. in length by 42.25 feet in height (10.5 ft. below ground)
	High pressure gas line connecting Plant No. 1 and Plant No. 2	18-inch diameter
Central Generation System (Cen Gen)	1 Building (includes 5 gas-fuel generators and 1 steam turbine generator)	110 ft. in width by 200 ft. in length and 53 feet in height (11.0 ft. below ground)
Digester Gas Flares	3	8 ft. by 8 ft. by 25 ft. in height (9

2.5.3 End Users of Biosolids

Currently, OCSD's Class B biosolids generated from Plants No. 1 and No. 2 are managed by way of land application (approximately 48 percent), composting (approximately 49 percent), and landfill disposal (approximately 3 percent). A primary portion of the Class B biosolids are applied to land and transported to Yuma County, Arizona (approximately 250 miles from OCSD facilities), Another primary portion of the Class B biosolids are transported to composting facilities in Southern California (within approximately 150 miles from OCSD facilities) for agriculture use. A minor portion of the Class B biosolids are transported to landfills (approximately 40 miles from OCSD facilities) for disposal. The land application and soil blending end uses are regulated through local ordinances and waste discharge requirements.

Federal regulations govern biosolids quality requirements for these end uses. The disposal of biosolids at landfills are regulated by state and federal requirements. These are statewide measures to divert biosolids from landfills, and the proposed BMP assumes biosolids will not be disposed at landfills after 2025.

OCSD's BMP identifies end use goals that include allocating biosolids to multiple end uses, including land application and soil blending, and multiple contractors to ensure 100 contingency capacity. In addition, the BMP is designed for flexibility to accommodate emerging markets in the future as biosolids management opportunities develop over time. The BMP also includes supporting activities and mechanisms that support OCSD's biosolids program success and long term reliability. This includes market development, research, advocacy, and regulatory compliance.

Land application of biosolids has been practiced safely for decades in the United States, and is the prevalent end use for biosolids in California. The California State Water Resources Control Board designated biosolids land application to be the environmentally superior option in its EIR for the statewide biosolids general permit. Despite the strong environmental basis for land application, much of the Class B biosolids generated in Southern California including from OCSD are land-applied in southwestern Arizona because of county regulatory restrictions on land application of Class B biosolids. It is expected that at least half of the biosolids generated at Plant No. 2 will continue to go to Arizona land application through the expiration of the Tule Ranch contract in 2025, with the remainder going to compost. Barring any significant changes (e.g., market, regulatory), OCSD will continue to use land application options in Arizona.

The use of dewatered Class A biosolids as an ingredient in the production of blended landscape soils (soil blending) is a newer biosolids management technique that is gaining national momentum, and represents a new end use for OCSD. The most successful commercial-scale operations have been in the Pacific Northwest in Tacoma, Washington, and Vancouver, British Columbia. Soil blending of biosolids allows for greater diversity of end uses and inclusion into horticultural markets that could potentially utilize product closer to its source, thereby minimizing hauling costs.

Some emerging markets were identified as having future potential for inclusion in the biosolids management portfolio. Emerging-market projects may be considered for inclusion in the management portfolio for a portion of OCSD's biosolids. Two emerging end-use markets that OCSD may pursue in the future include biosolids to energy and land reclamation. Biosolids to energy is a general term encompassing technologies that aim to generate a usable form of energy from biosolids. Several California utilities are piloting or have piloted forms of these technologies, but a true commercial-scale biosolids-to-energy process has yet to arrive on the market. Land reclamation opportunities in Southern California can be categorized as follows: fire-ravaged lands, overgrazed rangelands, abandoned mine sites, and brownfields. U.S. Environmental Protection Agency (EPA) Region IX supports mine reclamation with biosolids, but these projects are few, and typically require a large quantity of biosolids over a short period. Future research may expand opportunities to use biosolids in those applications.

2.6 Project Description

The proposed program includes rehabilitation and upgrades to the existing solids handling facilities. There are three approved, but not yet completed, capital improvement projects that would require modifications due to the proposed BMP. These projects include (1) the Solids Storage and Truck Loading project which would improve the condition of the sludge dewatering truck loadout, (2) Digester Gas Handling Facilities which would replace the existing digester gas compressor facility with a new compressor facility and waste gas burners, and (3) Digester Repairs which include as-needed repairs during regularly scheduled digester cleaning. Each of these three projects would be assessed individually by OCSD in accordance with the CEQA Guidelines. These three existing capital improvement projects are included in this PEIR as part of the cumulative impact analysis in Chapter 3. In addition to these three projects, the BMP consists of nine different projects that are necessary to upgrade Plant No. 2 solid handling facilities to align with OCSD's goals and objectives. These nine projects would be implemented over the next 20 years. **Table 2-4** below summarizes the individual BMP projects. As described above, new biosolids facilities would be installed entirely within Plant No. 1 and Plant No. 2. The area proposed to be graded as part of the proposed program is illustrated on **Figure 2-4** and **Figure 2-5**.

TABLE 2-4
OCSD BMP PROJECTS

No.	OCSD Funding No.	Project No.	Project Name	Description	Construction Years
1	P2-125	P2-501	Plant No. 2 Southwest Perimeter Screening	P2-501 would improve or replace the perimeter screening to provide a visual buffer for all proposed facilities and associated construction activities along Brookhurst Street and Talbert Marsh. The perimeter screening would be extended along the entire length of Plant No. 2 along Brookhurst Street (approximately 4,325 feet) and up to approximately 1,030 feet along Talbert Marsh.	2019 to 2021
2	P2-124	P2-502	Plant No. 2 Interim Food Waste Receiving Facility	An interim food waste facility with a capacity to receive up to 250 wet tons per day (wtpd) and process up to 150 wtpd will be built to satisfy initial co-digestion needs. The food facility would include two, 20,000 gallon tanks and ancillary facilities such as pumps and odor control carbon canisters. The interim food waste facility will be replaced in the future with an ultimate food waste facility (P2-506).	2018 to 2020
3	P2-126	P2-503A	Plant No. 2 Warehouse Relocation	The existing 21,000 sq. feet, above-grade warehouse would be demolished and then reconstructed at a new location on Plant No. 2 approximately 1,600 feet north of the existing facility.	2021 to 2023

No.	OCSD Funding No.	Project No.	Project Name	Description	Construction Years
4	P2-127	P2-503B	Plant No. 2 Collections Yard Relocation	The existing 38,000 sq. feet collections yard (parking lot) would be relocated, potentially to Plant No. 1. The specific location is not known at this time. The relocated collections yard would provide adequate space and truck paths to and from Plant No.1 or Plant No. 2, similar to the existing footprint.	2021 to 2023
5	P2-128	P2-504, 504A, 504B	Plant No. 2 Temperature Phased Anaerobic Digestion (TPAD) Digester Facilities	This project would construct six 110-foot diameter, 40-feet tall (above ground) digesters designed to operate in either mesophilic or thermophilic operation, and TPAD sludge cooling facilities which include a pump station, ultrafiltration/nanofiltration facilities, sludge cooling heat exchangers, and a power building. All new digesters would share a common Digester Control Building that would house various pumps, pipelines, grinders, heat exchangers, electrical, HVAC (heating, ventilation and air conditioning), and other ancillary facilities. A new Power Building will furnish electrical power for the new facilities. Six 400,000-gallon, 37-feet above ground Class A batch tanks would be constructed to produce Class A biosolids per EPA 503 regulations through batch holding over a specified time and temperature. The Class A batch tanks would require other ancillary equipment such as pumps, heat exchangers and grinders. The proposed new 33-foot diameter, 30-foot high (above ground) Digester Feed Facility (DFF) would replace the existing Sludge Blending Facility (SBF) where primary sludge and scum is blended and fed to the digesters. The DFF would include thickened sludge tanks, grinders, pumps, and odor control facilities using carbon towers and bioscrubbers.	2025 to 2030
6	P2-129	P2-504C, P2-505	Plant No. 2 Digester P, Q, R, and S Replacement	P2-504C would relocate the existing ferric facility, which currently feeds three digester segments. The new structure would be 38 by 51 feet. The relocation will include new pumps, tanks, and ancillary facilities. P2-505 would consist of the demolition of four existing digesters (P, Q, R, and S) and Power Building C. Digesters P, Q, R, and S will be rebuilt in the existing locations, two at a time. Digesters P, Q, R and S would have an inner diameter of 105 feet and height of 38 feet above ground.	2038 to 2040 2028 to 2033
7	P2-506	P2-506	Plant No. 2 Ultimate Food Waste Receiving Facility	P2-506 will allow for expansion of the SSO receiving program through construction of a larger capacity food waste receiving station to replace the interim facility.	2035 to 2037

No.	OCSD Funding No.	Project No.	Project Name	Description	Construction Years
				The ultimate food waste facility would include a total of four, 12-foot diameter, 30-foot tall 20,000 gallon tanks, recirculation and digester feed pumps, and odor control treatment carbon canisters.	
8	P2-507	P2-507	Plant No. 2 Demolish Seven Digesters and Add three Digesters/Holders I	P2-507 would consist of the demolition of seven digesters (I, J, K, M, N, O, and T) and add three digesters/holders (I, J, and K) with a diameter of 84 feet and height of 37 feet (above ground). These new tanks would serve as mesophilic digesters and sludge holders prior to dewatering. Two above-grade equipment rooms would be required. The equipment rooms would house ancillary facilities such as pumps, pipelines, heat exchangers, and grinders. Each equipment room would be 40 feet by 50 feet and up to 40 feet in height above ground.	2033 to 2038
9	P2-508	P2-508	Plant No. 2 Digester Demolition	P2-508 demolishes the six remaining digesters, Digesters C, D, E, F, G, and H, to free up site footprint for future treatment process facilities.	2035 to 2040

2.6.1 P2-501 Perimeter Screening

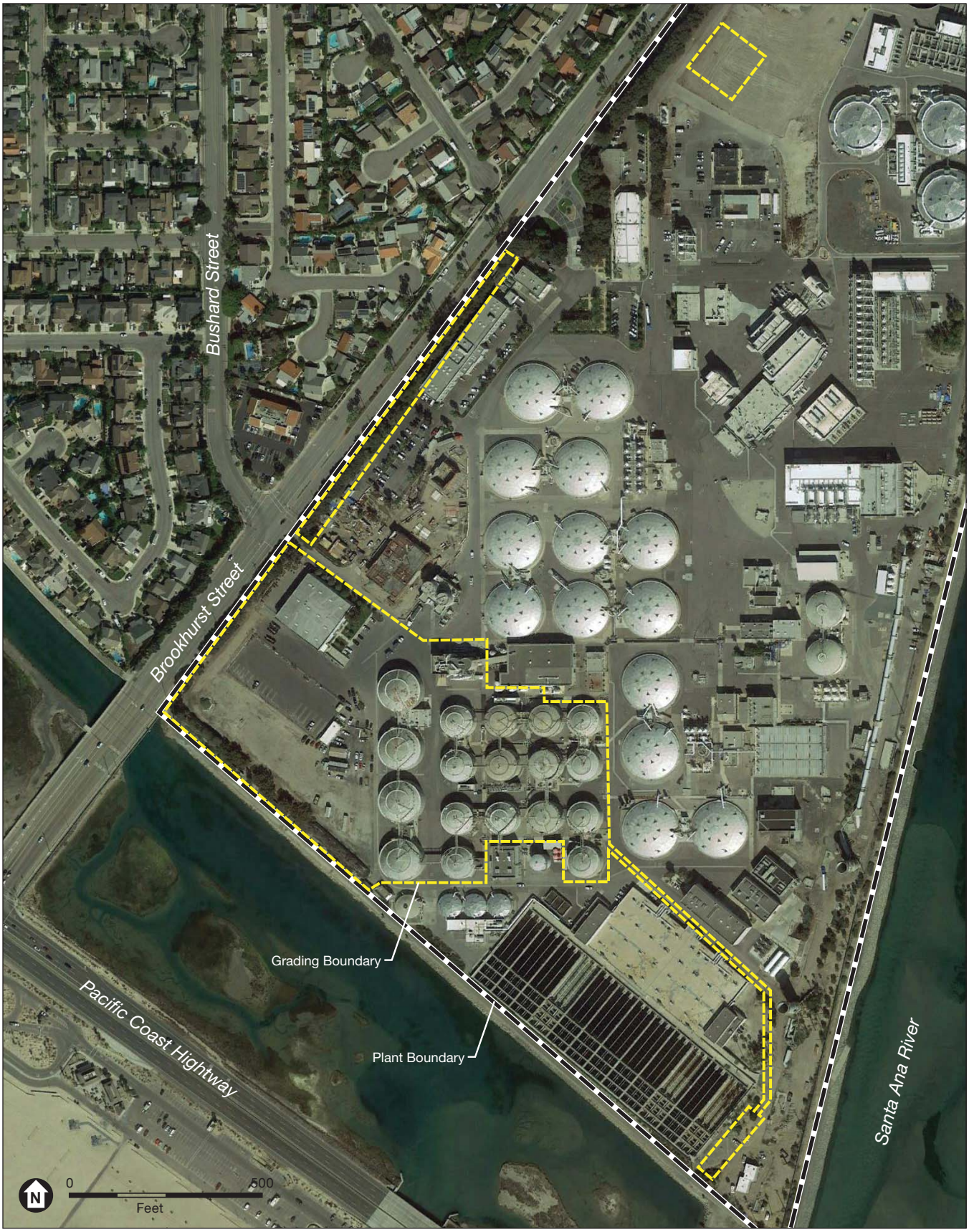
Currently, there are two concrete masonry unit (CMU) block retaining walls and vegetated berms; one wall approximately 15 feet high located along Talbert Marsh at Plant No.2 and another wall approximately 5 to 6 feet high with vegetation located along Brookhurst Street. P2-501 would improve or replace the perimeter screening to provide a visual buffer for all proposed facilities and associated construction activities along Brookhurst Street and Talbert Marsh. The perimeter screening would be extended up to approximately 4,325 feet in length along Brookhurst Street and up to approximately 1,030 feet along Talbert Marsh. Further, the perimeter screening (vegetation) would be increased in height by approximately 10 to 15 feet along Talbert Marsh and remain approximately the same density of trees. No increase in vegetation height along Brookhurst Street is proposed, but the density of the trees will increase to impede east directional views from viewpoints west of Plant No. 2. In addition, the screening is planned to replace the existing 5- to 6-foot high wall with an 8-foot high wall along the entire length of Plant No. 2 along Brookhurst Street to improve security. Other security improvements may also include lighting directed into Plant No. 2 and security cameras.

SOURCE: ESA, 2017

OCSD Biosolids Master Plan

Figure 2-4
Potential Grading Areas for Plant No. 1

ESA



SOURCE: ESA, 2017

OCSD Biosolids Master Plan

Figure 2-5
Proposed Grading Areas for Plant No.2

ESA

2.6.2 P2-502 Interim Food Waste Facility

An interim food waste facility with a capacity to receive up to 250 wtpd (50,000 gallons per day) and process 150 wtpd would be built as an initial co-digestion program. OCSD only expects to contract to accept 150 wtpd, initially. Food waste co-digestion at Plant No. 2 is planned to be under construction in 2018. **Table 2-5** shows what equipment the Interim Food Waste Facility would include.

TABLE 2-5
P2-502 MAJOR EQUIPMENT

Equipment	Number of Units
20,000 gallon SSO tanks	2
Receiving/recirculation pumps	3
Digester feed pumps	2
Odor control treatment (carbon canisters)	2

All of the equipment would be located on a concrete pad that is about 41 feet by 44 feet. The tanks would be approximately 30 feet tall. The tanks and pumps used for the Interim Food Waste Facility could be relocated and reused in the Ultimate Food Waste Facility (discussed in more detail below under P2-506).

Depending on the success of the co-digestion program, the food waste facility would be expanded following the construction of thermophilic digesters (described in more detail below under P2-504). The food-waste facility would accept pre-processed SSO. OCSD would contract with local waste haulers to accept food waste. Contracted amounts of SSO may be adjusted depending on actual digester operating conditions and digester gas production rates. SSO would be hauled to the facility up to 12 hours per day, six days per week. SSO feed to the digesters can operate 24 hours per day in order to achieve a continuous digester gas flow to the Cen Gen facilities. The maximum storage time in the SSO receiving tanks would normally be limited to 12 hours to minimize odor potential.

2.6.3 P2-503A Plant No. 2 Warehouse Location

The existing 21,000 square foot, above-grade warehouse would be demolished and then reconstructed at a new location on Plant No. 2 approximately 1,600 feet north of the existing facility. The warehouse demolition would free up the site for construction staging and laydown area for the TPAD project (P2-504). Upon completion of the main TPAD project, the Class A Batch Tanks (proposed under P2-504A) will be constructed on the site of the existing warehouse location. The new warehouse would be similarly sized (21,000 square feet) as the existing warehouse. Currently, there are three existing catch basins adjacent to the warehouse which drain to OCSD Headworks. Construction best management practices would protect drains from sediment and construction debris.

2.6.4 P2-503B Plant No. 2 Collections Yard Relocation

The existing 38,000 sq. feet collections yard (parking lot) would be relocated, potentially to Plant No. 1. Currently, the collections yard has five large parking spots (40 ft. long by 12 ft. wide) and nine medium parking spots (25 ft. long by 12 ft. wide) to accommodate an assortment of trucks utilized by the Collections Group. The relocated collections yard would provide adequate space and truck paths to and from Plant No.1 or Plant No. 2, similar to the existing footprint. The current collections yard may be used as staging area for P2-504 (TPAD Project) and will ultimately serve as the location for the Class A batch tanks for P2-504A.

2.6.5 P2-504, 504A, and 504B TPAD Digester Facility at Plant No. 2

The TPAD Facility at Plant No. 2 refers to a project consisting of multiple facility components broken down under project P2-504, 504A and 504B. Each specific step of the TPAD Digester Facility is discussed below.

P2-504

TPAD refers to the on-site digestion process that was selected for implementation at Plant No. 2 under the proposed BMP. Implementation of this project would transition Plant No. 2 from a conventional mesophilic anaerobic digestion (CMAD) facility to a TPAD facility. The TPAD Facility as a whole consists of various project components. These new digesters and other facilities would be constructed within the southwest portion of Plant No. 2. A listing of project components being implemented under P2-504 is as follows:

- Six new 110-ft. diameter, 40 feet tall digesters designed to operate in either mesophilic or thermophilic operation;
- Digester Control Building
- TPAD Sludge Cooling Facilities;
  - Secondary Effluent Cooling Water Pump Station
  - Ultrafiltration/Nanofiltration (UN/NF) Facility
  - Sludge Cooling Heat Exchangers (Cooling HEX)
- Power Building;

Modifications to several existing facilities to accommodate the new TPAD process would need to be implemented in addition to the digesters which include: sludge heating, hydronic loop modifications, additional hot water boilers, digester feeding, digested sludge transfer, digester gas system, digester overflow, and ferric feed piping.

The digesters would be configured to share a Digester Control Building for the digester equipment gallery. The equipment gallery would consist of two floors. The grade level would include hot water pumps, heat exchangers, and U-tube assemblies. The basement level would include the majority of the required equipment including the digester feed, transfer pumps, mixing pumps and grinders (22,400 square feet). The digesters would be spaced to allow truck access to the equipment gallery for equipment access. Two new tunnels will be added to the

TPAD facility and connect to the existing tunnels to provide equipment maintenance access. **Table 2-6** shows what equipment the TPAD Digester Control Building would include.

TABLE 2-6
P2-504 DIGESTER CONTROL BUILDING MAJOR EQUIPMENT

Equipment	Number of Units
110' Diameter Thermophilic Digesters	
Thermophilic Digesters	6
Thermophilic Digester Feed Pumps	12
Thermophilic Digester Mixing Pumps	12
Thermophilic Digester Grinders	12
Thermophilic Digester Circulation Pumps	15
Hot Water Pumps	12
Thermophilic Digester HEX	12
Thermophilic Digester Transfer Pumps	12

The TPAD Sludge Cooling Facilities would be implemented within the southeastern portion of Plant No. 2. The proposed Cooling Water Pump Station would house two secondary effluent cooling pumps. The structure would be approximately 50 feet by 30 feet and 25 feet tall. To convey flows from the pump station to the cooling water HEX, approximately 4,200 linear feet of 10 inch lined ductile iron piping would be installed. **Table 2-7** shows what equipment the Cooling Water Pump Station would include.

TABLE 2-7
P2-504 SECONDARY EFFLUENT COOLING WATER PUMP STATION EQUIPMENT

Equipment	Number of Units
Secondary Effluent Cooling Pumps	2
Secondary Effluent Cooling Water HEX, plate and frame	2

The UF/NF facility would house two UF skids, four NF skids, feed and transfer pumps, and clean-in-place equipment. The structure would be approximately 100 feet by 50 feet and 25 feet tall. Tanks, including chemical storage and backwash tanks, feed tanks, and product tanks, would be outdoors. This facility is connected to the Sludge Cooling HEXs, which require lengthy clear space and at least two utility stations for periodic cleaning and maintenance. The Sludge Cooling HEXs would have a footprint of 64 feet by 46 feet. The Sludge Cooling HEXs would be located outside within the southeastern portion of Plant No. 2. **Table 2-8** shows what equipment the sludge cooling and Water Treatment Facilities would include.

TABLE 2-8
P2-504 UF/NF AND COOLING WATER EQUIPMENT

Equipment	Number of Units
Pre-Strainer	2
UF Feed Tank	1
UF Backwash Tank	1
UF Feed Pumps	2
UF Skids	2
NF Feed Tank	1
NF Backwash Tank	1
High Pressure NF Booster Pumps	4
NF Skids	4
Sludge Cooling HEX	6
NF/UF CIP Tanks and Pumps	TBD
Sludge Cooling Pumps	2

The new Power Building would be approximately 70 feet by 45 feet by 21 feet high.

P2-504A

The addition of batch tanks to the TPAD process would allow OCSD to produce Class A biosolids. These six new, 400,000-gallon batch tanks would hold biosolids for a specific time and at a specific temperature. Class A batch tanks would be implemented after the thermophilic digestion phase of TPAD and are operated at thermophilic temperatures.

The batch tanks would be designed for a fill/hold/draw mode of operation; meaning tanks will either be filling, holding biosolids for 24 hours, or drawing biosolids to mesophilic digesters. This design will allow constant flow of digested sludge. Each tank would have recirculation pumps and HEXs to maintain a thermophilic temperature range.

Two piping and utility tunnels would be constructed to connect the digesters to the batch tanks as well as to the secondary effluent sludge cooling system. The batch tanks would be concrete with heights of approximately 38 feet. An equipment control room would be built adjacent to the six new tanks. The Class A Batch tanks and equipment structure would occupy an area of 150 by 140 feet by 40 feet. **Table 2-9** shows what equipment the Class A Batch Tanks would include.

TABLE 2-9
P2-504A MAJOR EQUIPMENT

Equipment	Number of Units
Class A Batch Tanks	6
Batch Tank Recirculation Pumps	6
Batch Tank HEX	6
Bath Tank Grinders	6
Hot Water Circulation Pump	6
Batch Tank Transfer Pumps	4

P2-504B

A new DFF would replace the existing SBF where PS and scum is blended and fed to the digesters. The DFF would facilitate blending and equalization of PS, TWAS, scum, and potentially food waste and a relatively constant feed anaerobic digesters through progressing cavity transfer pumps. The feed system would accommodate both CMAD and TPAD modes of operation. This facility would also include the addition of an odor control system.

The new DFF would consist of two octagonal 100,000 gallon DFF blend tanks of concrete construction. The tanks would be 30 feet wide and 33 feet tall. The tank mixing system, digester feed pumps, and electrical control room would be housed in a building approximately 55 feet by 70 feet and 25 feet tall. The associated odor control facilities (bioscrubbers and carbon scrubbers) would be located on a concrete pad and the overall structure would be approximately 50 feet by 50 feet and 30 feet tall. The equipment is summarized in Table **2-10** below.

TABLE 2-10
P2-504B MAJOR EQUIPMENT

Equipment	Number of Units
Thickened Sludge Tank	2
Thickening Foul Air Fan	2
Thickened Sludge Tank Grinders	4
Thickened Sludge Tank Mixing Pumps	4
Thickened Sludge Tank Transfer Pumps	6
Sump Pumps	2
Bioscrubber	2
Carbon Scrubber	2

2.6.6 P2-504C and P2-505 Digester P, Q, R, and S Replacement

P2-504C

P2-504C would relocate the existing ferric facility, which currently feeds three digester segments. The relocated facility would be adjacent to the new DFF facility. The relocation will include six

feed pumps, two storage tanks, and ancillary equipment. The new facility would be sized approximately equal to the existing facility, which is 38 by 51 feet.

P2-505

This project would also consist of the demolition of four mesophilic digesters (P, Q, R, and S) and the existing Power Building C. Four new mesophilic digesters would be rebuilt in the same location, two at a time, because each pair share a mechanical room. Each digester would have a diameter of 105 feet, dome height of 12 feet, side wall height of 26 feet and depth below grade of 13 feet. The total above-ground height for each digester would be 38 feet. The mechanical rooms between each pair of digesters would house equipment and would be 76 feet by 90 feet by 60 feet. The major equipment is summarized in **Table 2-11** below.

TABLE 2-11
P2-505 MAJOR EQUIPMENT

105' Diameter Mesophilic Digesters	
Mesophilic Digesters	4
Mesophilic Digester Mixing Pumps	8
Mesophilic Digester Grinders	6
Mesophilic Digester Circulation Pumps	6
Mesophilic Digester HEX	4
Mesophilic Digester Transfer Pumps	8

2.6.7 P2-506 Ultimate Food Waste Facility

P2-506 will allow for expansion of the SSO receiving program through construction of a larger capacity food waste receiving station. The ultimate food waste facility would replace the interim receiving facility and be constructed to receive a greater capacity of pre-processed SSO. This facility would be able to receive 500 wtpd. It would be located next to the new DFF facility, where Digesters L and M are currently located. The Ultimate Food Waste Facility would include a concrete containment structure approximately 105 feet by 55 feet and the storage tanks would have 12-foot diameters and would be approximately 30 feet tall. The equipment is summarized in **Table 2-12** below.

TABLE 2-12
P2-506 MAJOR EQUIPMENT

Equipment	Number of Units
20,000 Gallon SSO tanks	4
Receiving/recirculation Pump	4
Digester Feed Pumps	2
Odor Control Treatment (Carbon Canisters)	2

2.6.8 P2-507 Demolish Seven Digesters and Add Three Digester/Holders

P2-507 would consist of the demolition of seven digesters (I, J, K, M, N, O, and T) and the addition of three new digesters/holders. The existing digesters require extensive structural modifications and ground improvements to mitigate seismic risks. The three new digesters/holders will serve as mesophilic digesters or sludge holders prior to dewatering. The new digesters/holders would have a diameter of 80 feet and a height of 25 feet with a dome height of 12 feet (total above-ground height of 37 feet). Two above-grade equipment rooms would be built to serve the three digesters/holders proposed to be relocated adjacent to the current location of Digester T. These equipment rooms would be 40 feet by 50 feet and 60 feet tall. while the third digester would have its own equipment room. The equipment is summarized in **Table 2-13** below.

TABLE 2-13
P2-507 MAJOR EQUIPMENT

80' Diameter Mesophilic Digesters	
Mesophilic Digesters	2
Mesophilic Digester Mixing Pumps	4
Mesophilic Digester Grinders	3
Mesophilic Digester Circulation Pumps	3
Mesophilic Digester HEX	2
Mesophilic Digester Transfer Pumps	4
80' Diameter Digested Sludge Holder	
Digested Sludge Dedicated Holder	1
Digested Sludge Holder Mixing Pumps	2
Digested Sludge Holder Grinders	1
Digested Sludge Holder Circulation Pumps	1
Digested Sludge Holder HEX	1
Digested Sludge Holder Transfer Pumps	3

2.6.9 P2-508 Digester Demolition

P2-508 would demolish six 80-foot diameter digesters (C, D, E, F, G, and H). In addition to the digesters, the gas holder facility adjacent to the digesters would be demolished.

2.7 Program Implementation

Program implementation consists of construction activities that include demolition of existing facilities and construction of future facilities as well as operating and maintaining them once construction is complete. The types, configuration and location of future specific projects that will be constructed in support of the BMP have been generally determined. Therefore, it is

possible to forecast the maximum expected impacts that would result from construction and operation of these infrastructure improvements.

2.7.1 Construction Characteristics

Construction Schedule

It is anticipated that the construction of proposed BMP facilities would begin at the end of 2018 and would take approximately 20 to 22 years to complete. In general, construction activities would occur between 7:00 a.m. and 8:00 p.m., Monday through Friday. **Table 2-14** summarizes the proposed construction and estimated durations for those activities.

TABLE 2-14
CONSTRUCTION DETAILS

Project	Construction Period	Duration	Total Graded Area
P2-125 Plant No. 2 Southwest Perimeter Screening	December 2019 to November 2021	9 months	2.0 acres
P2-124 Interim Food Waste Receiving Facility	November 2018 to May 2020	18 months	1.0 acre
P2-126 Plant No. 2 Warehouse Relocation	March 2021 to March 2023	24 months	2.5 acre
P2-127 Plant No. 1 Collections Yard Relocation	March 2021 to March 2023	24 months	2.00 acre
P2-128 TPAD Digester Facility at Plant No. 2	2025 and 2030	60 months	5.0 acres
P2-129 Digester P, Q, R, and S Replacement	May 2038 to May 2040 (504C) June 2028 to June 2033 (P2-505)	24 months 60 months	2.0 acres
P2-506 Ultimate Food Waste Receiving Facility	2035 to 2037	24 months	2.0 acres
P2-507 Replace Digesters I, J and K (Relocated Digester Holders)	June 2033 to June 2038	60 months	1.0 acres
P2-508 Digester Demolition	May 2035 and May 2040	60 months	2.0 acres
Total			**19.5 acres**

NOTE: P2-503 part 2, Collections Yard Relocation would take place at Plant No. 1; while all other projects' construction would take place at Plant No. 2.

Construction Activities

As described above, new biosolids facilities would be installed entirely within Plant No. 1 and Plant No. 2. The area proposed to be graded as part of the proposed program is illustrated on Figure 2-4. The total area of grading is approximately 19.5 acres. The total demolition that would occur is approximately 203,390 cubic yards. Demolition activities would primarily occur at Plant No. 2 with a minor amount at Plant No. 1. As applicable, each individual project below includes the amount of soil to be imported and exported. Many projects include both import and export of soil because certain types of existing soil are not appropriate for the proposed structures and/or there are not available areas on Plant No. 1 or Plant No. 2 to store excavated soil until the soil is

needed for fill. The following provides a general overview of construction phasing, equipment, soil excavation, and materials for the facilities of each project.

P2-125 Plant No. 2 Southwest Perimeter Screening

This project includes the demolition of the existing perimeter wall (approximately 160 cyds), the excavation of soil for footings, the construction of a new perimeter wall and additional landscaping including trees. The type of wall and landscaping have not been determined at this time; however, the wall would extend approximately 8 feet above ground along the entire length of Plant No. 2 along Brookhurst Street. The demolition and construction equipment needed for wall installation generally includes backhoes, bulldozers and dump trucks. Approximately 10 to 20 workers would be required during various phases of wall construction and landscaping. Excavated soils would be reused onsite as backfill.

P2-124 Interim Food Waste Receiving Facility

This project includes the demolition of the existing asphalt (approximately 100 cyds), excavation of soil for pad foundations, and the construction of two new tanks each with a volume of 20,000 gallons and installation of pumps. The demolition and construction equipment needed for this facility generally includes backhoes, loader, crane and dump trucks. Approximately 3 to 15 workers would be required at a time during various phases of construction. A majority of the excavated soils would be reused onsite as backfill; however, approximately 150 cyds of soil will be exported, and 200 cyds of soil will be imported.

All of the equipment would be located on a concrete pad that is about 41 feet by 44 feet. The tanks would be approximately 30 feet tall. The tanks and pumps used for the Interim Food Waste Facility could be relocated and reused in the Ultimate Food Waste Facility (discussed in more detail below under P2-506).

P2-126 Plant No. 2 Warehouse Relocation

This project includes the demolition of the existing warehouse structure and associated parking area, excavation of soil at the new warehouse location and the construction of a new 20,000 square foot warehouse structure. The total demolition would be approximately 1,930 cyds.The demolition and construction equipment needed for this project includes backhoes, loaders, crane, and dump trucks. The paving equipment needed for this project includes a grader, loader and paver. Approximately 3 to 40 workers would be required at a time during various stages of construction. A majority of the excavated soils would be reused onsite as backfill; however, approximately 1,230 cyds of soil will be exported, and 1,060 cyds of soil will be imported.

P2-127 Plant No. 1 Collections Yard Relocation

This project includes the demolition of the existing surface asphalt that is used for the collection yard on Plant No. 2 and the demolition of the existing surface asphalt on the Plant No. 1 site. The total demolition would be approximately 100 cyds. This project also includes the excavation of soil at the Plant No. 1 site for pad foundation and the construction of a 20,000 square foot structure. The demolition and construction equipment needed for this project includes backhoes, loaders, crane, and dump trucks, Paving equipment needed for this project includes a grader,

loader and paver. Approximately 3 to 40 workers would be required at a time during various stages of construction. A small portion of the excavated soils would be reused onsite as backfill; however, approximately 3,570 cyds of soil will be exported and 2,100 cyds will be imported.

P2-128 TPAD Digester Facility at Plant No. 2

This project includes the demolition of the existing abandoned solids storage truck loading facility and surface asphalt areas. The total demolition would be approximately 113,000 cyds). This project also includes the excavation of soil for the proposed TPAD facilities to establish foundations and includes the construction of digester tanks, power building, electrical control rooms, batch tanks, digester feed facility, water cooling pump station and water softeners. The demolition and construction equipment needed for the project includes scrapers, backhoes, loaders, dozers, dump trucks and crane. The paving equipment needed for this project includes a grader, loader, and paver. Approximately 7 to 120 workers would be required at a time during various stages of construction. A minor amount of the excavated soils would be reused onsite as backfill, and there will be approximately 121,000 cyds that will be exported and 8,000 cyds that will be imported.

P2-129 Digester P, Q, R, and S Replacement

This project includes the demolition of four digesters, a power building and surface asphalt areas. The total demolition would be approximately 29,000 cyds. This project also includes the excavation of soil for the foundations of the replacement digesters, new ferric chloride building and equipment rooms. Construction will include the four replaced digesters, new ferric chloride building and equipment rooms. The demolition and construction equipment needed for the project includes backhoes, loaders, dozer, dump trucks, forklift and crane. The paving equipment needed for this project includes a grader, loader, and paver. Approximately 5 to 40 workers would be required at a time during various stages of construction. A minor amount of the excavated soils would be reused onsite as backfill, and there will be approximately 25,000 cyds that will be exported and 1,800 cubic yards that will be imported.

P2-506 Ultimate Food Waste Receiving Facility

This project includes the demolition of existing surface asphalt and excavation of soils for the establishment of foundations for the facilities associated with the Ultimate Food Waste Receiving Facility. The total demolition would be approximately 100 cyds. Construction will include four 30-foot high tanks, pumps and odor control facilities. The demolition and construction equipment needed for the project includes backhoes, loaders, dump trucks, and crane. The paving equipment needed for this project includes a grader, loader, and paver. Approximately 3 to 25 workers would be required at a time during various stages of construction. Approximately half of the excavated soils would be reused onsite as backfill, and there will be approximately 5,000 cyds that will be exported and 1,000 cubic yards that will be imported.

P2-507 Replace Digesters I, J and K (Relocated Digester Holders)

This project includes the demolition of seven existing digesters and surface asphalt areas. The total demolition would be approximately 31,000 cyds. Excavation activities are required to establish of foundations for the three rebuilt digesters. Construction activities will include the

three rebuilt digesters. The demolition and construction equipment needed for this project includes scrapers, backhoes, loaders, dump trucks, forklift and crane. The paving equipment needed for this project includes a grader, loader, and paver. Approximately 5 to 40 workers would be required at a time during various stages of construction. A minor amount of the excavated soils would be reused onsite as backfill, and there will be approximately 9,000 cyds that will be exported and 1,000 cubic yards that will be imported.

P2-508 Digester Demolition

This project includes the demolition of six digesters, including the digester gas holder. The total demolition would be approximately 28,000 cyds. Excavation activities for this project will be minor, and no construction activities will be included. The demolition and excavation equipment needed for this project includes backhoes, loaders, dump trucks, and cranes. The paving equipment needed for this project includes a grader, loader, and paver. Approximately 3 to 21 workers would be required at a time during various stages of construction. All the excavated soils would be reused onsite as backfill, and there will be no soils that will be exported and 20,000 cubic yards will be imported.

Construction Truck Trips

Construction activities associated with the proposed program will include haul truck trips, construction material truck trips and employee trips. As shown in **Table 2-15**, the total maximum one-way construction trips per year is estimated at 88,990 and the estimated total one-way construction trips over the 20-year construction period is 482,646. Table 2-15, also identifies the maximum annual and total vehicle miles traveled (VMT) for vehicles associated with the program's construction activities.

TABLE 2-15
PROPOSED BIOSOLIDS MASTER PLAN MAXIMUM ANNUAL AND TOTAL CONSTRUCTION VEHICLE MILES TRAVELED

Trips Types	Maximum Annual		Total	
	One-way Trips	VMT[a]	One-way Trips	VMT[a]
Haul Trucks				
Demolition	6,028	120,568	27,120	542,400
Import	428	8,560	4,688	93,760
Export	6,454	129,080	21,568	431,360
Construction Materials Trucks	1,200	24,000	7,410	148,200
Employee	74,880	1,487,600	421,860	8,437,200
Total	**88,990**	**1,779,808**	**482,646**	**9,652,920**

[a] VMT = Vehicle Miles Traveled, All construction vehicles are assumed to have an approximate one-way trip length of 20 miles. The employee VMT includes trips for the number of days estimated for each construction phase.
[b] Employee trips include the estimated number of employees required for each phase of construction.

2.7.2 Operation and Maintenance

To assess certain future impacts from the implementation of the BMP, it is essential to understand future operations relative to current operations. For example, operational air quality impacts would consist of vehicle trips to service the proposed facilities, energy required to power the proposed facilities, and delivery and storage of chemicals. Operational impacts vary depending upon the type of infrastructure proposed.

Operational and Maintenance Vehicle Trips

Operation of most proposed facilities, such as digesters, food waste facilities, electrical rooms, and piping, would only require periodic maintenance, not daily staffing or deliveries. The proposed facilities are anticipated to have the same number of employees as the existing facilities. Therefore, the proposed program would not require a net increase in OCSD full-time employees for operation and maintenance of new facilities.

Food Waste Vehicle Trips

Because operation of the proposed program would require additional food waste, implementation of the Interim and Ultimate Food Waste Facility would increase the daily number of truck trips coming to and leaving Plant No. 2. Food waste trips associated with the Interim Food Waste Facility would begin in approximately the year 2020 and would result in approximately 8 daily trips (7 incoming food waste trips and 1 outgoing biosolids trip due to food waste). In the year 2030 through year 2040, when the ultimate food waste facility is implemented, approximately 25 daily trips (22 incoming food waste trips and 3 outgoing biosolids trips due to food waste) would occur.

Biosolids Vehicle Trips

As shown and described in Table 2-1, the amount of biosolids will decrease in the year 2040 compared to Year 2016 conditions as a result of the implementation of the dewatering centrifuge systems at Plant No. 1 and Plant No.2 that were previously approved and are currently under construction. With the dewatering centrifuge systems, drier biosolids cake material would be produced and with less cake material there would be a decrease in trucks exporting the material from Plant No. 1 and Plant No. 2. With the implementation of the proposed biosolids facilities, food waste would be received by Plant No. 2 and the biosolids cake material projections provided in Table 2-1 shows that there will be an increase in the production of Biosolids annually. This increase in Biosolids would be at Plant No. 2 due to the incoming food waste.

Combined Food Waste and Biosolids Vehicle Trips

Total trucks associated with food waste and biosolids would increase by 38 daily one-way trips compared to existing trips and by 54 daily one-way trips compared to trips currently projected for the year 2040 without the implementation of the proposed program (see **Table 2-16** below).

In addition to a slight increase in daily truck trips associated with the proposed program, the delivery locations (end users) of the biosolids cake material is proposed to change (see next paragraph) with the implementation of the TPAD system because Class A biosolids would be

produced. The proposed TPAD project would accommodate increased thickened sludge flows, and in turn would digest and process biosolids. These Class A biosolids (cake solids) would be picked up at the truck loading facility at Plant No. 2.

TABLE 2-16
PROPOSED BIOSOLIDS AND FOOD WASTE TRUCK TRIPS

	Biosolids	Food Waste	Total
Year 2016			
Maximum Daily One-way Trips	94[1]	0	94
Maximum Annual One-way Trips	22,344[2]	0	22,344
Year 2040 without Program			
Maximum Daily One-way Trips	78[3]	0	78
Maximum Annual One-way Trips	18,688[4]	0	18,688
Year 2040 with Program			
Maximum Daily One-way Trips	88[5]	44[7]	132
Maximum Annual One-way Trips	20,690[6]	13,728[8]	34,418
Buildout Year 2040 with Program Increase/Decrease over Existing			
Maximum Daily One-way Trips	-6	44	38
Maximum Annual One-way Trips	-1,654	13,728	7,784
Buildout Year 2040 with Program Increase/Decrease over Buildout Year 2040 without Program			
Maximum Daily One-way Trips	10	44	54
Maximum Annual One-way Trips	2,002	13,728	15,730

1 The maximum two-way Biosolids trips per day (47 trips) were derived by multiplying 1.5 to the Year 2016 estimated two-way average truck trips per day of 31 trips. The 31 average two-way daily trips occurred for 360 days in the Year 2016. The maximum two-way truck trips of 47 trips is doubled to obtain the maximum one-way truck trips of 94 trips.

2 The annual two-way truck trips of 11,172 for Year 2016 was obtained from Table 2-1, Biosolids Quantities Without and with Proposed Biosolids Master Plan. The 22,344 annual one-way truck trips were derived by multiplying the two-way trips by 2.

3 The maximum daily two-way trips associated with Year 2040 without the project was derived by using the same percentage of trips as the existing maximum daily one-way trips to the maximum annual one-way trips (94/22,344 = 0.42%). The maximum annual one-way trips of 18,688 (9,344 x 2) were multiplied by 0.42% to obtain the maximum of 78 daily one-way trips.

4 The maximum annual one-way trips without the Biosolids Master Plan were derived by multiplying the maximum two-way trips of 9,344 from Table 2-1, Biosolids Quantities Without and with Proposed Biosolids Master Plan by 2 (9,344 x 2 = 18,688).

5 The maximum daily one-way trips associated with Year 2040 with the project was derived by using the same percentage of trips as the existing maximum daily two-way trips to maximum annual two-way trips (94/22,344 = 0.42%). The maximum annual two-way trips of 20,690 (10,345 x 2) were multiplied by 0.42% to obtain the maximum of approximately 88 daily one-way trips. The total one-way trips of 88 was rounded up to the nearest even number.

6 The maximum annual one-way trips with the Biosolids Master Plan were derived by multiplying the maximum two-way trips of 10,345 from Table 2-1, Biosolids Quantities Without and with Proposed Biosolids Master Plan by 2 (10,345 x 2 = 20,690).

7 The maximum daily one-way trips were derived by OCSD staff's estimate of 22 trucks (one-way) per day for the ultimate food waste facility and multiplying the 22 trucks by 2 to obtain the maximum of 44 daily two-way trips.

8 The maximum annual one-way trips were derived by assuming that the ultimate food waste facility could receive food waste 6 days per week throughout the year for a total of 312 days (6 days/week x 52 weeks/year). Based on a maximum of 44 two-way trips per day for 312 days per year, there would be a maximum of 13,728 one-way trips per year.

End Users of Biosolids

After the biosolids are picked up from the truck loading facility, they are then delivered off-site to end users. **Table 2-17** identifies the existing annual two-way truck trips, assumed vehicle miles per trip and total annual vehicle miles associated with the transport of biosolids. The proposed BMP program includes a modification to the end use of biosolids generated at Plant No. 2. In addition to Class B biosolids that are transported for land application outside of California (within 250 miles of OCSD facilities) and to composting facilities within Southern California (within 150

miles of OCSD facilities), the proposed program includes new end use outlets for Class A biosolids such as locations for land application in California, soil blending and land reclamation. The markets for the Class A biosolids are anticipated to occur within a 150-mile radius of OCSD facilities. While land application can be currently accommodated outside of California, soil blending and land reclamation will require additional efforts to implement. The markets for Class B biosolids for land application are anticipated to remain within a 250-mile radius of OCSD facilities for the duration of the BMP program.

As shown in Table 2-1, the proposed program would result in an overall increase of 15,730 one-way trips due to trips from incoming food waste received at Plant No. 2 and an increase of outgoing biosolids trips due to food waste streams. Due to the change in end users and the quality of biosolids produced, the proposed program would result in an overall decrease of approximately 351,640 total annual VMT compared to existing conditions. By the year 2040, implementation of the BMP is expected to lead to an overall increase of approximately 261,160 total annual VMT when compared to the projected VMT without the program.

Chemical Vehicle Trips

No changes in the number of truck trips associated with chemical deliveries would occur with the proposed program. Similar to existing conditions, the chemical deliveries to Plant No. 2 would be periodic.

Chemicals and Hazardous Materials

Operation of the proposed biosolids handling facilities would result in continued onsite chemical use and storage, including chemicals associated with odor control systems. Similar to existing storage, chemicals would continue to be stored in aboveground chemical storage tanks; however, unlike the existing tanks, these tanks would be upgraded and new. The storage tanks would be in a dedicated containment area with secondary containment areas to confine accidental spills and prevent exposure to the environment. The containment areas would be sized to accommodate storage tank volumes to prevent accidental spills.

Energy Requirements

Similar to the existing biosolids facilities, the proposed biosolids facilities would require varying amounts of energy during operation. The proposed Interim (2020) and Ultimate (2032) Food Waste Facilities would generate gas that would be captured and sent to the Plant No. 2 CenGen Facility to be used for energy. Due to the upgraded biosolids facilities, no increase in the current amount of flared gas is anticipated because all of the new gas that is produced from the food waste facility is expected to go to the CenGen facility. Because the proposed facilities are upgraded and more energy efficient than the existing facilities and the proposed food waste facility would not generate a net demand for energy, the proposed program would not increase OCSD's energy requirements.

TABLE 2-17
PROPOSED BIOSOLIDS MASTER PLAN OPERATIONAL ANNUAL VEHICLE MILES TRAVELED

	Incoming Trips	Outgoing Trips				Incoming and Outgoing Trips
	Source Separated Organic Food Waste	Class B – Land Application 48%	Class B – Composting 49%	Class B – Landfill 3%	Class A 0%	Total
Year 2016						
Annual One-way truck trips	0	10,725	10,949	670	0	22,344
Vehicle Miles Per One-Way Trip	0	250	150	40	0	
Total Annual Vehicle Miles	0	2,681,250	1,642,350	26,800	0	4,350,400
Buildout Year 2040 With Program		**Class B – Land Application 30%**	**Class B – Composting 50%**	**Class B – Landfill 0%**	**Class A 20%**	
Annual One-way truck trips	13,728	6,207	10,345	0	4,138	34,418
Vehicle Miles Per One-Way Trip	20	250	150	0	150	
Total Annual Vehicle Miles	274,560	1,551,750	1,551,750	0	620,700	3,998,760
Buildout Year 2040 Without Program		**Class B – Land Application 50%**	**Class B – Composting 50%**	**Class B – Landfill 0%**	**Class A 0%**	
Annual One-way truck trips	0	9,344	9,344	0	0	18,688
Vehicle Miles Per One-Way Trip	0	250	150	0	0	
Total Annual Vehicle Miles	0	2,336,000	1,401,600	0	0	3,737,600
Buildout Year 2040 With Program Increase/Decrease Over Year 2016		**Class B – Land Application**	**Class B – Composting**	**Class B – Landfill**	**Class A**	
Annual One-way truck trips	13,728	-4,518	-604	-670	4,138	12,074
Vehicle Miles Per One-Way Trip	20	250	150	40	150	
Total Annual Vehicle Miles	274,560	-1,129,500	-90,600	-26,800	620,700	-351,640
Buildout Year 2040 With Program Increase/Decrease Over Buildout Year 2040 Without Program		**Class B – Land Application**	**Class B – Composting**	**Class B – Landfill**	**Class A**	
Annual One-way truck trips	13,728	-3,137	1,001	0	4,138	15,730
Vehicle Miles Per One-Way Trip	20	250	150	NA	150	
Total Annual Vehicle Miles	274,560	-784,250	150,150	0	620,700	261,160

2.8 Required Approvals

As Lead Agency, OCSD may use this PEIR to approve the proposed BMP, make Findings regarding identified impacts, and if necessary, adopt a Statement of Overriding Considerations regarding these impacts. The OCSD Board of Directors has the authority to certify this PEIR. When the design details of the individual projects are known and OCSD is ready to proceed with implementation, OCSD will review the environmental documentation in the PEIR to determine if the PEIR adequately evaluated the potential effects of the individual project.

The implementation of the individual projects within the proposed program may require approvals from the following agencies.

- California Department of Public Health (CDPH) Use Permit;
- Regional Water Quality Control Board, Storm Water Pollution Prevention Plans (SWPPP) and General Construction Permit;
- City of Huntington Beach, Coastal Development Permit and local construction/encroachment permits;
- City of Fountain Valley, local construction/encroachment permits; and/or
- Air Quality Management District, Permit to Construct and Permit to Operate

CHAPTER 3
Environmental Setting, Impacts and Mitigation Measures

This Draft PEIR is prepared in accordance with CEQA (California Public Resources Code, Section 21000 *et seq.*), the *CEQA Guidelines* (California Code of Regulations, Title 14, Section 15000 *et seq.*), and applicable rules and regulations of regional and local entities. This Draft PEIR evaluates the potential environmental impacts associated with the construction and operation of the projects included in the BMP. This Draft PEIR is intended to serve as an informational document for the public agency decision-makers and the public regarding the proposed program.

3.0 Scope of the Environmental Impact Analysis

In accordance with Section 15126 of the *CEQA Guidelines*, Chapter 3 provides an analysis of the direct and indirect environmental effects associated with the BMP program as a whole. These impacts are evaluated with respect to existing conditions at the time the NOP was published in 2017 (see Appendix A). The determination of whether an impact is significant is based on the significance thresholds and methodology identified for each environmental issue. The individual projects within the proposed program consist of management strategies and implementation actions that would require construction of and changes to various OCSD biosolids facilities and infrastructure. The specific locations and design elements of all facilities have yet to be finalized. As such, the individual BMP projects are evaluated in this PEIR at a programmatic level, in accordance with *CEQA Guidelines*, Section 15168.

In accordance with Appendix G of the *CEQA Guidelines,* this chapter assesses the BMP's potential effects on the following environmental resources*:*

- Aesthetics
- Air Quality
- Biological Resources
- Cultural Resources
- Geology, Soils and Seismicity
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning

- Noise
- Traffic and Transportation
- Tribal Cultural Resources
- Utilities, Service Systems, and Energy

3.0.1 Approach to Environmental Analysis

Sections 3.1 through 3.13 of this PEIR contain discussions of the environmental setting, regulatory framework, and potential impacts related to construction and operation of the proposed program facilities. This section will evaluate the potential environmental effects of the BMP. The program-level and cumulative analyses will estimate the impacts to each resource category before the implementation of mitigation measures. The analyses will then estimate the impacts to each resource category after the implementation of mitigation measures.

The cumulative analysis was prepared in accordance with Section 15130 of the State CEQA Guidelines that requires an EIR to discuss cumulative impacts of a project when the incremental effects of a project are cumulatively considerable. The proposed project evaluated in this EIR is the BMP Program. "Cumulative impacts" are defined as two or more individual effects which, when considered together, are considerable or which compound or increase environmental impacts (*CEQA Guidelines* § 15355). "Cumulatively considerable" means that the incremental effects of an individual project (i.e., Program) are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects (*CEQA Guidelines* § 15065). According to Section 15130(b) of the CEQA Guidelines, elements considered necessary to provide an adequate discussion of cumulative impacts of a project include either: (1) list of past, present, and probable future projects producing related or cumulative impacts; or (2) a summary of projections contained in an adopted local, regional or statewide plan, or related planning document which is designed to evaluate regional or area-wide conditions.

Because the implementation of the proposed program would occur over an approximately 20-year time frame, this PEIR utilizes the summary of projections approach. Section 15130(d) of the CEQA Guidelines states that the summary of projections could be contained in an adopted local, regional or statewide plan such as a general plan, regional transportation plan or plans for the reduction of greenhouse gas emissions. The cumulative impact area for potential cumulative impacts depends on the specific environmental issue addressed; however, a summary of the demographic data contained in the Southern California Association of Governments (SCAG) 2016-2040 Regional Transportation/Sustainable Communities (RTP/SCS) was used to convey the level of growth anticipated within the cities that are in the vicinity of Plant No. 1 and Plant No. 2. **Table 3-1** includes population, housing and employment projections.

Known projects that are either under construction, recently approved, or currently in the planning process are included in the cumulative growth projections in Table 3-1. The known projects located within the program area are listed in **Table 3-2**.

TABLE 3-1
CUMULATIVE NET INCREMENTAL 2040 GROWTH PROJECTIONS FOR THE VICINITY OF THE PROGRAM AREA

Jurisdiction	Population (Persons)[1]	Housing (Units)[1]	Employment (Jobs)[1]
City of Fountain Valley	2,710	985	3,695
City of Huntington Beach	11,420	5,175	9,200
City of Costa Mesa	4,270	2,055	7,230
City of Newport Beach	5,255	2,380	2,545
Total	**23,655**	**8,215**	**22,6s70**

[1] Derived from the 2016-2040 SCAG RTP/SCS based on a linear growth projection between 2012 and 2040 to obtain 2017 projections and then determined net growth by subtracting 2017 growth projections from 2040 growth projections.

SOURCE: SCAG, 2016, 2016-2040 SCAG RTP/SCS, Available at: http://scagrtpscs.net/Documents/2016/draft/d2016RTPSCS_DemographicsGrowthForecast.pdf.

TABLE 3-2
CUMULATIVE PROJECTS WITHIN THE PROGRAM AREA

Project Name	Project Location	Project Type	Project Description
City of Fountain Valley			
P1-100, Sludge Digester Rehabilitation	Plant No. 1	Wastewater Treatment Plant Facilities	Rehabilitation of Sludge Digester facilities at Plant No. 1
P1-123, Trunk Line Odor Control Improvements	Plant No. 1	Wastewater Treatment Plant Facilities	Odor Control improvements and upgrades to Trunk Line at Plant No. 1
P1-101, Sludge Dewatering and Odor Control	Plant No. 1	Wastewater Treatment Plant Facilities	Improvements and upgrades to Sludge Dewatering facilities and Odor Control facilities at Plant No. 1
FE15-07, Second Treatment and Plant Water VFD Replacement	Plant No. 1	Wastewater Treatment Plant Facilities	Replacement and upgrades to Plant Water VFD and secondary treatment facilities at Plant No. 1
FE14-05, Fleet Services UST Leak Remediation Project	Plant No. 1	Wastewater Treatment Plant Facilities	Remediation of UST leak at Fleet Services area on Plant No. 1
P1-115B, Fleet Services Area Repaving	Plant No. 1	Wastewater Treatment Plant Facilities	Repavement of fleet services area at Plant No. 1
J-117A, Ocean Outfall System Rehabilitation	Plant No. 1	Wastewater Treatment Plant Facilities	Rehabilitation and improvement upgrades to the ocean outfall facilities at Plant No. 1
I-405, New I-405 South Entrance	Plant No. 1	Wastewater Treatment Plant Facilities	Public Right-of-way improvements to I-405 south entrance along Ellis Avenue
P1-128, Demo of Admin and Lab	Plant No. 1	Wastewater Treatment Plant Facilities	Demolition of Administrative Building and Laboratory at Plant No. 1
P1-105, Headworks Rehab. and Expansion	Plant No. 1	Wastewater Treatment Plant Facilities	Improvement and expansion of Headworks building at Plant No. 1

Project Name	Project Location	Project Type	Project Description
Costco Expansion Project	17900 Newhope St.	Commercial Redevelopment	Expansion of 7,356 sq. ft. building. The total new building floor area will be 160,056 square feet.
Fountain Valley Crossings Specific Plan	Talbert Ave to the N., Ward St. to the W., Ellis Ave. to the S., and the SAR to the east	Specific Plan	Development within 162 acres of a net increase of 258,010 square feet of light industrial, office and commercial uses and 491 residential units
Harbor Boulevard South Island Specific Plan	16790 & 16800 Harbor Blvd	Specific Plan	6.5-acre area to allow for a variety of uses usually permitted in the M1 Manufacturing zone in 3 separate Planning Areas
Wellbrook Assisted Living Facility	11360 Warner Ave.	Residential Development	Construction of a 1-2 story 110,000 sq. ft. building for assisted living
City of Huntington Beach			
X-032, Solids Storage and Truck Loading	Plant No. 2	Wastewater Treatment Plant Facilities	Rehabilitation of truck loading facilities on as needed basis at Plant No. 2
J-124, Digester Gas Handling Facilities	Plant No. 2	Wastewater Treatment Plant Facilities	Replace the existing digester gas compressor facility with a new compressor facility and waste gas burners at Plant No. 2
P2-500, Digester Repairs	Plant No. 2	Wastewater Treatment Plant Facilities	Repair existing digesters at Plant No. 2
P2-89, Solids Thickening Process Upgrade	Plant No. 2	Wastewater Treatment Plant Facilities	Improvements and upgrades to the solids thickening facilities at Plant No. 2
J-117, Ocean Outfall System Rehabilitation	Plant No. 2	Wastewater Treatment Plant Facilities	Rehabilitation of the Ocean Outfall System at Plant No. 2
FE10-20 Miscellaneous Fall Protection	Plant No. 2	Wastewater Treatment Plant Facilities	Miscellaneous improvements to biosolids facilities at Plant No. 2
FE12-03, Provide Wi-Fi Access	Plant No. 2	Wastewater Treatment Plant Facilities	Electrical and wiring improvements to address Wi-Fi connection at Plant No. 2
P2-106, Boiler System Rehab. And Scrubbers H and J Demo.	Plant No. 2	Wastewater Treatment Plant Facilities	Rehabilitation to Boiler System and demolition of scrubbers in digesters H and J on Plant No. 2
P2-101, Plant Water System Rehab.	Plant No. 2	Wastewater Treatment Plant Facilities	Rehabilitation of Plant Water System at Plant No. 2
FE13-04, Trickling Filer Chemical Odor Control	Plant No. 2	Wastewater Treatment Plant Facilities	Improvements and upgrades to Chemical Odor Control facilities for the Trickling Filter at Plant No. 2
FR12-00, Digester C and Q Clean-out	Plant No. 2	Wastewater Treatment Plant Facilities	Cleaning of digesters C and Q at Plant No. 2
FE12-06, 84” Primary Influent (PI) Reinforced Concrete Pipe (RCP) Rehab	Plant No. 2	Wastewater Treatment Plant Facilities	Rehabilitation of the 84” PI RCP at Plant No. 2

Project Name	Project Location	Project Type	Project Description
J-111, Central Power Generation System (Cen Gen) Emission Control Project	Plant No. 2	Wastewater Treatment Plant Facilities	Improvements to the Cen Gen Emission Control facilities at Plant No. 2
P2-92, Sludge Dewatering and Odor Control	Plant No. 2	Wastewater Treatment Plant Facilities	Construction of centrifuges, odor control system and other ancillary facilities at Plant No. 2
J-110, Final Effluent Sampler and Building Area Upgrades	Plant No. 2	Wastewater Treatment Plant Facilities	Upgrades to Final Effluent Building area facilities at Plant No. 2
5-60, Newport Force Main Rehab.	Plant No. 2	Wastewater Treatment Plant Facilities	Rehabilitation of Newport Force Main at Plant No. 2
1-17, Santa Ana Trunk Rehab.	Plant No. 2	Wastewater Treatment Plant Facilities	Rehabilitation of Santa Ana Trunk Sewer line at Plant No. 2
SP-129, Oxygen Plant Demolition	Plant No. 2	Wastewater Treatment Plant Facilities	Demolition of the Oxygen Plant facility at Plant No. 2
P2-118A, Activated Sludge Aeration Basin Deck Repair	Plant No. 2	Wastewater Treatment Plant Facilities	Repairs and upgrades to Activated Sludge Aeration Basin facilities at Plant No. 2
6-17, District '6' Truck Sewer Relief	Plant No. 2	Wastewater Treatment Plant Facilities	Improvements to District 6 Truck sewer facility at Plant No. 2
FE14-03, Rehab. Of Digesters E, H, S, and T	Plant No. 2	Wastewater Treatment Plant Facilities	Rehabilitation and repairs to Digesters E, H, S and T at Plant No. 2
P2-92A, Truck Loading Bay Odor Control	Plant No. 2	Wastewater Treatment Plant Facilities	Construction of truck loading bay and upgrades to odor control facilities at Plant No. 2
P2-110, Consolidated Demolition and Utility Improvements	Plant No. 2	Wastewater Treatment Plant Facilities	Demolition of facilities and improvements to associated utilities at Plant No. 2
FE15-06, Gas Compressor Piping Replacement Project	Plant No. 2	Wastewater Treatment Plant Facilities	Improvements and upgrades to gas compressor piping at Plant No. 2
FE15-02, Operations Center HVAC Upgrade	Plant No. 2	Wastewater Treatment Plant Facilities	Upgrades to the operations center building's heating, ventilation and air conditioning system
FE15-10, Lido Force Main Rehab.	Plant No. 2	Wastewater Treatment Plant Facilities	Rehabilitation of Lido Force Main Line at Plant No. 2
J-117A, Interplant Pipelines, Ocean Outfall Booster Station (OOBS) Junction and Fiber Optic (F.O.) Cable Rehab.	Plant No. 2	Wastewater Treatment Plant Facilities	Rehabilitation and upgrades to interplant piping, OOBS facilities and F.O Cable at Plant No. 2
GWRS, Project 3 Secondary Effluent PS Project	Plant No. 2	Wastewater Treatment Plant Facilities	Construction of secondary effluent pump station at Plant No. 2
Groundwater Replenishment System (GWRS), Project 2 Plant 2 Flow Equalization	Plant No. 2	Wastewater Treatment Plant Facilities	Construction of GWRS Flow Equalization facility at Plant No. 2

Project Name	Project Location	Project Type	Project Description
GWRS P1, Effluent Reuse Study, Spill line PS	Plant No. 2	Wastewater Treatment Plant Facilities	Construction of Spill line pump station at Plant No. 2
GWRS, Project 1, Headworks Split/Plant Water Relocation	Plant No. 2	Wastewater Treatment Plant Facilities	Improvements to Headworks facilities and plant water relocation facilities at Plant No. 2
GWRS, Project 4 Plant 2 Effluent Pipeline Rehab.	Plant No. 2	Wastewater Treatment Plant Facilities	Rehabilitation of effluent pipelines at Plant No. 2
P2-121, Aquacritox Demonstration	Plant No. 2	Wastewater Treatment Plant Facilities	Improvements of Aquacritox facilities at Plant No. 2
Ascon Landfill Site	21641 Magnolia Street	Land Remediation	Overall cleanup plan (RAP) for the entire site
Pierside Pavilion Expansion	300 Pacific Coast Hwy	Commercial Development	Demolition of 400-sq. ft. building and construction of 27,772 square foot mixed-use building and 9,401 sq. ft. infill expansion
Main Street Commercial Building	401 Main Street	Commercial Development	Construction of a 12,600-sq. ft. commercial building
Magnolia Tank Farm	21845 Magnolia Street	Commercial Development	Construction of 211,000 sq. ft. lodge, 19,000 sq. ft. of retail, 2.7 acres of Coastal Conservation area, and 3 acres of park
Autumn Care Assisted Living	19101 Garfield Avenue	Residential Development	Construction of 76-bed assisted living with underground parking on a 30,000-sq. ft. vacant site
Pacific City	Bound by Pacific Coast Hwy, First Street, Atlanta Ave, and Huntington Street	Mixed-Use Development	The Pacific City site is approximately 31 acres and divided into three parcels: commercial/retail, hotel, and residential
Poseidon Desalination Plant	21730 Newland Street	Water Desalination Plant	Construction and operation of a 50 million gallon per day seawater desalination facility
Hilton Waterfront Beach Resort Expansion	21100 Pacific Coast Highway	Commercial Development	Expansion of Resort including a nine-story tower providing a total of 156 new guestrooms and 13,700 sq. ft. of other uses.
PCH Mixed Use Development	602-620 Pacific Coast highway	Mixed-Use Development	Construction of a 109,314-sq. ft. mixed-use, 10,593 sq. ft. of retail and restaurant use, and 122 parking spaces
LeBard Park and Residential Project	20451 Craimer Lane	Residential and Recreational Development	Construction of 15-lot, single-family planned unit development in 3.2-acre area and improvements to parkland
City of Newport Beach			
15h Street and Marina Park Area Revitalization Project	15th Street and Balboa Boulevard	Circulation Improvements and Development	Features will include enhanced landscaping; new architectural features; additional parking spaces; and improved pedestrian, bicycle, and vehicular circulation.

Project Name	Project Location	Project Type	Project Description
Newport Banning Ranch	N. of West Coast Highway, E. of SAR, S. of Talbert Nature Preserve, and W. of Superior Avenue	Mixed-Use Development, Primarily Residential	Construction of 1,375 dwelling units, 75,000 sq., ft., of commercial retail, 75-room boutique hotel, parks and open space. Site is 402.3 acres
City of Costa Mesa			
Development Review DR-17-02 - 1555 Adams Avenue	1555 Adams Ave.	Commercial Redevelopment	Demolition of 12,115 sq. ft. restaurant and 1,609 sq. ft. outdoor patio area. Construction of 11,215 sq. ft. multi-tenant restaurant building with 2,276 sq. ft. of outdoor patio area
Lions Park Projects	Lions Park, 570 West 18th Street, 1845, and 1855 Park Avenue	Recreational Development	Improvements to Lions Park. Demolition of the existing Neighborhood Community Center (NCC) and construction of a new library building and café. Renovation of the existing Library Building to be repurposed as new NCC.
440 Fair Drive 28-Unit Project	440 Fair Drive	Residential Development	Demolition of two-story retail center use and construction of 8 new three-story detached single-family units and 20 four-story duplex units. Construction of 26,643 sq. ft. of private and communal open space
2850 Mesa Verde Drive East Project	2850 Mesa Verde Drive	Residential Redevelopment	Demolition of commercial office buildings and the construction of 11 residential lots ranging in size from 6,150 square feet to 7,957 square feet
2277 Harbor Boulevard Project	2277 Harbor Boulevard	Residential Redevelopment	Construction of a 224-unit luxury apartment and demolition of existing Costa Mesa Motor Inn
Westside Gateway Project	671 West 17th Street	Residential Development	Development of 177 residential lofts and live/work units and related site improvements
2880 Mesa Verde East	2880 Mesa Verde	Residential Development	Two-story small lot residential development (13 units)
Trumark Homes Project at 1239 Victoria	1239 Victoria	Residential Redevelopment	Construction of a 28-unit, detached single-family residential development in place of an existing two-story office building
28-unit residential project including 7 live/work units	511 Hamilton St.	Residential Redevelopment	Demolition of existing vacant buildings and the development of a 28-unit residential neighborhood

SOURCE: OCSD, 2017; City of Fountain Valley, 2017; City of Huntington Beach, 2017; City of Newport Beach, 2017; and City of Costa Mesa, 2017.

3.0.2 Organization of Environmental Issue Area

Construction and operation of the various BMP projects is expected to achieve the goals and objectives outlined in Section 2.4. Environmental resources that are addressed in Chapter 3 of this PEIR (Sections 3.1 through 3.13) contain the following components.

Environmental Setting

This section identifies and describes the existing physical environmental conditions of the OCSD treatment plants as it pertains to each impact section. Pursuant to Section 15125(a) of the *CEQA Guidelines*, an EIR must include a description of the existing physical environmental conditions in the vicinity of the proposed program from both a local and regional perspective. This description provides the "baseline condition" against which program-related impacts are compared. Normally, the baseline condition is the physical condition that exists when the NOP is published. The NOP for the proposed program was published in July 2017, so July 2017 will serve as the baseline for the environmental impact analysis contained in this PEIR.

Regulatory Framework

The Regulatory Framework section provides a summary of the regulatory environment as it currently exists. The regulatory framework used in this PEIR included federal, state, regional, and local regulations and policies applicable to the OCSD program.

Impacts and Mitigation Measures

This section describes the significance thresholds and methodology used for the analysis. The section discusses the changes that may occur to existing physical conditions if the proposed program is implemented, and evaluates these changes based upon the identified significance criteria. This section also includes a program-level impact analysis and a cumulative impact analysis. The analysis estimates the magnitude of each impact without the adoption of any mitigation measures, but also identifies feasible mitigation measures for any potentially significant program-level or cumulative impacts. Mitigation measures are those measures that could avoid, minimize, or reduce an environmental impact. This section also analyzes the expected significance of impact if the identified mitigation measures are implemented.

Significance Criteria

In accordance with Appendix G of the *CEQA Guidelines*, significance criteria have been developed for each environmental resource and are defined at the beginning of each impact analysis section. The significance of potential impacts is categorized as follows:

- **Significant and Unavoidable:** mitigation might be recommended but impacts are still significant;
- **Potentially Significant:** mitigation might be recommended but impacts are potentially significant at the programmatic level;
- **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**.

References

Sources relied upon for each environmental topic analyzed in this document are provided at the end of each section.

3.1 Aesthetics

This section addresses the aesthetic and visual impacts associated with implementation of the proposed program. This section includes a description of existing visual resources and aesthetic conditions in the program area, specifically the physical environment in the vicinity of proposed program facilities. This section also evaluates potential effects to scenic vistas, scenic resources, the visual character of the program area where aboveground facilities are proposed, and potential effects associated with light and glare.

3.1.1 Environmental Setting

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 program is located in Orange County (County), which encompasses approximately 798 square miles of land and is located along the Pacific Ocean between Los Angeles County to the north and northwest, San Bernardino County to the northeast, Riverside County to the east, and San Diego County to the southeast. In general, the County is characterized by a variety of landforms, including coastal shorelines, flatlands, hills, mountains, and canyons. Broad sandy beaches, coastal bluffs, uplifted marine terraces, and marshes characterize the Pacific shoreline. The County includes 34 incorporated cities, nine County beaches, six State beaches, three harbors, and 40 miles of coastline (County of Orange 2005a; County of Orange, 2017).

The County is predominantly an alluvial plain, generally less than 300 feet in elevation in the west and central section. The County is semi-enclosed by the Santiago Foothills and Santa Ana Mountains to the east, Puente and Chino Hills to the north, and San Joaquin Hills to the south. The SAR traverses from the northeast to the southwest through the middle of the County (County of Orange, 2005a). More than half of Orange County is urbanized, including most of OCSD's service area. The built environment of the area is dominated by low-lying residential and commercial buildings with local views of the Pacific Ocean. The proposed program components would be located in the City of Fountain Valley and the City of Huntington Beach, with the inland area characterized as relatively flat with little topographic relief and with a sequence of mesas and small bays along the coast. The aesthetic and visual character of the region is defined by the Pacific Ocean located south of the program area and the surrounding cities of Costa Mesa and Newport Beach.

Local Setting

Fountain Valley

The City of Fountain Valley is geographically located just north of the cities of Huntington Beach, Costa Mesa, and Newport Beach, and just south of the cities of Santa Ana and Anaheim (City of Fountain Valley, 2017a). The City is heavily urbanized with a mix of residential, commercial and industrial uses. The City is predominantly flat and is largely characterized by one or two-story structures. The City is entirely land-locked and has no direct contact with the Pacific Ocean. The City's General Plan does not designate scenic views or vistas within Fountain Valley

(City of Fountain Valley, 1995); however, visual elements considered to contribute positively to the City include open areas used for recreational activities such as Mile Square Park (City of Fountain Valley, 2017a).

The proposed Collections Yard Relocation project could be located within the boundaries of Plant No. 1, within the southeastern portion of City of Fountain Valley. Plant No. 1 is a 112-acre wastewater treatment plant located approximately 4 miles north of the Pacific Ocean. Plant No. 1 is characterized as a developed industrial site containing numerous structures that vary in height, mass and function. Plant No. 1 is bound by Ellis Avenue to the north, Orange County Water District and Ward Street to the west, Garfield Avenue to the south, and the SAR and SAR Trail to the east. The collections yard and potential structure could be located in the northern portion of Plant No. 1 off of Ellis Avenue or in the southern portion of Plant No. 1 along Garfield Avenue (see Figure 2-4 in Chapter 2, Project Description).

Residential neighborhoods are located west of Ward Street, commercial uses are located north of Ellis Avenue, and nursery/landscape and industrial uses are located just south of Garfield Avenue. The nearest residents to the north proposed location for the collections yard would be located approximately 1,200 feet away. The nearest residents to the southern proposed location for the collections yard would be located approximately 430 feet away.

Huntington Beach

The City of Huntington Beach is located in the northwestern portion of Orange County along the Pacific Ocean. The city is bound by the Pacific Ocean to the southwest, the City of Seal Beach to the northwest, the City of Westminster to the north, the City of Fountain Valley to the northeast, and the Cities of Newport and Costa Mesa to the east. The City contains a mix of coastal resources, protected open spaces, residential, commercial and industrial uses (City of Huntington Beach, 2017a). The Pacific Ocean, associated beaches, and the Bolsa Chica Ecological Reserve are considered to be the most prominent scenic vistas in the City. The visual character of the City is defined by Specific Plan areas, where communities establish aesthetic themes and design guidelines for development (City of Huntington Beach, 2017b).

The City is within the California Coastal Zone, and therefore, as required under the California Coastal Act, is part of a Local Costal Program. The City's coastal program is divided into two components; a Coastal Element and Implementation Program (City of Huntington Beach, 2017c). The Coastal Element identifies the stretch of the PCH within the program vicinity as a Major Urban Scenic Corridor and Landscape Corridor. Assets that define the coastal visual resources within the program area include the Huntington State Beach, Pacific Ocean, Talbert Marsh, and the SAR (City of Huntington Beach, 2012).

Other than the proposed Collection Yard Relocation project, all individual projects would be located within the boundaries of Plant No. 2, within the southeastern portion of the City of Huntington Beach. Plant No. 2 is bound by residential communities located approximately 375 feet north of the intersection of Baybreeze Drive and Brookhurst Street to the north, Brookhurst Street and residential communities to the west, the SAR and SAR Trail to the east, and Talbert Marsh, PCH and the

Pacific Ocean to the south. The Talbert Marsh is a 24-acre, 500-foot wide marsh between Plant No. 2 and PCH.

Plant No. 2 is a 120-acre industrial facility located approximately 1,500 feet from the Pacific Ocean. Plant No. 2 is characterized as a developed industrial site containing numerous structures that vary in height, mass and function. The tallest structure located at Plant No. 2 is Surge Tower 2, which stands at 86 feet, located on the southeast portion of Plant No. 2, adjacent to the SAR Trail. The existing 18 digesters and 13 primary clarifiers are also located in the southeastern portion of Plant 2 ranging in height from 35 feet to 40 feet above ground surface for the digesters and approximately 20 feet above ground surface for the primary clarifiers.

Views of the Program Area

Plant No. 1

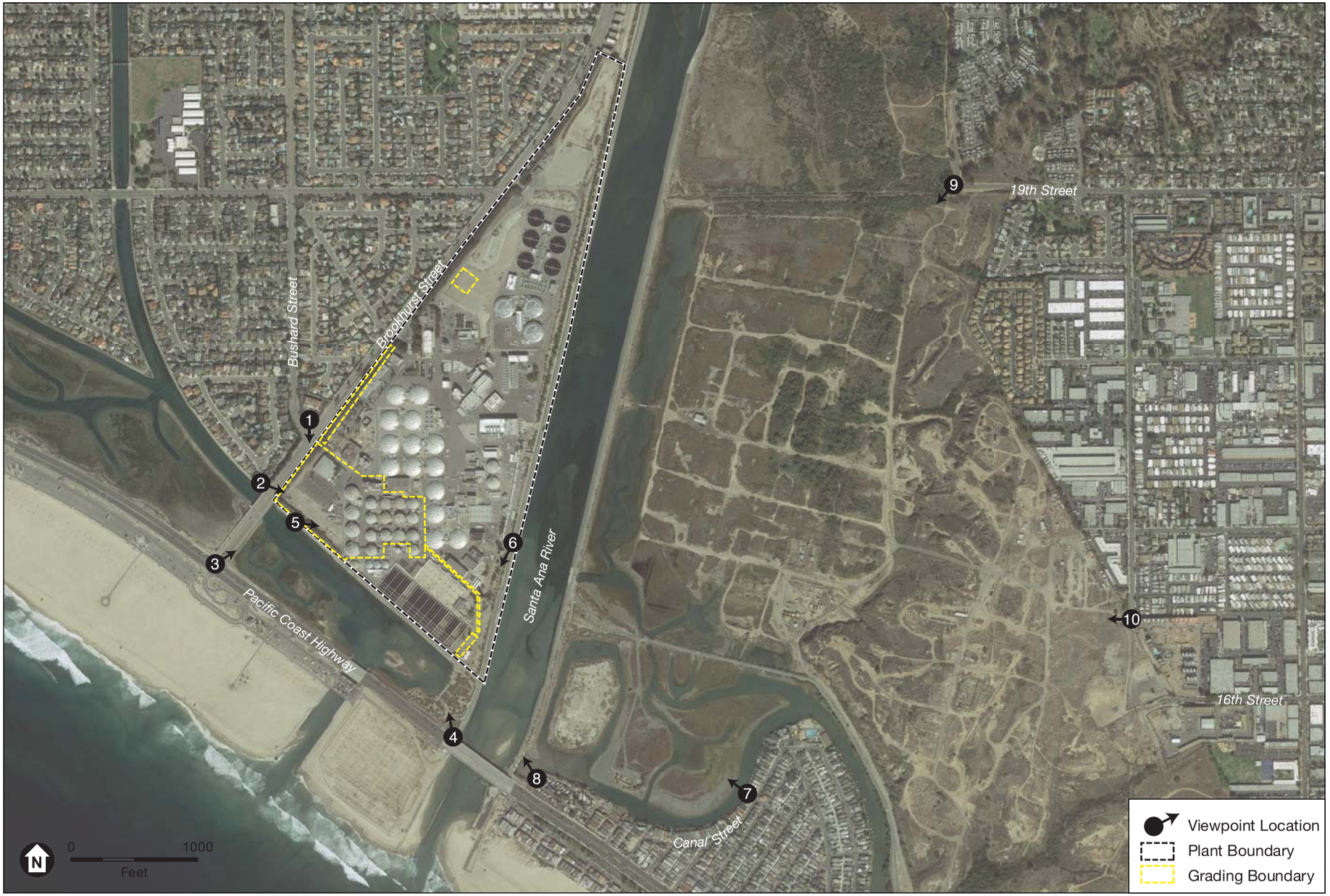
Plant No. 1 is partially visible from public and private locations, including a commercial area north of Ellis Avenue, residential communities located to the west across Ward Street, a nursery/landscape and industrial area located south of Garfield Avenue, and the SAR Trail. Views of Plant No. 1 from Ward Street are partially screened by trees and a landscaped berm located adjacent to the east side of Ward Street. Views of Plant No. 1 from Ellis Avenue are partially screened by trees and a screening block wall located adjacent to the south side of Ellis Avenue.

Plant No. 2

Plant No. 2 is visible from public and private locations, including a small commercial area, residential communities, PCH and beach areas, and the SAR Trail. Residential communities with views of Plant No. 2 are located in the cities of Huntington Beach to the northwest and Newport Beach to the southeast. Long distance views of Plant No. 2 can also be seen from the east in the City of Costa Mesa. **Figure 3.1-1** shows an aerial photograph of Plant No. 2 and identifies ten viewpoints along various locations. Photographs of the existing views at these various locations are shown below in Figures 3.1-2 through 3.1-6.

Brookhurst Street

Single family residences located along Brookhurst Street to the north and west of the program area have views of various of existing facilities and construction equipment at Plant No. 2; the nearest approximately 120 feet west of the Plant No. 2. Views of Plant No. 2 from Brookhurst Street are partially screened by an eight-foot screening block wall as well as landscape trees. Nonetheless, some of the residents have existing partially obstructed views of the plant and its facilities. Further, views of structures within Plant No. 2 from a small commercial area located at the intersection of Bushard Street and Brookhurst Street are partially obstructed. Figure 3.1-2 shows Viewpoint 1, which includes a partially obstructed view of the existing warehouse building at the corner of Brookhurst and Bushard Street. This view is partially obstructed by existing trees. Viewpoint 2 includes a partially obstructed view of the existing digesters and warehouse building from the west side of Brookhurst Street adjacent to Talbert Marsh. This view is partially obstructed by trees within Plant No.2 located along Brookhurst Street.



SOURCE: Google Earth, 2016; ESA, 2017

OCSD Biosolids Master Plan

Figure 3.1-1
Viewpoint Location Map

ESA

Viewpoint 1: View of Plant No. 2 from Brookhurst St. and Bushard St. intersection looking southeast

Viewpoint 2: View of Plant No. 2 from Brookhurst St. looking east

D150626

SOURCE: ESA, 2017

OCSD Biosolids Master Plan

Figure 3.1-2
Viewpoints 1 and 2
Existing Site Photographs

ESA

Pacific Coast Highway and Adjacent Beach Areas

The southern views of Plant No. 2 from PCH are provided in **Figure 3.1-3**. Both of these viewpoints are located approximately 500 feet from Plant No. 2. Viewpoint 3 is located at the intersection of PCH and Brookhurst Street. As shown, the view of the Plant No. 2 facilities includes portions of the warehouse building and three digesters as well as a construction crane. Views of these facilities are partially obstructed by existing trees and vegetation. Viewpoint 4 is from the north side of the PCH bridge at the SAR. As shown, the view of the Plant No. 2 facilities includes many structures and buildings. Due to the distance from this viewpoint, many of the facilities blend together. These facilities include digesters, clarifiers, surge towers and other buildings within Plant No. 2. The background view from this viewpoint is dominated by existing facilities and some vegetation visually impedes the lower portions of these facilities. Views between Viewpoint 3 and Viewpoint 4 as well as from viewpoints further south within the adjacent beach areas includes more of the existing Plant No. 2 facilities. The digesters and clarifiers, surge towers and other buildings can be viewed, but these facilities blend together due to the distance of these views from Plant No. 2.

Talbert Marsh and SAR Trail

Views of Plant No. 2 from the Talbert Marsh walking trail and SAR Trail are provided in **Figure 3.1-4**. Viewpoint 5 is located approximately 300 feet east of Brookhurst Street. The view from this location is of a chain-linked fence that separates the trail from Plant No. 2, a portion of the existing collection yard, trailers and the digesters in the background. Viewpoint 6 is located approximately 1,200 feet north of PCH. The view from this location shows one of the surge towers and trees and vegetation. No views of the program site are provided from this location.

City of Newport Beach

Views of Plant No. 2 from Newport Beach are provided in **Figure 3.1-5**. Viewpoint 7 is located on the western side of Newport Shores residential community. The view from this location is of an existing wetland between this location and the SAR. The wetland is in the foreground and existing Plant No. 2 facilities are in the background. Most of the facilities blend together and the two notable facilities are the tall cylindrical surge towers that are located on the east side of Plant No. 2. These surge towers are not in the areas proposed for improvement. The majority of the proposed improvements would be located behind the surge tower on the left of this viewpoint. As shown in this view, the existing digesters are not visually discernable as they blend in with other facilities on Plant No. 2. Viewpoint 8 is located immediately west of the existing mobile home residents and north of PCH and is approximately 1,000 feet from the proposed facilities. The foreground is the bike trail that leads from PCH to the SAR trail located on the east side of the SAR. The middle ground view is of the SAR. The background view is of the existing facilities at Plant No. 2 as well as Talbert Marsh.

Viewpoint 3: View of Plant No. 2 from Brookhurst St. and PCH intersection looking northeast

Viewpoint 4: View of Plant No. 2 from PCH and SAR bridge looking northwest

D150626

SOURCE: ESA, 2017

OCSD Biosolids Master Plan

Figure 3.1-3
Viewpoints 3 and 4
Existing Site Photographs

ESA

Viewpoint 5: View of Plant No. 2 from Talbert Marsh Trail looking north

Viewpoint 6: View of Plant No. 2 from Santa Ana River Trail looking southwest

D150626

SOURCE: ESA, 2017

OCSD Biosolids Master Plan

Figure 3.1-4
Viewpoints 5 and 6
Existing Site Photographs

ESA

Viewpoint 7: View of Plant No. 2 from Newport Shores residents looking west


Viewpoint 8: View of Plant No. 2 from mobile home residents in Newport Beach looking northwest

D150626

SOURCE: ESA, 2017

OCSD Biosolids Master Plan

Figure 3.1-5
Viewpoints 7 and 8
Existing Site Photographs

ESA

City of Costa Mesa

Views of Plant No. 2 from Costa Mesa are provided in **Figure 3.1-6**. Viewpoint 9 is located at the terminus of 19th Street adjacent to Talbert Regional Park which is approximately 4,000 feet from the nearest proposed facility. The view from this location includes vegetation on Banning Ranch in the foreground and middle ground. In the background, there is a minimal view of the facilities on Plant No. 2. The two cylindrical surge towers are recognizable from this location, but the remaining facilities blend together. Due to the elevation of this viewpoint as well as the weather, the Pacific Ocean cannot be seen. Viewpoint 10 is from Whittier Avenue approximately 800 feet north of 16th Street. The view from this location includes vegetation and barren ground in the foreground and utility poles located on Banning Ranch in the middle ground. In the background, Catalina Island is visible, but the Pacific Ocean is not visible. No facilities on Plant No. 2 can be seen from this viewpoint.

Scenic Highways and Routes

Major roadway corridors include the Interstate-405 (I-405) to the northeast, Beach Boulevard 39 (SR-39) to the west, Costa Mesa Freeway (SR-55) to the east and PCH (SR-1) PCH to the south. According to the California Department of Transportation (Caltrans) List of Scenic Highways, the program area is not located along a State Scenic Highway (Caltrans, 2017). A segment of PCH is located approximately 0.50-mile south of Plant No. 2 along the Pacific Ocean coastline. PCH is an Eligible Scenic Highway but is not officially designated. According to the City of Huntington Beach Coastal Element, Brookhurst Street from Hamilton Avenue to PCH, and PCH south of the program area is designated as a visual landscape corridor (City of Huntington Beach, 2012).

Light and Glare

There are two primary anthropogenic sources of light: light emanating from building interiors through windows, and light originating from exterior sources (e.g., street lighting, building illumination, security lighting, parking lot lighting, landscape lighting, and signage). Anthropogenic sources of light can be a nuisance to adjacent residential areas, diminish the view of the clear night sky, and if uncontrolled, can cause disturbances for motorists traveling in the area. Land uses such as residences and hotels are considered light sensitive, since occupants have expectations of privacy during evening hours and may be subject to disturbances by bright light sources. Light spill is typically defined as the presence of unwanted light on properties adjacent to the property being illuminated.

Viewpoint 9: View of Plant No. 2 from 19th St. and Balboa Blvd in Costa Mesa looking southwest

Viewpoint 10: View of Plant No. 2 residents located off Whittier Ave. and Newhall St. looking west

D150626

SOURCE: ESA, 2017

OCSD Biosolids Master Plan

Figure 3.1-6
Viewpoints 9 and 10
Existing Site Photographs

ESA

Glare is caused by the reflection of sunlight or artificial light by highly polished surfaces such as window glass or reflective materials and, to a lesser degree, from broad expanses of light-colored surfaces or vehicle headlights. Perceived glare is the unwanted and potentially objectionable sensation as observed by a person as they look directly into the light source of a luminaire. Daytime glare generation in urban areas is typically associated with buildings with exterior facades largely or entirely comprised of highly reflective glass. Glare can also be produced during evening and nighttime hours by the reflection of artificial light sources, such as automobile headlights. Glare generation is typically related to either moving vehicles or sun angles, although glare resulting from reflected sunlight can occur regularly at certain times of the year. Glare-sensitive uses include residences, and transportation corridors. Potentially affected viewers in the local viewshed include motorists, residents, and recreational visitors.

3.1.2 Regulatory Framework

Federal

National Scenic Byways Program

The National Scenic Byways Program is part of the U.S. Department of Transportation, Federal Highway Administration. The program was established under the Intermodal Surface Transportation Efficiency Act of 1991, and was reauthorized in 1998 under the Transportation Equity Act for the 21st Century. Under the program, the U.S. Secretary of Transportation recognizes certain roads as National Scenic Byways or All-American Roads based on their archaeological, cultural, historic, natural, recreational, and scenic qualities. The only National Scenic Byway located within southern California is the Arroyo Seco Historic Parkway – Route 110 in Los Angeles County. The National Scenic Byway is not located near the program area.

State

State Scenic Highway Program

In 1963, the California legislature created the Scenic Highway Program to protect scenic highway corridors from changes that could diminish the aesthetic value of lands adjacent to the highways. The state regulations and guidelines governing the Scenic Highway Program are found in the Streets and Highways Code, Section 260 *et seq*. A highway is designated under this program when a local jurisdiction adopts a scenic corridor protection program, applies to the California Department of Transportation (Caltrans) for scenic highway approval, and receives notification from Caltrans that the highway has been designated as a Scenic Highway. When a city or county nominates an eligible scenic highway for official designation, it defines the scenic corridor, which typically includes land adjacent to and visible to a motorist on the highway. Within the program area, PCH is eligible for State Scenic Highway status, but is not officially designated.

California Coastal Act

The California Coastal Act defines the coastal zone and establishes land use control for the coastal zone. The California Coastal Act, (1) sets specific uses, including restoration, for wetlands located in the coastal zone; (2) requires 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. The California Coastal Act also identifies

and requires the protection of important scenic and visual qualities of the coastal areas (California Coastal Act, 2017). Plant No. 1 is located outside of the Coastal Zone and Plant No. 2 is located within the Coastal Zone.

Local

City of Fountain Valley Lighting Ordinance

Chapter 21.18.060 of the City of Fountain Valley Municipal Code includes exterior lighting standards for the City (City of Fountain Valley, 2017b). Lighting Standards include:

a) **Exterior Fixtures.** Lighting fixtures shall be architecturally compatible with the character of the surrounding structure(s) and shall be energy efficient. Fixtures shall be appropriate in height, intensity and scale to the use they are serving.

b) **Intensity.** The level of parking lot light projected onto any ground or wall surface shall not be less than two-foot-candles nor more than five-foot-candles at the base of the light fixture. The electrical plan or lighting plan shall demonstrate the dispersal of light on the ground surface and compliance with the requirements of this subsection. Building-mounted decorative lights shall not exceed five foot-candles measured five feet from the light source.

c) **Security Lighting.** Security lighting shall be provided in all nonresidential zoning districts at building entrances/exits. Security lighting shall provide a minimum of two foot-candles and a maximum of three-foot-candles at the ground level of the entrance.

d) **Shielding of Light Source.** Where the light source is visible from outside the project boundary, shielding shall be required to reduce glare so that neither the light source nor its image from a reflective surface shall be directly visible from any point five feet or more beyond the property line. This requirement shall not apply to single-family residential uses, traffic safety lighting or public street lighting.

e) **Mechanical or Chemical Processes.** Light, heat or glare from mechanical or chemical processes, or from reflective materials used or stored on a site, shall be shielded or modified to prevent emission of light or glare beyond the property line. (Ord. 1308 §5,2000)

City of Huntington Beach Lighting Ordinance

Title 23 of the City of Huntington Beach Zoning Code includes various general lighting standards for the City (City of Huntington Beach, 2017d). Applicable lighting standards include:

c) **Illumination.** All parking area lighting shall be energy-efficient and designed so as not to produce glare on adjacent residential properties. Security lighting shall be provided in areas accessible to the public during nighttime hours, and such lighting shall be on a time-clock or photo-sensor system.

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 (City of Huntington Beach, 2012). Various applicable goals and policies from this element include, but are not limited to, the following:

C4.1.4: Preserve skyward, night time views through minimization of lighting levels along the shoreline.

C4.2: Promote the protection of the Coastal Zone's visual and aesthetic resources through design review and development requirements.

C.4.2.1: Ensure that the following minimum standards are met by new development in the Coastal zone as feasible and appropriately:

a) Preservation of public views to and from the bluffs, to the shoreline and ocean and to the wetlands.

b) Adequate landscaping and vegetation.

c) Evaluation of project design regarding visual impact and compatibility.

d) Incorporate landscaping to mask oil operations and major utilities, such as the electrical power plant on PCH.

C4.2.2: Require that the massing, height, and orientation of new development be designed to protect public coastal views.

3.1.3 Impacts and Mitigation Measures

Significance Criteria

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

- Have a substantial adverse effect on a scenic vista (see Impact 3.1-1, below);
- Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway (see Section 4.1.1 in Chapter 4.0, Other CEQA Considerations);
- Substantially degrade the existing visual character or quality of the site and its surroundings (see Impact 3.1-2, below); or
- Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area (see Impact 3.1-3, below).

Methodology

The significance determination is based on several evaluation criteria, including the extent of program visibility from sensitive viewing areas such as public open space or residential areas; the degree to which the various program elements would contrast with or be integrated into the existing landscape; and the extent of change in the landscape's composition and character.

This impact analysis considers view obstruction, negative aesthetic effects, and light and glare effects. This visual assessment is based on field observations of the program site and surrounding areas, in addition to a review of aerial and ground-level photographs.

Impacts Discussion

Scenic Vistas

Impact 3.1-1: The proposed program would have less than significant and less than cumulatively considerable effects on a scenic vista.

Program Impact Analysis

As discussed above, the City of Fountain Valley does not have any designated scenic views or vistas in the vicinity of Plant No. 1. Although there are no designated vistas, potential visual impacts with the implementation of the proposed improvements at Plant No. 1 is provided below.

Under Public Resources Code § 30251, 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 (California Coastal Act, 2017). As stated in the City of Huntington Beach Coastal Element, 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 program area include the Pacific Ocean, Talbert Marsh, and the SAR. The Pacific Ocean is the City of Huntington Beach's most prominent visual asset. Scenic vistas of these coastal resources in the vicinity of Plant No. 2 include Brookhurst Street, PCH and beach areas, Talbert Marsh and SAR Trail, residential areas in Newport Beach and locations in Costa Mesa.

Following are evaluations of potential visual impacts from construction activities and buildout of the proposed program.

Construction

The construction of the proposed facilities would require temporary ground-disturbance and construction within Plant No. 1 and Plant No. 2 boundaries. Construction equipment including backhoes, loaders, cranes, dump trucks, graders and pavers would be located at both plant locations.

At Plant No. 1, the presence of construction equipment and materials would occur for approximately two years at one of two proposed locations. The southern location for the Collection Yard Relocation project would be at least 430 feet from the residential public viewpoints along Ward Street. These views would be obstructed by the existing vegetation located along the length of Ward Street as well as the existing structures between the southern location and Ward Street. Construction equipment and materials for the northern location for the Collection Yard Relocation project would be approximately 30 feet from the public viewpoints along Ellis Avenue. However, given that uses along Ellis Avenue include commercial and office, these viewpoints are not scenic vistas and not considered visually sensitive.

Because construction activities at the southern optional location would be obstructed by existing vegetation and no sensitive views are located in the vicinity of the northern optional location, visual impacts at public viewpoints from the presence of construction activities at Plant No. 1 would be less than significant.

At Plant No. 2, the presence of construction equipment and materials would occur for approximately 20 years. Scenic vistas that provide views of Plant No. 2 are located along Brookhurst Street, PCH and beach areas, Talbert Marsh and SAR Trail, residential areas in Newport Beach and locations in Costa Mesa.

Visual simulations from views along Brookhurst Street of the proposed improvements at Plant No. 2 are included in **Figure 3.1-7** and **Figure 3.1-8**. One of the initial projects of the proposed program includes the Southwest Perimeter Screening project which would improve or replace the existing Plant No. 2 perimeter screening along Brookhurst Street. The perimeter screening would be extended up to approximately 1,600 feet in length along Brookhurst Street and up to approximately 1,030 feet along Talbert Marsh. The improved screening would obstruct the majority of the views from Brookhurst Street of the construction equipment. The use of a crane at Plant No. 2 would be seen above the landscape screening; however, the majority of the crane would be screened.

As described above, Viewpoints 3 and 4 from PCH are approximately 500 feet from Plant No. 2, and views from these locations are distant. Viewpoint 3 includes a view of the southwestern portion of Plant No. 2. Enhanced screening through the addition of trees would obstruct most of the views of construction equipment from this location. Viewpoint 4 is distant and many of the existing facilities blend together. The addition of the proposed facilities would not substantially alter views from this location.

Views from the Talbert Marsh walking trail and the SAR Trail are adjacent to Plant No. 2. The majority of views from the Talbert Marsh walking trail are screened; however, Viewpoint 5 is located at a point where less vegetation exists. With the proposed Southwest Perimeter Screening, enhanced screening through the addition of trees and vegetation would impede views into Plant No. 2 from this location. Viewpoint 6 is located along the SAR Trail north of the Surge Tower. Views of construction activities associated with the proposed facilities would be obscured from this location. Further south near the southeast corner of Plant No. 2, views of construction activities associated with the proposed water softener building, which is proposed as part of the TPAD facility, would be seen. The water softener building is proposed to be approximately 25 feet in height, and views of construction activities of the proposed water softener would not substantially affect the scenic vista from this location because the scenic resource at this location is the SAR and not the facilities in Plant No. 2.

Viewpoints 7 and 8 on Figure 3.1-5 are located in residential areas in Newport Beach. Both locations include views toward Plant No. 2; however, the existing facilities located in the area of the proposed improvements blend together and are not discernable. The addition of construction activities within Plant No. 2 would not substantially affect the scenic vista from these residences because the scenic resources from these locations are the wetlands and SAR.

Viewpoint 1: Existing view of Plant No. 2 from Brookhurst St. and Bushard St. intersection looking southeast

Viewpoint 1: Proposed view of Plant No. 2 from Brookhurst St. and Bushard St. intersection looking southeast

D150626

SOURCE: ESA, 2017

OCSD Biosolids Master Plan

Figure 3.1-7
Viewpoint 1
P2-501 Perimeter Screening Visual Simulation

ESA

Viewpoint 2: Existing view of Plant No. 2 from Brookhurst St. looking east

Viewpoint 2: Proposed view of Plant No. 2 from Brookhurst St. looking east

D150626

SOURCE: ESA, 2017

OCSD Biosolids Master Plan

Figure 3.1-8
Viewpoint 2
P2-501 Perimeter Screening Visual Simulation

ESA

Viewpoints 9 and 10 are located in Costa Mesa. Both locations include views toward Plant No. 2; however, due to the distance of the views, the existing facilities blend together. The addition of construction activities within Plant No. 2 would not substantially affect the scenic vista from these locations because the scenic resources are the vegetation in the foreground and middle ground. At Viewpoint 10, Catalina Island can be seen in the background; however, construction activities on Plant No. 2 would not substantially alter background views from this viewpoint due to the distance of this viewpoint to the proposed construction activities.

As described above, the construction activities would not substantially impact the scenic vistas located in the vicinity of Plant No. 2. Therefore, potential impact to scenic vistas would be less than significant.

Operation

After the completion of construction activities associated with the proposed biosolids facilities, the structures and buildings would be permanent at Plant No. 1 and Plant No.2.

The proposed Collection Yard Relocation project at Plant No.1 could be located at one of two proposed locations. This project could include up to an approximately 20,000 square foot building along with an outdoor area for materials and equipment. The proposed building could be up to 25 feet in height. As described previously, the southern location for the Collection Yard Relocation project would be at least 430 feet from the residential public viewpoints along Ward Street. These views along Ward Street toward the proposed structure would be obstructed by the existing vegetation located along the length of Ward Street as well as the existing structures between the southern location and Ward Street. The program's impact in views from this viewpoint would be less than significant. The northern location for the Collection Yard Relocation project is adjacent to Ellis Avenue that includes commercial and office uses, and there are no residential views of this northern optional area. Therefore, viewpoints along Ellis Avenue near the northern optional area are not scenic vistas and not considered visually sensitive. The program's impact in views from viewpoints along Ellis Avenue would be less than significant.

At Plant No. 2, the presence of permanent facilities could be viewed from surrounding areas. None of the proposed facilities would require a height variance or be taller than existing facilities onsite; therefore, the new facilities would not have the size or massing to obstruct distant views from scenic vistas. As discussed above, scenic vistas that provide views of Plant No. 2 are located along Brookhurst Street, PCH and beach areas, Talbert Marsh and SAR Trail, residential areas in Newport Beach and locations in Costa Mesa.

Visual simulations from views along Brookhurst Street of the proposed facilities at Plant No. 2 are included in Figure 3.1-7 and Figure 3.1-8. One of the initial projects of the proposed program includes the Southwest Perimeter Screening, which would improve or replace the existing Plant No. 2 perimeter screening along Brookhurst Street. The improved screening would provide denser vegetation that would obstruct views of a proposed structure that is part of the TPAD facility. As shown in Viewpoint 1 in Figure 3.1-7, the proposed structure is approximately 10 to 15 feet taller than the existing warehouse building. However, the majority of the views of the proposed structure from Brookhurst Street would be obstructed. In addition, the majority of the

views from this viewpoint of the proposed tanks that would be located in the southwest corner of Plant No. 2 would be obstructed due to more enhanced vegetation screening. Viewpoint 2 in Figure 3.1-8 illustrates the existing view from Brookhurst Street south of Bushard Street. As shown, partial views of the existing digesters and the warehouse building are provided through the existing trees. The proposed Southwest Perimeter Screening would provide denser vegetation so that the majority of the proposed digesters that are proposed in the southwest corner of Plant No. 2 would be visually screened. As illustrated in the visual simulations, less than significant impacts to the existing views from viewpoints along Brookhurst Street would occur.

Vistas from PCH as well as from the beach areas south of PCH are distant from Plant No. 2. Views toward the southwest corner of Plant No. 2 would be altered with the implementation of the proposed program. Currently, the existing warehouse as well as other Plant No. 2 structures can be viewed. These structures are partially obstructed by existing vegetation and trees. With the proposed Southwest Perimeter Screening as well as implementation of the additional facilities, views of proposed structures toward the southwest corner of Plant No. 2 (TPAD digester tanks) would be partially obstructed with the denser and taller vegetation and trees. Vistas along PCH between Brookhurst Street and the PHC bridge across the SAR as well as adjacent beach areas provide more unobstructed views of the existing digester tanks and other structures within Plant No. 2. The proposed Southwest Perimeter Screening would not obstruct views of these existing facilities. The proposed program includes the in-place replacement of some of these digester tanks and would include the removal of six digester tanks. Vistas from the PCH bridge at the SAR are also distant and the existing structures on Plant No. 2 blend together. Overall, the implementation of the proposed program would result in less than significant view impacts at vistas along PCH and adjacent beach areas.

Vistas from the Talbert Marsh walking trail and the SAR Trail are adjacent to Plant No. 2. The majority of views toward Plant No. 2 from these vistas are screened. Along the Talbert Marsh walking trail, there are few locations with less vegetation and views are available into Plant No. 2. The implementation of the proposed program would increase the number of structures within Plant No. 2 in the southwest portion of the plant; however, the current and future scenic vista from the walking trail is of Talbert Marsh and not towards Plant No. 2. The implementation of the proposed facilities within the program would result in less than significant visual impacts from the vistas along the Talbert Marsh walking trail. Along the SAR trail, views into Plant No. 2 are available; however, these views are generally limited to structures and buildings located on the east side of Plant No. 2. One of the proposed buildings is part of the proposed program. This building is the water softener building located in the southeast portion of Plant No. 2. The proposed building would be located adjacent to the secondary clarifiers. Views from vistas along the SAR would result in less than significant impacts because the scenic view from this location is toward the SAR and not toward Plant No. 2.

Vistas from residential areas in Newport Beach are located within the Newport Shores area. Existing facilities located in the area of the proposed improvements blend together and are not discernable. The addition of structures within Plant No. 2 would not substantially affect the scenic vista from these residences because the scenic resources from these locations are the wetlands and

SAR. Therefore, the implementation of the proposed program would result in less than significant impacts on scenic vistas in Newport Beach.

Vistas are also located in Costa Mesa. Views from these vistas are distant and some could see Catalina Island but not the ocean. Existing facilities blend together in the view. The addition of structures within Plant No. 2 would not be visually discernable. Therefore, impacts to scenic vistas in Costa Mesa would be less than significant.

Significance Determination before Mitigation: Less than Significant

Cumulative Impact Analysis

The program vicinity is largely urbanized with residential, commercial and industrial development. As the program vicinity continues to develop, the addition of more residential, commercial, and industrial development could eliminate portions of the remaining natural areas that are within the program vicinity. With regard to the overall visual and scenic character of the area, cumulative development within the cities of Huntington Beach, Costa Mesa and Newport Beach (see Table 3-2 in Chapter 3 of this Draft PEIR) would result in more alterations of the existing visual quality of the area and alterations of views from scenic vistas in the vicinity of Plant No. 2. Cumulative development could result in significant visual impacts from vistas. The implementation of the proposed program would minimally contribute to the land-use intensification in the program area. The proposed facilities would not be taller than existing facilities on Plant No. 2 and would remain within the Plant No. 2 property, and therefore would not further obstruct views of scenic vistas in a manner that would incrementally contribute to cumulative impacts to scenic vistas within the program area. Therefore, the proposed program's contribution to cumulative impacts to scenic vistas would be considered less than cumulatively considerable.

Significance Determination before Mitigation: Less than Significant

Mitigation Measures

Program Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Visual Character

Impact 3.1-2: The proposed program would have a less than significant and less than cumulatively considerable impact on the existing visual character or quality of the sites and their surroundings.

Program Impact Analysis

Construction

Construction activities associated with the construction of new facilities and demolition of existing facilities would alter the existing visual character of the areas surrounding Plant No. 1 and Plant No. 2.

At Plant No. 1, construction activities would occur for approximately two years at one of two locations. Surrounding commercial uses north of Plant No.1 and industrial uses south of Plant No. 1 would have views of construction activity associated with the collections yard relocation. Sensitive residential uses located west of Ward Street would not have views of construction activity. Because views of the construction activities are not sensitive and would occur over a relatively short time period, impacts to the visual character or quality of the area would be less than significant.

At Plant No. 2, construction activities would occur over approximately 20 years. Construction equipment could alter the existing visual characteristics and quality of the area from some locations in the vicinity of Plant No. 2. The construction equipment would move from one project to another over the 20 years, but generally the equipment would remain in the southwest portion of Plant No. 2. Because the proposed Southwest Perimeter Screening project would be implemented as one of the initial projects, the majority of the visual characteristics in the southwest portion of Plant No. 2 from Brookhurst Street and PCH south of Plant No. 2 near Brookhurst Street would be obstructed by the denser vegetation and trees. The digester tanks that are proposed in the southwest portion of the Plant No. 2 would contain a light earth color similar to the existing digester tanks. In addition, the replacement digester tanks would also include the same color as the existing digester tanks. Finally, the new buildings (i.e., warehouse, digester feed facility and water softener building) that are part of the program would include the same exterior, light earth color as the existing facilities. The construction activities associated with the proposed program would result in less than significant impacts on the visual character or quality of the area.

Operation

The proposed Collections Yard Relocation project could relocate the collection yard to one of two locations at Plant No. 1 to accommodate materials and vehicles. The introduction of an asphalt area for the collection yard would not degrade the existing visual character of the Plant No. 1, which currently contains other asphalt areas for parking. Further, this project could introduce a new above-ground structure at Plant No. 1. The structure would be designed with materials that are compatible with the existing treatment facilities onsite at Plant No. 1 and would not alter or degrade the exiting visual character of the site. Impacts to the existing visual character would be less than significant.

At Plant No. 2, the proposed TPAD project would introduce six new 110-ft. diameter, 40 feet tall digesters designated to operate in either mesophilic or thermophilic operations. These digesters would be the largest structures proposed under the program and would be implemented within the southwest corner of Plant No. 2 where there are currently no above ground facilities. The proposed TPAD digester tanks have the most potential to impact the visual character of the area. The program also includes the replacement of digester tanks; however, these replacement tanks would be the same size as the existing tanks. Because the proposed program includes the Southwest Perimeter Screening, the proposed TPAD digester tank facilities would be partially visible from Brookhurst Street and PCH. However, the majority of the view of the proposed digester tanks would be obstructed and the tanks would have an earth tone color. As a result, this partial view would constitute a less than significant impact on the visual character of the area. In addition, more distant views from the southeast, east and northeast would have either nominal discernable views or no views of the proposed structures. The distant views blend the existing structures together and, because the proposed structures would not have a greater height than the existing structures, the proposed structures would also blend together in the future view. Therefore, the implementation of the proposed program facilities would result in less than significant impacts to the existing visual character of the area.

Significance Determination before Mitigation: Less than Significant

Cumulative Impact Analysis

The program vicinity is largely urbanized with residential, commercial and industrial development. As the program vicinity continues to develop, the addition of more residential, commercial, and industrial development could eliminate portions of the remaining natural areas that are within the program vicinity. With regard to the overall visual and scenic character of the area, cumulative development within the cities of Huntington Beach, Costa Mesa and Newport Beach (see Table 3-2 in Chapter 3 of this PEIR) would result in more alterations of the existing visual quality of the area and alterations of views from scenic vistas in the vicinity of Plant No. 2. Cumulative development could result in significant visual impacts from vistas.

The implementation of the proposed program would contribute to land-use intensification within the Plant No. 2 boundary. However, the proposed facilities would be visually consistent with existing facilities at Plant No. 2 and would be partially screened by the proposed perimeter screening; therefore, the program would not degrade the existing visual character of the program area in a manner that would significantly contribute to cumulative impacts to the visual character of the surrounding area. The proposed program's contribution to cumulative impacts regarding visual character would be less than cumulatively considerable.

Significance Determination before Mitigation: Less than Significant

Mitigation Measures

Program Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

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Light or Glare

Impact 3.1-3: The proposed program could create new sources of substantial light or glare and could result in significant and cumulatively considerable adverse effects on day or nighttime views in the program area.

Program Impact Analysis

Construction

Construction of the proposed facilities would take place during the hours of 7:00 a.m. and 8:00 p.m., Monday through Friday. No overnight construction would occur, so lighting for construction activities would not be required. Further, the presence of construction equipment would not introduce new lighting or glare to the program area. Therefore, construction impacts would be less than significant.

Operation

The proposed facilities would not have highly reflective surfaces, and would not include large areas of glass on structures/buildings; therefore, the proposed program would have less than significant impacts regarding glare.

The proposed facilities would be located within the existing Plant No. 1 and Plant No. 2 boundaries, which currently contain lighting within the interior and exterior of structures. Plant No. 1 and Plant No. 2 are located within an urban area, developed with residential, commercial, and industrial uses. Implementation of the proposed projects could result in new exterior nighttime lighting for operational and security purposes within Plant No. 1 and Plant No. 2. Though not anticipated; the increase in lighting within the Plants could result in spill over lighting onto neighboring residential, commercial uses, or the SAR Trail and Talbert Marsh. Therefore, increase lighting within Plant No. 1 and Plant No. 2 could represent a potential significant lighting impact.

Significance Determination before Mitigation: Potentially Significant

Cumulative Impact Analysis

The program vicinity is largely urbanized with residential, commercial and industrial development. As the area continues to develop, the addition of more residential, commercial, and industrial development could increase additional sources of light and glare. With regard to the overall sources of light and glare of the program vicinity, cumulative development (see Table 3-2 in Chapter 3 of this PEIR) would result in more new sources of light and glare and could result in

cumulatively significant light and glare impacts. Because the program could result in increased local light levels, the program's contribution is considered cumulatively considerable.

Significance Determination before Mitigation: Potentially Significant

Mitigation Measures

Program Measures

AES-1: All new permanent exterior lighting associated with proposed program components shall be shielded and directed downward to avoid any light intrusion to surrounding uses.

AES-2: Development of the proposed program and associated facilities shall comply with existing and future lighting ordinances for the cities of Fountain Valley and Huntington Beach.

Significance Determination after Mitigation: Less than Significant

The implementation of Mitigation Measures AES-1 and AES-2 will limit the maximum light beyond the property boundary and comply with existing and future lighting ordinances so that lighting impacts on adjacent uses would be less than significant.

Cumulative Measures

Implementation of Mitigation Measure AES-1 and Mitigation Measure AES-2 is required.

Significance Determination after Mitigation: Less than Significant

The implementation of Mitigation Measures AES-1 and AES-2 would ensure that the proposed facilities' contribution to cumulative light impacts would be reduced to less than cumulatively considerable by limiting the maximum light beyond the property boundary and complying with existing and future lighting ordinances.

3.1.4 References

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3.2 Air Quality

This section addresses potential air quality impacts that could result from implementation of the proposed program. The analysis of air quality impacts is based on the general air quality and meteorological conditions in the South Coast Air Basin (SoCAB).

3.2.1 Environmental Setting

Regional Climate and Meteorology

The proposed program is located in Orange County, which is within the SoCAB. The SoCAB is under the jurisdiction of the South Coast Air Quality Management District (SCAQMD) for air quality planning purposes. The SoCAB is an approximately 6,600-square-mile coastal plain bounded by the Pacific Ocean to the southwest and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east. The SoCAB includes the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties, and all of Orange County.

The ambient concentrations of air pollutants are determined by the amount of emissions released by sources and the atmosphere's ability to transport and dilute such emissions. Natural factors that affect transport and dilution include terrain, wind, atmospheric stability, and sunlight. Therefore, existing air quality conditions in the program area are determined by such natural factors as topography, meteorology, and climate, in addition to the amount of emissions released by existing air pollutant sources.

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 topography and climate of Southern California combine to make the SoCAB an area of high air pollution potential. The SoCAB is a coastal plain with connecting broad valleys and low hills, bounded by the Pacific Ocean to the west and high mountains around the rest of the perimeter. The general region lies in the semi-permanent high-pressure zone of the eastern Pacific, resulting in a mild climate tempered by cool sea breezes with light average wind speeds. The usually mild climatological pattern is disrupted occasionally by periods of extremely hot weather, winter storms, or Santa Ana winds. 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 that produce ozone. The region experiences more days of sunlight than any other major urban area in the nation except Phoenix (SCAQMD 2013).

Criteria Pollutants

The California Air Resources Board (CARB) and the United States Environmental Protection Agency (USEPA) currently focus on the following air pollutants as indicators of ambient air quality: ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), respirable or breathable particulate matter with an aerodynamic diameter of 10 micrometers or less (PM10),

fine particulate matter with an aerodynamic diameter of 2.5 micrometers or less (PM2.5), and lead. The pollutants are referred to as "criteria air pollutants." These criteria air pollutants are known to be harmful to human health, and extensive health-effects criteria documents are available about their effects on human health and welfare. Standards have been established for each criteria pollutant to meet specific public health and welfare criteria set forth in the federal Clean Air Act (CAA). California has generally adopted more stringent ambient air quality standards for the criteria air pollutants and has adopted air quality standards for some pollutants for which there is no corresponding national standard. The National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) for each of the monitored pollutants and their effects on health are summarized in **Table 3.2-1**. The NAAQS and CAAQS have been set at levels considered safe to protect public health, including the health of sensitive populations such as asthmatics, children, and the elderly with a margin of safety; and to protect public welfare, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings. A brief description of the health effects of regulated criteria air pollutants are provided below.

Ozone

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 (ROGs) or volatile organic compounds (VOCs), and oxides of nitrogen (NO_X). While both ROGs and VOCs refer to compounds of carbon, ROG is a term used by CARB and is based on a list of exempted carbon compounds determined by CARB. VOC is a term used by the USEPA and is based on USEPA's own exempt list. For the purposes of the air quality analysis, the terms VOCs and ROGs are used interchangeably. The time required for ozone formation allows the reacting compounds to spread over a large area, producing regional pollution problems. Ozone concentrations are usually the cumulative result of regional development patterns rather than the result of a few significant emission sources.

Once ozone is formed, it remains in the atmosphere for 1 or 2 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.

VOCs are typically formed from combustion of fuels and/or released through evaporation of organic liquids. Some VOCs are also classified by the State as toxic air contaminants. These are compounds comprised primarily of atoms of hydrogen and carbon. Internal combustion associated with motor vehicle usage is the major source of hydrocarbons, as are architectural coatings. Emissions of VOCs themselves are not "criteria" pollutants; however, they contribute with nitrogen oxides (NO_X) to formation of ozone and are regulated as ozone precursor emissions.

TABLE 3.2-1
STATE AND NATIONAL CRITERIA AIR POLLUTANT STANDARDS, EFFECTS, AND SOURCES

Pollutant	Averaging Time	State Standard	National Standard (Primary)	Pollutant Health and Atmospheric Effects	Major Pollutant Sources
Ozone	1 hour	0.09 ppm	---	High concentrations can directly affect lungs, causing irritation. Long-term exposure may cause damage to lung tissue.	Formed when reactive organic gases (ROGs) or volatile organic compounds (VOCs) and nitrogen oxides (NOx) react in the presence of sunlight. Major sources include on-road motor vehicles, solvent evaporation, and commercial / industrial mobile equipment.
	8 hours	0.070 ppm	0.070 ppm		
Nitrogen Dioxide	1 hour	0.18 ppm	0.100 ppm	Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown.	Motor vehicles, petroleum refining operations, industrial sources, aircraft, ships, and railroads.
	Annual Avg.	0.030 ppm	0.053 ppm		
Carbon Monoxide	1 hour	20 ppm	35 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.
	8 hours	9.0 ppm	9 ppm		
Sulfur Dioxide	1 hour	0.25 ppm	.075 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.
	3 hours	---	0.5 ppm		
	24 hours	0.04 ppm	0.14 ppm		
	Annual Avg.	---	0.03 ppm		
Respirable Particulate Matter (PM10)	24 hours	50 $\mu g/m^3$	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).
	Annual Avg.	20 $\mu g/m^3$	---		
Fine Particulate Matter (PM2.5)	24 hours	---	35 $\mu g/m^3$	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 NOx, sulfur oxides, and organics.
	Annual Avg.	12 $\mu g/m^3$	12.0 $\mu g/m^3$		
Lead	Monthly Avg.	1.5 $\mu g/m^3$	---	Disturbs gastrointestinal system, and causes anemia, kidney disease, and neuromuscular and neurological dysfunction.	Present source: lead smelters, battery manufacturing & recycling facilities. Past source: combustion of leaded gasoline.
	Quarterly	---	1.5 $\mu g/m^3$		
	Rolling 3-month Average	---	0.15 $\mu g/m^3$		
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 SO2.
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 PM2.5.

ppm = parts per million; $\mu g/m^3$ = micrograms per cubic meter.
SOURCES: CARB 2016a

Nitrogen Dioxide

Nitrogen Dioxide (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.

Carbon Monoxide

Carbon monoxide (CO), a colorless and odorless gas, is a relatively nonreactive pollutant that is a product of incomplete combustion and is 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 1980s, 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 because of the retirement of older polluting vehicles, lower emissions from new vehicles, and improvements in fuels.

Sulfur Dioxide

Sulfur Dioxide (SO_2) is a colorless, extremely irritating gas or liquid. It enters the atmosphere as a pollutant, mainly as a result of burning high-sulfur-content fuel oils and coal, and from chemical processes occurring at chemical plants and refineries. When SO_2 oxidizes in the atmosphere, it forms sulfur trioxide (SO_3). Collectively, these pollutants are referred to as sulfur oxides (SO_X).

Major sources of SO_2 include power plants, large industrial facilities, diesel vehicles, and oil-burning residential heaters. Emissions of SO_2 aggravate lung diseases, especially bronchitis. It also constricts the breathing passages, especially in people with asthma and people involved in moderate to heavy exercise. SO_2 potentially causes wheezing, shortness of breath, and coughing. Long-term SO_2 exposure has been associated with increased risk of mortality from respiratory or cardiovascular disease.

Particulate Matter

Respirable particulate matter (PM10) and fine particulate matter (PM2.5) consist of particulate matter that is 10 microns or less in diameter and 2.5 microns or less in diameter, respectively (a micron is one-millionth of a meter). PM10 and PM2.5 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. Particulate matter can also damage materials and reduce visibility. One common source of PM2.5 is diesel exhaust emissions.

PM10 consists of particulate matter emitted directly into the air (e.g., 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 ROGs. Traffic generates particulate matter emissions through entrainment of dust and dirt particles that settle onto roadways and parking lots. PM10 and PM2.5 are also emitted by wood burning in residential wood stoves and fireplaces and open agricultural burning. PM2.5 can also be formed through secondary processes such as airborne reactions with certain pollutant precursors, including ROGs, ammonia (NH_3), NO_X, and SO_X.

Lead

Lead is a metal found naturally in the environment and present in some manufactured products. There are a variety of activities that can contribute to lead emissions, which are grouped into two general categories, stationary and mobile sources. On-road mobile sources include light-duty automobiles; light-, medium-, and heavy-duty trucks as well as motorcycles.

Emissions of lead have dropped substantially over the past 40 years. The reduction before 1990 was largely due to the phase-out of lead as an anti-knock agent in gasoline for on-road automobiles. Substantial emission reductions have also been achieved through enhanced controls in the metals-processing industry. In the SoCAB, atmospheric lead is generated almost entirely by the combustion of leaded gasoline and contributes less than one percent of the material collected as total suspended particulates.

Toxic Air Contaminants

Concentrations of toxic air contaminants (TACs), or in federal parlance, hazardous air pollutants (HAPs), are also used as indicators of ambient air quality conditions. A TAC is defined as an air pollutant that may cause or contribute to an increase in mortality or in serious illness, or that may pose a hazard to human health. 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.

Between July 2012 and June 2013, the SCAQMD conducted the Multiple Air Toxics Exposure Study (MATES IV), which is a follow-up to previous air toxics studies conducted in the SoCAB. The MATES IV Final Report was issued in May 2015. The study, based on air monitoring data collected throughout the SoCAB, consisted of a monitoring program, an updated emissions inventory of TACs, and a modeling effort to characterize carcinogenic risk across the SoCAB from exposure to TACs. The study concluded that the average of the modeled air toxics concentrations measured at each of the monitoring stations in the SoCAB equates to a background cancer risk of approximately 418 per million based on the average of 10 fixed monitoring sites, and 367 per million based on a population-weighted average risk. The risk is primarily attributed to diesel exhaust, which is about 65 percent lower for the average of 10 fixed monitoring sites and 57 percent lower for the population-weighted risk than the previous MATES III cancer risk (SCAQMD 2015, ES-2-3). Subsequent to the SCAQMD's risk calculation estimates performed for MATES IV, the California Environmental Protection Agency Office of Environmental Health Hazard Assessment (OEHHA) *Air Toxics Hot Spots Program Guidance*

Manual for Preparation of Health Risk Assessments (OEHHA Guidance) updated the methods for estimating cancer risks (OEHHA 2015). The updated method utilizes higher estimates of cancer potency during early life exposures and uses different assumptions for breathing rates and length of residential exposures. SCAQMD staff estimates that risks for the same inhalation exposure level will be about 2.5 to 2.7 times higher using the updated methods. This would be reflected in the average lifetime air toxics risk estimated from the monitoring sites data going from 418 per million to 1,023 per million the average of 10 fixed monitoring sites and from 367 per million to 897 per million for the population-weighted risk (SCAQMD 2015, 2-11). Under the updated OEHHA methodology, adopted in March of 2015, the relative reduction in risk from the MATES IV results compared to MATES III would be the same (about 65 percent reduction in risk).

Approximately 68 percent of the airborne carcinogenic risk is attributed to diesel particulate emissions matter (DPM), approximately 22 percent to other toxics associated with mobile sources (including benzene, butadiene, and formaldehyde), and approximately 10 percent is attributed to stationary sources (which include industries and other certain businesses, such as dry cleaners and chrome plating operations) (SCAQMD 2015, ES-2). The study also found lower ambient concentrations of most of the measured air toxics compared to the levels measured in the previous study conducted during 2004 and 2006. Specifically, benzene and 1,3-butadiene, pollutants generated mainly from vehicles, were down 35 percent and 11 percent, respectively (SCAQMD 2015, 6-1). The reductions were attributed to air quality control regulations and improved emission control technologies. In addition to air toxics, MATES IV included continuous measurements of black carbon and ultrafine particles (particles smaller than 0.1 microns in size), which are emitted by the combustion of diesel fuels. Sampling sites located near heavily-trafficked freeways or near industrial areas were characterized by increased levels of black carbon and ultrafine particles compared to more rural sites.

Odorous Emissions

Odors are generally regarded as an annoyance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache). Offensive odors are unpleasant and can lead to public distress and 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.

Hydrogen sulfide (H_2S) is the major source of odor problems at wastewater treatment plants. Numerous other odorous substances, including organic sulfides, organic amines, organic acids, and ammonia, are also present. All of these substances are produced by biological decomposition of organic matter in wastewater. Some may be added directly to wastewater from industrial or household chemical discharges.

OCSD has prepared a comprehensive Odor Control Master Plan (OCMP) (SP-166) covering both treatment plants. The OCMP analyzes odor data from the both Plants, determines which odorants actually cause odor complaints, assesses the level of nuisance for those odorants, runs air dispersion models to determine the extent of odorous impacts, and analyzes foul air scrubbing

technologies and appropriate combinations of technologies in order to mitigate odor impacts in the vicinity of the Plants (CH2M HILL Engineers, Inc. 2016). Currently, OCSD has SCAQMD permits for the operation of the foul air scrubbers. OCSD also maintains records of H_2S concentration in the discharge of the foul air scrubbers as well as other process information, such as pH and differential pressure across each scrubber. Odor complaints received at Plant No. 1 and Plant No. 2 have been logged since 1981.

The updated 2016 OCMP addresses nuisance odors at Plant No. 1 and Plant No. 2 from a more comprehensive perspective when compared to traditional OCMP efforts that historically have focused primarily on H_2S or dilutions-to-threshold (D/T) alone.

Local Setting

Existing Criteria Pollutants Levels at Nearby Monitoring Stations

The SCAQMD maintains a network of air quality monitoring stations located throughout the SoCAB to measure ambient pollutant concentrations. The monitoring station nearest to and most representative of the program area is the Costa Mesa Monitoring Station. Criteria pollutants monitored at this station include ozone, NO_2, CO, and SO_2. The nearest monitoring station to the program area that monitors data for PM10, PM2.5 and lead is the Long Beach Monitoring Station. The most recent data reported to the USEPA and CARB for these monitoring stations are from calendar years 2012 to 2016. The pollutant concentration data for these years are summarized in **Table 3.2-2**.

Sensitive Receptors and Locations

Land uses such as residences, schools, hospitals, and convalescent homes are considered sensitive to poor air quality conditions because infants, children, the elderly, and people with health afflictions (especially respiratory ailments) are more susceptible to respiratory infections and other air-quality-related health problems than the general public. Residential areas are also considered to be sensitive to air pollution because residents (including children and the elderly) tend to be at home for extended periods of time, resulting in sustained exposure to any pollutants present. Recreational land uses are considered moderately sensitive to air pollution. Exercise places a high demand on respiratory functions, which can be impaired by air pollution, even though exposure periods during exercise are generally short.

The program area is located in northwestern Orange County, California. Plant No. 1 is located at 10844 Ellis Avenue in the City of Fountain Valley and bound by Ellis Avenue to the north, Ward Street to the west, Garfield Avenue to the south, and the Santa Ana River (SAR) and SAR Trail to the east. The nearest sensitive receptors to Plant No. 1 are the single-family residences located approximately 430 feet west of the construction area within Plant No.1. Plant No. 2 is located at 22212 Brookhurst Street in the City of Huntington Beach and bounded by Baybreeze to the north, Brookhurst Street to the west, the Santa Ana River (SAR) and SAR Trail to the east, and Talbert Marsh, Pacific Coast Highway (PCH) and the Pacific Ocean to the south. The nearest sensitive receptors to Plant No. 2 include the single-family residences located approximately 120 feet west of Plant No. 2 and multi-family residences located approximately immediately adjacent to the northern boundary of Plant No. 2 along Brookhurst Street.

TABLE 3.2-2
AMBIENT AIR QUALITY DATA

Pollutant/Standard[a]	2012	2013	2014	2015	2016
O_3 (1-hour)					
Maximum Concentration (ppm)	0.090	0.095	0.096	0.099	0.090
Days > CAAQS (0.09 ppm)	2	1	1	1	0
O_3 (8-hour)					
Maximum Concentration (ppm)	0.076	0.083	0.079	0.079	0.069
4th High 8-hour Concentration (ppm)	0.060	0.065	0.076	0.068	0.065
Days > CAAQS (0.070 ppm)	1	2	6	2	0
Days > NAAQS (0.070 ppm)	1	2	6	2	0
NO_2 (1-hour)					
Maximum Concentration (ppm)	0.074	0.076	0.061	0.052	0.060
98th Percentile Concentration (ppm)	0.051	0.053	0.054	0.048	0.051
NO_2 (Annual)					
Annual Arithmetic Mean (0.030 ppm)	0.010	0.012	0.011	0.012	0.010
CO (1-hour)					
Maximum Concentration (ppm)	2.1	2.4	3.0	3.0	2.1
Days > CAAQS (20 ppm)	0	0	0	0	0
CO (8-hour)					
Maximum Concentration (ppm)	1.7	2.0	1.9	2.2	1.7
Days > CAAQS (9.0 ppm)	0	0	0	0	0
SO_2 (1-hour)					
Maximum Concentration (ppm)	0.006	0.004	0.009	0.005	0.003
99th Percentile Concentration (ppm)	0.002	0.003	0.004	0.003	0.002
SO_2 (24-hour)					
Maximum Concentration (ppm)	0.0009	0.0012	0.0014	0.0011	0.0007
PM10 (24-hour)					
Maximum Concentration (µg/m^3)	54	54	59	62	56
Samples > CAAQS (50 µg/m^3)	1	1	2	2	3
Samples > NAAQS (150 µg/m^3)	0	0	0	0	0
PM10 (Annual Average)					
Annual Arithmetic Mean (20 µg/m^3)	25.5	27.3	26.6	26.5	27.8
PM2.5 (24-hour)					
Maximum Concentration (µg/m^3)	46.7	42.9	52.2	48.3	28.93
98th Percentile Concentration (µg/m^3)	25,1	24.6	27.2	31.2	22.05
Samples > NAAQS (35 µg/m^3)	4	1	2	4	1
PM2.5 (Annual)					
Annual Arithmetic Mean (12 µg/m^3)	10,57	10.97	10.72	10.26	9.62
Lead					
Maximum 30-day average (µg/m^3)	0.007	0.012	0.012	0.010	0.008

[a] ppm = parts per million; µg/m^3 = micrograms per cubic meter.
SOURCE: SCAQMD 2017; CARB 2017; USEPA 2017.

3.2.2 Regulatory Framework

A number of statutes, regulations, plans, and policies have been adopted that address air quality issues. The proposed program is subject to air quality regulations developed and implemented at the federal, state, and local levels. This section provides a summary of pertinent air quality regulations affecting the proposed program at the federal, state, and local levels.

Federal

The federal CAA of 1963 was the first federal legislation regarding air pollution control and has been amended numerous times in subsequent years, with the most recent amendments occurring in 1990. At the federal level, the USEPA is responsible for implementation of certain portions of the Clean Air Act including mobile source requirements. Other portions of the CAA, such as stationary source requirements, are implemented by state and local agencies.

The CAA establishes federal air quality standards, known as NAAQS and specifies future dates for achieving compliance. The CAA also mandates that the state submit and implement a State Implementation Plan (SIP) for areas not meeting these standards. These plans must include pollution control measures that demonstrate how the standards will be met. The 1990 amendments to the CAA identify specific emission reduction goals for areas not meeting the NAAQS. These amendments require both a demonstration of reasonable further progress toward attainment and incorporation of additional sanctions for failure to attain or to meet interim milestones. The sections of the CAA which are most applicable to the proposed program include Title I (Nonattainment Provisions) and Title II (Mobile Source Provisions). Title I requirements are implemented for the purpose of attaining NAAQS for the following criteria pollutants: (1) O_3; (2) NO_2; (3) CO; (4) SO_2; (5) PM10; and (6) lead. The NAAQS were amended in July 1997 to include an 8-hour standard for O_3 and to adopt a NAAQS for PM2.5. Table 3.2-1 shows the NAAQS currently in effect for each criteria pollutant. The proposed program is located within the SoCAB, which is an area designated as non-attainment for O_3 and PM2.5 because it does not currently meet NAAQS for certain pollutants regulated under the CAA. **Table 3.2-3**, provides a summary of the attainment status of the Orange County portion of the SoCAB with respect to the federal and state standards.

Title II of the federal Clean Air Act pertains to mobile sources, such as cars, trucks, buses, and planes. Reformulated gasoline, automobile pollution control devices, and vapor recovery nozzles on gas pumps are a few of the mechanisms the USEPA uses to regulate mobile air emission sources. The provisions of Title II have resulted in tailpipe emission standards for vehicles, which have strengthened in recent years to improve air quality. For example, the standards for NO_X emissions have been lowered substantially, and the specification requirements for cleaner burning gasoline are more stringent.

TABLE 3.2-3
SOUTH COAST AIR BASIN ATTAINMENT STATUS (ORANGE COUNTY)

Pollutant	National Standards	California Standards
O_3 (1-hour standard)	N/A[a]	Non-attainment – Extreme
O_3 (8-hour standard)	Non-attainment – Extreme	Non-attainment
CO	Attainment	Attainment
NO_2	Attainment	Attainment
SO_2	Attainment	Attainment
PM10	Attainment	Non-attainment
PM2.5	Non-attainment	Non-attainment
Lead	Attainment	Attainment
Visibility Reducing Particles	N/A	Unclassified
Sulfates	N/A	Attainment
Hydrogen Sulfide	N/A	Unclassified
Vinyl Chloride	N/A	N/A[b]

N/A = not applicable

[a] The NAAQS for 1-hour ozone was revoked on June 15, 2005, for all areas except Early Action Compact areas.

[b] In 1990 the California Air Resources Board identified vinyl chloride as a toxic air contaminant and determined that it does not have an identifiable threshold. Therefore, the California Air Resources Board does not monitor or make status designations for this pollutant.

Source: USEPA 2016

State

California Clean Air Act

The California CAA requires all areas of the State to achieve and maintain the CAAQS by the earliest practical date. The CAAQS regulate the same criteria pollutants as the NAAQS but also regulate State-identified criteria pollutants, including sulfates, hydrogen sulfide, visibility-reducing particles, and vinyl chloride. In general, the CAAQS are more stringent than the NAAQS. CARB has primary responsibility for ensuring implementation of the California CAA,[1] responding to the federal CAA planning requirements applicable to the state, and regulating emissions from motor vehicles and consumer products within the state. Table 3.2-1 shows the CAAQS currently in effect for each of the federally recognized criteria pollutants as well as the additional pollutants recognized by the state.

Health and Safety Code Section 39607(e) requires CARB to establish and periodically review area designation criteria. Table 3.2-3, provides a summary of the attainment status of the Orange County portion of the SoCAB with respect to the CAAQS. Because vinyl chloride is a TAC, CARB does not classify attainment status for this pollutant.

California Air Resources Board On-Road and Off-Road Vehicle Rules

In 2004, CARB adopted an Airborne Toxic Control Measure (ATCM) to limit heavy-duty diesel motor vehicle idling to reduce public exposure to DPM and other TACs (Title 13 California Code

[1] Chapter 1568 of the Statutes of 1988.

of Regulations [CCR], Section 2485). The measure applies to diesel-fueled commercial vehicles with gross vehicle weight ratings greater than 10,000 pounds that are licensed to operate on highways, regardless of where they are registered. This measure does not allow diesel-fueled commercial vehicles to idle for more than five minutes at any given location.

In 2008, CARB also approved the Truck and Bus regulation to reduce PM and NO_X emissions from existing diesel vehicles operating in California (13 CCR, Section 2025, subsection (h)). The requirements were amended to apply to nearly all diesel-fueled trucks and buses with a gross vehicle weight rating (GVWR) greater than 14,000 pounds. For the largest trucks in the fleet and for those with a GVWR greater than 26,000 pounds, there are two methods to comply with the requirements. The first way is for the fleet owner to retrofit or replace engines, starting with the oldest engine model year, to meet 2010 engine standards, or better. This is phased over 8 years, starting in 2015 and would be fully implemented by 2023, meaning that all trucks operating in the State subject to this option would meet or exceed the 2010 engine emission standards for NO_X and PM by 2023. The second option, if chosen, requires fleet owners, starting in 2012, to retrofit a portion of their fleet with diesel particulate filters (DPFs) achieving at least 85 percent removal efficiency, so that by January 1, 2016 their entire fleet is equipped with DPFs. However, DPFs do not lower NO_X emissions. Thus, fleet owners choosing the second option must still comply with the 2010 engine emission standards for their trucks and busses by 2020.

In addition to limiting exhaust from idling trucks, CARB also promulgated emission standards for off-road diesel construction equipment of greater than 25 horsepower (hp) such as bulldozers, loaders, backhoes and forklifts, as well as many other self-propelled off-road diesel vehicles. The regulation adopted by CARB on July 26, 2007 aims to reduce emissions by installation of diesel soot filters and encouraging the retirement, replacement, or repower of older, dirtier engines with newer emission controlled models (13 CCR, Section 2449). Implementation is staggered based on fleet size (which is the total of all off-road horsepower under common ownership or control), with large fleets beginning compliance in 2014, medium fleets in 2017, and small fleets in 2019. Each fleet must demonstrate compliance through one of two methods. The first option is to calculate and maintain fleet average emissions targets, which encourages the retirement or repowering of older equipment and rewards the introduction of newer cleaner units into the fleet. The second option is to meet the Best Available Control Technology (BACT) requirements by turning over or installing Verified Diesel Emission Control Strategies (VDECS) on a certain percentage of its total fleet horsepower. The compliance schedule requires that BACT turn overs or retrofits (VDECS installation) be fully implemented by 2023 in all equipment for large and medium fleets and by 2028 for small fleets.

Regional

South Coast Air Quality Management District

The SCAQMD is primarily responsible for planning, implementing, and enforcing air quality standards for all of Orange County, Los Angeles County (excluding the Antelope Valley portion), the western, non-desert portion of San Bernardino County, and the western, Coachella Valley, and San Gorgonio Pass portions of Riverside County. While air quality in the SoCAB has improved, the SoCAB requires continued diligence to meet the air quality standards.

Air Quality Management Plan

The SCAQMD has adopted a series of AQMPs to meet the CAAQS and NAAQS. The most recent adopted plan is the 2012 Air Quality Management Plan which incorporates the latest scientific and technological information and planning assumptions, including growth projections to achieve federal standards for air quality in the SoCAB (SCAQMD 2013). It incorporates a comprehensive strategy aimed at controlling pollution from all sources, including stationary sources, and on-road and off-road mobile sources. The 2012 AQMP includes new and changing federal requirements, implementation of new technology measures, and the continued development of economically sound, flexible compliance approaches. Additionally, it highlights the significant amount of emission reductions needed and the urgent need to identify additional strategies, especially in the area of mobile sources, to meet all federal criteria pollutant standards within the timeframes allowed under the federal CAA.

The key undertaking of the 2012 AQMP is to bring the SoCAB into attainment with the NAAQS for the 24-hour PM2.5 standard. It also intensifies the scope and pace of continued air quality improvement efforts toward meeting the 2024 8-hour O_3 standard deadline with new measures designed to reduce reliance on the federal CAA Section 182(e)(5) long-term measures for NO_X and VOC reductions. The SCAQMD expects exposure reductions to be achieved through implementation of new and advanced control technologies as well as improvement of existing technologies.

The SCAQMD released the Draft 2016 AQMP on June 30, 2016 for public review and comment (SCAQMD 2016a). A revised Draft 2016 AQMP was released in October 2016 and the SCAQMD Governing Board adopted the 2016 AQMP in March 2017 (SCAQMD 2016b). CARB and USEPA approval is required before the 2016 AQMP is incorporated into the SIP. Key elements of the 2016 AQMP include implementing fair-share emissions reductions strategies at the federal, state, and local levels; establishing partnerships, funding, and incentives to accelerate deployment of zero and near-zero-emissions technologies; and taking credit from co-benefits from greenhouse gas, energy, transportation and other planning efforts (SCAQMD 2016b). The strategies included in the 2016 AQMP are intended to demonstrate attainment of the NAAQS for the federal non-attainment pollutants ozone and PM2.5.

Air Quality Guidance Documents

The SCAQMD published the *California Environmental Quality Act (CEQA) Air Quality Handbook* to provide local governments with guidance for analyzing and mitigating project-specific air quality impacts (SCAQMD 1993). The *CEQA Air Quality Handbook* provides standards, methodologies, and procedures for conducting air quality analyses in Environmental Impact Reports and was used extensively in the preparation of this analysis. However, the SCAQMD is currently in the process of replacing the *CEQA Air Quality Handbook* with the Air Quality Analysis Guidance Handbook.[2] While this process is underway, the SCAQMD recommends that lead agencies avoid using the screening tables in Chapter 6 (Determining the Air Quality Significance of a Project) and the on-road mobile source emission factors in Table A9-5-J1 through A9-5-L as they are outdated. The SCAQMD instead recommends using other

[2] Available at: http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook.

approved models to calculate emissions from land use projects, such as the California Emissions Estimator Model (CalEEMod) software, initially released in 2011 and updated in 2016.

The SCAQMD has published a guidance document called the *Final Localized Significance Threshold Methodology* that is intended to provide guidance in evaluating localized effects from mass emissions during construction (SCAQMD 2008).

Rules and Regulations

The SCAQMD has developed many rules and regulations to regulate sources of air pollution in the SoCAB and to help achieve air quality standards. The proposed program may be subject to the following SCAQMD rules and regulations:

Regulation IV – Prohibitions: This regulation sets forth the restrictions for visible emissions, odor nuisance, fugitive dust, various air emissions, fuel contaminants, start-up/shutdown exemptions and breakdown events. The following is a list of rules which may apply to the proposed program:

Rule 401 – Visible Emissions: This rule states that 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 three minutes in any one hour which is as dark or darker in shade as that designated No. 1 on the Ringelmann Chart or of such opacity as to obscure an observer's view.

Rule 402 – Nuisance: This rule states that a person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property.

Rule 403 – Fugitive Dust: This rule requires projects to prevent, reduce or mitigate fugitive dust emissions from a site. Rule 403 restricts visible fugitive dust to the project property line, restricts the net PM10 emissions to less than 50 micrograms per cubic meter (µg/m3) and restricts the tracking out of bulk materials onto public roads. Additionally, projects must utilize one or more of the best available control measures (identified in the tables within the rule). Mitigation measures may include adding freeboard to haul vehicles, covering loose material on haul vehicles, watering, using chemical stabilizers and/or ceasing all activities. Finally, a contingency plan may be required if so determined by the USEPA.

Regulation XI – Source Specific Standards: Regulation XI sets emissions standards for specific sources. The following is a list of rules which may apply to the proposed program:

Rule 1186 – PM10 Emissions from Paved and Unpaved Roads, and Livestock Operations: This rule applies to owners and operators of paved and unpaved roads and livestock operations. The rule is intended to reduce PM10 emissions by requiring the cleanup of material deposited onto paved roads, use of certified street sweeping equipment, and treatment of high-use unpaved roads (see also Rule 403).

Regulation XIV – Toxics and Other Non-Criteria Pollutants: Regulation XIV sets requirements for new permit units, relocations, or modifications to existing permit units which emit toxic air contaminants or other non-criteria pollutants. The following is a list of rules which may apply to the proposed program:

Rule 1470 – Requirements for Stationary Diesel-Fueled Internal Combustion and Other Compression Ignition Engines: This rule applies to stationary compression ignition (CI) engine greater than 50 brake horsepower and sets limits on emissions and operating hours. In general, new stationary emergency standby diesel-fueled engines greater than 50 brake horsepower are not permitted to operate more than 50 hours per year for maintenance and testing.

Other Regional Air Districts

Because the proposed program includes the hauling of biosolids to various locations in California such as the southern, central valley, and central coast areas, daily haul trips could increase pollutants within the air basins for each area. In addition to areas within the SCAQMD, the destinations for the biosolids would be located with the following air districts within California: San Diego County Air Pollution Control District (APCD), Imperial County APCD, Mojave Desert Air Quality Management District (MDAQMD), Ventura County APCD, Santa Barbara County APCD, San Luis Obispo County APCD and San Joaquin Valley Unified APCD (**Figure 3.2-1**). The proposed program would continue to haul biosolids to Yuma, Arizona.

Local

Local jurisdictions, such as the City of Fountain Valley and City of Huntington Beach, have the authority and responsibility to reduce air pollution through their land use decision-making authority. Specifically, the cities are responsible for the assessment and mitigation of air emissions resulting from its land use decisions.

City of Fountain Valley

General Plan Air Quality Element

The City's General Plan Air Quality Element includes City-wide goals and policies related to air quality resources. A number of these goals and policies are relevant to the proposed program and are related to traffic mobility, discouraging single-occupancy vehicle trips, managing traffic congestion during peak hours, improving jobs/housing balance to reduce vehicle miles traveled (VMT) and reducing pollution through reduced energy consumption. In addition, the City of Fountain Valley assists in implementation of transportation control measures as outlined in the AQMP. Through capital improvement programs, local governments can fund infrastructure that contributes to improved air quality.

SOURCE: ESRI; EPA

OCSD Biosolids Master Plan . 150626

Figure 3.2-1

Air Districts with End Users

City of Huntington Beach

General Plan Air Quality Element

The City's General Plan Air Quality Element includes City-wide goals, objectives, and policies related to air quality resources. A number of these goals and policies are relevant to the proposed program and are related to traffic mobility, reducing private and government employee work trips, promoting increased work and non-work related public transit use, discouraging single-occupancy vehicle trips, managing traffic congestion during peak hours, improving jobs/housing balance to reduce vehicle miles traveled (VMT), reducing pollution through waste reduction and lowered energy consumption, and increasing energy efficiency in existing and new commercial and industrial developments. In addition, the City of Huntington Beach Air Quality Element addresses several factors to help achieve the goals of the SCAQMD's AQMP.

3.2.3 Impacts and Mitigation Measures

Significance Criteria

The criteria used to determine the significance of air quality impacts are based on Appendix G of the *CEQA Guidelines*. The proposed program would have a significant effect on air quality if it would:

- Conflict with or obstruct implementation of the applicable air quality plan (see Impact 3.2-1, below);
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation (see Impact 3.2-2, below);
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative threshold for ozone precursors) (see Impact 3.2-3, below);
- Expose sensitive receptors to substantial pollutant concentrations (see Impact 3.2-4, below);
- Create objectionable odors affecting a substantial number of people (see Impact 3.2-5, below).

Methodology

This Draft PEIR section focuses on the nature and magnitude of the change in the air quality environment due to implementation of the proposed program. Air pollutant emissions generated by construction and operation activities associated with the proposed program have been estimated and compared to the applicable thresholds of significance recommended by SCAQMD.

Consistency with Air Quality Management Plan

The SCAQMD is required, pursuant to the Clean Air Act, to reduce emissions of criteria pollutants for which the SoCAB is in non-attainment of the NAAQS (ozone and PM2.5). The SCAQMD's AQMP contains a comprehensive list of pollution control strategies directed at reducing emissions and achieving the NAAQS. These strategies were developed, in part, based on regional growth projections prepared by the SCAG. These regional growth projections were developed by SCAG with input from the local jurisdictions based on the individual jurisdiction's

General Plan. The SCAQMD has determined that a project is consistent with the AQMP if it is consistent with the growth projections in a local General Plan and does not interfere with attainment of air quality standards specified in the AQMP. Thus, projects, uses, and activities that are consistent with the applicable growth projections and control strategies used in the development of the AQMP would not jeopardize attainment of the air quality levels identified in the AQMP.

Construction Emissions

Construction of the individual projects that are part of the proposed program have the potential to generate temporary criteria pollutant emissions through the use of heavy-duty construction equipment, such as cranes and excavators, and through vehicle trips generated from worker trips, haul trucks, and vendor/material supply trucks traveling to and from Plant No. 1 and Plant No. 2. In addition, fugitive dust emissions would result from demolition and various soil-handling activities. Evaporative emissions of VOCs result from the application of asphalt and architectural coatings and vary depending on the amount of asphalt and coatings applied on a daily basis. Construction emissions can vary substantially from day to day, depending on the level of activity, the specific type of construction activity, and prevailing weather conditions. The assessment of construction air quality impacts considers each of these potential sources of emissions.

Daily regional emissions during construction are forecasted by assuming a conservative estimate of construction activities (i.e., assuming a construction fleet of 2018) and applying the mobile source and fugitive dust emissions factors. The emissions are estimated using the CalEEMod (Version 2016.3.1) software, an emissions inventory software program recommended by the SCAQMD. CalEEMod is based on outputs from OFFROAD and EMFAC, which are emissions estimation models developed by CARB and used to calculate emissions from construction activities, including on- and off-road vehicles. The input values used in the CalEEMod modeling analysis were adjusted to be project-specific based on construction information provided by OCSD. These values were then applied to the construction phasing assumptions used in the criteria pollutant analysis to generate criteria pollutant emissions values for each construction activity. Detailed construction equipment lists, construction scheduling, and emissions calculations are provided in **Appendix B** of this Draft PEIR.

The proposed program is divided into 9 separate construction projects that will occur over 20 to 22 years as detailed in Section 2.0 *Project Description* with buildout anticipated by 2040. For the purposes of this analysis, a maximum daily construction scenario was determined based on the anticipated construction for each phase. The detailed construction assumptions for the maximum daily emissions estimates are provided in Appendix B of this Draft PEIR. As a conservative estimate, the proposed program was anticipated to use a default 2018 equipment fleet. Total maximum daily excavation was estimated at 4,700 cubic yards, with 897 cubic yards of soil export, and 179 cubic yards of import. The proposed program was also estimated to have a maximum of 72 daily haul trucks, 10 daily vendor deliveries, and 120 daily employees.

Operation and Maintenance

Operational activities would consist of the operation of the Biosolids Master Plan facilities and upgrades. Operation of most proposed facilities, such as digesters, food waste facilities, electrical

rooms, and piping, would only require periodic maintenance, not daily staffing or deliveries. The proposed facilities are anticipated to have the same number of employees as the existing facilities. Therefore, the proposed program would not require a net increase in OCSD full-time employees for operation and maintenance of new facilities.

Truck trips would also result in operational emissions associated with the proposed program. As detailed in Tables 2-16 and 2-17, as well as summarized in Appendix B of this Draft PEIR, existing operational activities result in annual truck deliveries and export of 22,438 resulting in 4,491,144 vehicle miles traveled. In 2040 without the proposed program, truck trips would be reduced to 18,767 trips annual resulting in 3,756,288 vehicle miles traveled. With full buildout of the proposed program in 2040, the program would result in 18,811 annual trips resulting in 3,393,928 vehicle miles traveled. The decrease in trips and vehicle miles traveled is associated with the increased efficiency of onsite operations (less water in the biosolids being outsourced, so less outgoing trips) and a change in final product from all Class B to some Class B and some Class A which result in a change in final end user by reducing the amount of trips traveling out of state, and therefore, reducing miles traveled per trip. There is no estimated change in the number or length associated with chemical deliveries to the facility.

Similar to the existing biosolids facilities, the proposed biosolids facilities would require varying amounts of energy during operation. Currently the process results in the flaring of 13.1 million standard cubic feet of gas. With the increased operations, under buildout conditions it is estimated that 28.5 million cubic feet of gas will be flared. The proposed biosolids facilities and food waste facility are more energy efficient than the existing facilities and would not generate a net demand for energy that cannot be supported by the existing CenGen facility. Therefore, the proposed Biosolids Master Plan program would not increase the need for energy. All assumptions are detailed in Appendix B of this Draft PEIR.

Localized Significance Thresholds

In addition to regional pollutant emissions, localized impacts on sensitive receptors must also be addressed from construction and operational activities.

The localized effects from the on-site portion of the emissions are evaluated at nearby sensitive receptor locations potentially impacted by the proposed program according to the SCAQMD's Localized Significance Threshold Methodology (SCAQMD 2008), which relies on on-site mass emission rate screening tables and project-specific dispersion modeling, where appropriate. The localized significance thresholds are only applicable to NO_X, CO, PM10, and PM2.5. For NO_X and CO the thresholds are based on the ambient air quality standards. For PM10 and PM2.5, the thresholds are based on requirements in SCAQMD Rule 403 (Fugitive Dust). The SCAQMD has established screening criteria that can be used to determine the maximum allowable daily emissions that would satisfy the localized significance thresholds and therefore not cause or contribute to an exceedance of the applicable ambient air quality standards without project-specific dispersion modeling. The localized analysis is based on this SCAQMD screening criteria. The screening criteria depend on: (1) the area in which the program is located, (2) the size of the program area, and (3) the distance between the program area and the nearest sensitive receptor (e.g., residences, schools, hospitals). The program area is located in both SRA 17 (Central Orange

County) and SRA 18 (North Coastal Orange County) in Orange County. The most stringent screening criteria for SRA 18 applicable to the smallest program area (2 acres) with adjacent sensitive receptors (within 82 feet, or 25 meters, or less) were used for the construction assessment. This is because there would be greater emissions at a closer distance to receptors under construction at Plant No. 2 than would occur at Plant No. 1. For operational emissions, the net operations are compared to the more stringent screening criteria for the two SRAs assuming a 5-acre site and receptors within 82 feet of the program site.

CO Hotspots

Emissions of CO are produced in greatest quantities from motor vehicle combustion and are usually concentrated at or near ground level because they do not readily disperse into the atmosphere, particularly under cool, stable (i.e., low or no wind) atmospheric conditions. Carbon monoxide decreased dramatically in the SCAB with the introduction of the catalytic converter in 1975. No exceedances of CO have been recorded at monitoring stations in the SoCAB for some time and the basin is currently designated as a CO attainment area for both the CAAQS and NAAQS.

The SCAQMD conducted CO modeling for the 2003 AQMP for the four worst-case intersections in the SoCAB. These include: (a) Wilshire Boulevard and Veteran Avenue; (b) Sunset Boulevard and Highland Avenue; (c) La Cienega Boulevard and Century Boulevard; (d) Long Beach Boulevard and Imperial Highway. In the 2003 AQMP, the SCAQMD notes that the intersection of Wilshire Boulevard and Veteran Avenue is the most congested intersection in Los Angeles County, with an average daily traffic volume of about 100,000 vehicles per day. This intersection is located near the on- and off-ramps to Interstate 405 in West Los Angeles. The evidence provided in Table 4-10 of Appendix V of the 2003 AQMP shows that the peak modeled CO concentration due to vehicle emissions at these four intersections was 4.6 ppm (one-hour average) and 3.2 (eight-hour average) at Wilshire Boulevard and Veteran Avenue. When added to the existing background CO concentrations, the screening values would be 8.7 ppm (one-hour average) and 5.6 ppm (eight-hour average). Based on the data, more than 400,000 vehicles per day would need to pass through an intersection in order for the thresholds to be exceeded (SCAQMD 2003).

TAC Emissions

The greatest potential for TAC emissions during construction would be related to diesel particulate matter emissions associated with heavy-duty equipment during demolition, excavation and grading activities. Construction activities associated with the proposed program would be sporadic, and transitory in nature. The OEHHA is responsible for developing and revising guidelines for performing health risk assessments (HRAs) under the State's the Air Toxics Hot Spots Program Risk Assessment (AB 2588) regulation. In March 2015, OEHHA adopted revised guidelines that update the previous guidance by incorporating advances in risk assessment with consideration of infants and children using Age Sensitivity Factors (ASF) (OEHHA 2015). The analysis of potential construction TAC impacts considers the OEHHA revised guidelines as well as the duration of construction, level of construction activity, scale of the proposed program, and compliance with regulations that would minimize construction TAC emissions.

A qualitative analysis of TAC emissions from operational activities will also be included since the proposed program could include stationary sources of TACs, such as pumps, digesters, and the existing flare. Some types of stationary sources would be subject to SCAQMD's rules, regulations and permitting. Thus, during the permitting process SCAQMD would analyze such sources (e.g., health risk assessment) based on their potential to emit TACs. If it is determined that the sources would emit TACs in excess of SCAQMD's applicable significance threshold, the SCAQMD would deny the operating permit.

Odors

Potential odor impacts are evaluated by conducting a screening-level analysis followed by a more detailed analysis as necessary. The screening-level analysis consists of reviewing the location and descriptions of the facilities in the proposed program to identify new or modified odor sources. If it is determined that the proposed program would introduce potentially significant new odor source, or modify an existing odor source, then downwind sensitive receptor locations are identified and a site-specific analysis is conducted to determine impacts.

Significance Criteria

The significance thresholds described above are based in part upon Appendix G of the *California Environmental Quality Act* (*CEQA) Guidelines* and the significance criteria established by the applicable air quality management or air pollution control district thresholds. As such, the significance thresholds and analysis methodologies in SCAQMD's *CEQA Air Quality Handbook* are used in evaluating project impacts. SCAQMD has established daily mass thresholds for regional pollutant emissions, which are shown in **Table 3.2-4**. The criteria pollutant thresholds in Table 3.2-4 are used to address Impacts 3.2-1 and 3.2-2. The CO and TAC thresholds are used to address the potential for CO hotspots and the qualitative analysis of TACs with respect to sensitive receptors (Impact 3.2-4).

TABLE 3.2-4
SCAQMD REGIONAL AIR QUALITY SIGNIFICANCE THRESHOLDS

	Mass Daily Thresholds (lbs/day)	
Pollutant	**Construction**	**Operations**
Oxides of Nitrogen (NO_X)	100	55
Reactive Organic Gases (ROG)	75	55
Respirable Particulate Matter (PM_{10})	150	150
Fine Particulate Matter ($PM_{2.5}$)	55	55
Oxides of Sulfur (SO_X)	150	150
Carbon Monoxide (CO)	550	550
TACs (including carcinogens and non-carcinogens	Maximum Incremental Cancer Risk ≥ 10 in 1 million people Cancer Burden > 0.5 excess cancer cases (in areas ≥ 1 in 1 million people) Chronic & Acute Hazard Index ≥ 1.0 (project increment)	

As the proposed program would not involve the development of any major lead emissions sources, lead emissions would not be analyzed further in this report.
SOURCE: SCAQMD 2015c

Aside from regional air quality impacts, projects in the SCAB are also required to analyze local air quality impacts. As discussed previously, SCAQMD has developed localized significance thresholds (LSTs) that represent the maximum emissions from a project that are not expected to cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standards, and, thus, would not cause or contribute to localized air quality impacts. LSTs are developed based on the ambient concentrations of that pollutant for each of the 38 source receptor areas (SRAs) in the SCAB. The localized thresholds, which are found in the mass rate look-up tables in SCAQMD's *Final Localized Significance Threshold Methodology* document, were developed for use on projects that are less than or equal to 5 acres in size or have a disturbance of less than or equal to 5 acres daily. LSTs are only applicable to the following criteria pollutants: NO_X, CO, PM10, and PM2.5. The construction LSTs for a 2-acre and operational LSTs for a 5-acre site in SRAs 17 (Central Orange County) and 18 (North Coastal Orange County), which are shown in **Table 3.2-5**, would be used to provide a screening-level evaluation of the proposed program's localized air quality impacts. Where the proposed program emissions with mitigation exceed the appropriate LSTs then the emissions are evaluated using the AERSCREEN dispersion model and compared to the following thresholds: NOx – 0.25 ppm; CO-1hr – 20 ppm; CO-8hr – 9ppm; PM10 – 10.4 $\mu g/m^3$; and PM2.5 10.4 $\mu g/m^3$. The screening level thresholds identified in Table 3.2-5 are used to address impacts to sensitive receptors with respect to regional criteria pollutants under Impact 3.2-3.

With regard to NOx emissions, the two principal species of NOx are NO and NO_2, with the vast majority (95 percent) of the NOx emissions being comprised of NO. However, because adverse health effects are associated with NO_2, but not NO, the analysis of localized air quality impacts associated with NOx emissions is focused on NO_2 levels. For combustion sources, SCAQMD assumes that NO is completely converted to NO_2 at a distance of 5,000 meters from the source.

TABLE 3.2-5
SCAQMD LOCALIZED SIGNIFICANCE THRESHOLDS

	Allowable emissions (pounds/day) as a function of receptor distance (feet) from site boundary				
Pollutant Monitored	**82 (ft)**	**164 (ft)**	**328 (ft)**	**656 (ft)**	**1,640 (ft)**
Construction Thresholds – 1 Acre Site –SRA 17					
Nitrogen Oxides (No_x)[a, b]	63	63	69	82	113
Carbon Monoxide (CO)	715	1,041	1,547	2,685	7,493
Respirable Particulate Matter (PM_{10})	6	19	35	68	166
Fine Particulate Matter ($PM_{2.5}$)	4	6	11	25	92
Operational Thresholds – 5 acre Site – SRA 17					
Nitrogen Oxides (NO_x)[a,b]	101	92	100	112	136
Carbon Monoxide (CO)	1,253	1,734	2,498	4,018	9,336
Respirable Particulate Matter (PM_{10})	3	10	4	22	45
Fine Particulate Matter ($PM_{2.5}$)	2	3	4	8	27
Construction Thresholds – 1 Acre Site –SRA 18					

Pollutant Monitored	Allowable emissions (pounds/day) as a function of receptor distance (feet) from site boundary				
	82 (ft)	164 (ft)	328 (ft)	656 (ft)	1,640 (ft)
Nitrogen Oxides (Nox_x)[a, b]	72	71	72	91	130
Carbon Monoxide (CO)	962	1,089	1,506	2,615	7,493
Respirable Particulate Matter (PM_{10})	7	21	35	62	144
Fine Particulate Matter ($PM_{2.5}$)	5	7	12	26	83
Operational Thresholds – 5 acre Site – SRA 18					
Nitrogen Oxides (NO_x)[a,b]	109	105	112	123	154
Carbon Monoxide (CO)	1,711	1,864	2,455	3,888	9,272
Respirable Particulate Matter (PM_{10})	4	11	14	21	41
Fine Particulate Matter ($PM_{2.5}$)	2	3	5	9	25

[a] The localized thresholds listed for NOx in this table take into consideration the gradual conversion of NO to NO_2.The analysis of localized air quality impacts associated with NOx emissions focuses on NO_2 levels as they are associated with adverse health effects.

[b] The screening criteria for NOx were developed based on the 1-hour NO_2 CAAQS of 0.18 ppm. However, since the publication of the SCAQMD's guidance, the USEPA has promulgated a 1-hour NO_2 NAAQS of 0.100 ppm based on a 98th percentile value, which is more stringent than the CAAQS. In order to determine if the proposed program emissions would result in an exceedance of the 1 hour NO_2 NAAQS, an approximated LST was estimated to evaluate the federal 1-hour NO_2 standard, as the SCAQMD significance threshold has not been updated to reflect this standard. Calculated by scaling the NO_2 LST for by the ratio of 1-hour NO_2 standards (federal/state) (i.e., 91 lb/day * (0.10/0.18) = 50.56 lb/day).

SOURCE: SCAQMD 2003

Impacts Discussion

Air Quality Plan

Impact 3.2-1: The proposed program could have significant and cumulatively considerable effects on implementation of the South Coast Air Quality Management Plan (AQMP) because the proposed program could conflict with or obstruct implementation of the AQMP.

Program Impact Analysis

The AQMP was adopted by the SCAQMD as a program to lead the Air Basin into compliance with several criteria pollutant standards and other federal requirements. It relies on emissions forecasts based on demographic and economic growth projections provided by SCAG's Regional Transportation Program (SCAQMD, 2012). SCAG is charged by California law to prepare and approve "the portions of each AQMP relating to demographic projections and integrated regional land use, housing, employment, and transportation programs, measures and strategies (SCAQMD, 2012)." As discussed previously, projects whose growth is included in the SCAG projections used in the formulation of the AQMP are considered to be consistent with the plan and not to interfere with its attainment. The SCAQMD recommends that, when determining whether a project is consistent with the current AQMP, a lead agency must assess whether the project would directly obstruct implementation of the plan and whether it is consistent with the demographic and economic assumptions upon which the plan is based (SCAQMD, 1993).

Construction

The construction activities associated with the proposed program could obstruct implementation of the AQMP because, as detailed in Impact 3.2-2, its construction emissions would exceed the

daily NO_x regional emissions significance threshold. All other daily emissions of criteria pollutants would not exceed the significance thresholds and would be less than significant. Because the proposed program's NO_x regional emissions exceed the threshold and NO_x contributes to the formation of ozone, the proposed program would contribute to the Air Basin's nonattainment of the NAAQS for ozone. Therefore, the proposed program could result in a significant impact on the implementation of the AQMP.

The proposed program would generate short-term construction jobs, but it would not create new construction jobs. Construction projects are awarded to a construction company. This company has a set construction staff that is assigned to various job sites that the company is working on. Typically, workers travel amongst construction sites as individual projects are completed within a particular area and are not brought from other areas to work on developments such as the proposed program. Moreover, these jobs would be temporary in nature with respect to the area within the air basin projects is located. Therefore, construction jobs under the proposed program would not conflict with the long-term employment projections upon which the AQMP are based.

Operation

Operational activities associated with the proposed program would not obstruct implementation of the AQMP because, as detailed in Impact 3.2-2, its operational emissions would not exceed any of the thresholds established for criteria pollutants. In addition, the proposed program would be consistent with SCAG's Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) goals and objectives because it does not result in population or employment growth. (See 3.9 Land Use and Planning) As a result, the proposed program would be consistent with SCAG's RTP/SCS goals and would not alter the growth projections established for the cities within the County of Orange. The proposed program would also be consistent with the growth projections contained in the cities' General Plans, and ultimately consistent with the growth projections in the AQMP. Additionally, the proposed program is projected to reduce VMT traveled therefore furthering the goals of the SCAG's RTP/SCS. Therefore, the operational activities associated with the proposed program would result in a less than significant impact on the implementation of the AQMP.

In addition, the operational activities associated with the proposed program could modify the location of where the biosolids would be exported for the end users. As shown in Figure 3.2-1 above, there are multiple districts where the end users could be located. The proposed program is anticipated to generate approximately 20 percent Class A biosolids in the Year 2040. Class B biosolids would be reduced to 30 percent for land application and 50 percent would continue to be available for composting. The biosolids for land application is anticipated to continue to be exported to Yuma, Arizona and therefore, under the proposed program, there would be a reduction in truck trips to this location and a corresponding reduction of air emissions. The biosolids for composting is anticipated to remain at 50 percent. The majority of the biosolids for composting is anticipated to remain at the same locations.

Daily vehicle trips would be composed of food waste and biosolids transport to and from the facility. Food waste trips associated with the Interim Food Waste Facility would begin in approximately the year 2020 and would result in approximately 7 daily trips (6 incoming food

waste trucks and 1 outgoing biosolids truck related to the food waste converted to biosolids). In the year 2030 through year 2040, when the ultimate food waste facility is implemented, approximately 27 daily trips (22 incoming food waste trucks and 5 outgoing biosolids trucks related to the food waste converted to biosolids) would occur. The amount of biosolids will decrease in the year 2040 compared to Year 2016 conditions as a result of the implementation of the dewatering centrifuge systems at Plant No. 1 and Plant No.2 that were previously approved and are currently under construction. With the dewatering centrifuge systems, drier biosolids cake material would be produced and with less cake material there would be a decrease in trucks exporting the material from Plant No. 1 and Plant No. 2.

As detailed in the Section 2, Project Description, Table 2-16 *Proposed Biosolids and Food Waste Truck Trips,* total trucks associated with food waste and biosolids would increase by 38 daily one-way trips compared to existing trips and by 54 daily one-way trips compared to trips currently projected for the year 2040 without the implementation of the proposed program. The addition of up to 54 one-way truck trips to any of the locations within each of the air districts shown in Figure 3.2-1 would be nominal and would result in a less than significant impact on the implementation of an air quality plan within these air districts.

Significance Determination before Mitigation: Potentially Significant

Impacts for proposed program construction would be significant, and impacts for proposed program operation would be less than significant.

Cumulative Impact Analysis

See the regional impact discussion under Impact 3.2-3 below.

Significance Determination before Mitigation: Potentially Significant

Mitigation Measures

Program Measures

> **AQ-1:** Mobile off-road construction equipment (wheeled or tracked) used during construction of the individual projects of the proposed program that may exceed SCAQMD daily thresholds for NOx shall meet the USEPA Tier 4 final standards, either as original equipment or equipment retrofitted to meet the Tier 4 final standards. A copy of each unit's certified tier specification or model year specification shall be available upon request at the time of mobilization of each applicable unit of equipment. For projects that would not individually emit NOx above the SCAQMD daily threshold, OCSD or the contractor shall prepare emissions calculations based on equipment to be used that show emissions are below the threshold. These emissions estimates must be maintained at OCSD headquarters for reference, and OCSD must confirm that the equipment used during actual construction is adequately characterized.

Significance Determination after Mitigation: Less than Significant

Implementation of Mitigation Measures AQ-1 would reduce regional construction emissions of NOx to comply with the SCAQMD thresholds as shown on Table 3.2-8. Implementation of this mitigation measure would reduce impacts to less than significant.

Cumulative Measures

Implementation of mitigation measures AQ-1 is required.

Significance Determination after Mitigation: Less than Significant

Implementation of Mitigation Measures AQ-1 would require the use of construction equipment that would emit less air pollutants. Mitigation Measure AQ-1 would reduce the proposed program's contribution to cumulative regional construction emissions of NOx to comply with the SCAQMD thresholds as discussed in Impact 3.2-2 and Impact 3.2-3. With the implementation of this mitigation measure, the proposed program's contribution to cumulative impacts is less than cumulatively considerable.

Air Quality Standards/Violations

Impact 3.2-2: The proposed program could have significant and cumulatively considerable effects because the proposed program could violate an air quality standard or contribute substantially to an existing or projected air quality violation.

Program Impact Analysis

Construction

Construction activities associated with the proposed program would generate pollutant emissions from the following construction activities: (1) demolition, site preparation, grading, and excavation (as discussed in the Methodology section above, only grading is modeled for maximum daily emissions); (2) construction workers traveling to and from project site; (3) delivery and hauling of construction supplies to, and debris from, the project site; (4) fuel combustion by on-site construction equipment; (5) building construction; application of architectural coatings; and paving. These construction activities would temporarily create emissions of dust, fumes, equipment exhaust, and other air contaminants. The amount of emissions generated on a daily basis would vary, depending on the intensity and types of construction activities occurring simultaneously.

Construction emissions are considered short term and temporary, but have the potential to represent a significant impact with respect to air quality. Particulate matter (i.e., PM10 and PM2.5) 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. Construction assumptions are summarized in the *Methodology* section and detailed in Appendix B.

Emissions of ozone precursors ROGs/VOCs[3] and NO_X are primarily generated from mobile sources and vary as a function of vehicle trips per day associated with debris hauling, delivery of construction materials, 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 ROG emissions also result from the application of architectural coatings and vary depending on the amount of coatings applied each day.

It is mandatory for all construction projects in the SCAB to comply with SCAQMD Rule 403 for controlling fugitive dust. Specific Rule 403 control requirements include, but are not limited to, applying water in sufficient quantities to prevent the generation of visible dust plumes, applying soil binders to uncovered areas, 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 construction site, covering all trucks hauling soil with a fabric cover and maintaining a freeboard height of 12 inches, and maintaining effective cover over exposed areas. Compliance with Rule 403 and Rule 1113 (governing VOC content of architectural coatings), as pre-existing regulatory requirements, were accounted for in the construction emissions modeling. Rule 1113 is included as part of the default modeling scenario.

Table 3.2-6 summarizes the modeled peak daily emissions of criteria air pollutants and ozone precursors associated with the proposed program's worst-case construction scenario (utilizing the significance criteria provided in Table 3.2-4). The peak daily emissions generated for the proposed program's construction period are identified. As shown, the maximum daily construction emissions generated by the proposed program's worst-case construction scenario would not exceed SCAQMD's daily regional significance thresholds for ROG, CO, SO_X, PM10, and PM2.5. However, the proposed program would exceed the SCAQMD's daily regional significance threshold for NOx. Therefore, construction phase emissions for NOx would be significant.

TABLE 3.2-6
UNMITIGATED PROPOSED REGIONAL CONSTRUCTION EMISSIONS

	Estimated Maximum Daily Emissions (lbs/day)					
Construction Year	**ROG**	**NO_X**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Onsite	56.88	173.26	99.84	0.17	17.08	11.94
Offsite	3.56	53.42	28.13	0.17	6.80	2.01
Total	*60.44*	***226.68***	*127.96*	*0.34*	*23.88*	*13.95*
Regional Significance Threshold	*75*	*100*	*550*	*150*	*150*	*55*
Significant Impact?	No	**Yes**	No	No	No	No
Total Proposed Program Emissions*	28,631	274,588	191,906	455	33,562	18,415

[3] As discussed in Section 3.2.1, ROGs and VOC are used interchangeably with respect to air quality emissions assessment.

	Estimated Maximum Daily Emissions (lbs/day)					
Construction Year	**ROG**	**NO_X**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**

NOTE: Construction emissions would be slightly different during the summer and winter seasons. Maximum daily emissions of ROG and NO_X would generally be higher during the winter while emissions of CO and SO_2 would generally be higher in the summer. The maximum emissions for each pollutant over the course of the summer and winter seasons are shown in this table. During construction, the existing enclosed mall shops, Nordstrom, and Kohl's would have the potential to be reconstructed, therefore to provide a conservative analysis for air quality modeling, the analysis assumes full demolition and reconstruction.
SOURCE: ESA 2017 (based on Appendix B)
* Total proposed program emissions are provided for informational purposes only and are not part of the significance finding.

Operation

Stationary operational emissions associated with the proposed program would result from building energy consumption as well as onsite flaring. The predominant emissions are mobile emissions from truck travel for both the existing emissions as well as emissions projected for the proposed program. Detailed modeling assumptions are included in Appendix B. Modeled operations emissions are presented in **Table 3.2-7**.

As shown in Table 3.2-7, the 2040 emissions with the proposed program results in a net decrease compared to existing 2016 emissions primarily due to the implementation of the centrifuges that are not part of the proposed program. There is a slight increase in the 2040 emissions with the proposed program compared to the 2040 emissions without incorporation of the proposed program. Therefore, the proposed program's net operational emissions compared to the 2040 emissions without the proposed program emissions would not substantially contribute to emissions concentrations that exceed the NAAQS and CAAQS, and the impact would be less than significant.

In addition, the operational activities associated with the proposed program could modify the location of where the biosolids would be exported for the end users as discussed above under Impact 3.2-1. Implementation of the project would result in approximately 15,730 annual trips which equates to approximately 54 daily one-way truck trips. The addition of 54 truck trips to any of the locations within each of the air districts shown in Figure 3.2-1 would be nominal and would not exceed regional significance thresholds at any of the air districts. Therefore, the proposed program would result in a less than significant impact on regional air quality related to criteria pollutants.

TABLE 3.2-7
PROPOSED PROGRAM UNMITIGATED OPERATIONAL EMISSIONS

	Estimated Emissions (lbs/day)					
Emissions Source	**ROG**	**NO_X**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Existing 2016						
Area Sources[a]	<1	<1	<1	<1	<1	<1
Mobile Sources	8	234	37	1	5	3
Flare	N/A	2	3	N/A	1	1
Total Existing Emissions	8	237	39	1	6	4

Proposed Program w/out Project						
Area Sources[a]	<1	<1	<1	<1	<1	<1
Mobile Sources	3	60	27	<1	3	1
Flare	N/A	2	3	N/A	1	1
Total Proposed Program Emissions	3	62	30	<1	4	2
Program with Project						
Area Sources[a]	<1	<1	<1	<1	<1	<1
Mobile Sources	3	68	29	1	3	1
Flare	N/A	5	6	N/A	2	2
Total Net Proposed Program Emissions	4	73	35	1	5	3
Change (2040 With Proposed Program minus Existing 2016)	(5)	(164)	(5)	(<1)	(1)	(1)
Change (2040 With Proposed Program minus 2040 Without Proposed Program)	(<1)	11	5	(<1)	1	1
Regional Significance Threshold	55	55	550	150	150	55
Significant Impact?	No	No	No	No	No	No

NOTES: Area sources include emissions from consumer product use, architectural coating and landscape equipment.
Energy source include natural gas use for heating/cooling as well as electrical consumption.
Use of parenthetical notation indicates a negative value.
SOURCE: ESA Modeling 2017 (based on Appendix B)

Significance Determination before Mitigation: Potentially Significant

Impacts for proposed program construction would be significant and impacts for proposed program operation would be less than significant.

Cumulative Impact Analysis

See the regional impact discussion under Impact 3.2-3 below.

Significance Determination before Mitigation: Potentially Significant

Mitigation Measures

Program Measures

Implementation of Mitigation Measure AQ-1 is required.

Significance Determination after Mitigation: Less than Significant

With the implementation of mitigation measure AQ-1, the proposed program's maximum daily construction emissions would be reduced to below regulatory thresholds as shown in **Table 3.2-8**.

TABLE 3.2-8
MITIGATED PROPOSED REGIONAL CONSTRUCTION EMISSIONS

	Estimated Maximum Daily Emissions (lbs/day)					
Emission Source	**ROG**	**NO_X**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Onsite[a]	43.99	8.98	83.21	0.17	9.47	4.97
Offsite[a]	3.56	53.42	28.13	0.17	6.80	2.01
Total	*47.55*	*62.40*	*111.33*	*0.34*	*16.27*	*6.98*
Regional Significance Threshold	*75*	*100*	*550*	*150*	*150*	*55*
Significant Impact?	No	No	No	No	No	No
Total Proposed Program Emissions[b]	**11,601**	**63,204**	**177,790**	**456**	**31,643**	**12,828**
Total Emissions with implementation of mitigation measure AQ-1 as required by localized construction analysis.	*47.18*	*60.84*	*97.00*	*0.31*	*13.43*	*5.40*

NOTE: Construction emissions would be slightly different during the summer and winter seasons. Maximum daily emissions of ROG and NO_X would generally be higher during the winter while emissions of CO and SO_2 would generally be higher in the summer. The maximum emissions for each pollutant over the course of the summer and winter seasons are shown in this table.

[a] Onsite Emissions sources include all off-road construction mobile and stationary construction equipment. Offsite emission sources include haul trucks, delivery trucks and worker commute vehicles.

b Total proposed program emissions are provided for informational purposes only and are not part of the significance finding.

SOURCE: ESA 2017 (based on Appendix B)

Based on the reduction of the total NOx emissions with the implementation of Mitigation Measure AQ-1, impacts related to a violation of air quality standards from operational activities associated with the proposed program would be less than significant.

Cumulative Measures

Implementation of mitigation measures AQ-1 is required.

Significance Determination after Mitigation: Less than Significant

Based on the reduction of the total NOx emissions with the implementation of Mitigation Measure AQ-1, the proposed program's incremental contribution to cumulative impacts related to a violation of air quality standards from operational activities would be less than cumulatively considerable.

Cumulative Increase of Criteria Pollutant

Impact 3.2-3: The proposed program could 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 Impact Analysis

The SCAQMD neither recommends quantified analyses of cumulative construction or operational emissions nor provides methodologies or thresholds of significance to be used to assess cumulative construction or operational impacts. Individual cumulative projects that exceed the SCAQMD recommended daily thresholds for an individual project would cause a cumulatively considerable impact.

Construction

The program area is located within the SCAB, which is considered the cumulative study area for air quality. The SCAB is currently classified as a state nonattainment area for ozone, PM10, and $PM_{2.5}$, and is a federal nonattainment area for ozone and PM2.5. Based on SCAQMD's cumulative air quality impact methodology, SCAQMD recommends that if an individual project results in air emissions of criteria pollutants (ROG, CO, NOx, SO_X, PM10, and PM2.5) that exceed the SCAQMD's recommended daily thresholds for project-specific impacts, then it would also result in a cumulatively considerable net increase of these criteria pollutants for which the program region is in nonattainment under an applicable federal or state ambient air quality standard. As shown in Table 3.2-6, regional construction emissions of NOx would exceed the SCAQMD's daily thresholds. In addition, as shown in Table 3.2-10, localized construction emissions of PM10 and PM2.5 would exceed the SCAQMD daily thresholds. Therefore, the proposed program's contribution to cumulative NOx for regional construction emissions, and to cumulative PM10 and PM2.5 for localized construction emissions, would be cumulatively considerable.

In addition, as discussed in Impact 3.2-4 below, the proposed program's localized health impact associated with construction activities would exceed regulatory thresholds. Because the SCAQMD's recommended cumulative impact methodology is if an individual project results in the exceedance of regulatory thresholds then the project would result in a cumulatively considerable impact. Therefore, because the proposed project would exceed the regulatory thresholds for localized health impacts during construction, the proposed program would result in cumulatively considerable health impacts during construction.

Operation

Operational emissions associated with the proposed program, as shown under Impact 3.2-2, would not exceed the SCAQMD's thresholds of significance for any criteria pollutant. Therefore, operation of the proposed program would not result in a cumulatively considerable net increase of any criteria pollutant for which the program region is in non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors). The proposed program would result in a less than cumulatively considerable impact associated with operational emissions of criteria pollutants.

In addition, the operational activities associated with the proposed program could modify the location of where the biosolids would be exported for the end users as discussed above under Impact 3.2-1 and Impact 3.2-2. As discussed above, the proposed program would result in a less than significant impact on regional air quality related to criteria pollutants in the air districts identified in Figure 3.2-1. Therefore, the proposed program would result in a less than cumulatively considerable impact associated with operational emissions of criteria pollutants for the other regional air districts.

As discussed under Impact 3.2-4, the proposed program would result in a daily increase of operational truck trips of roughly 54 daily one-way trips. Based on the traffic information in Section 3.10, Traffic and Transportation (Table 3.11-1), the addition of 54 daily trips to the future projected street volumes along the streets that are planned to be used for haul routes would have substantially less daily traffic volumes at intersections than the 100,000 daily trips that occur at the four worst-case intersections with the SCAB. Because the four worst-case intersections did not exceed the CO concentration thresholds, cumulative development along with the implementation of the proposed program would result in a less than significant cumulative health impacts due to CO hotspots. Therefore, because cumulative health impacts due to CO hotspots would be less than significant, the implementation of the proposed project would result in less than cumulatively considerable health impacts associated with CO hotspots.

Significance Determination before Mitigation: Potentially Significant

Impacts for proposed program construction would be significant, and impacts from operational emissions would be less than significant.

Mitigation Measures

Cumulative Measures

Implementation of mitigation measures AQ-1 is required.

> **AQ-2:** When grading activities occur within 50 meters of the nearest sensitive receptors, the number of scrapers active onsite is restricted to a maximum of 5 and the number of dozers is restricted to a maximum of 2.

Significance Determination after Mitigation: Less than Significant

With implementation of mitigation measures AQ-1, regional emissions of NOx during the proposed program construction would be reduced to below regulatory thresholds as detailed in Impact 3.2-2. With implementation of mitigation measure AQ-2, localized PM0 and PM2.5 emissions during proposed program construction activities would be reduced to below SCAQMD's LST thresholds as detailed in Impact 3.2-4. Therefore, impacts would be less than significant.

Impacts from operational emissions would remain less than significant.

Sensitive Receptors

Impact 3.2-4: The proposed program could result in significant and cumulatively considerable effects associated with the exposure of sensitive receptors to substantial pollutant concentrations.

Program Impact Analysis

Separate discussions are provided below analyzing the potential for sensitive receptors to be exposed to CO hotspots and localized air quality impacts from criteria pollutants and TACs from on-site sources during construction and operation of the proposed program.

CO Hotspots

As discussed in the methodology section, the CO impacts from the proposed program are associated with employee trips and truck trips. There are no new employee trips or chemical delivery trips associated with the proposed program. Additionally, the proposed program would increase the number of truck trips associated with the delivery of food waste and biosolids (44 daily one-way truck trips) but would not change the projected number of truck trips associated with the export of Biosolids, as discussed below.

As shown and described in Table 2-1, the amount of biosolids will decrease in the year 2040 compared to existing conditions as a result of the implementation of the dewatering centrifuge system that was recently approved and is currently under construction. With the dewatering centrifuge system, drier biosolids cake material would be produced, and with less cake material there would be a decrease in trucks exporting the biosolids material from Plant No. 2. With the implementation of the proposed biosolids facilities, the biosolids cake material projections provided in Table 2-1 would not change. Therefore, as shown in **Table 2-16**, the year 2040 projected number of maximum daily and maximum annual truck trips hauling biosolids from Plant No. 2 would not change with the implementation of the proposed BMP program.

By the year 2040, implementation of the BMP is expected to generate an additional 54 daily one-way truck trips due to the delivery of food waste to Plant No. 2. These 54 trips would be added to traffic at intersections in the project vicinity, and the total amount of trips at these intersections in the project vicinity would be substantially less than the four intersections within the SCAB that experienced more than 100,000 daily trips per day. SCAQMD determined that CO concentrations at these four intersections would not exceed the CO concentration thresholds, thereby not creating CO hotspots. Therefore, the contribution of 54 daily truck trips to the existing trips along the local roadways would not result in an exceedance of the CO concentration thresholds, and the proposed program would have a less than significant impact related to exposing sensitive receptors to CO hotspots.

Localized Construction Air Quality Impacts –Criteria Air Pollutants

The daily on-site construction emissions generated by the proposed program were evaluated against SCAQMD's LSTs for a 2-acre site as a screening-level analysis to determine whether the

emissions would cause or contribute to adverse localized air quality impacts.[4] The nearest off-site sensitive receptors are the residential dwelling located directly west of the Plant No. 2 across Brookhurst Street. Because the mass rate look-up tables provided by SCAQMD only provide LSTs at receptor distances of 82, 164, 328, 656, and 1,640 feet, the LSTs for a receptor distance of 82 feet are used to evaluate the potential localized air quality impacts associated with the proposed program's peak day construction emissions. **Table 3.2-9** identifies the daily-localized on-site emissions that are estimated to occur during the proposed program's worst-case construction scenario. As shown, the daily emissions generated would not exceed the applicable SCAQMD LST for CO for a 2-acre site; however, daily emissions would exceed regulatory thresholds for NOx, PM10 and PM2.5.

TABLE 3.2-9
PROPOSED PROGRAM LOCALIZED DAILY UNMITIGATED CONSTRUCTION EMISSIONS

	Estimated Maximum Daily On-Site Emissions (lbs/day)			
Construction Year	**NO_X**	**CO**	**PM_{10}**	**$PM_{2.5}$**
Max Daily	173	99	17	12
Localized Significance Threshold	72	962	7	5
Significant Impact?	**Yes**	No	**Yes**	**Yes**

[a] Emissions account for implementation of dust control measures as required by SCAQMD Rule 403—Fugitive Dust.

SOURCE: ESA 2017 (based on Appendix B)

Localized Operational Air Quality Impacts –Criteria Air Pollutants

During proposed program operations, the daily amount of localized pollutant emissions generated onsite by the proposed program would not be substantial. The proposed program's on-site operational emissions are shown in **Table 3.2-10**. As shown, the proposed program's total net operational-related emissions generated on-site would not exceed SCAQMD's screening operational LSTs. Thus, no dispersion modeling is required and localized air quality impacts during proposed program operations would be less than significant.

Localized Construction Air Quality Impacts –Toxic Air Contaminants (TACs)

The proposed program would expose sensitive receptors to substantial concentrations of toxic air contaminants if the proposed program would emit carcinogenic materials or TACs that exceed the maximum incremental cancer risk of ten in one million or a cancer burden greater than 0.5 excess cancer cases (in areas greater than or equal to 1 in 1 million) or an acute or chronic hazard index of 1.0. Construction-related cancer risk and acute/chronic hazards were estimated and compared to this threshold. The resulting health risk calculations were performed using a spreadsheet tool consistent with the OEHHA guidance. The spreadsheet tool incorporates the algorithms,

[4] According to SCAQMD's LST methodology, LSTs are only applicable to the on-site construction emissions that are generated by a project and do not apply to emissions generated off-site such as mobile emissions on roadways from worker, vendor, and haul truck trips.

equations and a variable described above, as well as in the OEHHA guidance, and incorporates the results of the AERMOD dispersion model.

Therefore, this impact would be significant.

TABLE 3.2-10
PROPOSED PROGRAM LOCALIZED OPERATIONAL EMISSIONS

	Estimated Emissions (lbs/day)			
Development Phases	**NO_X**	**CO**	**PM_{10}**	**$PM_{2.5}$**
Existing	5	3	1	1
Proposed Program	6	6	2	2
Net Proposed Program Increase	1	3	1	1
Localized Significance Threshold	101	1,253	3	2
Significant Impact?	No	No	No	No

SOURCE: ESA 2017 (based on Appendix B)

The process of assessing health risks and impacts includes a degree of uncertainty. The level of uncertainty is dependent on the availability of data and the extent to which assumptions are relied upon in cases where the data are incomplete or unknown. All HRAs rely upon scientific studies in order to reduce the level of uncertainty; however, it is not possible to completely eliminate uncertainty from the analysis. Where assumptions are used to substitute for incomplete or unknown data, it is standard practice in performing HRAs to err on the side of health protection to avoid underestimating or underreporting the risk to the public by assessing risk on the most sensitive populations, such as children and the elderly.

For carcinogenic exposures, the cancer risk from DPM emissions from construction activities associated with the proposed program is estimated to result in a maximum carcinogenic risk of 320.7 per one million. This maximum level is considered worst-case since it assesses health risks based upon annual emissions levels from the year with the maximum expected emissions. As discussed previously, the lifetime exposure under the OEHHA Guidance takes into account early life (infant and children) exposure. It should also be noted that the calculated cancer risk conservatively assumes that sensitive receptors (residential uses) would not employ mechanical filtration which normally reduce the cancer risk. Based on the evaluation, impacts would be considered potentially significant because the maximum carcinogenic risk of 320.7 per one million would be greater than the risk threshold of 10.0 in one million.

Localized Operational Air Quality Impacts -TACs

Typical land uses that are sources of acutely and chronically hazardous TACs include industrial manufacturing processes, automotive repair facilities, and dry cleaning facilities using perchloroethylene (which has been banned for use in new dry cleaning facilities). The proposed program includes industrial processes that would result in the use of chemicals and the flaring of gases associated with the processing of biosolids. Additionally, the onsite CenGen could result in

TAC emissions from its operation. However, all of these process and stationary sources are permitted through the SCAQMD. The SCAQMD requires that TAC emissions from industrial process and stationary sources would be below regulatory thresholds.

The operation of the proposed program results in daily and annual truck trips. However, as detailed in the methodology and CO Hotspot analysis above, the number of truck trips will be be increased by a maximum of 54 daily tips, 15,730 annual trips. This is an increase of approximately 35 percent over existing conditions. Additionally, as more stringent emissions requirements are incorporated for haul truck fleets, the DPM emissions per vehicle mile traveled will also decrease. Emission rates for a standard fleet between 2016 and 2040 are anticipated to decrease by approximately 91% for PM emissions (CARB 2014). Therefore, the implementation of the proposed program, in addition to the increased DPM reductions associated with the new regulatory requirements would be anticipated to see an overall reduction in risk from DPM emissions from existing levels even with the increase in vehicle trips.

Operation of the proposed program would not introduce unpermitted sources of TAC, and therefore, would not result in TAC emissions above regulatory thresholds. The proposed program would not include any of these potential sources, although minimal emissions may result from the use of consumer products (similar to existing conditions). Additionally, it is not anticipated that a net increase in emergency back-up generators would be required for the new land uses associated with the proposed program. However, if a net increase in generators was implemented for a new land use, it would typically only be used during emergencies and may be turned on periodically for maintenance and inspection purposes. Further, emergency back-up generators are subject to SCAQMD regulatory requirements, which limit the allowable TAC emissions to a level that would not result in a significant impact. As such, the periodic operation of the backup generator at Plant No. 2, should it be necessary, would not expose surrounding sensitive receptors to substantial pollutant or TAC emissions, and the health impact would be less than significant.

Significance Determination before Mitigation: Potentially Significant

Impacts from localized construction criteria pollutant emissions would be significant, and impacts from CO emissions would be less than significant. Impacts from localized operational criteria pollutant emissions would remain less than significant.

Impacts from localized construction TAC emissions would significant, and impacts from localized operational TAC emissions would be less than significant.

Cumulative Impact Analysis

As Lead Agency, the SCAQMD uses the same significance thresholds for project specific and cumulative impacts for all environmental topics analyzed in an Environmental Assessment or EIR. Projects that exceed the project-specific significance thresholds are considered by the SCAQMD to be cumulatively considerable. This is the reason project-specific and cumulative significance thresholds are the same. Conversely, projects that do not exceed the project-specific thresholds are generally not considered to be cumulatively significant. As detailed under Impact 3.2-4 above, impacts from operational localized criteria pollutants and TACs would be less than significant at a project level and therefore would be less than cumulatively considerable for

operational impacts. However, because construction related localized criteria pollutants and TACs associated with the proposed program would be significant at a project level, they would also be cumulatively considerable.

Significance Determination before Mitigation: Potentially Significant

Mitigation Measures

Program Measures

Implementation of AQ-1 and AQ-2 is required.

Significance Determination after Mitigation: Less than Significant

Mitigated Localized Construction Air Quality Impacts –Criteria Air Pollutants

With the implementation of mitigation measure AQ-1 and AQ-2, the proposed program's localized construction emissions for NOx, PM10, and PM2.5 would be reduced to below regulatory thresholds as shown in **Table 3.2-11.**

TABLE 3.2-11
PROPOSED PROGRAM LOCALIZED DAILY MITIGATED CONSTRUCTION EMISSIONS

	Estimated Maximum Daily On-Site Emissions (lbs/day)			
Construction Year	**NO_X**	**CO**	**PM10**	**PM2.5**
Max Daily (Unmitigated)	173	99	17.08	12
Reduction with Mitigation AQ-1	164	17	7.60	7
Reduction with Mitigation AQ-2	2	14	2.84	2
Max Daily with all Mitigation	7	69	6.64	3
Localized Significance Threshold	72	962	7	5
Significant Impact?	No	No	No	No

[a]. Emissions account for implementation of dust control measures as required by SCAQMD Rule 403—Fugitive Dust.
SOURCE: ESA 2017 (based on Appendix B)

Mitigated Localized Construction Air Quality Impacts –Toxic Air Contaminants (TACs)

Implementation of mitigation measures AQ-1 would also result in a reduction in overall health risk due to the incorporation of Tier 4 equipment which significantly reduces DPM emissions. With the implementation of mitigation measures AQ-1, the maximum carcinogenic risk associated with the proposed BMP program would reduce from 320.7 per one million to 9.6 per million, which is below the regulatory threshold of 10 per million. Therefore, the cancer risk for nearby sensitive receptors would not contribute to a significant health risk during construction activities.

Operational Impacts:

Impacts from CO emissions, localized operational criteria pollutants, and localized operational TAC emissions would remain less than significant.

Cumulative Measures

Implementation of mitigation measures AQ-and AQ-2 is required.

Significance Determination after Mitigation: Less than Significant

As stated previously, the cumulative thresholds for air quality are identical to the project level thresholds, therefore projects that are less than significant with or without mitigation at the project level would be less than cumulatively considerable. Therefore, consistent with the project level analysis, with the implementation of mitigation measure AQ-1 and AQ-2, the proposed program's contribution to cumulative localized construction emissions associated with criteria air pollutants and TACs would be reduced to below regulatory thresholds (see respective discussions under Program Measures analysis above), and the proposed program's contribution to cumulative impacts would be less than cumulatively considerable. The proposed program's contribution to cumulative impacts from CO emissions, localized operational criteria pollutants, and localized operational TAC emissions would remain less than cumulatively considerable.

Odors

Impact 3.2-5: The proposed program would result in less than significant and less than cumulatively considerable effects from the creation of objectionable odors affecting a substantial number of people.

Program Impact Analysis

Construction

During construction activities, only short-term, temporary odors from vehicle exhaust and construction equipment engines would occur. These odors would be temporary, would be transitory throughout Plant No. 1 and Plant No. 2 as construction occurs for each project. The odors would also disperse rapidly and would be typical of the existing operational truck activities within the program area. However, existing digesters on Plant No. 2 could potentially harbor odors. The demolition of these facilities could result in the release of odors into the surrounding environment. Therefore, odor emissions from construction activities could be potentially significant.

Operation

Based on the specific type of operations at each project location that is part of the proposed program, there is the potential for odors to exist and to travel offsite. There are no odor complaints on record for this facility within the past five years. Additionally, as part of other cumulative projects such as FE13-04 and P2-92A (see Table 3-2 in Chapter 3, *Environmental Setting, Impacts and Mitigation Measures* of this Draft PEIR), being completed at both Plant No. 1 and Plant No. 2, Plant-wide odor control systems are being upgraded.

Implementation of the proposed program would incorporate an Interim and Ultimate Food Waste Facility (see Chapter 2, *Project Description* of this Draft PEIR for more details). Source separated organics (SSO or food waste) odors can result from volatilization of nitrogen- and sulfur-rich organic compounds that are common in many types of food wastes. Therefore, the proposed

program was designed to implement odor control treatment technologies (carbon canisters) in order to treat foul air in the SSO tanks. The activated carbon may serve as a passive odor control system as the tanks are filled and drawn down. Further, odor control systems are being implemented in the proposed DFF, which blends activated waste activate sludge. These odor control facilities would be implemented within facility processes where necessary to reduce potential odor impacts.

As described above, OCSD has prepared an OCMP for both Plant No.1 and Plant No. 2. New facilities including carbon canisters associated with the Interim and Ultimate Food Waste Facilities and DFF were designed and will be constructed in compliance with the OCMP. Further, the proposed program's new and updated facilities will be implemented into future updates to the OCMP.

Therefore, with the implementation of the upgraded odor control system, new odor control systems associated with the proposed program, and compliance with the updated OCSD OCMP, potential odor impacts to sensitive receptors would be less than significant.

Significance Determination before Mitigation: Potentially Significant

Cumulative Impact Analysis

Future cumulative development in the vicinity of the proposed program has the potential to create odors. Construction activities associated with future development are expected to result in less than significant odor impacts. Operational impacts from cumulative development could result in significant odor impacts. Because the proposed program would result in potentially significant odor impacts due to the demolition of existing digesters, the proposed program's incremental contribution to cumulative odor impacts would be cumulatively considerable without mitigation.

Significance Determination before Mitigation: Potentially Significant

Mitigation Measures

Program Measures

> **AQ-3**: OCSD shall ensure that contractors remove salvaged/demolished equipment from the treatment plants to minimize potential odors during the removal of existing facilities. Staging areas shall not be used to store salvaged/demolished equipment.

Significance Determination after Mitigation: Less than Significant

Implementation of Mitigation Measure AQ-3 would minimize the generation of nuisance odors during and after demolition of existing digesters, thereby reducing potential impacts to less than significant levels.

Cumulative Measures

Implementation of Mitigation Measures AQ-3 is required.

Significance Determination after Mitigation: Less than Significant.

Implementation of Mitigation Measure AQ-3 would minimize the generation of nuisance odors during and after demolition of existing digesters, thereby reducing the program's potential impacts to less than significant levels. Therefore, the program's contribution to cumulative impacts regarding odor would be considered less than cumulatively considerable.

3.2.4 References

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3.3 Biological Resources

This section identifies the biological resources in the program area and evaluates the potential for the proposed program to impact any habitats, plants, or wildlife species. For this evaluation, the two program areas are recognized as being limited to those areas where the proposed program activities would be conducted, which are both situated entirely within Orange County Sanitation District Plant No. 1 and Plant No. 2. The program area includes a larger area and may extend up to 500 feet or more beyond the program areas. The following evaluation includes a review of publicly available data from the California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB) (CDFW, 2017) and from the U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) Tool (USFWS, 2017) (see **Appendix C**). In addition, biological resources information in the Orange County Water District Groundwater Replenishment System Final Expansion Project, Addendum No. 6 (OCWD, 2016), was also reviewed and is hereby incorporated by reference.

3.3.1 Environmental Setting

The two program areas are both located on the USGS 7.5-minute topographic quadrangle map for Newport Beach. Plant No. 1 is located in Township 5 South, Range 10 West, Section 32 and Plant No. 2 is located in Township 6 South, Range 10 West, Section 1. The program area located in Plant No. 1 encompasses approximately 2 acres and the portion in Plant No. 2 encompasses approximately 17.5 acres. Both Plant No. 1 and No. 2 are currently developed with wastewater treatment structures and facilities, offices, paved roadway areas and paved parking areas.

Both Plant No. 1 and Plant No. 2 are urbanized and contain limited natural vegetation, if any. Thus, neither program area contains any natural habitat that could support native plants or wildlife use, although some avian species may fly over these areas and some common terrestrial species may wander into these developed areas occasionally. Neither site offers any substantial value to wildlife. However, it is possible that a few urban-adapted bird species could nest in structures or landscape vegetation in either program area.

The area surrounding Plant No. 1 includes commercial and office uses to the north of Ellis Avenue, residential uses to the west of Ward Street, and industrial power grids and a landscape center to the south. The SAR and the SAR Trail lie just to the east. The area surrounding Plant No. 2 includes residential use to the north and to the west of Brookhurst Street. The Talbert Marsh occurs along the south side of the plant with the Talbert Marsh Bike Trail, PCH and then the Pacific Ocean further to the south. The mouth of the SAR and SAR trail occur to the east.

The Talbert Marsh Ecological Reserve lies to the south, between Plant No. 2 and PCH. The Ecological Reserve is a 25-acre wetland owned by the Huntington Beach Wetlands Conservancy that was restored for flood control and wildlife use in the late 80's and 90's. Talbert Marsh is supplied with seawater from the ocean inlet located south of the marsh property and the water level fluctuates up to 8 feet consistent with the tidal flows. Talbert Marsh provides habitat for both migratory and resident bird species.

The California Least Tern Natural Preserve Area is located to the south, across PCH from Plant No. 2. The Preserve Area was established under the Huntington State Beach General Development Plan in 1976. It currently encompasses approximately 12.7 acres and is completely fenced to protect the birds, particularly the California least tern (*Sterna antillarum*), a State and federally listed Endangered species. This nesting area is approximately 680 feet south of Plant No. 2. On June 19, 2012, the USFWS designated this nesting site as Critical Habitat (Unit CA 47) for the Pacific Coast population of western snowy plover (*Charadrius nivosous nivosous*), a federally listed Threatened species.

Topography and Soils

The program area and vicinity are located on relatively flat terrain. Plant No. 1 is at an elevation of approximately 25 feet above mean sea level (amsl) and Plant No. 2 is near sea level. There is an approximately 15-foot high berm on the south side of Plant No. 2 adjacent to Talbert Marsh. Soils at Plant No. 1 include Hueneme fine sandy loam and Metz loamy sand. Soils at Plant No.2 include Bolsa silt loam.

Vegetation Communities

The areas within Plant No. 1 and Plant No. 2 are identified as "Urban." Urban (or developed) lands have been constructed upon or otherwise covered with a permanent, unnatural surface (i.e., concrete, asphalt, buildings) or a large amount of debris or other materials. Both Plant No. 1 and Plant No. 2 do not contain habitat that typically supports sensitive plant or wildlife species.

The SAR flows to the east and adjacent to both Plant No. 1 and Plant No. 2, although both plants are separated from the SAR and the SAR Trail by an approximately 20-foot high berm. Adjacent to Plant No. 1, the SAR is concrete lined and provides little or no habitat value for native species. During summer low flow season, some soil may accumulate in small scattered patches on the concrete; however, channel maintenance and winter floods regularly scour this accumulation away. Short term soil accumulation may support common weed species temporarily, but does not develop habitat of any substantial value to native wildlife.

Adjacent to Plant No. 2, the banks of the SAR are lined with rock rip rap. This reach contains water year-round because it is subject to tidal flows, which create an estuarine environment. This segment of the River primarily provides foraging habitat for avian species, particularly wading birds, but little shoreline habitat exists that might provide nesting opportunities because of the rip rap sides and periodic maintenance activities for flood control.

The Talbert Marsh lies immediately south of Plant No. 2 although a wall and 15-foot high berm separate the plant from this natural area. Talbert Marsh provides a wetland habitat for native plant and wildlife species. The marsh supports two distinct zones: low marsh that is inundated by nearly every high tide and supports primarily pickleweed (*Salicornia virginica*), but also cordgrass (*Spartina foliosa*); and middle marsh, which is inundated by the higher tides and also dominated by pickleweed with small amounts of salt grass (*Distichlis spicata*) and alkali-heath (*Frankenia salina*). The area also has patches of open water and a few small patches of upland scrub vegetation. Further south, across PCH from Plant No. 2, the California Least Tern Natural

Preserve Area, also a designated Critical Habitat area for the western snowy plover, contains a sandy beach area with limited herbaceous vegetation.

Special Status Species

- This section identifies special status plant and animal species that are known or presumed to occur in the region where the program is located and considers whether these species could potentially occur in the program study area. Special status species are those plants and animals that are recognized as sensitive or imperiled by federal, state, or other agencies because of their rarity or vulnerability to various causes of habitat loss or population decline. 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 collectively as "special status species", following a convention that has developed in practice but has no official sanction. More specifically, special status species include:
- Plants or animals listed or proposed for listing as threatened or endangered under the federal Endangered Species Act (ESA) (50 Code of Federal regulations [CFR] 17.12 [listed plants], 17.11 [listed animals] and various notices in the Federal Register [FR] [proposed species]).
- Plants or animals that are candidates for possible future listing as threatened or endangered under the federal ESA (61 FR 40, February 28, 1996);
- Plants or animals listed or proposed for listing by the State of California as threatened or endangered under the California ESA (14 California Code of Regulations [CCR] 670.5);
- Plants listed as rare or endangered under the California Native Plant Protection Act (California Fish and Game Code, Section 1900 et seq.);
- Plants that meet the definitions of rare and endangered under CEQA (*CEQA Guidelines*, Section 15380);
- Plants considered by CDFW and/or the California Native Plant Society (CNPS) to be "rare, threatened or endangered in California" (Rare Plant Ranks 1A, 1B, and 2 in CNPS 2008) and plants noted by CDFW and/or CNPS as plants about which more information is needed to determine their status, and plants of limited distribution (Rare Plant Ranks 3 and 4), or which may be included as special status species on the basis of local significance or recent biological information; and
- Animals fully protected in California (California Fish and Game Code, Sections 3511 [birds], 4700 [mammals], and 5050 [reptiles and amphibians]); and
- Plants or animals covered by a locally or state adopted species conservation plan, including sensitive plants and animals and narrow endemic plants that have reasonable potential to occur on-site.

The following list of special status plant and wildlife species was developed with reference to the USFWS IPaC database and the CNDDB, and by local biologists with long experience in the region.

Plant Species

A list of special status plant species that have potential to occur within the Newport Beach 7.5-minute USGS quadrangle map area is presented in **Table 3.3-1**. The determinations regarding the potential for each special status plant species to occur within the program study area are categorized by the designations listed below. It is important to bear in mind that virtually none of the species considered would potentially occur within either program area, since both areas are completely developed. However, it is necessary to consider whether any of these special status plant species could occur in the study area immediately adjacent to either program site before an evaluation of potential indirect impacts can be made.

- **Observed:** Species directly observed, or reported in previous studies.
- **High Potential:** Species identified in the literature search and/or known to occur in the region and suitable habitat is present within the program area. These species are generally common and/or widespread in the program vicinity.
- **Moderate Potential:** Species identified in the literature search or known to occur in the region, suitable habitat is present within the program study area. These species are generally less common or widespread than those considered to have a High Potential in the program study area and vicinity.
- **Low Potential:** Species identified in the literature search or known to occur in the region, but the program study area is outside the species known geographic range or elevation range or habitat is generally unsuitable.
- **Not Expected:** Species identified in the literature search or known to occur in the region, but which are deemed absent because the species is known or expected to have been extirpated from the regions and/or the program study area is outside the species' known geographic or elevational range, or suitable habitat is completely lacking in the program area, or the species was not directly observed during previous studies and would have been conspicuous (e.g., large or obvious perennial plant species).

TABLE 3.3-1
SPECIAL STATUS PLANT SPECIES

Species	Federal	State	CNPS	General Habitat/Recent Occurrence	Potential for Occurrence Study Area
Chaparral sand verbena (*Abronia villosa var. aurita*)	NL	NL	1B.1	Coast Scrub Chaparral.	Not Expected presumed extirpated
Aphanisma (*Aphanisma blitoides*)	NL	NL	1B.2	Coastal Scrub, Coastal Bluff Scrub, Coastal Dunes	Not Expected Study area lacks suitable habitat
Ventura marsh milk-vetch (*Astragalus pycnostachyus var. lanosissimus*	NL	NL	--	Marshes, Swamps, Coastal Dunes, Coastal Scrub	Low Unlikely to occur in Talbert Marsh due to historic disturbance, likely extirpated
Coulter's saltbush (*Atriplex coulteri*)	NL	NL	1B.2	Coastal Scrub, Coastal Bluff Scrub, Coastal Dunes	Low Study Area lacks suitable habitat, conspicuous if present

Species	Federal	State	CNPS	General Habitat/Recent Occurrence	Potential for Occurrence Study Area
South Coast saltscale (*Atriplex pacifica*)	NL	NL	1B.2	Coastal Scrub, Coastal Bluff Scrub	Low Study Area lacks suitable habitat
Davidson's *saltscale (Atriplex serenana var. davidsonii*)	NL	NL	1B.2	Coastal Scrub, Coastal Bluff Scrub	Low Study Area lacks suitable habitat
Southern tarplant (*Centromadia parryi ssp. australis*)	NL	NL	1B.1	Marshes and swamps	Low Study area lacks suitable habitat.
Salt marsh bird's-beak (*Chloropyron maritimum ssp. maritimum*)	E	E	1B.2	Coastal Salt marsh, Coastal Dunes	Low Study Area lacks suitable habitat.
Many-stemmed dudleya (*Dudleya multicaulis*)	NL	NL	1B.2	Chaparral, Coastal Scrub	Not Expected Study area lacks suitable habitat
San Diego button-celery (*Eryngium aristulatum var. parishii*)	E	E	1B.1	Vernal pools, Coastal Scrub, Valley and Foothill Grasslands	Not Expected Study area lacks suitable habitat
Los Angeles sunflower (*Helianthus nuttallii ssp. parishii*)	NL	NL	1A	Marshes and Swamps	Not Expected Study area lacks suitable habitat, presumed extirpated
Coulter's goldfields (*Lasthenia glabrata ssp. coulteri*)	NL	NL	1B.1	Coastal Salt marshes	Low Study Area lacks suitable habitat
Mud nama (*Nama stenocarpum*)	NL	NL	2.2	Marshes and swamps	Low Study area lacks suitable habitat
Gambels Water Cress (*Nasturtium gambelii*)	E	T	1B.1	Marshes and swamps	Not Expected Study area lacks suitable habitat, extirpated in Orange County
Prostrate vernal pool navarretia (*Navarretia prostrata*)	NL	NL	1B.1	Vernal pools, coastal scrub	Not Expected Study Area lacks suitable habitat, no vernal pond areas
Coast woollyheads (*Nemacaulis denudata var. denudata*)	NL	NL	1B.2	Coastal Dunes	Not Expected Study area lacks suitable habitat, no vernal ponds
California Orcutt grass (*Orcuttia californica*)	E	E	1B.1	Vernal pools	Not Expected Study area lacks suitable habitat, no vernal pond areas
Salt spring checkerbloom (*Sidalcea neomexicana*)	NL	NL	2.B.2	Playas, chaparral, and coastal scrub.	Low Study area lacks suitable habitat

Species	Federal	State	CNPS	General Habitat/Recent Occurrence	Potential for Occurrence Study Area
Estuary seablite (*Suaeda esteroa*)	NL	NL	1B.2	Marshes and swamps	Low Unlikely to occur in Talbert Marsh due to historic disturbance; relatively conspicuous perennial
San Bernardino aster (*Symphyotrichum defoliatum*)	NL	NL	1B.2	Marshes and swamps, coastal scrub	Low Study area lacks suitable habitat, likely extirpated in vicinity

Legend:

Federal Endangered Species Act

E- Endangered
T-Threatened
C- Candidate for Listing
NL-Not Listed

California Endangered Species Act/California Department Fish and Game

FP-Fully Protected
E-Endangered
T-Threatened
WL-Watch List

California Rare Plant Rank Society (CNPS)

1A-Plants presumed extinct in California
1B-Plants rare, threatened, or endangered in California elsewhere
2-Plants rare, threated, or endangered in California but more common elsewhere
3-Plants about which we need more review
4-Plants of limited distribution

Threat Rank

1 Seriously Endangered
2 Fairly Endangered
3 Not Very Endangered

Wildlife Species

A list of special status wildlife species that have potential to occur within the Newport Beach United States Geological Survey 7.5-minute USGS quadrangle map area is presented in **Table 3.3-2**. It is important to bear in mind that, except for avian species briefly flying overhead, virtually none of the species considered are likely to occur within either program area, since both areas are completely developed. However, it is necessary to consider whether any of these wildlife species could occur in habitat in the larger study area immediately adjacent to either program site before an evaluation of potential indirect impacts can be made. Determinations regarding the potential for the special status wildlife species to occur within the program study area are categorized according to the following designations.

- **Observed:** Species or sign directly observed or reported from previous studies.
- **High Potential:** Species identified in the literature search or known to occur in the region and suitable habitat is present within the program study area. These species are generally common and/or widespread in the program vicinity.
- **Moderate Potential:** Species identified in the literature search or known to occur in the region, suitable habitat is present within the project study area. These species are generally less common and/or widespread than those considered to have a High Potential to occur in the program study area and vicinity.

- **Low Potential:** Species identified in the literature search or known to occur in the region, but the program area is outside of the species known geographic or elevational range or habitat is generally unsuitable.
- **Not Expected:** Species identified in the literature search or known to occur in the region, but which are deemed absent from the program study area because it is outside of the species' known geographic or elevational range, and/or suitable habitat is entirely lacking in the program study area.

TABLE 3.3-2
SPECIAL STATUS WILDLIFE SPECIES

Species	Federal	State	General Habitat/Recent Occurrence	Potential for Occurrence Study Area
Orange throated-whiptail (*Aspidoscelis hyperythra*)	NL	SSC	Low level coastal scrub, sandy areas with patches of scrub	Not Expected Program study area is isolated and lacks suitable habitat
Burrowing owl (*Athene cunicularia*)	NL	SSC	Open growing low grasslands	Low Suitable habitat is extremely limited
San Diego fairy shrimp (*Branchinecta sandiegonensis*)	E	SSC	Vernal pools	Not Expected No suitable habitat
Western snowy plover (*Charadrius nivosus nivosus*)	T	SSC	Sandy Beaches	High Nesting habitat occurs nearby (across PCH); occasional foraging in study area (e.g., Talbert Marsh) is likely, nesting in study area is not likely as suitable nesting habitat is lacking
Southwestern willow flycatcher (*Empidonax trailli extimus*)	E	E	Riparian woodlands	Not Expected No suitable habitat
Western Mastiff Bat (*Eumops perotis californicus*)	NL	SSC	Roosts in cliffs, tall buildings, trees and tunnels	Not Expected No suitable habitat
Big free-tailed bat (*Nyctinomops macrotis*)	NL	SSC	Roosts in cliffs, tall buildings, trees and tunnels	Low Study Area lacks suitable habitat
Osprey (*Pandion haliaetus*)	NL	WL	Ocean shore, bays, freshwater areas	Foraging only - in Talbert Marsh within the SAR
Belding's savannah sparrow (*Passerculus sandwichensis beldingi*)	NL	E	Coastal salt marshes	High Talbert Marsh supports pickleweed which may be used for nesting,
Pacific pocket mouse (*Perognathus longimembris pacifus*)	E	SSC	Coastal Plains	Not Expected No suitable habitat
Coast horned lizard (*Phrynosoma blainvillii*)	NL	SSC	Low lands along sandy washes with scattered brush	Not Expected Study area is isolated and lacks suitable habitat
Coastal California gnatcatcher (*Polioptila californica californica*)	T	SSC	Coastal sage scrub	Not Expected Study area is isolated and lacks suitable habitat

Species	Federal	State	General Habitat/Recent Occurrence	Potential for Occurrence Study Area
Light-Footed Clapper Rail (*Rallus longirostris levipes*)	E	E	Salt marshes (nesting occurs primarily in dense cordgrass, wrack deposits, and in hummocks of high marsh within the low marsh zone)	Moderate Habitat in Talbert Marsh is marginally suitable
Southern California saltmarsh shrew (*Sorex ornatus salicornicus*)	NL	SSC	Coastal Marshes	Low Possibly extirpated, little known species, needs areas above inundation line for burrowing – very limited in study area
California Least Tern (*Sterna antillarum*)	E	E	Sandy Beaches	High Nesting habitat occurs nearby (across PCH); occasional foraging in study area (e.g., Talbert Marsh) is likely, but nesting in study area is not likely as suitable sandy beach nesting habitat is lacking
Least Bell's vireo (*Vireo bellii pusillus*)	E	E	Low growing riparian habitats	Not Expected No suitable habitat

Legend:

Federal Endangered Species Act

E- Endangered
T-Threatened
C- Candidate for Listing
NL-Not Listed

California Endangered Species Act/California Department Fish and Wildlife

FP-Fully Protected
E-Endangered
T-Threatened
WL-Watch List

Critical Habitat

The USFWS designates Critical Habitat, which is a specific geographic area, or areas that contain features essential for the conservation of a federally threatened or endangered species, and that may require special management and protection to ensure its continued availability and ecological function. Critical Habitat may include an area that is not currently occupied by the species, but is deemed essential for its conservation. Based on a review of the USFWS IPaC database, the CDFW Natural Diversity Database and the CNPS database, the program area is not located on lands that are designated as Critical Habitat. However, not far from the Plant No. 2 program area is the California Least Tern Natural Preserve Area across PCH and south of Plant No. 2. This Preserve Area was first established under the Huntington State Beach General Development Plan in 1976. It covers approximately 12.7 acres between the SAR and the Talbert Marsh inlet and is completely fenced to protect resident birds, particularly the California least tern (Sterna antillarum), a State and federally-listed Endangered species. This nesting area lies at least 680 feet south of Plant No. 2 on the opposite side of PCH which is a six-lane arterial highway. On June 19, 2012, the USFWS designated this nesting site as Critical Habitat (Unit CA 47) for the

Pacific Coast population of western snowy plover (*Charadrius nivosous nivosous*), listed as a federally listed Threatened species. Although this protected patch of important nesting habitat for these two listed shorebirds is not within the immediate vicinity of the program, it is notable and has been considered with regard to whether the proposed program could affect this area.

The program area is also not located within or near any designated habitat conservation plan (HCP) or natural communities conservation plan (NCCP) area. HCPs and NCCPs are set up specifically to provide conservation values and protected habitat areas for listed species, and also for species that could become listed in the future.

Jurisdictional Resources

Wetlands and permanent and intermittent drainages, creeks, and streams identified as waters of the U.S. are generally subject to the jurisdiction of the U.S. Army Corps of Engineers (USACE) and Regional Water Quality Control Board (RWQCB) under Section 404 and Section 401, respectively, of the Federal Clean Water Act. These resources are referred to as "jurisdictional resources" in this section. Waters of the U.S. are defined as those susceptible to interstate commerce and are called "traditional navigable waters"; which includes bodies of water that have a connection to the seas and their tributaries, those subject to the ebb and flow of the tide, and interstate wetlands. Wetlands are defined as areas that are inundated or saturated by surface or ground water at 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 condition; generally including swamps, marshes, bogs, and similar areas. The program area does not contain any jurisdictional resources. The closest water bodies within the vicinity of the program area are the SAR and Talbert Marsh.

3.3.2 Regulatory Framework

Federal

Federal Endangered Species Act

The USFWS and National Marine Fisheries Service (NMFS) have responsibility for administration of the federal ESA. The ESA provides broad protection for species of fish, wildlife and plants that are listed as threatened or endangered in the U.S. or elsewhere. The federal ESA has four major components: 1) provisions regarding the listing of protected species, 2) requirements for federal agency consultation with USFWS or NMFS, 3) prohibitions against "taking" of listed species, and 4) the provisions for permits that allow incidental "take" of listed species for otherwise lawful activities. "Take", as defined in the federal ESA, means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. The ESA also requires the preparation of recovery plans and the designation of critical habitat for listed species.

The Migratory Bird Treaty Act of 1918

The Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S.C. 703-711) makes it unlawful to possess, buy, sell, purchase, barter or "take" any migratory bird listed in Title 50 of the Code of Federal Regulations CFR 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.

State

California Endangered Species Act

The California ESA is similar to the main provisions of the federal ESA and is administered by the California Department of Fish and Game (CDFG). Unlike its federal counterpart, CESA applies the take prohibitions to not only listed threatened and endangered species, but also to state candidate species that may ultimately become listed species. Section 86 of the Fish and Game Code defines "take" as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." The CDFG maintains lists for Candidate-Endangered Species and Candidate-Threatened Species, which have the same protection as listed species. Under CESA the term "endangered species" is defined as a species of plant, fish, or wildlife, which is "in serious danger of becoming extinct throughout all, or a significant portion of its range" and is limited to species or subspecies native to California.

California Department of Fish and Game Codes

All birds, and raptors specifically, and their nests, eggs and parts thereof are protected under Sections 3503 and 3503.5 of the California Fish and Game Code. Disturbance that causes nest abandonment and/or loss of reproductive effort (e.g., killing or abandonment of eggs or young) is considered a violation of this code. Additionally, Section 3513 of the Fish and Game Code prohibits the take or possession of any migratory non-game bird listed by the MBTA. The CDFG has jurisdiction over the conservation, protection, and management of wildlife, native plants, and habitat necessary to maintain biologically sustainable populations (California Fish & Game Code Section 1802). The CDFG, as a trustee agency under *CEQA Guidelines* Section 15386, provides expertise in reviewing and commenting on environmental documents and makes and regulates protocols regarding potential negative impacts to biological resources held in California.

Non-Listed Species Management and Conservation Concerns

Species of Special Concern is an informal designation used by CDFW for some declining wildlife species that are not proposed for listing as threatened or endangered. This designation does not provide legal protection, but signifies that these species are recognized as declining by CDFW.

CNPS has maintained an inventory of California's sensitive plant species. This inventory was recently merged with similar designations used by CDFW and now identifies special status plant species with Rare Plant Ranks, which were formerly simply CNPS lists of species. The current list summarizes information on the distribution, rarity, and endangerment of California's vascular plants. The inventory is divided into four lists based on the rarity of the species. In addition, the CNPS and CDFW provide an inventory of plant communities that are considered natural communities of special concern by the state and federal resource agencies, academic institutions, and various conservation groups. The determination of the level of significance of impacts on plant species and natural communities is based on the number and size of remaining occurrences as well as recognized threats.

Natural communities of special concern are those that support concentrations of special-status plant or wildlife species, are of relatively limited distribution, or are of particular value to wildlife. Natural communities of special concern are not afforded legal protection unless they are designated critical habitat for federally listed threatened or endangered species, support formally listed species, or are jurisdictional wetland habitats.

Local

The program area is located within the City of Fountain Valley and the City of Huntington Beach. Neither city has ordinances protecting trees on non-City property.

3.3.3 Impacts and Mitigation Measures

Significance Criteria

The criteria used to determine the level of significance of impacts to biological resources are based on Appendix G of the *CEQA Guidelines*. The proposed program would have a significant impact on biological resources 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 CDFW or USFWS (see Impact 3.3-1, below);
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFW or USFWS (see Section 4.1.3 in Chapter 4.0, Other CEQA Considerations);
- 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 (see Section 4.1.3 in Chapter 4.0, Other CEQA Considerations);
- 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 (see Impact 3.3-2, below);
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance (see Impact 3.3-3, below); 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 (see Section 4.1.3 in Chapter 4.0, Other CEQA Considerations).

Methodology

A direct impact would occur if a modification, disturbance, or destruction of biological resources would result from program-related activities, such as the removal of habitat. An indirect impact would occur if program-related development would indirectly affect protected plant and wildlife species or habitat, such as through the introduction of noise levels substantially exceeding existing conditions on nesting sites in adjacent areas.

Impacts Discussion

Effect on Species

Impact 3.3-1: The proposed program could have significant and cumulatively considerable effects on some avian species during nesting activities but would not have an adverse effect, either directly or through habitat modifications, on species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS.

Program Impact Analysis

Construction

Construction activities would include the disturbance of approximately 19.5 acres; approximately 2.0 acres at Plant No. 1 and approximately 17.5 acres at Plant No. 2. The proposed disturbance could include the removal of a couple of non-native ornamental trees at Plant No. 1, a couple of non-native ornamental trees mostly located within the confines of Plant No. 2, and a row of trees within Plant No. 2 along Brookhurst Street located on the southern boundary of Plant No. 2. The removal of trees could result in direct impacts to nesting birds if any are present. In addition, indirect impacts to birds nesting in the vicinity of the proposed disturbance could result from construction noise.

Nesting activity typically occurs from February 15 to August 31 for songbirds and from January 15 to August 31 for raptors. Disturbing or destroying active nests is a violation of the Migratory Bird Treaty Act. In addition, nests and eggs are protected under California Fish and Game Code Section 3503 and 3503.5. As such, direct impacts (removal of active nests) and indirect impacts (e.g. by noise causing abandonment of the nest) to nesting birds would be considered potentially significant.

Operation

The nearest vegetation/trees to the proposed collection yard facility at Plant No. 1 would be located within 50 feet. This vegetation could provide nesting habitat. However, given that the Collection Yard sites currently have daily exterior activity occurring at both potential locations for the Collection Yard, the proposed activities would not result in a substantial increase in operational noise at these potential sites, and therefore, would result in a less than significant noise impact on potential nesting birds.

The nearest vegetation/trees to the proposed facilities at Plant No. 2 would be located within 50 feet within Plant No. 2 and at approximately 50 feet south of Plant No. 2. The proposed facilities include equipment that is more energy efficient and reduces noise compared to the existing equipment. There is also a 15-foot high berm and wall separating the plant area from the adjacent Talbert Marsh. Moreover, the vegetation in the marsh is particularly low-growing and would not be directly exposed to noise emanating from the plant. Finally, the Least Tern Ecological Preserve and coincidental Critical Habitat for western snowy plover are too far away on the other side of PCH (a highly traveled arterial highway) from the proposed program area to be affected by program noise. The implementation of the proposed facilities with new equipment would further diminish noise as compared with existing levels. Therefore, the operational activities

associated with the proposed program are expected to result in less than significant impacts on nesting birds.

Significance Determination before Mitigation: Potentially **S**ignificant

Cumulative Impact Analysis

Future construction and operational activities associated with cumulative development (see Table 3-2 in Chapter 3 of this PEIR) may result in impacts to nesting birds as well as sensitive plant and wildlife species. These potential cumulative impacts could result from removal of habitat or indirect through noise-generating activities. Because the construction activities associated with the proposed program could result in significant impacts to nesting birds, the proposed program would contribute to cumulative impacts to nesting birds.

Since construction impacts would be temporary, they would not contribute to a cumulatively significant effect on nesting birds in the area in the long term. After construction, the proposed program would not affect nesting birds on site or in adjacent habitat areas. Therefore, the proposed program's contribution to cumulative impacts to nesting birds, impacts would be less than cumulatively considerable.

Significance Determination before Mitigation: Potentially Significant

Mitigation Measures

Program Measures

BIO-1: If removal of onsite trees and vegetation associated with the proposed program occurs during the non-nesting season (September 1 to February 14 for songbirds; September 1 to January 14 for raptors), no nesting survey or biological monitor are required.

If the removal of onsite trees and vegetation associated with the proposed program occurs during the nesting season (February 15 to August 31 for songbirds; January 15 to August 31 for raptors), a qualified biologist shall conduct a survey prior to vegetation removal activities to determine if there are active nests within the onsite trees and vegetation proposed for removal. If an active nest is not found, no biological monitor is required. If active nests are detected, a minimum buffer (e.g., 300 feet for songbirds or 500 feet for raptors) around the nest shall be delineated and flagged, and no construction activity shall occur within the buffer area until a qualified biologist determines the nesting species have fledged and is no longer active or the nest has failed. The buffer may be modified (i.e., increased or decreased) and/or other recommendations proposed (e.g., a temporary soundwall) as determined appropriate by the qualified biologist to minimize impacts. The qualified biologist shall monitor the removal of onsite trees and vegetation. Nest buffer distance will be based on species, specific location of the nest, the intensity of construction activities, existing disturbances unrelated to the proposed program present in the program area, and other factors.

If grading/excavation or pile driving activities associated with the proposed program are scheduled outside the nesting season, no nesting survey or biological monitor are required.

If grading/excavation or pile driving activities associated with the proposed program are scheduled during the nesting season, a qualified biologist shall conduct a survey, prior to grading/excavation or pile driving activities, of suitable nesting habitat within 500 feet of construction activities for the presence of nesting birds. If no active nests are detected, no biological monitor is required. If an active nest is detected, a minimum buffer (e.g., 300 feet for songbirds or 500 feet for raptors) around the nest shall be delineated and the active nest shall be flagged, and no construction activity shall occur within the buffer area until a qualified biologist determines the nesting species have fledged and is no longer active or the nest has failed. The qualified biologist shall monitor the activities of the active nests within the buffer area. The buffer may be modified (i.e., increased or decreased) and/or other recommendations proposed (e.g., a temporary soundwall) as determined appropriate by the qualified biologist to minimize impacts. Nest buffer distance will be based on species, specific location of the nest, the intensity of construction activities, existing disturbances unrelated to the proposed program present in the program area, and other factors.

If there is a lapse of construction activities associated with the proposed program during the nesting season for seven days or more, an additional nesting bird survey shall be conducted to determine if a nest is present prior to construction activities resuming. The procedure identified above for no active nest and an active nest shall be followed.

Significance Determination after Mitigation: Less than Significant

Implementation of Mitigation Measure BIO-1 would reduce impacts to nesting birds to less than significant by requiring identification and avoidance of active nests (and an appropriately-sized buffer) if it is infeasible to schedule construction outside the avian nesting season.

Cumulative Measures

Implementation of BIO-1 is required.

Significance Determination after Mitigation: Less than Significant

Implementation of Mitigation Measure BIO-1 would reduce the program's contribution to cumulative impacts to nesting birds to less than significant by requiring identification and avoidance of active nests (and an appropriately-sized buffer) if it is infeasible to schedule construction outside the avian nesting season.

Wildlife Corridors and Nursery Sites

Impact 3.3-2: The proposed program would have less than significant and less than cumulatively considerable effects on the movement of species because the program would not 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.

Program Impact Analysis

Construction

Plant No. 1 and Plant No. 2 are developed properties that have been improved with buildings, wastewater treatment facilities, and paved circulation and parking areas. As a result, both program areas lack suitable habitat and do not provide linkages to suitable habitat to promote or provide for wildlife movement. Therefore, no impacts from the implementation of the program facilities would occur on wildlife movement.

Plant No. 1 is not located in the vicinity of native wildlife nursery sites and therefore, the construction activities at Plant No. 1 would not result in impacts to native wildlife nursery sites.

Construction activities associated with the improvements at Plant No. 2 would range from approximately 700 feet to 3,000 feet from the existing California least tern/western snowy plover nesting site located south of PCH. The construction activities associated with the proposed water softener structure proposed in the southern corner of Plant No. 2 would be the nearest construction activities to the existing California least tern/western snowy plover nesting site. All other construction activities would occur more than 1,000 feet from the nesting site. Because the existing nesting site is located adjacent to PCH, noise levels associated with motor vehicle traffic along PCH which are 73.9 dBA CNEL at 50 feet would mask noise levels caused by construction activities which would be a maximum of 85 dBA at 50 feet and less than a maximum of 67 dBA at the nesting site. Construction activities associated with the proposed program are planned to occur between the hours of 7:00 am and 8:00 pm during the weekday in accordance with the City of Huntington Beach Municipal Code. Therefore, implementation of the proposed program improvements on Plant No. 2 would result in less than significant impacts on native wildlife nursery sites.

Operation

Operational noise levels associated with the proposed program would be similar to the existing noise levels which are substantially less than potential construction noise levels. Due to the distance from the proposed facilities to the nesting site, operational noise levels would not be audible at the existing California least tern/western snowy plover nesting site.

Significance Determination before Mitigation: Less than Significant

Cumulative Impact Analysis

Future cumulative development may result in impacts to the movement of native resident or migratory fish or wildlife species. In addition, cumulative development within Huntington Beach could result in impacts to the existing California least tern/western snowy plover nesting site located south of PCH. Because Plant No. 1 and No. 2 are developed properties that lack suitable

habitat; the program area does not provide habitat linkages or promote wildlife movement. Therefore, the proposed program would not contribute to potential cumulative impacts regarding the movement of native resident or migratory fish and wildlife species. Further, due to the distance from the proposed facilities at Plant No. 2 to the California least tern/western snowy plover nesting site south of PCH, construction and operational noise levels would not be audible and at the nesting site. Therefore, construction and operational activities associated with the proposed program would result in less than cumulatively considerable impacts regarding the California least tern/western snowy plover nesting site.

Significance Determination before Mitigation: Less than Significant

Mitigation Measures

Program Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

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Local Policies or Ordinances Protecting Biological Resources

Impact 3.3-3: The proposed program would have no effects and would not contribute to cumulative effects on biological resources because the program would not conflict with local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

Program Impact Analysis

Construction

Based on a review of the City of Fountain Valley General Plan and Municipal Code and the City of Huntington Beach General Plan and Municipal Code, these two cities do not have local policies or ordinances to protect biological resources on non-City properties (City of Fountain Valley, 1995 and 2017 and City of Huntington Beach, 2017a and 2017b). Because the proposed program does not include impacts to biological resources within City properties, the proposed program would result in no impact on local ordinances and policies related to protecting biological resources.

Operation

Impacts would be the same as those identified above for construction.

Significance Determination before Mitigation: No Impact

Cumulative Impact Analysis

Future cumulative development may result in impacts to local ordinances or local policies related to the protection of biological resources on City properties. These potential impacts could be significant. Because the proposed program does not include impacts to biological resources within City properties, the proposed program's incremental contribution to potential cumulative impacts on local ordinances and policies related to protecting biological resources would be less than significant.

Significance Determination before Mitigation: No Impact

Mitigation Measures

Program Measures

No mitigation measures are required.

Significance Determination after Mitigation: No Impact

Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: No Impact

3.3.4 References

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Orange County Water District (OCWD), 2016. *Groundwater Replenishment System Final Expansion Project, Addendum No. 6, Final EIR*. August 2016.

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3.4 Cultural Resources

This section provides an assessment of potential impacts related to cultural resources that could result from implementation of the proposed program. The analysis in this section is based, in part, on information from the *Phase I Cultural Resources Study for the Groundwater Replenishment System Final Expansion Project and Water Production Enhancement Project*, the *Historic Resources Assessment for the Orange County Sanitation District Plant 1*, the *Historic Resources Assessment for the Orange County Sanitation District Plant 2*, each prepared by Environmental Science Associates and included in Appendix D. To supplement the Phase I report, a Sacred Lands File (SLF) search was commissioned through the California Native American Heritage Commission (NAHC) and an updated records search was conducted through the South Central Coastal Information Center (SCCIC) of the California Historical Resources Information System (CHRIS). The results of the SLF search are also included in **Appendix D**.

3.4.1 Environmental Setting

Natural Setting

The proposed program is located in the cities of Huntington Beach and Fountain Valley, 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 is located adjacent to and just east of the proposed program area.

The City of Fountain Valley is located in the Santa Ana Valley-Capistrano Valley Province, "which is a lowland strip separating the coastal hills from the Santa Ana Mountains" (City of Fountain Valley, 2015). The majority of Fountain Valley is located on a gentle sloping flood zone. The soils in the proposed program area consist primarily of alluvial sediments with interbedded silts and sands (Fountain Valley General Plan, 1995:5-3).

The City of Huntington Beach 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 program area 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 Setting

The prehistory of the region has been summarized within four major horizons or cultural periods: Early [10,000 to 8,000 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, 1999; Erlandson, 1994; Vellanoweth and Altschul, 2002). One site located in Newport Bay, Orange County (CA-ORA-64) dates to approximately 9,500 years B.P. and 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 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. 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 program is located at the southern extent of Gabrielino territory, near the boundary with the Juaneño, or more properly Acjachemen, to the south. Traditionally, the boundary between the two is identified as either Aliso Creek or the drainage divide to the north of the creek. Both are included here.

Gabrielino

Prior to European colonization, the Gabrielino, a Takic-speaking group, 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 are reported to have been second only to the Chumash in terms of population size and regional influence (Bean and Smith, 1978).

The Gabrielino were hunter-gatherers and lived in permanent communities located near the presence of a stable food supply. Community populations generally ranged from 50-100 inhabitants, although larger settlements may have existed. The Gabrielino are estimated to have had a population numbering around 5,000 in the pre-contact period, with many recorded villages along the drainages mentioned above and in the Los Angeles basin proper (Kroeber, 1925).

Beginning with the Spanish Period and the establishment of Mission San Gabriel Arcángel, Native Americans throughout the Los Angeles and northern Orange County area suffered severe depopulation and their traditional culture was radically altered. Nonetheless, Gabrielino descendants still reside in the greater Los Angeles and Orange County areas and maintain an active interest in their heritage.

Juaneño-Acjachemen

The Juaneño or Acjachemen, also Takic-speaking, occupied a more restricted area extending across southern Orange County and northern San Diego County. Juaneño territory extended along the Pacific coast from midway between Arroyo San Onofre and Las Pulgas Canyon in the south to Aliso Creek in the north, and continued east into the Santa Ana Mountains from Santiago Peak in the northwest to the headwaters of Arroyo San Mateo in the southeast (Kroeber, 1925). The Juaneño were bounded by the Gabrielino to the north, and the Luiseño to the east and south.

The Juaneño-Acjachemen, like the Gabrielino, subsisted on small game, coastal marine resources, and a wide variety of plant foods such as grass seeds and acorns. Their houses were conical thatched reed, brush, or bark structures. The Juaneño inhabited permanent villages centered around patrilineal clans, with each village headed by a chief, known as a nu (Kroeber, 1925; Sparkman 1908). Seasonal camps associated with villages were also used. Each village or clan had an associated territory and hunting, collecting, and fishing areas. Villages were typically located in proximity to a food or water source, or in defensive locations, often near valley bottoms, streams, sheltered coves or canyons, or coastal strands (Bean and Shipek, 1978).

The Juaneño-Acjachemen population was estimated to have numbered approximately 1,000 at the time of European contact. Beginning with the Spanish Period and the establishment of Mission San Juan Capistrano, the Juaneño-Acjachemen suffered severe depopulation and their traditional culture was radically altered. Nonetheless, descendants still reside in the Orange County area and maintain an active interest in their heritage.

Historic Setting

The historic setting for the proposed program area is divided into three primary periods: Spanish Period (A.D. 1769-1821), Mexican Period (A.D. 1821-1846), and 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 six 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 parts of Orange County that would become the City of Huntington Beach and the City of Fountain Valley began as a Spanish land concession, known as Rancho Los Nietos. A grant of 300,000 acres was given to Manuel Nieto in 1784 in consideration of his military service (City of Huntington Beach, 2000; Logan, 1990).

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. During this time, Rancho Los Nietos was divided into five smaller ranchos. The area of Huntington Beach became part of Rancho Las Bolsas, a 33,460-acre rancho granted to Maria Catarina Ruiz in 1834 (County of Orange, 2011). Maria was the widow of Jose Antonio Nieto, Manuel Nieto's son.

Many ranchos continued to be used for cattle grazing by settlers during the Mexican Period. 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 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 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 Californios' cattle (Bancroft, 1890). 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 Proposed Program Vicinity

The proposed program vicinity was once part of a 300,000-acre Spanish land grant, Rancho Los Nietos, a part of which became Rancho Las Bolsas during the Mexican Period. 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 (County of Orange, 2011; Milkovich, 1986). Previously called Shell Beach and later Pacific City, the town changed its name to 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 Huntington Beach went from 1,500 to 6,000. Fountain Valley, whose name originated from the many artesian wells in the area, was primarily an agricultural land until the 1930s when it began to be subdivided for development. The City of Fountain Valley incorporated in 1957 as the 21st city in Orange County (www.fountainvalley.org, 2017).

Settlement of Orange County and Huntington Beach (1889-1920)

When California became a state in 1850, it was divided up into 27 counties. "Over the next six decades, hardly a session of the state legislature went by without a bill introduced to divide, merge, or realign our counties, taking California from its original twenty-seven counties to fifty-

eight today" (Brigandi, 2013). In 1889, residents of the southern portion of Los Angeles County voted to form their own county. At the time, the state legislature held the authority to form counties and incorporate cities. Attempts to split up Los Angeles County began in 1870, when Max Strobel petitioned for the creation of Anaheim County, complaining that communities in south Los Angeles County were being ignored by their elected county representatives. "It was inconvenient to go all the way to Los Angeles to transact official business; the roads were bad, and the county had not seen fit to build any bridges in the south; and the City of Los Angeles monopolized most of the county offices, making it a veritable case of taxation without representation" (Brigandi, 2013). Prior to Strobel's efforts, the area had been sparsely populated. The sale of former ranchos beginning in 1868 prompted the settlement of several new communities.

Although Strobel's movement to establish Anaheim County failed, additional attempts to establish a new county would follow. In 1871, a new group formed in the community of Gallatin, just outside of Downey. The Gallatin-based movement advocated for the creation of Orange County, named for Southern California's reputation as a semi-tropical paradise (Brigandi, 2013). However, a growing rivalry between the town of Anaheim and the rapidly expanding community of Santa Ana jeopardized the Orange County bill. In 1876, supporters of the new county changed the proposed name to Santa Ana County in order to gain support from Santa Ana community leaders, but the effort failed.

The movement to establish a new county struggled over the next decade. Leaders from Anaheim had been the movement's biggest supporters. However, by 1882 they had turned to oppose separation from Los Angeles County. They would continue to fight the movement to establish a new county until 1889 when a bill to create Orange County was overwhelmingly supported by the public. "Of the 3,009 ballots cast county-wide, 2,509 voted for division and 500 voted against" (Hallan-Gibson, 1986). With the new county established, more communities settled the former ranch lands. In 1901, Bob Northam sold his 1,600-acre ranch to the West Coast Land and Water Company. The new owners sought to establish a community on the coast, known as Pacific City. Eventually the town was renamed Huntington Beach (Brigandi, 2013). Many of the small coastal communities like Huntington Beach were isolated from the rest of the county. However, Huntington's Pacific Electric Railway would change that at the turn of the century. Huntington's Pacific Electric red cars would arrive in Huntington Beach in 1904, bringing tourist from the inland communities to the small beach town. "Incorporated in 1909, the city remained primarily a vacation town until oil was discovered in 1920" (Brigandi, 2013). Discovery of oil in the 1920s led to a population explosion in Huntington Beach. In one month, the population of Huntington Beach went from 1,500 to 6,000.

Suburbanization of Orange County (1941-1970)

The 1930s brought the Great Depression to Orange County, stunting the community's growth through the decade. By 1940, the County had grown to a population of 130,760 people but still maintained its rural feel. "There were thousands of acres of natural wilderness areas in the Santa Ana Mountains, most of which had become Cleveland National Forrest, miles of open fields, acres of orange groves, and forty miles of scenic coast" (Hallan-Gibson, 1986). It would all begin

to change in 1941 when the United States Army began building what would become the Santa Ana Army Air Base (SAAAB), adding thousands of soldiers to the local population.

Initially known as the United States Air Corps Replacement Training Center, SAAAB occupied 400 acres leased to the federal government for one dollar per year (Hallan-Gibson, 1986). "The presence of the military meant growth, jobs, and economic revitalization" (Hallan-Gibson, 1986). In addition to the economic growth, the military base introduced thousands of soldiers to the mild climate of Southern California. While the base was only opened a few years (1943-1946), it would have a profound impact on the development of the area. Many soldiers who were stationed at SAAAB would return after the war, contributing to the population boom and suburbanization of Orange County in the post-war years.

> *The war changed Orange County forever. New buildings stood where beans had grown; new businesses remained permanent fixtures in downtowns. But the greatest change would come later. The war had brought hundreds of thousands of people into Orange County, however briefly. They had sampled the sunshine and had felt the ocean breezes; they had seen productive fields and growing cities. All around them they saw opportunities for a better life for themselves and their families* (Hallan-Gibson, 1986).

The 1950s would be a decade of unprecedented population growth in Orange County. The post-war boom began in Los Angeles and spread outward as veterans returned to Southern California with their families. By 1960, the population of Orange County had grown to over 1 million people. The increase in population meant significant residential and commercial development. In 1950, 5,500 residential construction permits were filed in the county. "Five years later, that number had reached nearly 26,000. The total peaked again in 1962, with 33,200 permits issued" (Brigandi, 2013). The western portions of the County along the coastline developed rapidly due to the flat open spaces and proximity to Los Angeles. Dozens of new cities were established throughout the County while older communities expanded by annexing neighboring towns.

Sanitation Needs of Orange County (1945-1970)

The post-war era suburbanization of Orange County put great strain on various County services, including sanitation. Sanitation efforts in the county began in 1921 with the formation of the Orange County Joint Outfall Sewer (JOS), representing a joint effort between the communities of Anaheim and Santa Ana to build an outfall extending into the Pacific Ocean (ocsd.com, 2017). By 1927, the outfall had been extended to 3,000 feet and a new screening plant and pumping station was added. In 1941, the JOS upgraded the sewer line with a new primary treatment plant. "Major improvement urged is construction of a disposal plant which would include facilities for sedimentation, digestion and sludge drying with necessary pumps, piping and auxiliary equipment" (Los Angeles Times, 1940). The new plant was a welcome addition to the sewer system, but it would not be enough to process sewage for Orange County's growing population.

By 1947, the County was looking to upgrade its system again. "Two State officials, E. A. Reinke, chief of the Bureau of Sanitary Engineering of the State Department of Public Health and J. A. Harmon, senior sanitary engineer of the bureau, said their survey showed that in the vicinity of at least five of the six outfalls in the county samples of water have shown higher percentage of

pollution than State standards for 'safe salt water bathing' " (Los Angeles Times , 1947). The result of the survey prompted the County Board of Supervisors to form the Orange County OCSD under the Sanitary District Act of 1923. Districts 1, 5, and 6 were organized in 1947 and Districts 2, 3, 7, and 11 organized in 1948. At the time, planning for a county-wide sewer system was already being discussed, however the County needed a way to fund the project. In 1949, Orange County residents voted in favor of a county-wide sanitation improvement bill worth over $8 million. Funds from the sanitation improvement bill contributed to the construction of a network of trunk sewers and a 78-inch diameter 7,000-foot-long ocean outfall. The funding also supported the construction of Plant No. 1, constructed as early as 1951, and Plant No. 2, completed in May of 1954. Wastewater treated at Plant No. 2 was tested twice a day to make sure no pollutants were contaminating the nearby beaches. "Any adverse readings made by the Sanitation Districts would require more intensive treatment of wastes being processed through their plants and discharged through the outfall" (Los Angeles Times , 1956). During the 1950s and 1960s, Plant No. 2 expanded significantly to address the growing need for wastewater treatment. In 1965, the City of Santa Ana began planning $10 million dollars in improvements to its overburdened sewer system. As part of Sanitation District 1, the sewage from Santa Ana was treated by the plants in Fountain Valley (Plant No. 1) and Huntington Beach (Plant No. 2).

The need to find unique ways to process the county's sewage led to experimentation with water reclamation. The OCWD petitioned the federal government for a $200,000 grant to explore water reclamation options in 1965. "The grant would assist the district in its studies to remove biological and mineral contaminants from the water" (Los Angeles Times, 1965). The experimental facility was built adjacent to the sanitation districts' treatment plant in Fountain Valley (Plant No. 1). Rossmoor Sanitation, Inc., a private sanitation company, contributed to the OCWD's reclamation program using their own facilities. The company operated a private sewage water treatment plant and reservoir at the Rossmoor Leisure World Golf Course. Today, OCWD's water reclamation plant in Fountain Valley is the largest water reclamation program in the world (Orlowski, 2015). In 1971, the OCSD completed construction of its 5-mile-long, 120-inch-diameter ocean outfall extending from Plant No. 2 at the mouth of the Santa Ana River. "Sanitation officials say that the outfall, second largest on the West Coast (Los Angeles has the biggest: 144 inches in diameter), will meet tougher sewage discharge standards when it becomes operational in late January" (Los Angeles Times , 1970). By this time, Plant No. 2 had added a number of new clarifiers and digesters, significantly increasing its wastewater treatment capacity.

Wastewater Treatment Methods and Infrastructure

Wastewater treatment in the United States began to evolve significantly during the late eighteenth century as cities began to grow. Pit privies and open ditches were replaced by underground sewers, while the treatment of wastewater was mostly through dilution into receiving waters. In Europe, many communities dispersed their wastewater in nearby agricultural fields to serve as fertilizer. "However, water logging became a major problem, and the continuous expansion of the cities made it more difficult to find sufficient land nearby" (Henze, 2008). Experimentation with biological filters using organisms began in the United Kingdom in 1893. The first biological filter in the United States was developed in Madison, Wisconsin in 1901. In 1913, a new method of treatment was developed in England called the activated sludge process. By 1916, the first activated sludge plants were being built throughout the United States in places like San Marcos,

Texas, Milwaukee, Wisconsin, and Cleveland, Ohio (Alleman, 2017). Although the activated sludge method of wastewater treatment was the preferred option, patent litigation throughout the 1920s and 1930s stalled its development. Multiple communities throughout the United States were sued over their wastewater treatment plants during this time. "Several existing plants quickly shut down to avoid monetary fines, including the original San Marcos, Texas facility" (Alleman, 2017). However, during the post-war years the activated sludge process would finally become the preferred approach to waste water treatment.

The activated sludge process relies on microorganisms feeding on the contaminants in wastewater. The process results in a high-quality effluent at a low cost. "Other advantages of the activated sludge process are the low construction cost and the relatively small land requirement" (Henze, 2008). Wastewater treatment plants utilizing the activated sludge process consist of multiple components including aeration tanks where biological reactions occur, clarifiers where solids are separated from the water, and a means of collecting the solids. Variations of the activated sludge process include extended aeration, sequencing batch reactors, and oxidation ditches (Henze, 2008).

Clean Water Act of 1972

In 1972, the Federal Government passed the Clean Water Act (CWA), establishing rules regulating the "discharges of pollutants into the waters of the United States and regulating quality standards for surface waters" (epa.gov, 2017). The CWA was an extension of the Federal Water Pollution Control Act passed in 1948, resulting in the development of wastewater standards for industry and water quality standards for contaminants in surface waters. "All waters should be protected for recreational uses in or on the water and for the preservation and propagation of desirable species of aquatic life" (epa.gov, 2016). The CWA also provided local governments with the funding needed to meet the new requirements. "The Construction and renovation frenzy that ensued was the largest public works project in the county to date. By its completion, the United States had 16,000 sewage treatment plants and an improved sewage treatment process" (George, 2008). While the CWA prevented the discharge of pollutants in navigable waters, a special permit could be obtained. In 1973, the Environmental Protection Agency issued the first wastewater discharge permit to the community of Riverton, Illinois. "The treatment system used by Riverton is a modified activated sludge secondary treatment system using the contact stabilization process. The plant's effluent is chlorinated before being discharged to the river" (epa.gov, 2016). Overtime, more municipalities would join Riverton as permit holders. However, Congress passed the Ocean Dumping Ban Act in 1989 forcing coastal communities to develop new methods for disposing of their sludge (epa.gov, 2016).

Identification of Cultural Resources within the Proposed Program Area

South Central Coastal Information Center Records Search

A cultural resources records search was conducted at the SCCIC of the CHRIS on August 16 and 23, 2017. The records search included the proposed program area and a ½-mile radius. The SCCIC houses the pertinent archaeological and historic site and survey information necessary to determine whether cultural resources are known to exist within the proposed program area. The records search included a review of all recorded historic and prehistoric archaeological sites

within the search area as well as a review of known cultural resources survey and excavation reports. The SCCIC records search also included an examination of the National Register of Historic Places (National Register), the California Register of Historical Resources (California Register), California Historical Landmarks, California Points of Historical Interest, and various local historical registers.

The records search indicated that a total of 31 cultural resources studies have been conducted within a ½-mile radius of the proposed program area. Of the 31 previous studies, two studies included a pedestrian survey of portions of the proposed program area, six included archival research encompassing the proposed program area, and one included cultural resources monitoring within the proposed program area (**Table 3.4-1**). Less than 5 percent of the proposed program area has been included in previous cultural resources surveys.

TABLE 3.4-1
PREVIOUS CULTURAL RESOURCES INVESTIGATIONS INCLUDING THE PROPOSED PROGRAM AREA

SCIC # (OR-)	Author	Title	Year
0001*	Ahlering, Michael L.	*Report of a Scientific Resources Survey and Inventory: Conducted for the City of Huntington Beach, California*	1973
801*	Ecos Management Criteria, Inc	*Phase II Archaeological Studies Prado Basin and the Lower Santa Ana River*	1985
1836*	Padon, Beth	*Cultural Resources Review for Groundwater Replenishment System Program EIR/Tier I/EIS, Orange County Water District and County Sanitation Districts of Orange County*	1998
2033*	Mason, Roger D.	*Research Design for Evaluation of Coastal Archaeological Sites in northern Orange County, California*	1987
4087*	P&D Consultants, Inc.	*Final Program EIR for the Groundwater Replenishment System*	1999
4152*	Ehringer, Candace	*Outfall Land Section and Ocean Outfall Booster Pump Station Piping Rehabilitation Project, Phase I Cultural Resources Assessment*	2011
4172*	Chasteen, Carrie	*Historic Property Survey Report San Diego Freeway (I-405) Improvement Project SR-73 to I-605, Orange and Los Angeles Counties*	2011
4259*	Statistical Research, Inc	*Cultural Resources Monitoring Report, Orange County Water District Groundwater Replenishment System, Orange County, California*	2007
4313*	Unknown City of Huntington Beach	*The City of Huntington Beach General Plan*	2013

ESA, 2017

The records search indicated that a total of six cultural resources have been previously recorded within the ½-mile radius of the proposed program area, all of which are prehistoric archaeological resources (**Table 3.4-2**). However, none of these resources are located within the proposed program area or close proximity.

TABLE 3.4-2
PREVIOUSLY RECORDED CULTURAL RESOURCES WITHIN ½-MILE OF THE PROGRAM AREA

Primary # (P-30)	Trinomial (CA-ORA-)	Other Designation	Description	Date Recorded
000163	CA-ORA-163	Griset Site	Prehistoric archaeological site consisting of shell midden with associated firepits, burials, stone tools, pottery, and charmstones	1966
000165	CA-ORA-165	Banning Extract, Portion A	Prehistoric archaeological site consisting of stone bowl fragments, lithic fragments, and pestels	1960
000516	CA-ORA-516	-	Prehistoric feature consisting of a single human burial	1974
000843	CA-ORA-843	Mobile Oil 2	Prehistoric archaeological site consisting of a single shell midden	1979; 1998
000845	CA-ORA-845	ACE-SAR-8	Prehistoric archaeological site consisting of a single shell midden	1998; 1979
000906	CA-ORA-906	-	Prehistoric archaeological site consisting of a single shell midden	1998; 1979

ESA, 2017

Native American Heritage Commission

The California NAHC maintains a confidential SLF that contains sites of traditional, cultural, or religious value to the Native American community. The NAHC was contacted on August 31, 2017 to request a search of the SLF. The NAHC responded in a letter dated September 1, 2017. The letter stated that the SLF search returned negative results.

Historic Map and Aerial Review

Historic maps and aerial photographs were examined in order to provide historical information about the proposed program area and to contribute to an assessment of the proposed program area's archaeological sensitivity. Available maps include: the 1868 U.S. Surveyor General's survey plat map of Townships 5 and 6 South, Range 10 West; the 1895 and 1901 Santa Ana 1: 62,500 topographic quadrangles; the 1902 Corona 1: 125,000 topographic quadrangle; and the 1935 Newport Beach 1: 31,600 topographic quadrangles; and 1965 and 1975 Newport Beach 7.5-minute topographic quadrangle. Historic aerial photographs of the APE from 1938, 1953, 1963, 1972, 1994, 2002, 2003, 2004, 2005, 2009, 2010 and 2016 were also examined (historicaerials.com, 2016).

The 1868 U.S. Surveyor General's survey plat map shows the proposed program area as being located within Rancho Las Bolsas. The plat map indicates salt marshes within the current location of Plant No. 2. The available historic maps and aerial photographs indicate that the proposed program area and surrounding area was largely used for agricultural purposes throughout the 20th century, and did not become urbanized until the latter half of the century. The Santa Ana River is shown confined with artificial levees in the 1938 historic aerial photograph. Plant No. 1 is visible on the 1953 aerial photograph. The southern portion of Plant No. 1 was undeveloped until

sometime after 2002. Plant No. 2 is not shown on the 1953 aerial. The Plant No. 2 facility is shown on the 1965 Newport Beach 7.5-minute topographic quadrangle. Based on a detailed review of the 1972 and 2016 aerials, there are structures on Plant No. 2 shown on the 1972 aerial that remain visible on the 2016 aerial photograph.

Geoarchaeological Review

A desktop geoarchaeological review of the proposed program area and vicinity was conducted in order to assess the potential for buried archaeological resources within the proposed program area. The proposed program area at Plant No. 1 is situated on a landform dominated by a low-gradient, sandy alluvial fan that merges with marine deposits at the coast. During the late Pleistocene, sea-level was approximately 120 meters below present level, leaving the vicinity of the Plant No. 1 approximately 9.3 miles (15.0 km) inland. Sea level rose throughout the Holocene, attaining near present conditions by approximately 2,000 to 4,000 years ago. Near surface deposits within Plant No. 1 are mapped as late Holocene to latest Pleistocene alluvial fan deposits (Morton, 2004; Morton and Miller, 2006), and consist of gravel, sand, and silt transported and deposited by the Santa Ana River. Plant No. 1 is covered by a paved surface that likely is underlain by fill and required grading prior to construction.

Plant No. 2 is on the distal portion of the alluvial fan. During the late Pleistocene, the Plant No. 2 was approximately 5.5 miles (9.0 km) inland. Historically, Plant No. 2 consisted largely of salt marsh, which would have been at or just above sea level, and was divided by small channels. The area was used for celery agriculture in historic times. Plant No. 2 was initially developed for sanitation in 1954, but the parcel was progressively developed towards the north over the next five decades. Plant No. 2 is covered with a paved surface that is at elevation 3-4 meters above mean sea level (amsl), suggesting Plant No. 2 contains several meters of fill overlying the native salt marsh deposits. Some of the fill material may have originated as dredge spoils from channelization of the Santa Ana River. Near surface geology of Plant No. 2 is mapped as late Holocene to latest Pleistocene alluvial fan deposits (Morton 2004; Morton and Miller 2006). These deposits consist of gravel, sand, and silt transported and deposited by the Santa Ana River. The southern part of Plant No. 2 contains unconsolidated eolian dune deposits.

Soils

Soils within Plant No. 1 are mapped as Metz loamy sand (NRCS 2016). The Metz soil series consists of very deep, somewhat excessively drained soils. Metz soils are formed in alluvial parent material on floodplains and alluvial fans with slopes of 0 to 15 percent. Since Metz soils are commonly cultivated, the typical soil pedon possesses a shallow plowzone A-horizon (Ap) overlying multiple layers of sandy loam to sand parent material (C1, C2, C3, C4 horizons). The absence of a B-horizon is likely due to the short geological time that has passed since deposition of the last unit of parent material (C1), although agricultural activity has the potential to have partially disrupted B-horizon development. The sequence of several units of parent material (C-horizon) reflects changes over time in the behavior of the Santa Ana River, including periodic overbank flooding. Because the C-horizons represent vertical accretion (i.e., building) on the floodplain, there is a potential that successive fluvial deposits covered and preserved archaeological resources that had accumulated between depositional events. Therefore, Metz soils are considered to have a high sensitivity for buried archaeological resources.

Soils within Plant No. 2 are mapped primarily as Bolsa silt loam (NRCS 2016). Bolsa series soils are deep, somewhat poorly drained soils developed in mixed alluvium parent material on flood plains and basins. The typical soil pedon consists of a plowed A-horizon (Ap1, Ap2) developed at the top of relatively unaltered alluvial parent material (C1 through C6) extending more than 69 inches deep. The absence of a B-horizon is likely due to the short geological time that has passed since deposition of the parent material, although agricultural activity has the potential to have disrupted the development of a recognizable B-horizon as well. The A-horizon in Bolsa soils ranges from sandy loam to silty clay loam, while the C-horizon is mainly silt loam and silty clay loam but may contain thin strata of sandier material (USDA 1997).

Significantly, many Bolsa soil pedons contain buried A-horizons (paleosols). These buried A-horizons represent periods of time in the past during which landform conditions were relatively stable, and during which deposition and erosion were sufficiently balanced to allow for development and retention of a soil weathering profile. From an archaeological perspective, periods of landform stability, such as those signified by buried A-horizons, should be correlated with the accumulation and preservation of cultural remains. Therefore, Bolsa soils are considered to have a high sensitivity for buried archaeological resources.

Historic Resources

City of Fountain Valley

Based on a records search at the California Historical Resources Information System (CHRIS) – South Central Coastal Information Center (SCCIC) which included a review of the National Register of Historic Places and its annual updates, the California Register, the Statewide Historical Resources Inventory (HRI) database maintained by the California Office of Historic Preservation (OHP), as well as cultural resources reports on file, no historic resources have been formally identified on or adjacent to Plant No. 1.

City of Huntington Beach

Based on a records search at the CHRIS-SCCIC, one previous historic resources study encompassed the proposed program area. The study consisted of a survey of historic resources in Huntington Beach for inclusion in the City's general plan. The study was conducted in November of 2013 and identified multiple historic resources including districts, throughout the Huntington Beach city limits. However, the majority of the resources identified by the survey are located near the Huntington Beach Pier and original downtown area, located approximately 3 miles northwest of Plant No. 2. The survey did not identify any historic resources in the immediate area surrounding Plant No. 2.

Plant No. 1

A historic resources survey of the Plant No. 1 was conducted on January 5, 2018 using survey methodology consistent with OHP guidelines. Buildings, structures, and features meeting the OHP's 45-year historic age threshold for consideration as historical resources were documented through the use of digital photography (16 in total were documented). Plant No. 1 was originally constructed in 1942; however, none of the buildings or features related to the original plant remain on the property today.

Plant No. 1 currently consists of numerous buildings, structures, and features associated with the activated sludge method of wastewater treatment and constructed between 1954 and 2015. The plant was initially constructed when Orange County was experiencing significant population growth, but over time, has expanded to accommodate the County's increasing sanitation needs. Plant No. 1 was evaluated for listing in the California Register under Criteria 1-4 and is recommended not eligible. A discussion of the plant's eligibility under each of the four criteria is provided below.

Criterion 1: Events

Resources significant under Criterion 1 are those associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage. When the OCSD's Plant No. 1 was constructed in 1941, it was surrounded by undeveloped agricultural land. Throughout the 1940s, the Plant remained small with few significant changes. In 1949, Orange County passed legislation allotting approximately $8,000,000 to improve the Plant's facilities while also constructing a new plant in Huntington Beach (Plant No. 2) in order to accommodate the growing population. Between 1950 and 1960, Orange County's population grew to over one million people. The area experienced rapid suburbanization with the construction of new tract homes and commercial development. With the increasing population came a need for expanded social and government services, which were met by the rapid construction of civic and institutional facilities like the wastewater treatment plant on the subject property.

Orange County was first settled as early as the 1860s and became its own county in 1889, approximately fifty years before the Plant was constructed. Therefore, the Plant was not associated with the establishment of Orange County. Further, none of the original features related to the Plant's initial construction (1941) remain on the site today. The buildings, structures, and features surveyed on Plant No. 1 date from 1957 to 1971. They are associated with the post-war period of development for Fountain Valley and Orange County. The earliest remaining features are Primary Clarifiers 3 and 4 (1957), which were constructed as part of the Plant's expansion in the late 1950s following the passage of the funding bill in 1949. However, the expansion of Plant No. 1 occurred in the midst of the area's suburbanizing phenomenon and, therefore, its construction does not appear to have stimulated a development trend in the area nor is it representative of a significant pattern of development, but is rather a reaction to an event stimulated by the area's economic growth. Several government facilities were constructed throughout Orange County in response to the growing need for services, including fire and police stations, water and power facilities, and new schools. The improvements to Plant No. 1 in 1957 and beyond did not play a more significant role in the post-war development of the area more than any of these other facilities and therefore, do not possess a significant association to be considered eligible under Criterion 1.

Based on the research of historical themes related to Plant No. 1, it does not appear to have a significant association with events in wastewater treatment history, with the settlement of Orange County or Fountain Valley, or with any other significant events contributing to the broad patterns of California's history and cultural heritage. Therefore, Plant No. 1 does not appear to be eligible for listing in the California Register under Criterion 1.

Criterion 2: Significant Persons

A resource is eligible under Criterion 2 if it is associated with the lives of persons important in our past. Research of Plant No. 1 and the OCSD did not reveal any associations with specific personages significant to national, state, or local history. Research did not identify any other significant figures in history that were associated with the Plant. Therefore, Plant No 1 does not appear to be eligible for listing in the California Register under Criterion 2.

Criterion 3: Design/Construction

Under Criterion 3, a resource is eligible if it 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. Plant No. 1 was originally constructed in 1941. However, none of the original wastewater treatment facilities remain on the site today. When constructed, the Plant employed the activated sludge method of wastewater treatment. Over time, the Plant added more clarifiers and digesters, as well as support facilities to accommodate the increasing amount of wastewater requiring treatment. The activated sludge method of wastewater treatment was first used in the United States in 1916. However, the method did not gain popularity among municipalities until the post-war era, due to patent litigation throughout the 1920s and 1930s. The activated sludge method quickly became the preferred method of wastewater treatment because the plants were cheap and easy to build. As many communities were experiencing rapid growth, the activated sludge plant was the preferred treatment approach to accommodate growing populations. Plant No. 1 does not appear to be a significant example of the activated sludge plant. It was originally constructed nearly twenty-five years after the method was first used in the United States, and there are no primary or secondary historical sources indicating that the facilities located at Plant No. 1 represent any advancements in the technology. Plant No. 1 is a common example of the activated sludge plant and does not embody the distinctive characteristics of a type, period, region, or method of construction. It is not associated with a significant architect or engineer, and does not represent the work of an important creative individual nor possesses high artistic values. Therefore, Plant No. 1 does not appear to be eligible for listing in the California Register under Criterion 3.

Criterion 4: Data Potential

Under Criterion 4, a resource is eligible if it has yielded, or may be likely to yield, information important in prehistory or history. While most often applied to archaeological districts and sites, Criterion 4 can also apply to buildings, structures, and objects that contain important information. In order for these types of properties to be eligible under Criterion 4, they themselves must be, or must have been, the principal source of the important information. Plant No. 1 does not appear to yield significant information that would expand our current knowledge or theories of design, methods of construction, operation, or other information that is not already known. Therefore, Plant No. 1 does not appear to be eligible for listing in the California Register under Criterion 4.

Plant No. 2

A historic resources survey was also conducted of the Plant No. 2 on August 18, 2017 using survey methodology consistent with OHP guidelines. Buildings, structures, and features meeting the OHP's 45-year historic age threshold for consideration as historical resources were documented through the use of digital photography (40 in total were documented).

Plant No. 2 consists of numerous buildings, structures, and features associated with the activated sludge method of wastewater treatment and constructed between 1954 and 2012. The plant was initially constructed when Orange County was experiencing significant population growth and suburban development, but over time, has expanded to accommodate the County's increasing sanitation needs. Plant No. 2 was evaluated for listing in the California Register under Criteria 1-4 and is recommended not eligible. A discussion of the plant's eligibility under each of the four criteria is provided below.

Criterion 1

Resources significant under Criterion 1 are those associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage. While the plant is associated with a later period of development for Huntington Beach and Orange County, it did not play an important role in the initial development of these communities. Orange County was first settled as early as the 1860s and became its own county in 1889. Plant No. 2 was not the first wastewater treatment plant constructed by the OCSD – the first plant (Plant No. 1) was constructed in 1941 in Fountain Valley. Constructed in 1954, Plant No. 2 is associated with the post-World War II development of Huntington Beach and Orange County; however, Plant No. 2 was constructed in the midst of the area's suburbanizing phenomenon. Therefore, its construction does not appear to have stimulated a development trend in the area nor is it representative of a significant pattern of development, but is rather a reaction to an event stimulated by the area's economic growth. As such, Plant No. 2 is not eligible under Criterion 1.

Criterion 2

A resource is eligible under Criterion 2 if it is associated with the lives of persons important in our past. Historic research of Plant No. 2 and the Orange County Sanitation District did not reveal any significant associations with important personages relevant to national, state, or local history. As such, Plant No. 2 is not eligible under Criterion 2.

Criterion 3

Under Criterion 3, a resource is eligible if it 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. The plant does not appear to be a significant example of an activated sludge plant. It was constructed nearly 40 years after the method was first used in the United States and there are no primary or secondary historical sources indicating that the facilities located at Plant No. 2 represent any advancements in the technology. Plant No. 2 is a common example of the activated sludge plant and is not associated with a significant architect or engineer. As such, Plant No. 2 is not eligible under Criterion 3.

Criterion 4

Under Criterion 4, a resource is eligible if it has yielded, or may be likely to yield, information important in prehistory or history. Plant 2 does not appear to yield significant information that would expand our current knowledge or theories of design, methods of construction, operation, or other information that is not already known. As such, Plant No. 2 is not eligible under Criterion 4.

Identification of Paleontological Resources within the Proposed Program Area

Paleontological Resources

The Society of Vertebrate Paleontology (SVP) defines significant paleontological resources as:

> *"Fossils and fossiliferous deposits consisting of identifiable vertebrate fossils, large or small, uncommon invertebrate, plant, and trace fossils, and other data that provide taphonomic, taxonomic, phylogenetic, paleoecologic, stratigraphic, and/or biochronologic information. Paleontological resources are considered to be older than recorded human history and/or older than middle Holocene (i.e., older than about 5,000 radiocarbon years)."* [SVP, 2010: 11]

Significant paleontological resources are determined to be fossils or assemblages of fossils that are unique, unusual, diagnostically important, or are common but have the potential to provide valuable scientific information for evaluating evolutionary patterns and processes, or which could improve our understanding of paleochronology, paleoecology, paleophylogeography, or depositional histories. New or unique specimens can provide new insights into evolutionary history; however, additional specimens of even well represented lineages can be equally important for studying evolutionary pattern and process, evolutionary rates, and paleophylogeography. Even unidentifiable material can provide useful data for dating geologic units if radiocarbon dating is possible. As such, common fossils (especially vertebrates) may be scientifically important, and therefore considered highly significant.

The SVP (2010) describes sedimentary rock units as having high, low, undetermined, or no potential for containing significant nonrenewable paleontological resources. These criteria are based on rock units within which vertebrate or significant invertebrate fossils have been determined by previous studies to be present or likely to be present. While these standards were specifically written to protect vertebrate paleontological resources, all fields of paleontology have adopted these guidelines:

I. **High Potential (sensitivity)** - Rock units from which significant vertebrate or significant invertebrate fossils or significant suites of plant fossils have been recovered are considered to have a high potential for containing significant non-renewable fossiliferous resources. These units include but are not limited to, sedimentary formations and some volcanic formations which contain significant nonrenewable paleontological resources anywhere within their geographical extent, and sedimentary rock units temporally or lithologically suitable for the preservation of fossils. Sensitivity comprises both (a) the potential for yielding abundant or significant vertebrate fossils or for yielding a few significant fossils, large or small, vertebrate, invertebrate, or botanical and (b) the importance of recovered evidence for new and significant taxonomic, phylogenetic, ecologic, or stratigraphic data. Areas which contain potentially datable organic remains older than Recent, including deposits associated with nests or middens, and areas which may contain new vertebrate deposits, traces, or trackways are also classified as significant.

II. **Low Potential (sensitivity)** – Sedimentary rock units that are potentially fossiliferous, but have not yielded fossils in the past or contain common and/or widespread invertebrate fossils of well documented and understood taphonomic, phylogenetic species and habitat ecology. Reports in the paleontological literature or field surveys by a qualified vertebrate paleontologist may allow determination that some areas or units have low potentials for yielding significant fossils prior to the start of construction. Generally, these units will be poorly represented by specimens in institutional collections and will not require protection or salvage operations. However, as excavation for construction gets underway it is possible that significant and unanticipated paleontological resources might be encountered and require a change of classification from Low to High Potential and, thus, require monitoring and mitigation if the resources are found to be significant.

III. **Undetermined Potential (sensitivity)** - Specific areas underlain by sedimentary rock units for which little information is available are considered to have undetermined fossiliferous potentials. Field surveys by a qualified vertebrate paleontologist to specifically determine the potentials of the rock units are required before programs of impact mitigation for such areas may be developed.

IV. **No Potential** – Rock units of metamorphic or igneous origin are commonly classified as having no potential for containing significant paleontological resources.

Paleontological Sensitivity Assessment

Geologic maps, scientific literature, and records search results from the Natural History Museum of Los Angeles County (LACM) were used to assess the paleontological sensitivity of the rock units in the proposed program area, according to the ranking system of the SVP discussed above.

The geology of the proposed program area has been mapped by Morton and Miller (2006) at a scale of 1: 100,000. This mapping indicates Plant No. 1 occurs on young alluvial fan deposits that date from the Holocene to the Late Pleistocene and consist of unconsolidated to moderately consolidated silt, sand, and pebbly sand eroded from the surrounding hills and valleys (Morton and Miller, 2006). Plant No. 2 occurs on young axial channel deposits that also date from the Holocene to Late Pleistocene and consist of slightly to moderately consolidated silt, sand, and gravel deposited through stream activity (Morton and Miller, 2006).

A paleontological resources records search was conducted by the Natural History Museum of Los Angeles County (LACM) on June 16, 2016 (refer to Appendix D of this PEIR). The closest fossil locality from similar deposits is LACM 6370, located approximately 1.6 miles southeast, where a specimen of fossil horse was discovered (McLeod, 2016). Locality LACM 1339 is located approximately 1.7 miles northeast, where fossil specimens of mammoth and camel bones were recovered from sands at approximately 15 feet below ground surface. LACM 3267, situated approximately 2 miles northeast, yielded a specimen of a fossil elephant at an unknown depth (McLeod, 2016). LACM 4219, situated approximately 3.3 miles northeast, produced fossil specimens of turtle and camel at an unknown depth (McLeod, 2016). Locality LACM 7366 preserved a mix of small marine, freshwater, and terrestrial animals, with specimens of leopark shark, three-spined stickleback, garter snake, desert shrew, and pocket gopher, from screen

washed sediment collected approximately 2.6 miles west of the proposed program area at unknown depths (McLeod, 2016). A series of fossil localities (LACM 7422-7425) from alluvium or dune deposits are also located a few hundred feet north-northwest of LACM 7366 and these have yielded fossil specimens of mammoth, bison, and horse at unknown depths (McLeod, 2016).

Both surficial geologic units mapped in the proposed program area are too young to preserve fossil resources at the surface; however, these units increase in age with depth and therefore may preserve fossil resources in the subsurface. Furthermore, geologic mapping indicates that Pleistocene-aged terrace deposits crop out to the northeast and southwest of the proposed program area (Morton and Miller, 2006), and therefore may be present in the subsurface of the proposed program area at an unknown depth. Early Holocene and late Pleistocene alluvial sediments have a history of preserving fossil resources in the Los Angeles Basin and across Orange County. Iconic Ice Age taxa such as mammoths, ground sloths, camels, and many others are commonly found in such sediments (Jefferson, 1991a and 1991b; Scott, 2010). Furthermore, the records search from the LACM indicates that while no fossil localities are known from the proposed program area, there are numerous localities that have similar geology to that found in the subsurface of the proposed program area that have yielded scientifically significant fossils. In summary, shallow excavations within the proposed program area have a low potential to encounter significant paleontological resources, while deeper excavations may extend into older deposits that have a high potential to encounter significant paleontological resources.

3.4.2 Regulatory Framework

State

California Environmental Quality Act

In accordance with the CEQA Guidelines (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 (Title 14 California Code of Regulations [CCR] Section 15064.5) recognize that historical resources include: (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 Public Resources Code (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 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 21083.2,

which is as 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 and 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 21083.2(b)). If preservation in place is not feasible, mitigation measures shall be required.

A significant effect under CEQA would occur if a project results in a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5(a). Substantial adverse change is defined as "physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historical resource would be materially impaired" (CEQA Guidelines Section 15064.5(b)(1)). According to CEQA Guidelines Section 15064.5(b)(2), the significance of a historical resource is materially impaired when a project demolishes or materially alters in an adverse manner those physical characteristics that:

A. Convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register; or

B. Account for its inclusion in a local register of historical resources pursuant to section 5020.1(k) of the Public Resources Code or its identification in a historical resources survey meeting the requirements of section 5024.1(g) of the Public Resources Code, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or

C. Convey its historical significance and that justify its eligibility for inclusion in the California Register as determined by a Lead Agency for purposes of CEQA.

In general, a project that complies with the Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings (Standards) (Weeks and Grimer, 1995) is considered to have mitigated its impacts to historical resources to a less-than-significant level (CEQA Guidelines Section 15064.5(b)(3)).

Paleontological Resources

The CEQA Guidelines (Title 14, Chapter 3 of the California Code of Regulations, Section 15000 et seq.), define the procedures, types of activities, individuals, and public agencies required to comply with CEQA. The CEQA threshold of significance for a significant impact to paleontological resources is reached when a project is determined to "directly or indirectly destroy a significant paleontological resource or unique geologic feature." In general, for projects that are underlain by paleontologically sensitive geologic units, the greater the amount of ground disturbance, the higher the potential for significant impacts to paleontological resources. For projects that are directly underlain by geologic units with no paleontological sensitivity, there is no potential for impacts on paleontological resources unless sensitive geologic units which underlie the non-sensitive unit are also affected.

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 § 5024.1[a]). The criteria for eligibility for the California Register are based upon National Register criteria (California Public Resources Code § 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 criteria:

- Associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
- Associated with the lives of persons important in our past;
- 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
- 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 Health and Safety Code Section 7050.5

California Health and Safety Code Section 7050.5 requires in the event human remains are discovered that all ground disturbances must cease and the County Coroner must be contacted to determine the nature of the remains. In the event the remains are determined to be Native American in origin by the Coroner, the Coroner is required to contact the NAHC within 24 hours to relinquish jurisdiction.

California Public Resources Code Section 5097.98

Section 5097.98, as amended by Assembly Bill 2641, provides procedures in the event human remains of Native American origin are discovered during project implementation. Section 5097.98 requires that no further disturbances occur in the immediate vicinity of the discovery, that the discovery is adequately protected according to generally accepted cultural and archaeological standards, and that further activities take into account the possibility of multiple burials. Section 5097.98 further requires the NAHC, upon notification by a County Coroner, designate and notify a Most Likely Descendant (MLD) regarding the discovery of Native American human remains. Once the MLD has been granted access to the site by the landowner and inspected the discovery, the MLD then has 48 hours to provide recommendations to the landowner for the treatment of the human remains and any associated grave goods.

In the event that no descendant is identified, or the descendant fails to make a recommendation for disposition, or if the land owner rejects the recommendation of the descendant, the landowner may, with appropriate dignity, reinter the remains and burial items on the property in a location that will not be subject to further disturbance.

Local

City of Huntington Beach

The City of Huntington Beach Historic and Cultural Resources Element of the General Plan has several goals, objectives, policies, and programs for the preservation of Historic and Cultural Resources (City of Huntington Beach, 2015) and these are provided below.

HCR 1: To promote the preservation and restoration of the sites, structures and districts which have architectural, historical, and/or archaeological significance to the City of Huntington Beach.

HCR 1.1: Ensure that all the City's historically and archaeologically significant resources are identified and protected.

HCR 1.1.1: Continually update the existing citywide survey of potentially historic resources subject to City Council approval. (*I-HCR 1*)

HCR 1.1.2: Consider the designation of any historically significant public trees, archaeological sites, parks, structures, sites or areas deemed to be of historical, archaeological, or cultural significance as a Huntington Beach City Historical Point, Site or District. (*I-HCR 1, and I-HCR 2, I-HCR 3,)*

HCR 1.1.3: Consider establishing a historic overlay for historic structures throughout the City. The overlay should be structured to allow the underlying land use to continue as well as support the reuse of the historic structure. (*I- HCR 1, I-HCR 3, I-HCR 5, and LU 15.3.1*)

HCR 1.1.4: Consider recording the importance of oil history in the City's development. *(I-HCR 1*)

HCR 1.2: Ensure that the City ordinances, programs, and policies create an environment that fosters preservation, rehabilitation, and sound maintenance of historic and archaeological resources.

HCR 1.2.1: Utilize the State of California Historic Building Code, Secretary of Interior Standards for Historic Rehabilitation, and standards and guidelines as prescribed by the State Office of Historic Preservation as the architectural and landscape design standards for rehabilitation, alteration, or additions to sites containing historic resources in order to preserve these structures in a manner consistent with the site's architectural and historic integrity. (*I-HCR 1, I-HCR 3, and I-HCR 5*)

HCR 1.2.2: Encourage new development to be compatible with adjacent existing historic structures in terms of scale, massing, building materials and general architectural treatment. (*I-HCR 6*)

HCR 1.2.3: Investigate the appropriateness of establishing a "receiver site" program and explore the opportunity to integrate historic buildings with cultural and arts education. (*I-HCR 1*)

HCR 1.2.4: Investigate the feasibility of initiating an "adopt a building" program to preserve historic structures that would be removed from their sites. (*I-HCR 1*)

HCR 1.3: Consider the provision of incentives (strategies, assistance, and regulations) for the maintenance and/or enhancement of privately owned historic properties in a manner that will conserve the integrity of such resources in the best possible condition.

HCR 1.3.1: Encourage owners of eligible historic income-producing properties to use the tax benefits provided by the 1981 Tax Revenue Act as well as all subsequent and future financial incentives. (I-HCR 1)

HCR 1.3.2: Consider the waiver of building permit fees for owners of small properties with historic resources who are unable to benefit from other government programs for the rehabilitation, alteration or reuse of their structure(s) only if rehabilitated in accordance with established historic preservation guidelines. (I-HCR 1)

HCR 1.3.3: Consider allowing flexibility in building code requirements for the rehabilitation of historic structures as specified in State Historical Building Code Part 8, Title 24 if rehabilitated in accordance with established historic preservation guidelines. (I-HCR 1)

HCR 1.3.4: Provide appropriate technical advice to private property owners seeking to restore historically significant structures. (I-HCR 1)

HCR 1.3.5: Advocate that local lending institutions provide appropriate financing for the rehabilitation and restoration of historically significant structures. (I-HCR 7)

HCR 1.3.6: Encourage appropriate adaptive reuse of historic resources in order to prevent misuse, disrepair and demolition, taking care to protect surrounding neighborhoods from incompatible uses. (I-HCR 1)

HCR 1.3.7: Explore alternatives that enable a property owner to sensitively add to the existing structure, or develop an accompanying building on the site that allows property development rights to be realized. Deviation to setbacks, height, parking, and other requirements should be considered to make the preservation of an existing historic building feasible when no other reasonable alternative exists. (I-HCR 1 and I-HCR 6)

HCR 1.3.8: Preserve and reuse historically significant structures, where feasible. (I-HCR 3 and I-HCR 7)

HCR 1.4: Promote public education and awareness of the unique history of the Huntington Beach area and community involvement in its retention and preservation.

HCR 1.4.1: Encourage the promotion of the City's historic resources in visitor and tourist oriented brochures. (*I-HCR 8*)

HCR 1.4.2: Promote community awareness of historic preservation through Huntington Beach's appointed and elected officials, its various departments, and local boards and organizations. (*I-HCR 8*)

HCR 1.4.3: Encourage the involvement of the local schools and Goldenwest College in preservation programs and activities. (*I-HCR 8*)

HCR 1.4.4: Consider combining sites containing historic features (interpretive centers) with recreational learning opportunities and arts and culture. (*I-HCR 9*)

HCR 1.4.5: Encourage the provision of uses that are conducive to public use and education in historic structures. (*I-HCR 1, and I-HCR 4*)

HCR 1.4.6: Consider crowdsourcing to support preservation efforts.

City of Fountain Valley

The City of Fountain Valley does not contain any goals or policies for the preservation of historic, archaeological, or paleontological resources.

3.4.3 Impacts and Mitigation Measures

Significance Criteria

Based on Appendix G of the CEQA Guidelines, cultural resources impacts would be considered significant if the proposed program would:

- Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5 (see Impact 3.4-1, below);
- Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5 (see Impact 3.4-2, below);
- Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature (see Impact 3.4-3, below); or
- Disturb any human remains, including those interred outside of formal cemeteries (see Impact 3.4-4, below).

Methodology

CEQA provides that a project may cause a significant environmental effect where the project could result in a substantial adverse change in the significance of a historical resource (Public Resources Code, Section 21084.1). CEQA Guidelines Section 15064.5 defines a "substantial adverse change" in the significance of a historical resource to mean physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historical resource would be "materially impaired" (CEQA Guidelines Section 15064.5(b)(1)). Per CEQA Guidelines Section 15064.5(b)(2), the significance of a historical resource is materially impaired when a project:

- Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register; or
- Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to Section 5020.1(k) of the Public Resources Code or its identification in an historical resources survey meeting the requirements of Section 5024.1(g) of the Public Resources Code, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or
- Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the California Register as determined by a lead agency for purposes of CEQA.

CEQA also provides that a project may cause a significant environmental effect where the project could result in damage to or destroy unique archaeological resources[1], unique paleontological resource or site or unique geologic feature, or human remains. Typically, impacts to unique archaeological resources can be reduced to less than significant through data recovery excavations. CEQA provides that excavation as mitigation shall be limited to those parts of the unique archaeological resource that would be damaged or destroyed by the project (Public Resources Code Section 21083.2(d)) and sets limits on the dollar amount required of an applicant to mitigate impacts (Public Resources Code Section 21083.2(e)). Under CEQA, documentation and recovery of the scientific information contained in "significant" fossils (i.e., fossils that are unique, unusual, rare, uncommon, or diagnostically important) is considered to reduce the impact to paleontological resources to less than significant. CEQA Guidelines Section 15064.5(e) indicates that in the event of human remains discoveries, the county coroner shall be contacted, and the provisions of Public Resources Code Section 5097.98 shall be followed to mitigate impacts.

Impacts Discussion

Historical Resources

Impact 3.4-1: The proposed program would not result in a program impact or contribute to a cumulative impact on a historic resource because there are no historical resources as defined in CEQA Guidelines Section 15064.5 on or in the vicinity of the proposed program area.

Program Impact Analysis

Construction

The proposed program includes construction of a Collection Yard Facility at Plant No. 1. Two possible placements for the facility within the Plant No. 1 property are being analyzed as part of the proposed program: one at the north end of the plant near the primary entrance and administrative offices and one in the southwest corner of the plant, west of existing secondary clarifier tanks and south of equalization tanks. Plant No. 1 was the earliest wastewater treatment facility constructed in Orange County, supporting the suburban development of the surrounding communities, including Fountain Valley.

As discussed above, Plant No. 1 is not eligible for listing in the California Register and does not qualify as a historical resource under CEQA. Additionally, there are no previously identified historical resources in the vicinity of Plant No. 1 that could be indirectly affected by the proposed program. Therefore, the proposed Collection Yard Facility at Plant No. 1 would not result in an impact to historical resources on or around the Plant No. 1 property.

As also discussed above, Plant No. 2 is not eligible for listing in the California Register and does not qualify as a historical resource under CEQA. Additionally, there are no previously identified historical resources in the vicinity of Plant No. 2 that could be indirectly affected by the proposed

[1] Per CEQA Guidelines Section 15064.5(c), when a project will impact an archaeological site, a lead agency shall first determine whether the site is a historical resource. If the archaeological site does not meet the criteria for historical resource, it will then be assessed for significance as a unique archaeological resource. If it meets the definition of unique archaeological resource, the provisions of section Public Resources Code Section 21083.2 shall apply.

program. Therefore, the proposed program would not result in an impact to historical resources on or around the Plant No. 2 property.

Operation

Operation of the proposed facilities (Plant No. 1 and Plant No. 2) would not result in any direct or indirect impact to historical resources. No operational impacts would occur.

Significance Determination before Mitigation: Potentially Significant

Cumulative Impact Analysis

Implementation of cumulative development in the program vicinity could result in the removal of historic-age structures that could be eligible for listing under the California Register. Therefore, cumulative development has the potential to result in significant cumulative impacts on historic resources. Because Plant No. 1 and Plant No. 2 are not eligible for listing in the California Register and does not qualify as a historical resource under CEQA, the proposed program would result in no impacts to historical resources; therefore, the proposed program would not contribute to cumulative impacts to historic resources on or in the vicinity of Plant No. 1 or Plant No. 2.

Significance Determination before Mitigation: No Impact

Mitigation Measures

Program Measures

No mitigation measures are required.

Significance Determination after Mitigation: No Impact

Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: No Impact

Archaeological Resources

Impact 3.4-2: The proposed program could result in a significant and cumulatively considerable effect on an archaeological resource because the proposed program has the potential to cause a substantial adverse change in the significance of an archeological resource pursuant to CEQA Guidelines Section 15064.5.

Program Impact Analysis

Construction

No archaeological resources were identified in the proposed program area or close proximity and the proposed program would not result in an impact to known archaeological resources. However, based on the results of the records search, which identified six prehistoric archaeological resources within a ½-mile radius, and geoarchaeological review, which indicated that the proposed program area is highly sensitive for subsurface archaeological resources, there is the

potential to impact unknown buried archaeological resources. If previously undiscovered artifacts or cultural remains are uncovered during excavation or construction, the proposed program could result in significant impacts to archaeological resources that could qualify either as historical resources or unique archaeological resources under CEQA.

Operation

Operation of the proposed facilities (Plant No. 1 and Plant No. 2) would not result in any ground disturbing activities such as grading or excavation; therefore, no archaeological resources would be significantly altered or disturbed. No operational impacts would occur.

Significance Determination before Mitigation: Potentially Significant

Cumulative Impact Analysis

As discussed above, the proposed program vicinity is located within a favorable area (near water sources) for prehistoric inhabitance and the proposed program vicinity is known to contain archaeological resources. Thus, there is the potential for ongoing and future development projects in the vicinity to disturb known or unknown archaeological resources.

The potential construction impacts of the proposed program, in combination with other projects in the area, could contribute to a cumulatively significant impact on archaeological resources. Because the proposed program could result in significant impacts to archaeological resources, the proposed program's contribution to cumulative impacts would be cumulatively considerable.

However, with the implementation of Mitigation Measures CUL-1 through CUL-4, which provide for cultural resources sensitivity training, and treatment protocols for unanticipated discoveries, would ensure that impacts are reduced to a less-than-significant level. Taken together, implementation of these mitigation measures would ensure that the proposed program would not have an impact on archaeological resources. Therefore, cumulative impacts during construction would not be cumulatively considerable.

Significance Determination before Mitigation: Potentially Significant

Mitigation Measures

Program Measures

CUL-1: Prior to start of grading or excavation activities associated with the proposed program within Plant No. 1 and Plant No. 2, OCSD shall retain a qualified archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for archaeology (U.S. Department of the Interior 2008) to carry out all mitigation related to archaeological resources.

CUL-2: Prior to start of grading or excavation activities associated with the proposed program within Plant No. 1 and 2, the qualified archaeologist (or an archaeologist working under the direct supervision of the qualified archaeologist) shall conduct cultural resources sensitivity training for all construction personnel. Construction personnel shall be informed of the types of archaeological resources that may be encountered, the proper procedures to be enacted in the event of an inadvertent discovery of archaeological resources or human remains, and safety precautions to be taken when working with

archaeological monitors. OCSD shall ensure that construction personnel are made available for and attend the training and retain documentation demonstrating attendance.

CUL-3: Archaeological and Native American monitoring shall be conducted for grading or excavation activities associated with the proposed program at Plant No. 1 and Plant No. 2. Archaeological monitoring shall be conducted by an archaeologist familiar with the types of archaeological resources that could be encountered within the program area, and under the direct supervision of the qualified archaeologist. The frequency of monitoring shall take into account the rate of excavation and grading activities, the materials being excavated (native verses artificial fill soils and older verse younger soils), and the depth of excavation. The frequency of the monitoring shall be determined by the qualified archaeologist in consultation with the Native American monitor and in coordination with OCSD. The Native American monitor shall be selected from a tribe that is culturally and traditionally affiliated with the program area as indicated by the NAHC. In the event that archaeological resources are unearthed during ground-disturbing activities, the archaeological monitor and/or Native American monitor shall be empowered to halt or redirect ground-disturbing activities away from the vicinity of the discovery until OCSD, a qualified archaeologist, and a Native American monitor have evaluated the discovery and determined appropriate treatment (as prescribed in CUL-4). The archaeological monitor shall keep daily logs detailing the types of activities and soils observed, and any discoveries. After monitoring has been completed, the qualified archaeologist shall prepare a report that details the results of monitoring for submittal to OCSD, the South Central Coastal Information Center, and any Native American tribe that requests a copy.

CUL-4: In the event of the unanticipated discovery of archaeological materials during grading or excavation activities associated with the proposed program, OCSD shall immediately cease all work activities in the area (within approximately 100 feet) of the discovery until it can be evaluated by the qualified archaeologist. Construction shall not resume until the qualified archaeologist has conferred with OCSD on the significance of the resource.

In the event that preservation in place is determined to be infeasible and data recovery through excavation is the only feasible mitigation available, an Archaeological Resources Treatment Plan shall be prepared and implemented by the qualified archaeologist in consultation with OCSD that provides for the adequate recovery of the scientifically consequential information contained in the archaeological resource. OCSD shall consult with appropriate Native American representatives in determining treatment for prehistoric or Native American resources to ensure cultural values ascribed to the resource are considered.

Significance Determination after Mitigation: Less than Significant

Implementation of CUL-1, CUL-2, CUL-3, and CUL-4 would include the retention of a qualified archaeologist, conducting archaeological resources sensitivity training for all construction personnel, archaeological and Native American monitoring during ground-disturbing activities, and establishing the proper protocol in the event of an unanticipated discovery of archaeological materials. The implementation of these measures would reduce impacts to archaeological resources that could qualify as historical resources or unique archaeological resources to less than significant.

Cumulative Measures

Implementation of Mitigation Measures CUL-1 through CUL-4 is required.

Significance Determination after Mitigation: Less than Significant

The implementation of Mitigation Measures CUL-1 through CUL-4 would ensure that the proposed program's contribution to cumulative impacts on archaeological resources would be reduced to less than cumulatively considerable by requiring identification and treatment of significant resources.

Paleontological Resources

Impact 3.4-3: The proposed program could result in a significant and cumulatively considerable effect on a unique paleontological resource because the proposed program could directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

Program Impact Analysis

Construction

Based on the results of the paleontological database search, there are no known fossil localities in proposed program area. However, several fossil localities from older Quaternary deposits, similar to those that are likely present in the subsurface of the proposed program area, are located approximately 1.5 to 3.5 miles away. These localities have yielded a wide variety of vertebrate fossils, from marine taxa like leopard shark to fish such as the three-spined stickleback and terrestrial animals such as garter snake, turtle, desert shrew, pocket gopher, mammoth, bison, horse, camel, and elephant. Due to the young age of the surficial sediments underlying the proposed program area, there is a low potential to uncover significant vertebrate fossil remains during surface grading or shallow excavations. However, excavations that extend down into the older Quaternary deposits may encounter significant fossil vertebrate specimens. Since the proposed program includes ground-disturbing activities, there is a potential for discovery of fossils that may be considered significant paleontological resources. If previously unknown potentially unique paleontological resources are uncovered during excavation or construction, significant impacts could occur.

Operation

Operation of the proposed facilities (Plant No. 1 and Plant No. 2) would not result in any ground disturbing activities such as grading or excavation; therefore, no paleontological resources would be significantly altered or disturbed. No operational impacts would occur.

Significance Determination before Mitigation: Potentially Significant

Cumulative Impact Analysis

As future cumulative development occurs in the program area, there is a potential that future growth could require excavation activities. These activities could be required within older Quaternary deposits that may encounter significant fossil vertebrate specimens. Therefore,

cumulative development could result in potential significant cumulative impacts to paleontological resources. Because the proposed program includes excavations that could occur within older Quaternary deposits, significant fossil vertebrate specimens could be found. Therefore, the proposed program could result in cumulatively considerable effects on paleontological resources.

Significance Determination before Mitigation: Potentially Significant

Mitigation Measures

Program Measures

CUL-5: Prior to start of excavation activities associated with the proposed program that exceed 10 feet in depth in previously undisturbed sediments, OCSD shall retain a qualified paleontologist meeting the Society for Vertebrate Paleontology (SVP) Standards (SVP 2010) to carry out all mitigation related to paleontological resources. The qualified paleontologist shall be selected from the list of County of Orange certified paleontologists.

CUL-6: Prior to the start of excavation activities associated with the proposed program that exceed 10 feet in depth in previously undisturbed sediments, the qualified paleontologist, or his or her designee, shall conduct training for construction personnel regarding the appearance of fossils and the procedures for notifying paleontological staff should fossils be discovered by construction staff. OCSD shall ensure that construction personnel are made available for and attend the training and retain documentation demonstrating attendance.

CUL-7: Paleontological resources monitoring shall be performed during excavation activities associated with the proposed program that exceed 10 feet in depth in previously undisturbed sediments by a qualified paleontological monitor (or cross-trained paleontological/ archaeological monitor) meeting the standards of the SVP 2010 under the direction of the qualified paleontologist. The monitor shall have the authority to temporarily halt or divert work away from exposed fossils in order to recover the fossil specimens. The qualified paleontologist, based on observations of subsurface soil stratigraphy and/or other factors, may increase, reduce, or discontinue monitoring, as warranted. Monitoring may be reduced or discontinued by the qualified paleontologist, in coordination with OCSD, based on observations of subsurface conditions.

If construction or other project personnel discover any potential fossils during construction, regardless of the depth of work, all work shall cease at that location (within 100 feet) until the qualified paleontologist has assessed the discovery and made recommendations as to the appropriate treatment and re-assessed the depth at which monitoring shall be required.

CUL-8: In the event of a fossil discovery by the paleontological monitor or construction personnel, all work in the immediate vicinity of the find shall cease. The qualified paleontologist shall evaluate the find before restarting construction activity in the area. If it is determined that the fossil(s) is (are) scientifically significant, the qualified paleontologist shall recover significant fossils following standard field procedures for collecting and curating paleontological resources, as described by the SVP (2010).

Significance Determination after Mitigation: Less than Significant

Implementation of Mitigation Measures CUL-5 through CUL-8 would reduce impacts to paleontological resources by requiring identification and treatment of significant resources.

Implementation of CUL-5, CUL-6, CUL-7, and CUL-8 would require the retention of a qualified paleontologist, paleontological monitoring during construction, and establishment the proper protocol if paleontological resources are encountered. Therefore, incorporation of CUL-5 through CUL-8 would reduce this impact to a level of less than significant.

Cumulative Measures

Implementation of Mitigation Measures CUL-5 through CUL-8 is required.

Significance Determination after Mitigation: Less than Significant

Implementation of Mitigation Measures CUL-5 through CUL-8 would ensure that the proposed program's contribution to cumulative paleontological resources impacts would be reduced to less than cumulatively considerable by requiring identification and treatment of significant resources.

Human Remains

Impact 3.4-4: The proposed program could result in a significant and cumulatively significant effect on human remains because the proposed program could disturb human remains, including those interred outside of dedicated cemeteries.

Program Impact Analysis

Construction

No human remains are known to be located within the proposed program area; however, since archaeological sites with human remains have been documented within a ½-mile radius and given the high sensitivity of the area, there is the possibility that human remains could be encountered by construction activities at Plant No. 1 and Plant No. 2 for the proposed program. In the event that human remains are inadvertently discovered during proposed program construction activities, they could be inadvertently damaged, which could result in a significant impact.

Operation

Operation of the proposed facilities (Plant No. 1 and Plant No. 2) would not result in any ground disturbing activities such as grading or excavation; therefore, no human remains would be significantly altered or disturbed. No operational impacts would occur.

Significance Determination before Mitigation: Potentially Significant

Cumulative Impact Analysis

The proposed program area is largely urbanized with industrial development. However, since archaeological sites with human remains have been documented within a ½-mile radius of the proposed program and given the high sensitivity of the area, there is the possibility that

construction activities associated with cumulative development could impact unknown human remains. Because the proposed program could encounter and significantly impact human remains, the program could contribute to significant cumulative impacts to human remains and result in result in cumulatively considerable could result in cumulatively considerable impacts to human remains.

Significance Determination before Mitigation: Potentially Significant

Mitigation Measures

Program Measures

> **CUL-9:** If human remains are encountered during construction activities associated with the proposed program, OCSD or its contractor shall halt work in the vicinity (within 100 feet) of the find and contact the Orange County Coroner in accordance with PRC Section 5097.98 and Health and Safety Code Section 7050.5. If the County Coroner determines that the remains are Native American, the NAHC will be notified in accordance with Health and Safety Code Section 7050.5, subdivision (c), and PRC Section 5097.98. The NAHC will designate an MLD for the remains per PRC Section 5097.98. Until the landowner has conferred with the MLD, OCSD shall ensure that the immediate vicinity where the discovery occurred is not disturbed by further activity, is adequately protected according to generally accepted cultural or archaeological standards or practices, and that further activities take into account the possibility of multiple burials.

Significance Determination after Mitigation: Less than Significant

Implementation of Mitigation Measure CUL-9 would ensure that the proposed program's potential impacts to human remains impacts would be reduced to less than significant by requiring proper treatment of human remains.

Cumulative Measures

Implementation of Mitigation Measure CUL-9 is required.

Significance Determination after Mitigation: Less than Significant

Implementation of Mitigation Measure CUL-9 would ensure that the proposed program's contribution to cumulative human remains impacts would be reduced to less than cumulatively considerable by requiring proper treatment of human remains.

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3.5 Geology, Soils, and Seismicity

This section addresses the potential impacts to geology and soils associated with the proposed BMP facilities. A description of geology, a summary of applicable regulations related to geologic and seismic hazards, an evaluation of the potential impacts that may result from implementing the proposed program, and identification of mitigation measures to minimize potential effects is provided, if necessary.

3.5.1 Environmental Setting

Geology

The proposed program is located in Orange County within the OCSD Plant No. 1 and Plant No. 2 in the cities of Fountain Valley and Huntington Beach, respectively. The majority of the individual projects under the proposed program would be implemented within Plant No. 2, which is located within the Santa Ana Gap (i.e., drainage gap between Newport Mesa and Huntington Beach Mesa) on the Los Angeles/Orange County coastal plain of the Peninsular Ranges Geomorphic Province. The Santa Ana Gap is a water gap that was created by the Santa Ana River during the latest Ice Age, near the end of the Pleistocene epoch (approximately 18,000 years ago) (Kleinfelder, 2016; Kleinfelder, 2017).

Geomorphic Provinces are large regions that display common characteristic landforms and geologic structures, which are governed by tectonics. The Peninsular Ranges are a series of northwest-southeast trending mountain ranges separated by similarly trending valleys. These mountains and valleys are sub-parallel to the major faults of the San Andreas fault system. The Peninsular Ranges Province is bound to the east by the Colorado Desert Province, on the north by the Transverse Ranges Province, and extends southward beyond the U.S./Mexican border into Baja California (DOC, 2002).

Bedrock geology most closely resembles the Sierra Nevada with granitic intrusions into-older metamorphic rocks. Near surface geologic units within the program area include well-sorted, fine grained sand and silt, medium to fine grained sand deposit in the late Holocene near the Santa Ana River, sandy, silty and clayey organic-rich estuarine deposits and modern sandy wash deposits confined within the Santa Ana River channel (Kleinfelder, 2016; Kleinfelder, 2017).

Topography and Drainage

Elevations within the program area range from sea level near Plant No. 2 to 30 feet above mean sea level (amsl) near Plant No. 1. Due to minor elevation changes, the slope gradients within the program area are relatively flat. Site drainage at both Plant No. 1 and Plant No. 2 is accomplished by sheet flow (surface runoff) into existing storm drains on site (Kleinfelder, 2017). The onsite storm drains convey stormwater to the onsite wastewater facilities to be treated prior to discharge to the existing ocean outfall.

Seismic and Geologic Hazards

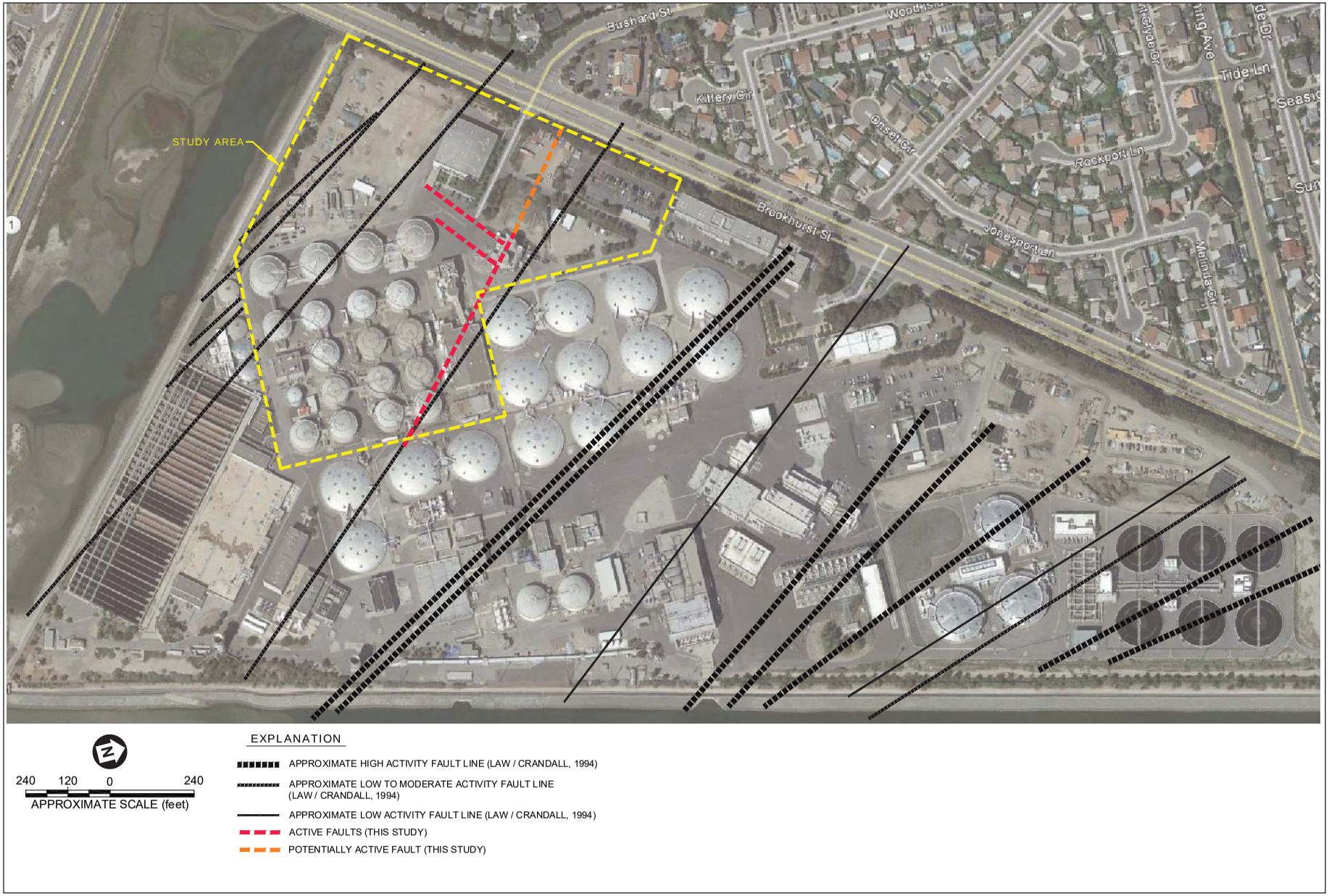
Surface Fault Rupture

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 active faults. The program area is located within the Newport-Inglewood fault zone, which is active (i.e., a fault along which displacement has occurred within the past 11,000 years). The Rose Canyon fault zone is co-aligned with the Newport-Inglewood fault zone and both faults are considered to be part of a continuous system. The Rose Canyon fault zone is located offshore to the south of Newport Bay while the Newport-Inglewood fault zone is located onshore, north of Newport Bay. The continuous fault system is known as the Newport-Inglewood-Rose Canyon fault which is capable of generating a magnitude 7.5 earthquake and has an estimated slip rate of 0.5 to 2.0 millimeters per year. The Newport-Inglewood-Rose Canyon fault zone located in the Los Angeles Basin consists of a series of short, discontinuous, northwest-trending right-lateral faults, relatively shallow anticlines and subsidiary normal and reverse faults extending approximately 36 miles from the Santa Monica Mountains to offshore Newport Beach. The Newport-Inglewood-Rose Canyon fault, like other faults, is not always a continuous fault line, but rather comprises several overlapping segments with similar trend (Kleinfelder, 2016; Kleinfelder, 2017).

The program area is not located within an Alquist-Priolo Fault Zone. Within the program vicinity is a series of fault traces forming a zone approximately 2,500 feet wide across Plant No. 2. Although this zone of faulting is known to contain active faults, it has not been designated as an active Alquist-Priolo Earthquake Fault Zone because of poor definition of the locations of actual active fault splays (see **Figure 3.5-1**). A majority of the fault splays that cross Plant No. 2 are classified as "low to moderate activity level" (Kleinfelder, 2016; Kleinfelder, 2017).

Groundshaking

According to the Department of Conservation's (DOC) Earthquake Shaking Potential for California Map (DOC, 2008), the program area is within an area subject to high frequency shaking potential. High frequency shaking areas are in regions near major, active faults and will, on average, experience stronger earthquake shaking more frequently. 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 (nearly total damage). The program area would be susceptible to ground shaking from several active and potentially active faults in the region, including the Newport Inglewood Fault, San Joaquin Hills Fault, Elsinore Fault, Palos Verdes Fault and the San Andreas Fault (Kleinfelder, 2016; Kleinfelder, 2017).



D150626

SOURCE: Kleinfelder, 2016

OCSD Biosolids Master Plan

Figure 3.5-1
OCSD Plant No. 2 Faults

ESA

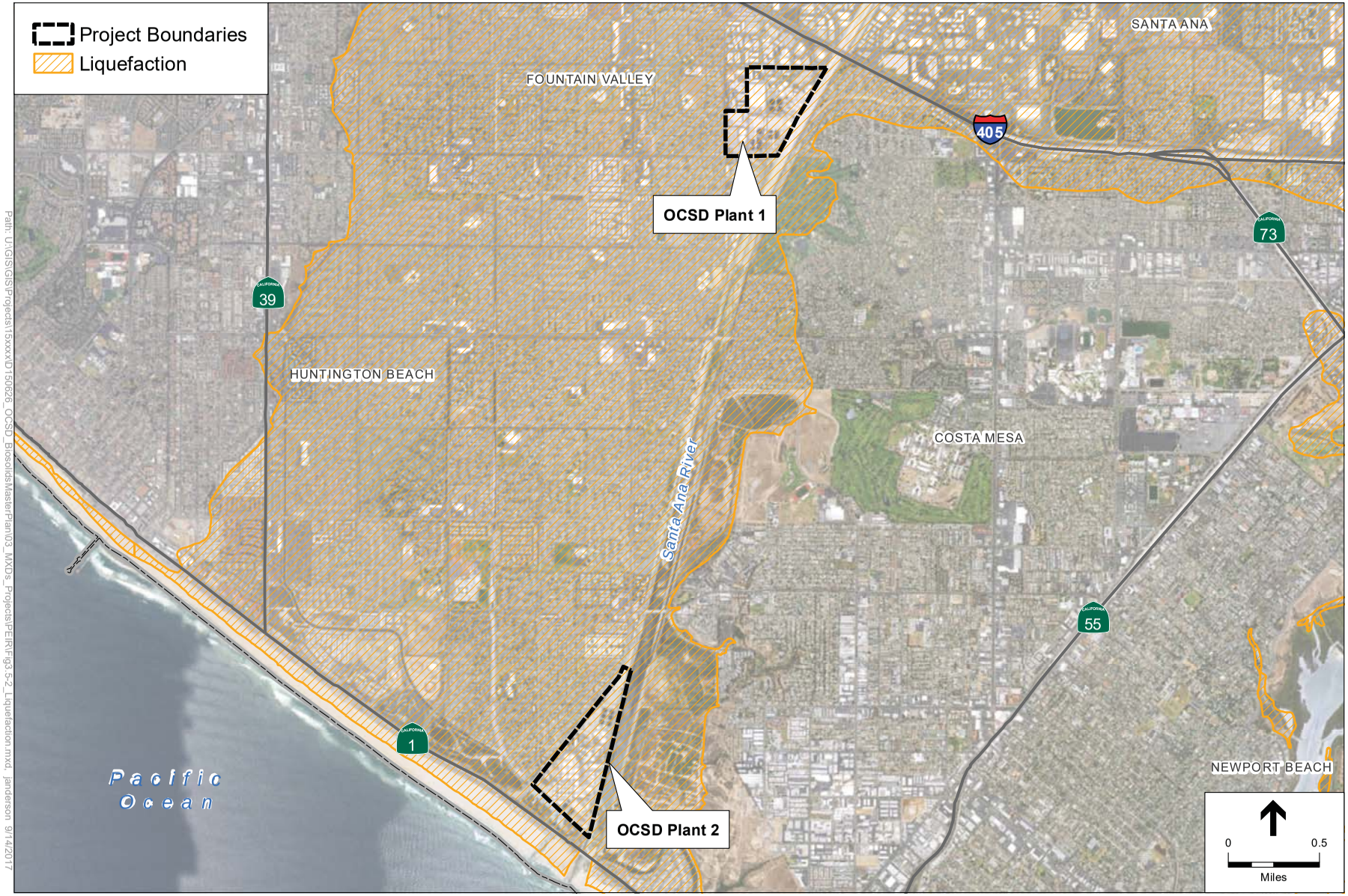
Liquefaction, Settlement and Lateral Spreading

Soil liquefaction is a phenomenon whereby 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.

Additional factors known to influence liquefaction potential include soil type, relative density, grain size, confining pressure, and the intensity and duration of the seismic ground shaking. Liquefaction is most prevalent in loose to medium dense, silty, sandy, and gravelly soils below the groundwater table. The program area is located within a State and County Hazard Zone for Liquefaction, as shown in **Figure 3.5-2**. Because of the depth to groundwater and the soil types within the program area, the potential for liquefaction is moderate to high. The potential for seismically-induced settlement of saturated sandy soils and lateral spreading along the Santa Ana River due to a strong seismic event exists at Plant No. 2 (Kleinfelder, 2017; City of Fountain Valley, 1995). In addition, seismically-induced settlement could also occur at Plant No. 1.

Landslides

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 downslope creep of surface materials characterize landslide-susceptible areas. Landslides are not to be confused with minor slope failures (slumps), which are usually limited to the topsoil zone and can occur on slopes composed of almost any geologic material. Landslides can cause damage to structures both above and below the slide mass. Structures above the slide area are typically damaged by undermining of foundations. Areas below a slide mass can be damaged by being overridden and crushed by the failed slope material. The program area is located in a relatively flat area that has previously been graded and developed. The program area is not within a State designated Seismic Hazard Zone for Earthquake Induced-Landslides (City of Fountain Valley, 1995; City of Huntington Beach, 2017).



SOURCE: ESA, ESRI.

OCSD Biosolids Master Plan . 150626

Figure 3.5-2

Liquefaction Hazard Areas

Soils

Subsurface conditions within the program area generally consist of artificial fill over estuary and alluvial deposits that are comprised primarily of interbedded layers of sand, silt, and clay. Artificial fill is associated with prior development of Plant No. 1 and Plant No. 2. Artificial fill consists of poorly graded sand and gravel with sand to loose silty and clayey sand. Sand and fill depths typically range between approximately 3 and 13 feet on Plant No. 2. Estuary deposits underlie artificial fill and consist primarily of very soft to very stiff clayey silt, sandy clay, and clay with organics. Alluvial soil deposits exist below estuary deposits and consist primarily of medium dense to very dense sand, sand with silt, and silty sand. Below the sandy layer near Plant No. 2, an aquitard separates the sandy soil deposits from the Talbert Aquifer (a semi-confined aquifer) found below the aquitard.[1] The aquitard is approximately 10 feet thick and consists of silt and clay. Below the aquitard, dense to very dense sand and gravel of the Talbert Aquifer exists (Kleinfelder, 2017).

Subsidence

Subsidence of the ground surface can occur under static conditions (i.e., due to consolidation settlement from overlying load or long-term groundwater extraction) but can also be accelerated and accentuated by earthquakes and tectonic activity. Subsidence of loose, unconsolidated soils generally occurs slowly, but can cause significant structural damage. The City of Fountain Valley is known to experience subsidence associated with the drainage of organic peat soils and a high water table; however, Plant No. 1 is not known to exhibit ground subsidence (City of Fountain Valley, 1995). Plant No. 2 is not located in an area of known ground subsidence due to the withdrawal of subsurface fluids (Kleinfelder, 2017).

Erosion

Soil erosion is the detachment and movement of soil materials through natural processes or human activities. Natural processes include water, landslide, fire, flood, and wind. Man-made causes could include irresponsible grading and other construction practices, use of off-road vehicles, and other indiscriminate disruptions of soil. Severe erosion can be a problem anywhere in Orange County, especially when precipitation and/or wind combine with uncovered soil (City of Fountain Valley, 1995; City of Huntington Beach, 2017).

Expansive Soils

Expansive soils contain significant amounts of clay particles that have the ability to give up water (shrink) or take on water (swell). When these soils swell, the change in volume can exert significant pressures on loads that are placed on them, such as loads resulting from building and structure foundations or underground utilities, and can result in structural distress and/or damage. Often, grading, site preparations, and backfill operations associated with subsurface structures can eliminate the potential for expansion. Linear extensibility and plasticity are used to describe the shrink-swell potential of soils. If linear extensibility is greater than 3 percent (classified as Moderate potential), shrinking and swelling can cause damage to buildings, roads, and other

[1] An aquitard is a geologic formation or stratum that lies adjacent to an aquifer and restricts the flow of groundwater from one aquifer to another. Aquitards are comprised of layers of either clay or non-porous rock with low hydraulic conductivity.

structures (NRCS, 2014). The predominate soil association within the program area is the Heuneme-Bolsa Association, a nearly level, excessively drained fine sand loams located on alluvial fans and floodplains. The soils are characterized as having a moderate-to-high shrink-swell potential (OCWD, 2016).

3.5.2 Regulatory Framework

Federal

Earthquake Hazards Reduction Act

The U.S. Congress passed the Earthquake Hazards Reduction Act in 1977, which created the National Earthquake Hazards Reduction Program (NEHRP). The purposed of the NEHRP is to "reduce the risks to life and property from future earthquakes in the United States through the establishment and maintenance of an effective earthquake hazards and reduction program." The principle behind NEHRP is that earthquake-related losses can be reduced through improved design and construction methods and practices, land use controls and redevelopment, prediction techniques and early-warning systems, coordinated emergency preparedness plans, and public education and involvement programs. There are four federal agencies that can contribute to earthquake mitigation efforts; they have been designated as NEHRP agencies and are as follows: the Federal Emergency Management Agency (FEMA), the National Institute of Standards and Technology (NIST), the National Science Foundation (NSF), and the U.S. Geological Survey (USGS).

Federal Occupational Safety and Health Administration Regulations

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) was signed into law in December of 1972 and requires the delineation of zones along active faults in California. The act was created to identify traces of active faults that constitute a potential hazard to structures from surface faulting or fault creep and to prohibit the siting of most structures for human occupancy across these traces, thereby reducing structural damage and ensuring public safety. The program area is not within a Alquist-Priolo Earthquake Fault Zone.

Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act of 1990 (Public Resources Code, Chapter 7.8, Section 2690-2699.6) was adopted to reduce the threat to public safety and to minimize the loss of life and property by identifying and mitigating ground failure caused by strong earthquakes, namely liquefaction and slope failure. The Seismic Hazards Mapping Act requires the State Geologist to

delineate seismic hazard zones, also known as "zones of required investigation", where regional (that is, not site-specific) information suggests that the probability of a hazard requiring mitigation is adequate to warrant a site-specific investigation. The fact that a site lies outside a zone of required investigation does not necessarily mean that the site is free from seismic or other geologic hazards. Where a project—defined by the act as any structures for human occupancy or any subdivision of land that contemplates the eventual construction of structures for human occupancy—is within a zone of required investigation, lead agencies must apply minimum criteria for project approval. The most basic criteria for project approval are that the owner/developer adequately demonstrates seismic hazards at the site have been evaluated in a geotechnical investigation, that appropriate mitigation measures have been proposed, and that the lead agency has independently reviewed the adequacy of the hazard evaluation and proposed mitigation measures. Both the geotechnical report and the independent review must be performed by a certified engineering geologist or registered civil engineer. The program area includes seismic hazard zones susceptible to liquefaction.

California Building Code

The California Building Code (CBC), which is codified in Title 24 of the California Code of Regulations, Part 2, was promulgated to safeguard the public health, safety, and general welfare by establishing minimum standards related to structural strength, egress facilities, and general building stability. The purpose of the CBC is to regulate and control the design, construction, quality of materials, use/occupancy, location, and maintenance of all building and structures within its jurisdiction. Title 24 is administered by the California Building Standards Commission, which, by law, is responsible for coordinating all building standards. Under State law, all building standards must be centralized in Title 24 or they are not enforceable. The provisions of the CBC apply to the construction, alteration, movement, replacement, and demolition of every building or structure or any appurtenances connected or attached to such buildings or structures throughout California.

The 2016 edition of the CBC is based on the 2015 International Building Code (IBC) published by the International Code Council. The code is updated triennially, and the 2016 edition of the CBC was published by the California Building Standards Commission on July 1, 2016, and took effect in January 1, 2017. The 2016 CBC contains California amendments based on the American Society of Civil Engineers Minimum Design Standard ASCE/SEI 7-16, *Minimum Design Loads for Buildings and Other Structures*, provides requirements for general structural design and includes means for determining earthquake loads[2] as well as other loads (such as wind loads) for inclusion into building codes. Conformance to the current building code recommendations does not constitute any kind of guarantee that significant structural damage would not occur in the event of a maximum magnitude earthquake. However, it is reasonable to expect that a structure designed in-accordance with the seismic requirements of the CBC should not collapse in a major earthquake.

[2] A load is the overall force to which a structure is subjected in supporting a weight or mass, or in resisting externally applied forces. Excess load or overloading may cause structural failure.

California Occupational Safety and Health Administration Regulations

Occupational safety standards exist in federal and State laws to minimize worker safety risks from both physical and chemical hazards in the work place. In California, the California Division of Occupational Safety and Health (Cal/OSHA) and the federal OSHA are the agencies responsible for ensuring worker safety in the workplace. The OSHA Excavation and Trenching standard (29 CFR 1926.650), covers requirements for excavation and trenching operations, which are among the most hazardous construction activities. Cal/OSHA is the implementing agency for both state and federal OSHA standards.

National Pollutant Discharge Elimination System Construction General Permit

Construction associated with the proposed program may disturb more than one acre of land surface affecting the quality of stormwater discharges into waters of the U.S. If ground disturbance is greater than one acre of land, the proposed program would therefore be subject to the National Pollutant Discharge Elimination System (NPDES) Construction General Permit (Order 2009-0009-DWQ, NPDES No. CAS000002). The Construction General Permit regulates discharges of pollutants in stormwater associated with construction activity to waters of the U.S. from construction sites that disturb one or more acres of land surface, or that are part of a common plan of development or sale that disturbs more than one acre of land surface. The permit regulates stormwater discharges associated with construction or demolition activities, such as clearing and excavation; construction of buildings; and linear underground projects, including installation of water pipelines and other utility lines.

The Construction General Permit requires that construction sites be assigned a Risk Level of 1 (low), 2 (medium), or 3 (high), based both on the sediment transport risk at the site and the receiving waters risk during periods of soil exposure (e.g., grading and site stabilization). The sediment risk level reflects the relative amount of sediment that could potentially be discharged to receiving water bodies and is based on the nature of the construction activities and the location of the site relative to receiving water bodies. The receiving waters risk level reflects the risk to the receiving waters from the sediment discharge. Depending on the risk level, the construction of proposed program projects could be subject to the following requirements:

- Effluent standards
- Good site management "housekeeping"
- Non-stormwater management
- Erosion and sediment controls
- Run-on and runoff controls
- Inspection, maintenance, and repair
- Monitoring and reporting requirements

The Construction General Permit requires the development and implementation of a Stormwater Pollution Prevention Plan (SWPPP) that includes specific best management practices designed to prevent sediment and pollutants from contacting stormwater from moving offsite into receiving waters. Routine inspection of all best management practices is required under the provisions of the Construction General Permit.

The SWPPP must be prepared before the construction begins. The SWPPP must contain a site map(s) that delineates the construction work area, existing and proposed buildings, parcel

boundaries, roadways, stormwater collection and discharge points, general topography both before and after construction, and drainage patterns across the program area. The SWPPP must list best management practices and the placement of those best management practices that the project proponent would use to protect stormwater runoff. Additionally, the SWPPP must contain a visual monitoring program, a chemical monitoring program for "non-visible" pollutants to be implemented if there is a failure of best management practices, and a sediment monitoring plan if the site discharges directly to a water body listed on the 303(d) list for sediment. Examples of typical construction best management practices include scheduling or limiting certain activities to dry periods, installing sediment barriers such as silt fence and fiber rolls, and maintaining equipment and vehicles used for construction. Non-stormwater management measures include installing specific discharge controls during certain activities, such as paving operations, vehicle and equipment washing and fueling. The Construction General Permit also sets post-construction standards (i.e., implementation of best management practices to reduce pollutants in stormwater discharges from the site following construction).

Local

City of Fountain Valley General Plan

The proposed project (P2-503B, Collections Yard Relocation) would be located at Plant No. 1 in the City of Fountain Valley. The Public Safety Element of the City of Fountain Valley General Plan describes potential geologic hazards to the community's citizens. Geologic hazards addressed within the Fountain Valley General Plan include seismically induced conditions such as ground shaking and surface rupture, liquefaction, and seismic seiches (City of Fountain Valley, 1995).

City of Huntington Beach General Plan

The proposed program projects would be located within Plant No. 2 in the City of Huntington Beach. The Environmental Hazards Element of the City of Huntington Beach General Plan describes potential hazards to the community's citizens. Geologic hazards addressed within the Huntington Beach General Plan include seismically induced conditions such as ground shaking and surface rupture, liquefaction, expansive soils, soil erosion, flooding, slope instability leading to landslides, and subsidence (City of Huntington Beach, 2017).

3.5.3 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 program 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 (see Impact 3.5-1, below)
  - Strong seismic ground shaking (see Impact 3.5-1, below)

  - Seismic-related ground failure, including liquefaction (see Impact 3.5-1, below)
  - Landslides (see Section 4.1.4 in Chapter 4.0, Other CEQA Considerations)

- Result in substantial soil erosion or the loss of topsoil (see Impact 3.5-2, below);
- Be located on a geologic unit or soil that is unstable or that would become unstable as a result of the project, and potentially result in on-site or offsite landslide, lateral spreading, subsidence (i.e., settlement), liquefaction, or collapse (see Impact 3.5-3, below);
- 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 (see Impact 3.5-4, below);
- 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 (see Section 4.1.4 in Chapter 4.0, Other CEQA Considerations).

Methodology

Geologic and seismic information for the program area was derived from various sources and compiled in this section to develop a comprehensive understanding of the potential constraints and hazards associated with construction and operation of the proposed program. Information sources include geologic and soils maps and information prepared by Kleinfelder, Department of Conservation, California Geologic Survey (CGS), and the local cities of Fountain Valley and Huntington Beach, all of which reflect the most up-to-date understanding of the regional geology and seismicity.

Existing Geotechnical Investigation for Program Facilities

As part of the proposed program, a site-specific geotechnical investigation would be completed for all facilities requiring foundations and specialized soils engineering work. Geotechnical studies are essential for facility and pipeline design because it is the information that informs the structural design of the foundation and determines whether the geologic materials underlying the proposed facilities are capable of supporting the proposed uses without risk of detrimental effects from potential hazards associated with problematic soils, liquefaction, or excessive seismic shaking. Geotechnical investigations are required under the CBC for most structures intended for human occupancy. Based on field observation and laboratory testing, the geotechnical engineer can assess whether the soils are adequate to support the structure under static (non-earthquake) or earthquake conditions. If corrective work is necessary to remedy the problem soils or otherwise unstable ground condition, the geotechnical engineer would recommend approaches to correct the condition. Geotechnical engineering recommendations are typically standard engineering practices that have been proven elsewhere to increase the geotechnical performance of an underlying soil or geologic material. This impact analysis assumes that geotechnical recommendations set forth by the project geotechnical engineer would be fully implemented into project designs.

American Water Works Association Standards for Proposed Pipelines

Pipelines are constructed to various industry standards. The AWWA is a worldwide nonprofit scientific and educational association that, among its many activities, establishes recommended standards for the construction and operation of public water supply systems, including standards

for pipe and water treatment facility materials and sizing, installation, and facility operations. While the AWWA's recommended standards are not enforceable code requirements, they nevertheless can dictate how pipelines for water conveyance are designed and constructed. As part of the proposed program, the construction contractors would incorporate AWWA Standards into the design and construction of the proposed pipelines connecting the biosolids handling facilities.

Seismic Considerations

In California, an earthquake can cause injury or property damage by: (1) rupturing the ground surface, (2) violently shaking the ground, (3) causing the underlying ground to fail due to liquefaction, or (4) causing enough ground motion to initiate slope failures or landslides, any of which could damage or destroy structures. The checklist items in Appendix G of the CEQA Guidelines, which provide the basis for most of the significance criteria above, reflect the potential for large earthquakes to occur in California and recommend analysis of the susceptibility of the project sites to seismic hazards and the potential for the proposed program to exacerbate the effects of earthquake-induced ground motion at the project sites and surrounding areas. Impacts associated with seismic hazards would be considered significant if the potential effects of an earthquake on a particular site could not be mitigated by an engineered solution. The significance criteria do not require elimination of the potential for structural damage from seismic hazards. Rather, the criteria require an evaluation of whether significant seismic hazards could be minimized through engineering design solutions that would reduce the associated risk of loss, injury, or death.

State and local code requirements ensure buildings and other structures are designed and constructed to withstand major earthquakes, thereby reducing the risk of collapse and the associated risks to human health and safety and private property. The code requirements have been developed through years of study of earthquake response and the observed performance of structures during significant local earthquakes and others around the world. The proposed program would be required to comply with the CBC and the *CGS Guidelines for Evaluating and Mitigating Seismic Hazards* (Special Publication 117A) (CGS, 2008) which provides guidance for evaluating and mitigating seismic hazards as required by the Public Resources Code Section 2695(a).

Impacts Discussion

Earthquakes

Impact 3.5-1: The proposed program would have a less than significant and less than cumulatively considerable effect on exposing people or structures to adverse geologic effects, including the risk of loss, injury or death involving strong seismic ground shaking, or seismic-related ground failure, including liquefaction.

Program Impact Analysis

Construction

Fault Rupture

The program area is not within a designated Alquist-Priolo Earthquake Fault Zone (AP Zone). However, the program area is located within an area with active splays of the Newport-Inglewood fault. Recent geotechnical studies conducted on the program area by Kleinfelder (2017) have

identified the presence of fault traces associated with the Newport-Inglewood fault zone directly under the program area. Figure 3.5-1 identifies seven faults splays within the program area; one portion of a fault splay is considered "Potentially Active", while two other splays are considered "Active Faults" (Kleinfelder, 2017). Thus, the impacts associated with ground fault rupture resulting from a seismic event could be potentially significant.

The structural elements of the program would undergo appropriate design-level geotechnical evaluations prior to final design and construction as required to comply with the CBC. The geotechnical engineer, as a registered professional with the State of California, is required to comply with the CBC and local codes while applying standard engineering practice and the appropriate standard of care required for projects in the Orange County area. The California Professional Engineers Act (Building and Professions Code Sections 6700-6799), and the Codes of Professional Conduct, as administered by the California Board of Professional Engineers and Land Surveyors, provides the basis for regulating and enforcing engineering practice in California.

Further, it should be noted that the primary objective of the proposed program is to reduce the structural and seismic risk for onsite biosolids structures over time. The demolition and redevelopment of aging facilities such as the digesters would reduce the likelihood of structural damage due to seismic events. Adherence to the CBC standards would ensure the strongest structure feasible at the proposed locations, with no increased risk to human life. Impacts related to the risk of loss, injury, or death involving fault rupture would be reduced to less than significant.

Seismic Ground Shaking

The program area lies within a region that is seismically active. In the event of an earthquake in Southern California, some seismic ground shaking would likely be experienced in the program area sometime during the operational life of the projects. As discussed, the Newport-Inglewood fault zone is a known active fault within the program area and is capable of producing earthquakes. The Newport-Inglewood-Rose Canyon fault is capable of generating a magnitude (Mw) 7.1 earthquake and has an estimated slip rate of 0.5 to 2.0 millimeters per year. Ground shaking could result in structural damage to new facilities, which in turn could affect operation of related systems. Most of the proposed facilities are non-habitable; however, the existing full time employees would be on-site and may need to access the various facilities for maintenance or manual control purposes. Therefore, structural and mechanical failure of facilities onset by seismic ground shaking would continue to potentially threaten the safety of on-site workers. As discussed above, OCSD would design the proposed facilities in conformance with applicable standards established by the CBC. These design standards consider proximity to potential seismic sources and the maximum anticipated groundshaking possible. Compliance with these building safety design standards would reduce the potential to threaten the safety of existing on-site workers, and therefore, reduce the potential impacts associated with groundshaking to less than significant.

Liquefaction

The program area is located within a liquefaction hazard zone due to its younger alluvial soils (Figure 3.5-2) (Kleinfelder, 2017). Thus, in the event of a large earthquake with a high acceleration of seismic shaking, the potential for liquefaction exists.

As discussed above, the proposed program components would undergo a geotechnical investigation and be designed to resist damage from seismic shaking. As part of the proposed program, all geotechnical recommendations provided by the project geotechnical engineer would be incorporated into project designs in areas where liquefiable soils are identified. Solutions to rectify liquefaction are modern engineering approaches used throughout California and are considered standard industry practice. Methods to correct liquefiable soils include removal and replacement of problematic soils, the use of pile foundations, and drainage columns to reduce saturated conditions. The geotechnical investigation and corrective actions for potential liquefiable soils, where needed, would be based on the CGS Special Publication 117A (see Seismic Hazards Mapping Act discussion in Section 3.6.2). The program structures would be subject to the CBC which controls the design and location of buildings and structures in order to safeguard the public and reduce potential impacts related to liquefaction to less than significant.

Operation

Impacts would be the same as those identified above for construction.

Significance Determination before Mitigation: Less than Significant

Cumulative Impact Analysis

Future cumulative development within the surrounding cities (see Table 3-2 in Chapter 3 of this Draft PEIR) may experience impacts related to fault rupture, strong seismic shaking, and liquefaction within the program vicinity. Because all structural elements of the program would undergo appropriate design-level geotechnical evaluations prior to final design and construction, structural and seismic risk of onsite biosolids structures would be reduced. One of the main objectives of the proposed program is to reconstruct facilities to the appropriate standards in order to increase the structural integrity of facilities and decrease potential risk to human life. The proposed program would reduce potential risks associated with strong seismic ground shaking and seismic-related ground failure; therefore, the proposed program's contribution to potential cumulative impacts regarding seismic risks including liquefaction, would be considered less than cumulatively considerable.

Significance Determination before Mitigation: Less than Significant

Mitigation Measures

Program Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

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Soil Erosion or Topsoil Loss

Impact 3.5-2: The proposed program would have a less than significant impact and less than cumulatively considerable impacts from soil erosion or the loss of topsoil.

Program Impact Analysis

Construction

Construction of the proposed facilities would include activities such as excavation and grading that could result in soil erosion during rain or high wind events. Such construction activities would need to comply with South Coast Air Quality Management District (SCAQMD) Rule 403 for dust control that would ensure the prevention and/or management of wind erosion and subsequent topsoil loss. (See Section 3.2, Air Quality for information about SCAQMD Rule 403.) Compliance with SCAQMD Rule 403 would ensure that construction activities generating wind-induced soil erosion are below SCAQMD significance thresholds as stated and discussed in more detail in Chapter 3.2, Air Quality. For a discussion of potential impacts associated with waterborne erosion, please see Section 3.8, Hydrology and Water Quality.

To prevent erosion associated with runoff from the construction area for each individual project, OCSD would be required to prepare and implement a SWPPP in accordance with the requirements of the statewide Construction General Permit (2009-0009-DWQ, NPDES No. CAS000002) (See Section 3.8 Hydrology and Water Quality for a detailed explanation of the CGP) The SWPPP would identify best management practices to control erosion, sedimentation, and hazardous materials potentially released from construction sites into surface waters. Compliance with the CGP, required SWPPP, and identified best management practices would ensure soil erosion and loss of topsoil impacts would be reduced to less than significant.

Operation

Once the proposed facilities are constructed, activities that increase the likelihood of top soil loss and soil erosion such as excavation and grading would not take place; therefore, operational impacts regarding significant soil erosion or top soil loss are not expected to occur.

Significance Determination before Mitigation: Less than Significant

Cumulative Impact Analysis

As future cumulative developments are constructed, potential soil runoff and wind erosion impacts could occur at those project sites. The proposed program would implement best management practices as specified in the OCSD SWPPP. These best management practices would control erosion and sedimentation, thereby ensuring that soils would not migrate to nearby locations or into surface waters. Therefore, the proposed program's contribution to potential cumulative impacts regarding soil erosion or top soil loss in the program vicinity would be considered less than cumulatively considerable.

Significance Determination before Mitigation: Less than Significant

Mitigation Measures

Program Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

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Unstable Geologic Location

Impact 3.5-3: The proposed program would have a less than significant impact and less than cumulatively considerable instability impact because the program could be located on a geologic unit or soil that is unstable or that would become unstable as a result of the proposed program and potentially result in on-or off-site landslide, subsidence, or collapse.

Program Impact Analysis

Construction

Non-seismically-induced geologic hazards such as landslides, lateral spreading, settlement, and slope failure can be caused by unstable soils. 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 program area is not in an area that is subject to subsidence as identified in the City of Fountain Valley General Plan and City of Huntington Beach General Plan (City of Fountain Valley, 1995 and City of Huntington Beach, 2017). Therefore, no impacts related to subsidence are anticipated with the implementation of the OCSD BMP.

The program area is subject to liquefaction as discussed under Impact 3.5-1, and could result in collapsible soils. Because the program area is subject to liquefaction, there is also a potential for lateral spreading. No on- or off-site landslides would occur on the program area because the sites of Plant No.1 and Plant No. 2 are relatively flat. Due to the characteristics of the onsite soils and geology, the proposed program could be exposed to liquefaction, collapsible soils and lateral spreading and result in unstable soils.

Although there is a potential for unstable soils, the proposed program would be subject to the CBC which controls the design and location of facilities in order to safeguard the public and reduce potential unstable soils impacts. The proposed program would incorporate engineering

design features to remediate potential significant impacts associated with liquefaction, collapsible soils, and lateral spreading. Therefore, the implementation of the proposed program would result in less than significant impacts associated with unstable soils.

Operation

Impacts would be the same as those identified above for construction.

Significance Determination before Mitigation: Less than Significant

Cumulative Impact Analysis

As future cumulative developments are constructed, there is a potential for unstable soils to be encountered; therefore, cumulative development could result in impacts related to liquefaction, collapsible soils and lateral spreading. Each structural component of the proposed program would be designed specifically to remediate potential impacts associated with liquefaction, collapsible soils, and lateral spreading. The proposed program would not introduce new sources of unstable soils into the program vicinity; therefore, the program's contribution to cumulative impacts regarding unstable soils would be less than cumulatively considerable.

Significance Determination before Mitigation: Less than Significant

Mitigation Measures

Program Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

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Expansive Soil

Impact 3.5-4: The proposed program would have a less than significant impact and less than cumulatively considerable impact to life or property due to expansive soils or corrosive soils.

Program Impact Analysis

Construction

When expansive soils swell, the change in volume can exert significant pressures on loads that are placed on them, such as loads resulting from structure foundations or underground utilities, and can result in structural distress and/or damage. The predominate soil association within the program area is the Heuneme-Bolsa Association, a nearly level, excessively drained fine sand loams located on alluvial fans and floodplains. The soils are characterized as having a moderate-to-high shrink-swell potential (City of Huntington Beach, 2017; OCWD, 2016). The presence of

expansive soils could decrease the structural stability of the proposed program facilities, which could result in structural or operational failure of proposed facilities and or threaten the health and safety of on-site workers. Such impacts are considered potentially significant.

However, as described above, all geotechnical recommendations provided by the project geotechnical engineer would be incorporated into projects' designs. The geotechnical investigation would provide corrective actions for potential expansive soils. The program structures would be subject to the CBC which controls the design and location of facilities in order to safeguard the public and reduce potential impacts related to expansive soils to less than significant levels.

Operation

Impacts would be the same as those identified above for construction.

Significance Determination before Mitigation: Less than Significant

Cumulative Impact Analysis

Future cumulative development may experience significant impacts associated with expansive soils within the program vicinity. Each structural component of the proposed program would be designed specifically to reduce potential impacts associated with expansive soils. The proposed program would not introduce new sources of expansive soils into the program vicinity and would design all new facilities to safeguard the public; therefore, the program's contribution to cumulative impacts regarding expansive soils would be less than cumulatively considerable.

Significance Determination before Mitigation: Less than Significant

Mitigation Measures

Program Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

3.5.4 References

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3.6 Greenhouse Gas Emissions

This section provides a discussion of global climate change, existing regulations pertaining to global climate change, and potential greenhouse gas (GHG) emissions resulting from implementation of the proposed program. The methods of analyzing emissions described in this section are consistent with the recommendations of the South Coast Air Quality Management District (SCAQMD).

3.6.1 Environmental Setting

Climate

The proposed program is located in the County of Orange and within the South Coast Air Basin, which has a distinctive climate determined by its terrain and geographic location. The general region lies in the semi-permanent high-pressure zone of the eastern Pacific, resulting in a mild climate tempered by cool sea breezes with light average wind speeds. The usually mild climate is interrupted occasionally by periods of extremely hot weather, winter storms, or Santa Ana winds.

Climate Change Overview

Gases that trap heat in the atmosphere are called GHGs. The major concern with GHGs is that increases in their concentrations are causing global climate change. Global climate change is a change in the average weather on Earth that can be measured by wind patterns, storms, precipitation, and temperature. Although there is disagreement as to the rate of global climate change and the extent of the impacts attributable to human activities, most in the scientific community agree that there is a direct link between increased emissions of GHGs and long term global temperature increases.

The State defines GHGs as carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), sulfur hexafluoride (SF_6), perfluorocarbons (PFCs), and hydrofluorocarbons (HFCs). Because different GHGs have different global warming potentials (GWPs) and CO_2 is the most common reference gas for climate change, GHG emissions are often quantified and reported as CO_2 equivalents (CO_2e). For example, CH_4 has a GWP of 25 (over a 100-year period); therefore, one metric ton (MT) of CH_4 is equivalent to 25 MT of CO_2 equivalents ($MTCO_2e$). The GWP ratios are available from the United Nations Intergovernmental Panel on Climate Change (IPCC) and are published in the *Fourth Assessment Report* (AR4). By applying the GWP ratios, project-related CO_2e emissions can be tabulated in metric tons (MT) per year. Large emission sources are reported in million metric tons (MMT) of CO_2e.[1]

Some of the potential effects in California of global warming may include loss in snow pack, sea level rise, more extreme heat days per year, more high ozone days, more forest fires, and more drought years (CARB, 2008). Globally, climate change has the potential to impact numerous environmental resources through potential, though uncertain, impacts related to future air temperatures and precipitation patterns. The projected effects of global warming on weather and

[1] A metric ton is 1,000 kilograms; it is equal to approximately 1.1 U.S. tons and approximately 2,204.6 pounds.

climate are likely to vary regionally, but are expected to include the following direct effects (IPCC, 2001):

- Higher maximum temperatures and more hot days over nearly all land areas;
- Higher minimum temperatures, fewer cold days and frost days over nearly all land areas;
- Reduced diurnal temperature range over most land areas;
- Increase of heat index over land areas; and
- More intense precipitation events.

Also, there are many secondary effects that are projected to result from global warming, including global rise in sea level, impacts to agriculture, changes in disease vectors, and changes in habitat and biodiversity. While the possible outcomes and the feedback mechanisms involved are not fully understood and much research remains to be done, the potential for substantial environmental, social, and economic consequences over the long term may be great.

California produced 441.5 $MMTCO_2e$ in 2014. Combustion of fossil fuel in the transportation sector was the single largest source of California's GHG emissions in 2014, accounting for approximately 37 percent of total GHG emissions in the state. This sector was followed by the industrial sector (24 percent) and the electric power sector (including both in-state and out-of-state sources) (20 percent) (CARB, 2016).

Impacts of GHGs are borne globally, as opposed to localized air quality effects of criteria air pollutants and toxic air contaminants. The quantity of GHGs that it takes to ultimately result in climate change is not precisely known; however, it is clear that the quantity is enormous, and no single project would measurably contribute to a noticeable incremental change in the global average temperature, or to global, local, or micro climates. From the standpoint of the CEQA, GHG impacts to global climate change are inherently cumulative.

Greenhouse Gas Emission Sources

According to much of the scientific literature on this topic, emissions of GHGs contributing to global climate change are attributable in large part to human activities associated with the transportation, industrial/manufacturing, utility, residential, commercial, and agricultural sectors. As mentioned previously, in California the transportation sector is the largest emitter of GHGs, followed by industrial processes (CARB, 2016). Emissions of CO_2 are by-products of fossil fuel combustion. CH_4, a highly potent GHG, results from off-gassing (the release of chemicals from nonmetallic substances under ambient or greater pressure conditions) and is largely associated with agricultural practices and landfills. N_2O is also largely attributable to agricultural practices and soil management. CO_2 sinks, or reservoirs, include vegetation and the ocean, which absorb CO_2 through sequestration and dissolution, respectively, and are two of the most common processes of CO_2 sequestration.

3.6.2 Regulatory Framework

Federal

On December 7, 2009, the USEPA Administrator made two distinct findings regarding GHGs under Section 202(a) of the federal Clean Air Act (CAA). The USEPA adopted a Final Endangerment Finding for the six defined GHGs: carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). The Endangerment Finding is required before USEPA can regulate GHG emissions under Section 202(a)(1) of the CAA. The USEPA also adopted a Cause or Contribute Finding in which the USEPA Administrator found that GHG emissions from motor vehicle and motor vehicle engines are contributing to air pollution, which is endangering public health and welfare. These findings do not themselves impose any requirements on industry or other entities. However, these actions were a prerequisite for implementing GHG emissions standards for vehicles.

On May 19, 2009, the President announced a national policy for fuel efficiency and emissions standards in the United States auto industry. The standards were jointly adopted by the USEPA and United States Department of Transportation (USDOT) in 2010 and apply to passenger cars and light-duty trucks for model years 2012 through 2016. The rule surpasses the prior Corporate Average Fuel Economy (CAFE) standards and requires an average fuel economy standard of 35.5 miles per gallon (mpg) and 250 grams of CO_2 per mile by model year 2016, based on USEPA calculation methods. In August 2012, standards were adopted for model year 2017 through 2025 passenger cars and light-duty trucks. By 2025, vehicles are required to achieve 54.5 mpg (if GHG reductions are achieved exclusively through fuel economy improvements) and 163 grams of CO_2 per mile. According to the USEPA, a model year 2025 vehicle would emit one-half of the GHG emissions from a model year 2010 vehicle (USEPA, 2012).

In September 2011, USEPA and the National Highway Traffic Safety Administration (NHTSA) developed a program designed to reduce fuel consumption (and GHG emissions by association) from medium- and heavy-duty vehicles. The Heavy Duty Vehicle Greenhouse Gas Regulation National Program was directed at model year 2014 to 2018 vehicles and is projected to reduce GHG emissions by approximately 270 million metric tons. In February 2014, the President directed the USEPA and NHTSA to extend the Heavy-Duty National Program beyond vehicle model year 2018, to further reduce fuel consumption through the application of advanced technologies. The USEPA and the NHTSA, in collaboration with California Air Resources Board (CARB), issued a notice of proposed rulemaking in June 2015. Requirements of this program apply to heavy- and medium-duty trucks used during proposed construction activities.

Other specific GHG regulations that USEPA has adopted to-date are as follows:

- **40 CFR Part 98. Mandatory Reporting of Greenhouse Gases Rule.** This rule requires mandatory reporting of GHG emissions for facilities that emit more than 25,000 metric tons of CO_2e emissions per year (USEPA, 2013). Additionally, reporting of emissions is required for owners of SF_6- and PFC-insulated equipment when the total nameplate capacity of these insulating gases is above 17,280 pounds.

- **40 CFR Part 52. Proposed Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule.** USEPA recently mandated to apply Prevention of

Significant Deterioration (PSD) requirements to facilities whose stationary source CO_2e emissions exceed 75,000 tons per year (USEPA, 2010).

The USEPA also recently released a proposed rule which would regulate GHG emissions from existing power plants across the nation. The proposed rule establishes state-by-state 2030 GHG goals.

State

In response to growing scientific and political concern regarding global climate change, in the last decade California has promulgated a series of executive orders, laws, and regulations aimed at reducing both the level of GHGs in the atmosphere and emissions of GHGs from commercial and private activities within the State.

California Air Resources Board

The CARB is a part of the EPA responsible for the coordination and administration of both federal and state air pollution control programs within California. In this capacity, CARB conducts research, sets state ambient air quality standards (California Ambient Air Quality Standards or CAAQs), compiles emission inventories, develops suggested control measures, and provides oversight of local programs. CARB establishes emissions standards for motor vehicles sold in California, consumer products (such as hairspray, aerosol paints, and barbecue lighter fluid), and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions. CARB has primary responsibility for the development of California's State Implementation Plan (SIP), for which it works closely with the federal government and the local air districts. The SIP is required for the State to take over implementation of the federal CAA.

In 2004, CARB adopted an Airborne Toxic Control Measure (ACTM) to limit heavy-duty diesel motor vehicle idling to reduce public exposure to diesel particulate matter and other Toxic Air Contaminants (Title 13 California Code of Regulations, Section 2485) (TACs). The measure applies to diesel-fueled commercial vehicles with gross vehicle weight ratings greater than 10,000 pounds that are licensed to operate on highways, regardless of where they are registered. This measure generally does not allow diesel-fueled commercial vehicles to idle for more than five (5) minutes at any given location with certain exemptions for equipment in which idling is a necessary function such as concrete trucks. While this measure primarily targets diesel particulate matter emissions, it has co-benefits of minimizing GHG emissions from unnecessary truck idling.

In 2008, CARB approved the Truck and Bus regulation to reduce particulate matter and nitrogen oxide emissions from existing diesel vehicles operating in California. CARB has also promulgated emission standards for off-road diesel construction equipment of greater than 25 horsepower such as bulldozers, loaders, backhoes and forklifts, as well as many other self-propelled off-road diesel vehicles. The regulation adopted by the CARB on July 26, 2007, aims to reduce emissions by installation of diesel soot filters and encouraging the retirement, replacement, or repower of older, dirtier engines with newer emission controlled models. Refer to Section 3.2, *Air Quality*, for additional details regarding these regulations. While these regulations primarily target reductions in criteria air pollutant emission, they have co-benefits of minimizing GHG emissions due to improved engine efficiencies.

California Greenhouse Gas Reduction Targets

The Governor announced on June 1, 2005, through Executive Order S-3-05, the following GHG emission reduction targets:

- By 2010, California shall reduce GHG emissions to 2000 levels;
- By 2020, California shall reduce GHG emissions to 1990 levels; and
- By 2050, California shall reduce GHG emissions to 80 percent below 1990 levels.

In accordance with Executive Order S-3-05, the Secretary of CalEPA is required to coordinate efforts of various agencies, which comprise the California Climate Action Team (CAT), in order to collectively and efficiently reduce GHGs. These agencies include CARB, the Secretary of the Business, Transportation and Housing Agency, Department of Food and Agriculture, the California Natural Resources Agency, the California Energy Commission, and the Public Utilities Commission. The CAT provides periodic reports to the Governor and Legislature on the state of GHG reductions in the state as well as strategies for mitigating and adapting to climate change. The first CAT Report to the Governor and the Legislature in 2006 contained recommendations and strategies to help meet the targets in Executive Order S-3-05. The 2010 CAT Report, finalized in December 2010, expands on the policies in the 2006 assessment. The new information detailed in the CAT Report includes development of revised climate and sea-level projections using new information and tools that became available and an evaluation of climate change within the context of broader social changes, such as land-use changes and demographic shifts.

On April 29, 2015, Governor Brown issued Executive Order B-30-15. Therein, the Governor directed the following:

- Established a new interim statewide reduction target to reduce GHG emissions to 40 percent below 1990 levels by 2030.
- Ordered all state agencies with jurisdiction over sources of GHG emissions to implement measures to achieve reductions of GHG emissions to meet the 2030 and 2050 reduction targets.
- Directed CARB to update the Climate Change Scoping Plan to express the 2030 target in terms of million metric tons of carbon dioxide equivalent.

CARB subsequently expressed its intention to initiate the second update to the Climate Change Scoping Plan update during 2015 and 2016 with adoption scheduled thereafter.

California Health and Safety Code, Division 25.5 – California Global Warming Solutions Act of 2006

In 2006, the California State Legislature adopted Assembly Bill (AB) 32 (codified in the California Health and Safety Code [HSC], Division 25.5 – California Global Warming Solutions Act of 2006), which focuses on reducing GHG emissions in California to 1990 levels by 2020. HSC Division 25.5 defines GHGs as CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6 and represents the first enforceable statewide program to limit emissions of these GHGs from all major industries with penalties for noncompliance. The law further requires that reduction measures be

technologically feasible and cost effective. Under HSC Division 25.5, CARB has the primary responsibility for reducing GHG emissions. CARB is required to adopt rules and regulations directing state actions that would achieve GHG emissions reductions equivalent to 1990 statewide levels by 2020.

As required by HSC Division 25.5, CARB approved the 1990 GHG emissions inventory, thereby establishing the emissions limit for 2020. CARB has determined the target, based on GWP values from the IPCC Fourth Assessment Report (AR4), for the 1990 GHG emissions inventory and 2020 GHG emissions limit is 431 $MMTCO_2e$. CARB updated the State's 2020 BAU emissions estimate to account for the effect of the 2007–2009 economic recession, new estimates for future fuel and energy demand, and the reductions required by regulation that were recently adopted for motor vehicles and renewable energy. CARB's updated 2020 BAU emissions estimate using the GWP values from the IPCC AR4 is 509.4 $MMTCO_2e$. Therefore, the emission reductions necessary to achieve the 2020 emissions target of 431 $MMTCO_2e$ would be 78.4 $MMTCO_2e$, or a reduction of GHG emissions by approximately 15.4 percent.

In 2016, the California State Legislature adopted Senate Bill (SB) 32 and its companion bill AB 197; both were signed by Governor Brown. SB 32 and AB 197 amends HSC Division 25.5 and establishes a new climate pollution reduction target of 40 percent below 1990 levels by 2030 and includes provisions to ensure the benefits of state climate policies reach into disadvantaged communities. CARB is in the process of preparing the second update to the Scoping Plan to reflect the 2030 target established in Executive Order B-30-15 and SB 32. The 2017 Scoping Plan Update discusses a Proposed Scenario and four alternatives. CARB states that the Proposed Scenario "is the clear choice to achieve the State's climate and clean air goals." (CARB 2017b) Under the Proposed Scenario, the majority of the reductions would result from continuation of the Cap-and-Trade regulation. Additional reductions are achieved from requiring 20 percent reduction of GHG emissions from the refinery sector, electricity sector standards (i.e., utility providers to supply 50 percent renewable electricity by 2030), doubling the energy efficiency savings at end uses, additional reductions from the Low Carbon Fuel Standard (LCFS), implementing the short-lived GHG strategy (e.g., hydrofluorocarbons), and implementing the mobile source strategy and sustainable freight action plan. The alternatives are designed to consider various combinations of these programs as well as consideration of a carbon tax in the event the Cap-and-Trade regulation is not continued.

Continuation of the Cap-and-Trade regulation (or carbon tax) is expected to cover approximately 34 to 76 percent of the 2030 reduction obligation (CARB 2017b). Under the Proposed Scenario, the short-lived GHG strategy is expected to cover approximately 13 to 26 percent. The Renewables Portfolio Standard with 50 percent renewable electricity by 2030 is expected to cover approximately 10 to 11 percent. The mobile source strategy and sustainable freight action plan includes maintaining the existing vehicle GHG emissions standards, increasing the number of zero emission vehicles and improving the freight system efficiency, and is expected to cover approximately 9 to 11 percent. The doubling of the energy efficiency savings, including demand-response flexibility for 10 percent of residential and commercial electric space heating, water heating, air conditioning and refrigeration, requires the CEC in collaboration with the California Public Utilities Commission (CPUC) to establish the framework for the energy savings target

setting. The CEC has proposed a schedule for establishing this framework and target setting by November 2017, which will outline the necessary actions that will need to occur in future years (CEC, 2016). The CEC states that workforce education and training institutions will be required to engage the building industry, map industry priorities for efficiency to major occupations that will provide services, identify workforce competency gaps, and quantify the work needed to build a workforce to implement high-quality efficiency projects at scale (CEC, 2016). Under the Proposed Scenario, CARB expects that the doubling of the energy efficiency savings by 2030 would cover approximately 7 to 8 percent of the 2030 reduction obligation. The other strategies would be expected to cover the remaining percentage of the 2030 reduction obligation.

Transportation Sector

In response to the transportation sector accounting for a large percentage of California's CO_2 emissions, AB 1493 (HSC Section 42823 and 43018.5), enacted on July 22, 2002, required CARB to set GHG emission standards for passenger vehicles, light duty trucks, and other vehicles whose primary use is non-commercial personal transportation manufactured in and after 2009. As discussed previously, the USEPA and USDOT adopted federal standards for model year 2012 through 2016 light-duty vehicles and standards for model year 2017 through 2025 vehicles. These standards are slightly different from California's Pavley Phase I and Phase II standards, but the State of California has agreed not to contest these standards, in part due to the fact that while the national standard would achieve slightly less reductions in California, it would achieve greater reductions nationally and is stringent enough to meet state GHG emission reduction goals. In 2012, CARB adopted regulations that allow manufacturers to comply with the national standards to meet state law.

Energy Sector

Established in 2002 under SB 1078, accelerated in 2006 under SB 107, and expanded in 2011 under SB 2, California's Renewables Portfolio Standard is an ambitious renewable energy standard. The Renewables Portfolio Standard requires that 33 percent of total retail sales of electricity be procured from eligible renewable sources by the end of 2020. Renewables Portfolio Standard requirements were conservatively excluded from emission calculations associated with electricity use. Although not directly applicable to the proposed program, this serves to illustrate the GHG regulatory framework.

Senate Bill (SB) 1368 was signed by Governor Schwarzenegger in September 2006. SB 1368 required the CPUC to establish a GHG emission performance standard for baseload generation from investor-owned utilities. CPUC adopted a GHG Emissions Performance Standard in January 2007. The California Energy Commission (CEC) adopted consistent regulations for implementing and enforcing SB 1368 for the state's publicly owned utilities in August 2007. These standards cannot exceed the GHG emission rate from a baseload combined-cycle natural-gas-fired plant. The legislation further requires that all electricity provided to California, including imported electricity, must be generated from plants that meet the standards set by the CPUC and CEC.

SB 97, enacted in 2007, directed the State Office of Planning and Research to develop CEQA Guidelines "for the mitigation of GHG emissions or the effects of GHG emissions." In December 2009, the Office of Planning and Research adopted amendments to the CEQA Guidelines,

Appendix G Environmental Checklist, which created a new resource section for GHG emissions and indicated criteria that may be used to establish significance of GHG emissions. Appendix F of the CEQA Guidelines states that, in order to ensure that energy implications are considered in project decisions, the potential energy implications of a project shall be considered in an EIR, to the extent relevant and applicable to the project. Appendix F further states that a project's energy consumption and proposed conservation measures may be addressed, as relevant and applicable, in the Project Description, Environmental Setting and Impact Analysis portions of technical sections, as well as through mitigation measures and alternatives. In accordance with Appendix F of the CEQA Guidelines, relevant information that addresses the energy implications of the proposed program is provided in Section 3.13, Utilities, Service Systems, and Energy Conservation, of this Draft PEIR.

Regional

SCAQMD

As a method for determining significance under CEQA, SCAQMD developed a draft tiered flowchart in 2008 for determining significance thresholds for GHGs 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 has not adopted a CEQA significance threshold, interim or otherwise, for GHG emissions associated with residential/commercial development.

Local

City of Fountain Valley

City of Fountain Valley Environmental Services Department

The City of Fountain Valley's Environmental Services Department works with the Orange County Cities Energy Partnership to identify and create projects to improve long term energy efficiency and sustainability throughout the local area. The City of Fountain Valley plans to reduce greenhouse emissions and energy consumption by 20 percent before 2020. Specific efforts by the Department include:

- Achieving Platinum partner status with SCE (community wide and government facilities)
- Carbon reporting by utilizing an energy management information system
- Installing energy efficient lighting, lighting and temperature controls, HVAC improvements
- Installing Energy Star rated appliances and benchmarking
- Measuring and verifying
- Monitoring local government utility accounts

City of Huntington Beach

General Plan Update Greenhouse Gas Reduction Plan

The City of Huntington Beach is currently in the process of updating the City's General Plan where the Final EIR regarding the General Plan Update was made available to the public in August 2017. Within the Update, the City outlines its GHG Reduction Program (GGRP) which details the strategies the City will implement to reduce its GHG's emissions. The strategies reflect

community values and objectives (including the goals and policies of the General Plan), in addition to accounting for feasibility of implementation and past successful GHG reduction efforts. The GGRP comprises of 42 GHG reduction strategies, 36 of which have measurable GHG reductions. The other six strategies do not directly lead to measurable GHG reductions, but supplement the other GHG reduction strategies and provide additional benefits to the community. The strategies are divided into the following nine categories:

- Land use
- Transportation
- Alternative fuels
- Renewable energy (RE)
- Energy efficiency (EE)
- Off-road equipment (OR)
- Water and wastewater (WW)
- Resource Management (RM)
- Community awareness (CA) March 2017

The 42 strategies of the GGRP are estimated to reduce emissions to approximately 16 percent below 2005 levels by 2020, and approximately 53 percent below the City's 2020 target GHG levels by 2040. For each GHG reduction strategy, the GGRP outlines the associated policies and implementation actions in the General Plan, and the City department responsible for implementing the strategy.

3.6.3 Impacts and Mitigation Measures

Significance Criteria

According to Appendix G of the *CEQA Guidelines*, a program would have a significant effect on GHG emissions if it would:

- Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment (see Impact 3.6-1, below); or
- Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs (see Impact 3.6-2, below).

Increased concentration of GHGs in the atmosphere has been linked to global warming, which can lead to climate change. Construction and operation of the proposed program would incrementally contribute to GHG emissions along with past, present, and future activities, and the CEQA Guidelines acknowledge this as a cumulative impact. As such, impacts of GHG emissions are analyzed here on a cumulative basis.

The California Supreme Court recently considered the CEQA issue of determining the significance of GHG emissions in its decision, *Center for Biological Diversity v. California Department of Fish and Wildlife and Newhall Land and Farming* (Newhall Land Farming Company) (2d Dist. 2014) 224 Cal.App.4h 1105 (Supreme Ct., Case No. S217763).

Under the Court's guidance, since neither the City of Fountain Valley nor the City of Huntington Beach have adopted a CEQA-qualified Climate Action Plan, compliance with a Climate Action Plan is not an applicable threshold. The City of Huntington Beach has a Draft GGRP, but it has not yet been adopted. Therefore, although no formal significance threshold for GHG emissions associated with development typical of the proposed program has been adopted by the State or SCAQMD at this juncture, Section 15064.7(c) of the CEQA Guidelines states "when adopting thresholds of significance, a lead agency may consider thresholds of significance previously adopted or recommended by other public agencies…" In December 2008, SCAQMD adopted a 10,000 $MTCO_2e$/year for industrial facilities, but only with respect to industrial projects where SCAQMD is the lead agency. Additionally, SCAQMD has proposed, but not adopted, a 3,000 MT/year CO_2e threshold for mixed use developments. While the proposed program does not fit neatly into either category, the more stringent of the two thresholds is used to determine significance.

Methodology

Neither of the cities or the SCAQMD has formally adopted a methodology for analyzing impacts related to GHG emissions on global climate change. Pursuant to *State CEQA Guidelines* Section 15064.4(a) advises lead agencies to "make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate the amount of GHG emissions resulting from a project," the construction and operational emissions associated with the proposed program have been quantified using methods described below.

The methodology used to analyze the existing conditions (baseline) contribution to global climate change included evaluating the operational GHG emissions that are currently being emitted from direct and indirect sources.

The methodology used to analyze the proposed program's contribution to global climate change includes evaluating the proposed program's total net annual GHG emissions (construction and operational) against SCAQMD's proposed GHG emissions efficiency threshold of 3,000 MT CO_2e, then qualitatively discuss compliance with State Executive Order S-3-05.

Construction Emissions

Construction of the proposed facilities within the proposed program has the potential to generate GHG emissions through the use of heavy-duty construction equipment, such as cranes and excavators, and through vehicle trips generated from worker trips, haul trucks, and vendor/material supply trucks traveling to and from the program area. The proposed program is divided into 9 separate construction projects that will occur over 20 to 22 years as detailed in Section 2.0 *Project Description* with buildout anticipated by 2040. For the purposes of this analysis, a maximum annual construction scenario was determined based on the anticipated construction for each phase. The detailed construction assumptions for the maximum annual emissions estimates are provided in Appendix B of this Draft PEIR. As a conservative estimate, the proposed program was anticipated to use a default 2018 equipment fleet. Total excavation during the 20 years of construction was estimated at 56,534 cubic yards, with 48,400 cubic yards of soil export, 44,200 cubic yards of demolition export, and 3,200 cubic yards of import. The

proposed program is anticipated to have a maximum of 6,882 haul trucks, 600 total vendor deliveries, and 37,440 employees accessing the site during the 20 years of construction activities.

Annual emissions during construction are forecasted by assuming a conservative estimate of construction activities (i.e., assuming a construction fleet of 2018) and applying the mobile source emissions factors. The emissions are estimated using the CalEEMod (Version 2016.3.1) software, an emissions inventory software program recommended by the SCAQMD. CalEEMod is based on outputs from OFFROAD and EMFAC, which are emissions estimation models developed by CARB and used to calculate emissions from construction activities, including on- and off-road vehicles. The input values used in the CalEEMod modeling analysis were adjusted to be project-specific based on construction information provided by OCSD. These values were then applied to the construction phasing assumptions used to generate GHG emissions values for the maximum construction year. Detailed construction equipment lists, construction scheduling, and emissions calculations are provided in Appendix B of this Draft PEIR.

Operational Emissions

Operational activities would consist of the operation of the Biosolids Master Plan facilities and upgrades. Operation of most proposed facilities, such as digesters, food waste facilities, electrical rooms, and piping, would only require periodic maintenance, not daily staffing or deliveries. The proposed facilities are anticipated to have the same number of employees as the existing facilities. Therefore, the proposed program would not require a net increase in OCSD full-time employees for operation and maintenance of new facilities.

Truck trips would also result in operational emissions associated with the proposed program. The amount of biosolids will decrease in the year 2040 compared to existing conditions as a result of the implementation of the dewatering centrifuge system that was recently approved and is currently under construction. With the dewatering centrifuge system, drier biosolids cake material would be produced and with less cake material there would be a decrease in trucks exporting the material from Plant No. 2. As detailed in Tables 2-16 and 2-17, as well as summarized in Appendix B of this Draft PEIR, the implementation of the proposed BMP would result in the addition of 44 daily one-way trips of importing food waste and 10 additional one-way trips of Biosolids generated from the imported food waste. Therefore, the proposed program's import of food waste and export of biosolids would result in the increase of 54 daily one-way trips.

In addition to a slight increase in daily truck trips associated with the proposed program, the delivery locations (end users) of the biosolids cake material is proposed to change because the proposed program would produce Class A Biosolids which provides OCSD greater options for potential end users.

Under existing operational activities, there are 22,344 annual truck deliveries and export, resulting in 4,350,400 vehicle miles traveled. In 2040 without the program and with the dewatering centrifuge system, truck trips would be reduced to 18,688 annual trips resulting in 3,737,600 vehicle miles traveled. With full buildout of the proposed program in 2040 (including the dewatering centrifuge system), the proposed program would result in 34,418 annual trips resulting in 3,998,760 vehicle miles traveled. The proposed program would result in an increase

of 15,730 trips due to the food waste compared to existing activities and would result in an overall increase of approximately 351,640 total annual vehicle miles compared to existing conditions and an increase of approximately 261,160 total annual vehicle miles compared to the current projected VMT in the Year 2040 without the program.

The proposed program is anticipated to use the same amount of chemicals as the existing facilities. Therefore, the proposed program would not change the number of truck trips or length of truck trips associated with chemical deliveries to Plant No. 2.

Similar to the existing biosolids facilities, the proposed biosolids facilities would require varying amounts of energy during operation. Currently, the biosolids process results in the flaring of 13.1 million standard cubic feet of gas. With the proposed program facilities, OCSD estimates that the same amount of gas (13.1 million cubic feet of gas) would be flared. Flaring of the gas does not result in GHG emissions. Due to the upgraded biosolids facilities, the proposed facilities are more energy efficient than the existing facilities, and the proposed food waste facility would not generate a net demand for energy from outside of Plant No. 2 that cannot be supported by the existing CenGen facility at Plant No. 2. Therefore, the proposed Biosolids Master Plan program would not increase the need for energy, and therefore, no increase in the generation of energy for the proposed program is assumed. All assumptions are detailed in Appendix B of this Draft PEIR.

Impacts Discussion

Greenhouse Gas Emissions

Impact 3.6-1: The proposed program would result in less than significant and less than cumulatively considerable effects associated with greenhouse gas emissions because the proposed program would not generate greenhouse gas emissions, either directly or indirectly, that would have a significant impact on the environment.

Program Impact Analysis

Construction

Construction-related GHG emissions for the proposed program were estimated using the same assumptions that are summarized in the Methodology Section and detailed in Appendix B. Total estimated construction-related GHG emissions for the proposed program are shown in **Table 3.6-1**. As shown, the proposed program's total estimated GHG emissions during the 20 to 22 years of construction would be approximately 19,362 $MTCO_2e$. Based on the methodology identified by SCAQMD, this total GHG emissions during project construction activities would result in approximately 645 $MTCO_2e$ per year after amortization over 30 years.

TABLE 3.6-1
ESTIMATED TOTAL CONSTRUCTION-RELATED GHG EMISSIONS

Construction Year	Estimated CO_2e Emissions
Total	19,362 (MT)
Annual Construction (Amortized over 30 years)	645 (MT/Yr)

CO2e= carbon dioxide equivalent; MT =metric tons; MT/yr = metric tons per year.
SOURCE: ESA Modeling 2017 (Appendix B)

Operation

The estimated operational GHG emissions resulting from the operational activities of the proposed program are shown in **Table 3.6-2**. In accordance with SCAQMD's recommendation, the proposed program's amortized construction-related GHG emissions from Table 3.6-1 are added to the operational emissions estimate in order to determine the proposed program's total annual GHG emissions. As shown in Table 3.6-2, when compared to existing conditions, the total net operational emissions, including amortized construction, would result in a net emission reduction of 1,101 $MTCO_2e$ per year. This net change would not exceed the second requirement of SCAQMD's threshold of 3,000 $MTCO_2e$ per year. Total net emissions compared to the Year 2040 Without program emissions, including amortized construction, would result in a net emissions increase of 1,238 $MTCO_2e$ per year compared to the Year 2040 Without Program emissions. This net increase would also not exceed the second requirement of SCAQMD's threshold of 3,000 $MTCO_2e$ per year. Therefore, the net increase in GHG emissions resulting from the implementation of the proposed program is considered to be less than significant.

Executive Order S-3-05 and B-30- 15 requires the reduction of emissions beyond the 2020 targets that have been adopted or proposed by state and local agencies. Specifically, S-3-05 requires reductions of 80 percent below 1990 levels by 2050. Because the proposed program buildout is 2040, this threshold is not applicable to the proposed program. However, as shown in Table 3.3-2, the proposed program would increase greenhouse gas emissions by 1,238 $MTCO_2e$ per year compared to the existing 2040 projections which is less than the 3,000 $MTCO_2e$ per year threshold and when compared to existing levels of greenhouse gas emissions, the level of greenhouse gas emissions would reduce by 1,101 $MTCO_2e$ per year. This reduction in greenhouse gas emissions would further the state's ability to reach the progressive 2050 goal.

Significance Determination before Mitigation: Less than Significant

Cumulative Impact Analysis

For greenhouse gas emissions, the impact analysis provided above for the proposed program is a cumulative impact. Therefore, similar to the proposed program impact, the proposed program would result in a less than cumulatively considerable impact associated with the generation of greenhouse gas emissions.

Significance Determination before Mitigation: Less than Significant

Mitigation Measures

Program Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Cumulative Measures

No mitigation measures are required.

TABLE 3.6-2
ESTIMATED CONSTRUCTION- AND OPERATIONS-RELATED GHG EMISSIONS

Emission Source	Estimated Emissions CO_2e (MT/yr)
Existing 2016 Emissions	
Area Sources, Solid Waste, and Water Consumption	29
Mobile & Offroad Sources	8,474
Total	8,504
Buildout Year 2040 With Program Emissions	
Operational	
Area Sources, Solid Waste, and Water Consumption	22
Mobile & Offroad Sources	6,736
Total Operational	*6,758*
Annual Amortized Construction	645
Total 2040 With Program Emissions	7,403
Buildout Year 2040 Without Program Emissions	
Area Sources, Solid Waste, and Water Consumption	29
Mobile & Offroad Sources	6,136
Total Buildout Year 2040 Without Program Emissions	6,165
Buildout Year 2040 With Program Increase/Decrease Over Existing 2016	
Total Buildout Year 2040 With Program Emissions	7,403
Total Existing 2016 Emissions	8,504
Total Program Buildout Increase/Decrease Over Existing (2040 with Program – Existing)	*-1,101*
Threshold	3,000
Exceed Threshold?	No
Significant?	No
Buildout Year 2040 With Program Increase/Decrease Over Buildout Year 2040 Without Program	
Total Buildout Year 2040 With Program Emissions	7,403
Total Buildout Year 2040 Without Program Emissions	6,165
Total Program Buildout Increase/Decrease Over 2040 Without Program (2040 with Program – 2040 without Program)	1,238
Threshold	3,000
Exceed Threshold?	No
Significant?	No

CO2e= carbon dioxide equivalent; MT/yr = metric tons per year; %=percent.
Due to rounding, numbers may not add up exactly.
SOURCE: ESA Modeling 2017 (Appendix B)

Significance Determination after Mitigation: Less than Significant

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Conflict with Plan, Policy, or Regulation that Reduces Greenhouse Gas Emissions

Impact 3.6-2: The proposed program would result in less than significant and less than cumulatively considerable effects on a greenhouse gas plan because the proposed program would not conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

Program Impact Analysis

Consistency with California Air Resources Board Scoping Plan

The CARB Scoping Plan was designed to reduce GHG emissions from new land use projects. The proposed program would upgrade the existing biosolids treatment facilities. The proposed facilities would be subject to the Scoping Plan requirements. Out of the Recommended Actions contained in CARB's Scoping Plan, the actions that are most applicable to the proposed program would be Actions E-1 (increased Utility Energy efficiency programs including more stringent building and appliance standards), GB-1 (Green Building), and W-1 (Increased Water Use Efficiency). CARB Scoping Plan Action E-1, together with Action GB-1 (Green Building), aims to reduce electricity demand by increased efficiency of Utility Energy Programs and adoption of more stringent building and appliance standards, while Action W-1 aims to promote water use efficiency. The proposed program would be designed to comply with the CALGreen Code to ensure that the new on-site developments would use resources (energy, water, etc.) efficiently and reduce pollution and waste. Therefore, the proposed program would be consistent with the Scoping Plan measures through incorporation of stricter building and appliance standards.

Consistency with SB 375 & SCAG Sustainable Communities Strategy

The key goal of the Sustainable Communities Strategy (SCS) is to achieve GHG emission reduction targets through integrated land use and transportation strategies. The focus of these reductions is on transportation and land use strategies that influence vehicle travel. This type of program was not the focus of SB 375 since it is not a land use program. Regardless, with the increased efficiencies in operations and the change in the end products by the production of Class A biosolids, the proposed program would reduce vehicle miles traveled. Therefore, the proposed program would not conflict with the overall goals of SB 375.

Consistency with City of Fountain Valley Environmental Services Department

The City of Fountain Valley's Environmental Services Department works with the Orange County Cities Energy Partnership to identify and create projects to improve long-term energy efficiency and sustainability throughout the local area. The City of Fountain Valley plans to reduce greenhouse emissions and energy consumption by 20 percent before 2020. The proposed program has a CenGen facility that will generate the energy needed for the proposed program, therefore not requiring additional energy from SCE. Additionally, the proposed program will increase the efficiencies of the new building as well as the operational processes, therefore, reducing energy requirements for the biosolids facilities. Because the proposed program does not require additional

energy from SCE, the proposed program will not hinder the City's attainment of its goal to reduce energy consumption by 20 percent before 2020.

Consistency with City of Huntington Beach General Plan Update Greenhouse Gas Reduction Plan

The 42 strategies of the Huntington Beach GGRP are estimated to reduce emissions to approximately 16 percent below 2005 levels by 2020, and approximately 53 percent below the City's 2020 target GHG levels by 2040. For each GHG reduction strategy, the GGRP outlines the associated policies and implementation actions in the General Plan, and the City department responsible for implementing the strategy. The implementation of the proposed program will increase process efficiencies, produce Class A biosolids that are higher quality and have a greater number of end users compared to Class B biosolids, and reduce the vehicle miles traveled annually from the proposed program. This reduction in overall greenhouse gas emissions with the implementation of the proposed program will further Huntington Beach's ability to reach their 2040 reduction goals.

As discussed above, the proposed program would be consistent with the CARB Scoping Plan, SB 375 and with GHG reduction plans for both Cities in which the proposed program is located. Therefore, the proposed program would have a less than significant impact related to applicable GHG plans and policies.

Significance Determination before Mitigation: Less than Significant

Cumulative Impact Analysis

For consistency with existing plans and policies related to greenhouse gas emissions, the impact analysis provided above for the proposed program is a cumulative impact. Therefore, similar to the proposed program impact, the proposed program would result in a less than cumulatively considerable impact related to applicable GHG plans and policies.

Significance Determination before Mitigation: Less than Significant

Mitigation Measures

Program Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

3.6.4 References

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3.7 Hazards and Hazardous Materials

This section describes and evaluates issues related to hazards and hazardous materials within the program area. Discussed are the physical and regulatory settings, the baseline for determining environmental impacts, the criteria used for determining the significance of environmental impacts, and potential impacts and appropriate mitigation measures associated with implementation of the BMP, if necessary.

Definition of Hazardous Materials

For the purposes of this analysis, the term "hazardous materials" refers to both hazardous substances and hazardous wastes. Under federal and state laws, materials, including wastes, may be considered hazardous if they are specifically listed by statute as such or if they exhibit one of the following four characteristics: toxicity (causes adverse human health effects), ignitability (has the ability to burn), corrosivity (causes severe burns or damage to materials), or reactivity (can react violently, explode, or generate vapors). The term "hazardous material" is defined in law as any material that, because of quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment [California Health and Safety Code, Section 25501(n)].

In some cases, past industrial or commercial activities may have resulted in spills or leaks of hazardous materials, resulting in soil and/or groundwater contamination. Excavated soils having concentrations of certain contaminants, such as lead, gasoline, or industrial solvents that are higher than certain acceptable levels must be managed, treated, transported, and/or disposed of as a hazardous waste. The California Code of Regulations (CCR), Title 22, Sections 66261.10 through 66261.24, contains technical descriptions of characteristics that would cause a soil to be designated a hazardous waste.

Federal and state laws require that hazardous materials be specially managed. California regulations are compliant with federal regulations and in most cases, are more stringent. Regulations also govern the management of potentially hazardous building materials, such as asbestos-containing materials, lead-based paint, and polychlorinated biphenyls (PCBs) during demolition activities that could potentially disturb existing building materials.

3.7.1 Environmental Setting

The program area is located within Plant No 1. and Plant No. 2, in the cities of Fountain Valley and Huntington Beach, respectively. The majority of the individual projects would be implemented within Plant No. 2. No structures are proposed to be demolished at Plant No. 1. Hazardous substances are stored and used during everyday plant operations.

Hazardous Materials

Hazardous chemicals used during the wastewater treatment process include the following:

- **Hydrogen peroxide (H_2O_2)** is used for odor control and characterized as a moderately powerful oxidizing agent. H_2O_2 is a stable, easy-to-use chemical and a good source of active oxygen; it can also oxidize numerous chemical compounds and control anaerobic organisms.
- **Caustic Soda [Sodium hydroxide (NaOH)]** is used in air scrubbers to neutralize hydrogen sulfide odors and is considered a very hazardous chemical. NaOH can cause severe burns to the skin and clothing, and can corrode equipment when in contact with NaOH. As a result of its corrosive property, the chemical is a worker safety hazard; however, does not vaporize or pose threat to offsite receptors.
- **Ferric chloride** is added to wastewater to enhance primary sedimentation in advanced primary treatment. The ferric chloride solution contains residual hydrochloric acid which is used to lower the effluent pH to enhance the efficiency of the bleach and increase bacteria-reduction rates.
- **Sodium hypochlorite [Bleach (NaOCl)]** is used for disinfection and process control. In the event of a spill, chlorine vapors can be released, although chlorine vapor production is minimal.
- **Sodium bisulfite ($NaHSO_3$)** is used as a dechlorination agent.
- **Liquid Oxygen** is stored and used onsite in the aeration basins. Liquid oxygen is considered a hazardous chemical and identified as a fire and explosion hazard. Worker safety training is conducted for those working within the activated sludge facility.
- **Miscellaneous Chemicals** to wash, clean, lubricate, and maintain equipment**.**

Further, various non-hazardous materials are used during the wastewater treatment process, including but not limited to Anionic and Cationic polymers, which are used in the dewatering and Dissolved Air Flotation (DAF) Units. These non-hazardous chemicals are added in primary treatment and in the solid handling processes to facilitate solids removal.

Hazardous Building Materials

Hazardous materials, such as asbestos-containing materials (ACM), lead-based paint (LBP), and polychlorinated biphenyls (PCBs), may be contained in building materials and released during demolition activities. The likelihood of hazardous materials in building components can be generally assessed based on the age of the buildings, as these materials were phased out of use during the 1970s and 1980's. Some of the structures to be demolished at Plant No. 2 were constructed before 1970 and between 1970 and 1980, and therefore, may contain hazardous building materials (OCSD, 2017).

Asbestos Potential

Asbestos is a naturally-occurring fibrous material that was used as a fireproofing and insulating agent in building construction before such uses were banned by the U.S. Environmental Protection Agency (U.S. EPA) in the 1970's, although some nonfriable[1] use of asbestos in

[1] Nonfriable asbestos refers to ACMs that contain asbestos fibers in a solid matrix that does not allow for them to be easily released.

roofing materials still exists. The presence of asbestos can be found in such materials as ducting insulation, wallboard, shingles, ceiling tiles, floor tiles, insulation, plaster, floor backing, and many other building materials. ACMs are considered both a hazardous air pollutant and a human health hazard. The risk to human health is from inhalation of airborne asbestos, which commonly occurs when ACMs are disturbed during demolition and renovation activities. Based on the age of the structures at Plant No. 2, there is a potential for ACMs.

Lead Potential

Lead and lead compounds can be found in many types of paint. In 1978, the Consumer Product Safety Commission set the allowable lead levels in paint at 0.06 percent by weight in a dry film of newly applied paint. Lead dust is of special concern, because the smaller particles are more easily absorbed by the body. Common methods of paint removal, such as sanding, scraping, and burning, create excessive amounts of dust. LBPs are considered likely present in buildings constructed prior to 1960, and potentially present in buildings built prior to 1978. Since various structures at Plant No. 2 were built prior to the federal regulations banning the use of lead based paints, LBPs could be present.

PCBs Potential

PCBs are organic oils that were formerly placed in many types of electrical equipment, such as transformers and capacitors, primarily as electrical insulators. They may also be found in hydraulic fluid used for hoists, elevators, etc. Years after widespread and commonplace installation, it was discovered that exposure to PCBs may cause various health effects and that PCBs are highly persistent in the environment. The EPA has listed these substances as carcinogens. PCBs were banned from use in electrical capacitors, electrical transformers, vacuum pumps, and gas turbines in 1979. Electrical equipment within Plant No. 2 may contain PCBs due to the age of the equipment.

Hazardous Materials in Soil and Groundwater

To assess the potential for contamination in soil and groundwater within the program area, an environmental database review was conducted to identify environmental cases,[2] permitted hazardous materials uses,[3] and spill sites[4]. California Government Code Section 65962.5 requires State and local agencies to compile and update, at least annually, lists of hazardous waste sites and facilities. A review of the Department of Toxic Substances Control's (DTSC) Hazardous Waste and Substances List – Site Cleanup (Cortese List) indicates that identified hazardous material sites are not located within the program area (DTSC, 2007a). While Government Code Section 65962.5 makes reference to a "list", this information is currently available from the following online data resources (California Environmental Protection Agency [CalEPA], 2017):

- State Water Resources Control Board (SWRCB) GeoTracker database, and

[2] Environmental cases are those sites that are suspected of releasing hazardous substances or have had cause for hazardous substances investigations and are identified on regulatory agency lists.

[3] Permitted hazardous materials uses are facilities that use hazardous materials or handle hazardous wastes that operate under appropriate permits and comply with current hazardous materials and hazardous waste regulations.

[4] Spill sites are locations where a spill has been reported to the State or federal regulatory agencies. Such spills do not always involve a release of hazardous materials.

- DTSC EnviroStor database.

Information regarding the potential presence of subsurface contamination within the program area is discussed below. Identified sites include the following types of environmental cases:

- **GeoTracker LUST Cleanup Sites** – Leaking Underground Storage Tank (LUST) sites are typically listed as a result of a release of petroleum hydrocarbons such as diesel, gasoline, motor oil and waste oil. Open cases may be in the site assessment phase to investigate the extent of known releases or undergoing active remediation of groundwater contamination.

A database search of hazardous materials sites using the online DTSC EnviroStor and SWRCB GeoTracker databases identified Plant No. 1 as having two closed LUST sites, one open LUST Cleanup site and one permitted underground storage tank (UST) (DTSC, 2007b; SWRCB, 2015a). Plant No. 2 has two closed LUST cases and one permitted UST (DTSC, 2007c; SWRCB, 2015b). Below is a brief description of the open LUST site within the program area (Plant No. 1) that has affected soil and/or groundwater.

OCSD Auto Shop (T0605938718)

The OCSD Auto Shop is located within Plant No. 1 at 10844 Ellis Avenue in Fountain Valley. This site which is located in the northern portion of Plant No.1 and has been the subject of ongoing site assessments and remediation under regulatory oversight of the County of Orange Health Care Agency (OCHCA) since 2006. This site is not on the national priorities list. The Auto Shop was constructed in 1981. The construction included the installation of diesel and gasoline USTs. Multiple site investigations identified the existence of petroleum fuel constituents in subsurface soils and groundwater; therefore, quarterly groundwater sampling was initiated in November 2003. The primary chemicals of concern in the groundwater at the site are petroleum fuel hydrocarbons. Since the 2003 investigation, ten groundwater monitoring wells were installed to continue testing and monitoring. Groundwater is pumped in this area by production wells and used for municipal and domestic water supply. The drinking water supply is not a primary concern (SWRCB, 2015c). Based on the results of the most recent groundwater monitoring report conducted in June 2017, it was concluded that (with the exception of tert-butyl alcohol [TBA]) contaminants of concern are at or below their respective water quality objectives (WQOs). It is expected that TBA concentrations will continue to degrade, with little potential for off-site migration (SWRCB, 2015c; WPI, 2017).

Sensitive Receptors

Certain population groups, such as children, elderly, and acutely and chronically ill persons (especially those with cardio-respiratory diseases), are considered more sensitive to the potential effects of air pollution and hazardous materials than others. The Robert Gisler Elementary School is located approximately 0.15 mile west of Plant No. 1.

Emergency Preparedness

The Orange County Sheriff's Department's Emergency Management Division provides emergency management and preparedness services to the Orange County Operational Area. The Orange County Board of Supervisors has designated the Sheriff-Coroner Department as the lead agency in matters of emergency preparedness and disaster response (OCSD, 2016). The County

of Orange Emergency Operations Plan (EOP) was approved by the Emergency Management Council and officially adopted by the County Board of Supervisors in May 2014. The EOP identifies the County's emergency planning, organization, response policies, and procedures. The plan also addresses integration and coordination with other governmental levels when required. The EOP contains a hazard assessment of different types of hazard threats and disasters that have the potential to occur within the County and the emergency response associated with each type of hazard threat (County of Orange, 2014). The City of Fountain Valley and City of Huntington Beach General Plans do not designate specific evacuation routes within their cities (City of Fountain Valley, 1995; City of Huntington Beach, 2017a). The proposed program would be designed, constructed, and maintained in accordance with applicable County of Orange standards to ensure that vehicular access would be provided for adequate emergency access and evacuation.

3.7.2 Regulatory Framework

Hazards and hazardous materials are subject to numerous federal, State, and local laws and regulations intended to protect health, safety, and the environment. The U.S. EPA, CalEPA, DTSC, RWQCB, and County of Orange are the primary agencies enforcing these regulations. Local regulatory agencies enforce many federal and State regulations through the Certified Unified Program Agency (CUPA) program.

Federal

Federal agencies with responsibility for hazardous materials management include the U.S. EPA, Department of Labor (Federal Occupational Health and Safety Administration [OSHA]), and Department of Transportation (U.S. DOT). Major federal laws and issue areas include the following statutes and regulations:

Resources Conservation and Recovery Act (RCRA) 42 USC 6901 et seq.

RCRA is the principal law governing the management and disposal of hazardous materials. RCRA is considered a "cradle to grave" statute for hazardous wastes in that it addresses all aspects of hazardous materials from creation to disposal. RCRA applies to this program because RCRA is used to define hazardous materials, offsite disposal facilities and the wastes each may accept are regulated under RCRA.

Emergency Planning and Community Right-to-Know Act (EPCRA from SARA Title III)

EPCRA improved community access to information regarding chemical hazards and facilitated the development of business chemical inventories and emergency response plans. EPCRA also established reporting obligations for facilities that store or manage specified chemicals. EPCRA applies to this program because contractors who use hazardous materials (e.g., fuels, paints and thinners, solvents, etc.) would be required to prepare and implement written emergency response plans to properly manage hazardous materials and respond to accidental spills.

U.S. DOT Hazardous Materials Transportation Act of 1975 (49 USC 5101)

U.S. DOT, in conjunction with the U.S. EPA, is responsible for enforcement and implementation of federal laws and regulations pertaining to safe storage and transportation of hazardous

materials. The Code of Federal Regulations (CFR) 49, 171–180, regulates the transportation of hazardous materials, types of material defined as hazardous, and the marking of vehicles transporting hazardous materials. This Act applies to this program because contractors will be required to comply with its storage and transportation requirements that would reduce the possibility of spills.

The Federal Motor Carrier Safety Administration (49 CFR Part 383-397)

The Federal Motor Carrier Safety Administration, a part of the U.S. DOT, issues regulations concerning highway transportation of hazardous materials, the hazardous materials endorsement for a commercial driver's license, highway hazardous material safety permits, and financial responsibility requirements for motor carriers of hazardous materials. This Act applies to this program because contractors would be required to comply with its storage and transportation requirements that would reduce the possibility of spills.

Occupational Safety and Health Administration (OSHA; 29 USC 15)

OSHA is the federal agency responsible for ensuring worker safety. These regulations provide standards for safe workplaces and work practices, including those relating to hazardous materials handling. OSHA applies to this program because contractors would be required to comply with its hazardous materials management and handling requirements that would reduce the possibility of spills.

State

The primary state agencies with jurisdiction over hazardous chemical materials management for the project area are the DTSC and the Santa Ana RWQCB. Other state agencies involved in hazardous materials management are the Department of Industrial Relations (State OSHA implementation), State Office of Emergency Services (OES)—California Accidental Release Prevention (CalARP) implementation, California Air Resources Board (CARB), California Department of Transportation (Caltrans), State Office of Environmental Health Hazard Assessment (OEHHA—Proposition 65 implementation) and California Integrated Waste Management Board (CIWMB). Hazardous materials management laws in California include the following statutes and regulations promulgated thereunder:

Hazardous Waste Control Act (HWCA; California Health and Safety Code, Section 25100 et seq.)

The HWCA is the state equivalent of RCRA and regulates the generation, treatment, storage, and disposal of hazardous waste. This act implements the RCRA "cradle-to-grave" waste management system in California and extends regulation to certain hazardous wastes not covered by RCRA. The HWCA is also more stringent in its regulation of spent lubricating oil, small-quantity generators, transportation and permitting requirements, and includes increased penalties for violations.

California Accidental Release Prevention Program (CalARP)

The purpose of the CalARP is to prevent accidental releases of substances that can cause serious harm to the public and the environment, to minimize the damage if releases do occur, and to

satisfy community right-to-know laws. This is accomplished by requiring businesses that handle more than a threshold quantity of a regulated substance listed in the regulations to develop a Risk Management Plan (RMP). An RMP is a detailed engineering analysis of the potential accident factors present at a business and the mitigation measures that can be implemented to reduce this accident potential. The RMP contains safety information, hazards review, operating procedures, training requirements, maintenance requirements, compliance audits, and incident investigation procedures (CalOES, 2017).

California Hazardous Materials Release Response Plans and Inventory Law of 1985 (Business Plan Act)

The Business Plan Act requires preparation of hazardous materials business plans and disclosure of hazardous materials inventories, including an inventory of hazardous materials handled, plans showing where hazardous materials are stored, an emergency response plan, and provisions for employee training in safety and emergency response procedures (California Health and Safety Code, Division 20, Chapter 6.95, Article 1). Statewide, DTSC has primary regulatory responsibility for management of hazardous materials, with delegation of authority to local jurisdictions that enter into agreements with the state. Local agencies are responsible for administering these regulations.

Several state agencies regulate the transportation and use of hazardous materials to minimize potential risks to public health and safety, including the CalEPA and the California Emergency Management Agency. The California Highway Patrol and Caltrans enforce regulations specifically related to the transport of hazardous materials. Together, these agencies determine which container types may be used to transport hazardous materials and grant licenses to hazardous waste haulers for hazardous waste transportation on public roadways.

The Business Plan Act applies to this program because contractors will be required to comply with its handling, storage, and transportation requirements that would reduce the possibility of spills, and to prepare an emergency response plan to respond to accidental spills.

Health and Safety Code, Section 2550 et seq.

This code and the related regulations in 19 California Code of Regulations (CCR) 2620, *et seq*., require local governments to regulate local business storage of hazardous materials in excess of certain quantities. The law also requires that entities storing hazardous materials be prepared to respond to releases. Those using and storing hazardous materials are required to submit a Hazardous Materials Business Plan (HMBP) to their local CUPA and to report releases to their CUPA and the State Office of Emergency Services. This code would apply to the program because the contractors would be required to prepare a HMBP that would provide procedures for the safe handling, storage, and transportation of hazardous materials.

California Division of Occupational Safety and Health (Cal/OSHA)

Cal/OSHA is responsible for developing and enforcing workplace safety standards and assuring worker safety in the handling and use of hazardous materials. Among other requirements, Cal/OSHA requires many entities to prepare injury and illness prevention plans and chemical hygiene plans, and provides specific regulations to limit exposure of construction workers to lead.

OSHA applies to this program because contractors will be required to comply with its handling and use requirements that increase worker safety and reduce the possibility of spills, and to prepare an emergency response plan to respond to accidental spills.

Government Code Section 65962.5, Cortese List

The provisions in Government Code Section 65962.5 are commonly referred to as the "Cortese List" (after the Legislator who authored and enacted the legislation). The list, or a site's presence on the list, has bearing on the local permitting process, as well on compliance with CEQA. The list is developed with input from the State Department of Health Services, State Water Resources Control Board, California Integrated Waste Management Board, and DTSC. At a minimum, at least annually, the DTSC Control shall submit to the Secretary for Environmental Protection a list of the following:

1. All hazardous waste facilities subject to corrective action pursuant to Section 25187.5 of the Health and Safety Code.
2. All land designated as hazardous waste property or border zone property pursuant to Article 11 (commencing with Section 25220) of Chapter 6.5 of Division 20 of the Health and Safety Code.
3. All information received by the DTSC pursuant to Section 25242 of the Health and Safety Code on hazardous waste disposals on public land.
4. All sites listed pursuant to Section 25356 of the Health and Safety Code
5. All public drinking water wells that contain detectable levels of organic contaminants and that are subject to water analysis pursuant to Section 116395 of the Health and Safety Code.
6. All underground storage tanks for which an unauthorized release report is filed pursuant to Section 25295 of the Health and Safety Code.
7. All solid waste disposal facilities from which there is a migration of hazardous waste and for which a California Regional Water Quality Control Board has notified the Department of Toxic Substances Control pursuant to subdivision (e) of Section 13273 of the Water Code.
8. All cease and desist orders issued after January 1, 1986, pursuant to Section 13301 of the Water Code, and all cleanup or abatement orders issued after January 1, 1986, pursuant to Section 13304 of the Water Code, that concern the discharge of wastes that are hazardous materials.
9. All solid waste disposal facilities from which there is a known migration of hazardous waste.

The Secretary for Environmental Protection shall consolidate the information submitted pursuant to this section and distribute it in a timely fashion to each city and county in which sites on the lists are located. The Secretary shall distribute the information to any other person upon request. The Secretary may charge a reasonable fee to persons requesting the information, other than cities and counties, to cover the cost of developing, maintaining, and reproducing and distributing the information.

Utility Notification Requirements

Title 8, Section 1541 of the CCR requires excavators to determine the approximate locations of subsurface utility installations (e.g., sewer, telephone, fuel, electric, water lines, or any other

subsurface installations that may reasonably be encountered during excavation work) prior to opening an excavation. The California Government Code (Section 4216 *et seq*.) requires owners and operators of underground utilities to become members of and participate in a regional notification center. According to Section 4216.1, operators of subsurface installations who are members or participate and share in the costs of a regional notification center are in compliance with this section of the code. Underground Services Alert of Southern California (known as DigAlert) receives planned excavation reports from public and private excavators and transmits those reports to all participating members of DigAlert that may have underground facilities at the location of excavation. Members will mark or stake their facilities, provide information, or give clearance to dig (DigAlert, 2017). This requirement would apply to this program because any excavation would be required to identify underground utilities before excavation.

Local

Certified Unified Program Agency (CUPA)

In 1993, Senate Bill (SB) 1082 was passed by the State Legislature to streamline the permitting process for those businesses that use, store, or manufacture hazardous materials. The passage of SB 1082 provided for the designation of a CUPA that would be responsible for the permitting process and collection of fees. The CUPA would be responsible for implementing at the local level the Unified Program, which serves to consolidate, coordinate, and make consistent the administrative requirements, permits, inspections, and enforcement activities for the following environmental and emergency management programs:

- Hazardous Waste
- Hazardous Materials Business Plan
- California Accidental Release Prevention Program
- Underground Hazardous Materials Storage Tanks
- Aboveground Petroleum Storage Tanks / Spill Prevention Control & Countermeasure Plans
- Hazardous Waste Generator and On-Site Hazardous Waste Treatment (tiered permitting) Programs

In Orange County, the Environmental Health Division of the Orange County Health Care Agency is designated as the CUPA responsible for implementing the above-listed program elements. The laws and regulations that established these programs require that businesses that use or store certain quantities of hazardous materials submit a Hazardous Materials Business Emergency Plan (HMBEP) that describes the hazardous materials usage, storage, and disposal required by the CUPA.

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)

Orange County Fire Authority

The Orange County Fire Authority (OCFA) 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 aboveground storage tank programs while the OCFA administers the other three elements (Hazardous Materials Disclosure, Business Plan, and CalARP).

Integrated Emergency Response Program

In accordance with OSHA regulations, OCSD has implemented an Integrated Emergency Response Program (IERP) to cover worker safety, spill prevention, emergency response and hazardous materials management. 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.

City of Fountain Valley Municipal Code

Chapter 21 of the Municipal Code for the City of Huntington Beach applies to the storage of hazardous materials within the City. The Municipal Code requires compliance with State Law, provides Conditional Use Permit requirements, hazardous materials reporting requirements for the City and information on storage requirements (City of Fountain Valley, 2017a).

Fountain Valley Fire Department

The Fountain Valley Fire Department responds to all local reports involving hazardous materials. The Department accepts and reviews all Hazardous Materials Business Plans and Emergency Plans for the City (City of Fountain Valley, 2017b).

City of Huntington Beach Municipal Code

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 businesses that use or handle hazardous materials to 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 (City of Huntington Beach, 2017b).

Huntington Beach Fire Department

The Huntington Beach Fire Department responds to all local reports involving hazardous materials. If necessary, the Department's Hazardous Materials Team responds for special expertise and equipment. The Hazardous Materials Team provides hazard identification, risk assessment, and control measures. The City is a provider agency in the Orange County Hazardous Materials Response Authority, which provides four additional Hazmat Teams in order to maximize available equipment and special expertise in any given emergency situation. Huntington Beach also maintains a Multi-Hazard Function Plan should a hazardous material accident create the need to evacuate all or a portion of the City (City of Huntington Beach, 2017a).

3.7.3 Impacts and Mitigation Measures

Significance Criteria

The criteria used to determine the significance of impacts related to hazards and hazardous materials are based on Appendix G of the *CEQA Guidelines*. The proposed program would result in a significant impact with respect to hazards or hazardous materials if the program would:

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials (see Impact 3.7-1, below).
- Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment (see Impact 3.7-2, below).
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school (see Impact 3.7-3, below).
- 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 it create a significant hazard to the public or the environment (see Impact 3.7-4, below).
- For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area (see Section 4.1.5 in Chapter 4.0, Other CEQA Considerations).
- For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area (see Section 4.1.5 in Chapter 4.0, Other CEQA Considerations).
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan (see Impact 3.7-5, below).

- Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands (see Section 4.1.5 in Chapter 4.0, Other CEQA Considerations).

Methodology

This analysis focuses on the potential to encounter hazardous substances in soil and groundwater during construction and is based on regulatory database searches. The analysis also addresses the potential for the program components to release hazardous materials during construction and operation, the handling of hazardous materials near schools, and whether the program may interfere with an adopted emergency response plan or emergency evacuation plan. Each potential impact is assessed in terms of the applicable regulatory requirements, and mitigation measures are identified as appropriate.

Impacts Discussion

Routine Use, Transport, or Disposal

Impact 3.7-1: The proposed program would have a less than significant and less than cumulatively considerable hazards to the public or the environment through the routine transport, use, or disposal of hazardous materials.

Program Impact Analysis

Construction

Construction activities would be required for the installation of proposed facilities. Construction activities required for implementation of the facilities would potentially involve drilling, trenching, excavation, grading, and other ground-disturbing activities. The anticipated construction activities described above would temporarily require the transport, use, and disposal of hazardous materials including gasoline, diesel fuel, hydraulic fluids, paint, and other similarly related materials.

Accidental release of these materials could occur during routine transport, disposal, or use, and could potentially injure construction workers, contaminate soil, and/or affect nearby groundwater or surface water bodies. Impacts associated with accidental release, although likely localized, could potentially create a significant hazard to the public or the environment. OCSD's contractors are required to comply with all relevant and applicable federal, State and local laws and regulations that pertain to the transport, storage, use, and disposal of hazardous materials and waste during construction of proposed facilities. Compliance with all applicable federal, State and local regulations regarding the handling, storage, transportation, and disposal of hazardous materials would reduce potential impacts to the public or the environment related to the transport, use, or disposal of hazardous materials to less than significant.

Operation

The operation of the proposed Collection Yard Facility at Plant No. 1 would not involve the transport, storage, use or disposal of hazardous materials. Operation of the proposed biosolids handling facilities at Plant No. 2 would require routine transport, storage, use, and disposal of hazardous materials for purposes of treatment of wastewater and solids (e.g., chlorine, sodium hypochlorite, hydrogen peroxide). The use of hazardous materials and substances during

operation would be subject to the existing and future federal, State, and local health and safety requirements for the handling, storage, transportation, and disposal of hazardous materials, summarized in the Regulatory Framework above. Further, implementation of OCSD's IERP would ensure that chemicals are properly stored and handled to minimize spills and protect the environment and public health. OCSD's compliance with all applicable laws, regulations and the site-specific IERP would minimize the potential impacts to the public or environment due to routine transport, storage, and use of hazardous materials. Impacts would be less than significant.

Significance Determination before Mitigation: Less than Significant

Cumulative Impact Analysis

The program vicinity is largely urbanized with residential, commercial and industrial uses. As the area continues to develop, the addition of more development could create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials; therefore, cumulative development could result in potentially significant impacts regarding hazardous materials. However, similar to the proposed program, all cumulative development would be subject to federal, State, and local regulations related to the routine transportation, use, storage, and disposal of hazardous materials. Compliance with all hazardous waste regulations reduce the potential for impacts to occur, thus, cumulative hazardous materials impacts are not expected.

OCSD implements an IERP to cover worker safety, spill prevention, emergency response and hazardous materials management. The IERP provides structural design specifications for specific facilities on-site, safety procedures for operations and maintenance workers, and training in and implementation of the ICS during crisis situations. OCSD's compliance with all applicable laws, regulations and the site-specific IERP would reduce potential impacts to the public or environment due to routine transport, storage, and use of hazardous materials; therefore, the program's contribution to cumulative impacts that may occur off-site would be less than cumulatively considerable.

Significance Determination before Mitigation: Less than Significant

Mitigation Measures

Program Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Upset and Accident Conditions

Impact 3.7-2: The proposed program would have less than significant and less than cumulatively considerable hazards to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.

Program Impact Analysis

Construction

Construction activities would include the use of adhesives, solvents, paints, thinners, and other chemicals. The proposed demolition of existing digesters and construction equipment necessary for new facilities (such as trucks, cranes, bulldozers, excavators) would require the use of fuels (gasoline or diesel) and lubricants (hydraulic fluids, oils and greases). Cal/OSHA regulations provide for the proper labeling, storage, and handling of hazardous materials to reduce the potential harmful health effects that could result from worker exposure to hazardous materials. If not properly handled; however, accidental release of these substances could expose construction workers, degrade soils, or become entrained in stormwater runoff, resulting in adverse effects on the public or the environment. OCSD is required to comply with all relevant and applicable federal, State and local laws and regulations that pertain to the accidental release of hazardous materials during construction of proposed facilities such as Health and Safety Code, Section 25507 *et seq*., including site specific best management practices. Compliance with all applicable federal, State and local regulations would reduce potential impacts to the public or the environment regarding accidental release of hazardous materials to less than significant.

Based on the age of some existing structures in Plant No. 2, there is a potential for ACMs and LBPs to be present. The State of California defines LBP as those materials that contain 5,000 ppm lead. The State of California also requires that if LBP with a lead concentration over 600 ppm is to be disturbed, then the individuals performing the work shall have the proper lead training and wear personal protective equipment. Without proper abatement procedures, demolition/removal could expose workers and/or the environment to ACMs and/or LBPs.

Affected structures would require appropriate abatement of identified asbestos prior to demolition. Federal and State regulations govern the demolition of structures where materials containing lead and asbestos are present. ACMs are regulated both as a hazardous air pollutant under the Clean Air Act and as a potential worker safety hazard under the authority of Cal OSHA. These requirements include SCAQMD Rules and Regulations pertaining to asbestos abatement (including Rule 1403); Construction Safety Orders 1529 (pertaining to asbestos) and 1532.1 (pertaining to lead) from CCR Title 8; CFR Title 40, Part 61, Subpart M (pertaining to asbestos); and lead exposure guidelines provided by the U.S. Department of Housing and Urban Development (HUD). Asbestos and lead abatement must be performed and monitored by contractors with appropriate certifications from the California Department of Health Services. In addition, Cal/OSHA has regulations concerning the use of hazardous materials, including requirements for safety training, availability of safety equipment, hazardous materials exposure warnings, and emergency action and fire prevention plan preparation. Cal/OSHA enforces the hazard communication program regulations, which include provisions for identifying and labeling hazardous materials, describing the hazards of chemicals, and documenting employee-training

programs. All demolition that could result in the release of lead and/or asbestos would be conducted according to Cal/OSHA standards. Adherence to existing regulations would ensure that potential impacts related to ACMs and LMPs would be less than significant.

The use of hazardous materials and substances during construction would be subject to the federal, State, and local health and safety requirements for the handling, storage, transportation, and disposal of hazardous materials, summarized in the Regulatory Framework above. With compliance with these regulations, hazardous material impacts related to construction activities would be less than significant.

Operation

Operation of the proposed facilities would include the storage and use of chemicals. All storage rooms and/or tanks would be designed in accordance with the applicable hazardous materials storage regulations for long-term use summarized in the Regulatory Framework. The delivery and disposal of chemicals to and from the treatment facility sites would occur in full accordance with all applicable federal, State, and local regulations.

As noted in the Regulatory Framework, a HMBP must be prepared and implemented for the proposed facility upgrades as required by the County of Orange CUPA. The HMBP would minimize hazards to human health and the environment from fires, explosions, or an accidental release of hazardous materials into air, soil, surface water, or groundwater. Compliance with all applicable federal, State and local regulations regarding the handling, storage, transportation, and disposal of hazardous materials, and preparation and implementation of the HMBP would reduce potential impacts to the public or the environment related to the transport, use, or disposal of hazardous materials to less than significant.

Significance Determination before Mitigation: Less than Significant

Cumulative Impact Analysis

The program vicinity is largely urbanized with residential, commercial and industrial development. As the area continues to develop, the addition of more development could create hazards to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. Therefore, cumulative development could result in potentially significant impacts. However, similar to the proposed program, all cumulative development would be subject to federal, State, and local regulations related to the release of hazardous materials into the environment. Compliance with all hazardous waste regulations reduce the potential for impacts to occur, thus, cumulative impacts are not expected. As discussed above, the OCSD IERP provides specific designs, safety procedures, and training to all temporary and long-term staff to ensure that potential impacts regarding the release of hazardous materials into the environment would be reduced to the greatest extent possible. Compliance with applicable laws, regulations, and the site-specific IERP would reduce potential impacts to the public or environment due to the release of hazardous materials. The program's contribution to cumulative impacts that may occur off-site would be less than cumulatively considerable.

Significance Determination before Mitigation: Less than Significant

Mitigation Measures

Program Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

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Schools

Impact 3.7-3: The proposed program would have less than significant and less than cumulatively considerable impacts from emitting hazardous emissions or handling hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.

Program Impact Analysis

Construction

There are no schools within one-quarter mile of Plant No. 2. Therefore, construction of proposed BMP facilities would not emit hazardous emissions or handle hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. There would be no impacts associated with construction activities at Plant No. 2.

However, the Robert Gisler Elementary School is located approximately 0.15 mile west of Plant No. 1. Construction activities would use limited quantities of hazardous materials such as gasoline and diesel fuel. Additionally, OCSD is required to comply with all relevant and applicable federal, State and local laws and regulations that pertain to the release of hazardous materials during construction of proposed facilities. Compliance with all applicable federal, State and local regulations would reduce potential impacts to the public or the environment regarding hazardous waste emissions within one-quarter mile of a school. Impacts would be less than significant.

Operation

Operation of the proposed program would include the use, storage, transport, and disposal of hazardous materials required for biosolids handling/waste water treatment onsite (as listed in the Existing Setting). The proposed collections yard that would be relocated to Plant No. 1 may contain a structure; however, this structure would not require the storage or handling of hazardous materials. Nonetheless, an inventory of chemicals used on site would be reported to the Fountain Valley and Huntington Beach Fire Departments. As discussed in the Regulatory Framework, all hazardous materials would be stored and used in compliance with existing federal, State and local regulations. Compliance with all applicable federal, State and local regulations would reduce

potential impacts to the public or the environment regarding hazardous waste emissions within one-quarter mile of a school.

Significance Determination before Mitigation: Less than Significant

Cumulative Impact Analysis

Cumulative development within the program area is likely to involve hazardous emissions or the handling of hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school; therefore, cumulative development has the potential to result in significant effects. However, all cumulative development would be subject to federal, State, and local laws and regulations related to the routine transportation, use, storage, and disposal of hazardous materials. Compliance with these laws and regulations would significantly reduce hazardous emissions and handling of hazardous materials near schools; therefore, these impacts are expected to be less than significant.

There is one school, Robert Gisler Elementary School that is located within one-quarter mile of Plant No. 1. The proposed collections yard that would be relocated to Plant No. 1 may contain a structure; however, this structure would not require the storage or handling of hazardous materials. Nonetheless, an inventory of chemicals used on site would be reported to the Fountain Valley and Huntington Beach Fire Departments and all hazardous materials would be stored and used in compliance with existing federal, State and local regulations. Coordination with the Fountain Valley and Huntington Beach Fire Departments and compliance with the OCSD IERP and other applicable regulations and laws would reduce potential impacts to a level where the proposed program's contribution to cumulative impacts would be less than cumulatively considerable.

Significance Determination before Mitigation: Less than Significant

Mitigation Measures

Program Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Hazardous Materials Site Listing

Impact 3.7-4: The proposed program would be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and may result in potentially significant and cumulatively considerable hazard impacts to the public or the environment.

Program Impact Analysis

Construction

The proposed program would be implemented entirely within Plant No.1 and Plant No. 2, with a majority of the projects being implemented at Plant No. 2. A database search of hazardous materials sites using the online DTSC EnviroStor and SWRCB GeoTracker databases identified Plant No. 1 as having two closed LUST sites, one open LUST Cleanup site and one permitted underground storage tank (UST) (DTSC, 2007b; SWRCB, 2015a). Plant No. 2 has two closed LUST cases and one permitted UST (DTSC, 2007c; SWRCB, 2015b).

Typically, sites are deemed closed once they have demonstrated that the levels of existing contamination present no significant risk to human health or the environment. The closed LUSTs at Plant No. 1 and Plant No. 2 are "closed cases" because the tanks and affected soils have been removed and determined to have no residual soil contamination that poses a threat to human health or the environment. Further, no known releases have occurred from the existing permitted USTs at Plant No. 1 and Plant No. 2.

However, as identified above, Plant No. 1 has one open LUST cleanup site. Construction activities associated with the proposed Collections Yard Relocation on Plant No. 1 could encounter contaminated soil and/or groundwater during excavation, thereby posing a health threat to construction workers, the public, and the environment. The analysis of operational impacts associated with hazardous materials sites, mobilization of soil and groundwater contaminants, and groundwater quality can be found in Section 3.8, Hydrology and Water Quality. Impacts would be potentially significant.

Operation

Impacts would be the same as those identified above for construction.

Significance Determination before Mitigation: Potentially Significant

Cumulative Impact Analysis

The program vicinity is largely urbanized with residential, commercial and industrial development. As the area continues to develop, the addition of developments could be located on sites that are included on a list of hazardous materials sites. Remediation of contamination found on site as required under mitigation measures HAZ-1 and HAZ-2 would reduce any contribution to the cumulative condition. Impacts would be less than cumulatively considerable.

Significance Determination before Mitigation: Potentially Significant

Mitigation Measures

Program Measures

HAZ-1: Prior to the initiation of any construction requiring ground-disturbing activities, OCSD shall complete an environmental assessment of the proposed site to locate the potential for soil and groundwater contamination in the program area. The recommendations set forth in the site assessment shall be implemented to the satisfaction of applicable agencies before and during construction.

HAZ-2: If the site assessments determine that the site has contaminated soil and/or groundwater, a Soil and Groundwater Management Plan shall be prepared that specifies the method for handling and disposing of contaminated soil and groundwater prior to demolition, excavation, and construction activities. OCSD shall be responsible for ensuring implementation of the Plan in compliance with applicable regulations.

Significance Determination after Mitigation: Less than Significant

The implementation of Mitigation Measures HAZ-1 and HAZ-2 would require site-specific studies to identify known hazardous materials risks or the potential for risk related to hazardous materials. These studies would identify recommendations and cleanup measures to reduce risk to the public and the environment from development on hazardous materials sites. Implementation of Mitigation Measure HAZ-1 and HAZ-2 would reduce potential impacts to construction workers and the public from exposure to unknown affected soils. Therefore, impacts to the public or the environment related to hazardous materials sites would be less than significant.

Cumulative Measures

Implementation of Mitigation Measure HAZ-1 and Mitigation HAZ-2 is required.

Significance Determination after Mitigation: Less than Significant

The implementation of Mitigation Measures HAZ-1 and HAZ-2 would ensure that the proposed facilities' contribution to cumulative development on the open LUST site at Plant No. 1 would be reduced to less than cumulatively considerable by requiring site-specific studies to identify known hazardous materials risks or the potential for risks related to hazardous materials and affected soils and groundwater. These studies would include recommendations and cleanup measures to reduce risk to the public and the environment from development on hazardous materials sites. Implementation of Mitigation Measure HAZ-1 and HAZ-2 would reduce potential impacts to construction workers and the public from exposure to unknown affected soils.

Emergency Plans

Impact 3.7-5: The proposed program would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan, and as a result would result in less than significant and less than cumulatively considerable emergency impacts.

Program Impact Analysis

Construction

The proposed facilities at both Plant No. 1 and Plant No. 2 would not impair implementation of, or physically interfere with, adopted emergency response plans or emergency evacuation plans. OCSD currently implements an IERP in accordance with OSHA regulations to cover worker safety, spill prevention, emergency response and hazardous materials management for activities at Plant No. 1 and Plant No. 2. The IERP includes safety procedures for operations and maintenance workers, which includes safety training, hazard communications, and personal protective equipment.

Further, there would be no installation of pipelines or other facilities within right-of-ways surrounding the existing treatment plants, making the possibility of interfering with evacuation routes highly unlikely. During construction and demolition activities, truck haul trips would transport construction and debris materials to and from project sites; however, the proposed program would not impact the roadway in a way that would impede emergency evacuations. The truck trips would not require closure of any roadways and would only temporary slow traffic near Plants No. 1 and No. 2. All program facilities would be contained within the boundaries of Plant No. 1 and Plant No. 2, and program-related vehicles would not block existing street access to the sites. Therefore, no impacts related to an emergency evacuation plan would occur.

Operation

Operation of the proposed facilities would not impair or physically interfere with an adopted emergency response plan or emergency evacuation plan. The facilities consist of biosolids handling facilities, which would not interfere with traffic flows. As detailed in the Chapter 2, Project Description, the proposed facilities would require a limited amount of daily truck trips for food waste delivery, biosolids export, and chemical deliveries. Further, aboveground facilities would require periodic maintenance. Maintenance activities would be random and require minimal trips that would not significantly impact the surrounding roadways. Impacts related to an adopted emergency plan would be considered less than significant during operation.

Significance Determination before Mitigation: Less than Significant

Cumulative Impact Analysis

The program vicinity is largely urbanized with residential, commercial and industrial development. As the area continues to develop, the addition of more development could impair implementation of or physically interfere with an adopted emergency response plans or emergency evacuation plans by constructing facilities within public rights-of-way. Future development within the program vicinity could result in significant cumulative impacts associated with emergency response plans. Because the proposed BMP facilities would be constructed

within Plant No. 1 and Plant No. 2, and not within public rights-of-way, the program's contribution to cumulative impacts would be less than cumulatively considerable.

Significance Determination before Mitigation: Less than Significant

Mitigation Measures

Program Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

3.7.4 References

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3.8 Hydrology and Water Quality

This section describes local surface water, groundwater, and flooding as well as applicable regulatory framework, potential impacts associated with implementation of the proposed BMP and mitigation measures to reduce those impacts, if necessary.

3.8.1 Environmental Setting

Regional Hydrology

The program area is located in the Santa Ana River Watershed, which drains from the slopes of the San Bernardino Mountains to the valley floor of the Inland Empire, through the Prado Basin and on to Orange County and the Pacific Ocean. The Santa Ana River Watershed is the largest watershed in coastal Southern California consisting of over 2,800 square miles. The primary waterway in the Santa Ana River Watershed is the Santa Ana River, which travels nearly 100 miles from its origins near Big Bear Lake to the Pacific Ocean. The program area is within the Lower Santa Ana River Hydraulic Area, which extends from Prado Dam to the Pacific Coast (SARWQCB, 2016). 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. Further, the program area overlies the Orange County Groundwater Basin.

Topography and Drainage

Elevations within the program area range from sea level near Plant No. 2 to 30 feet above mean sea level (amsl) near Plant No. 1. Due to minor elevation changes, the slope gradients within the program area are relatively flat. Site drainage at both Plant No. 1 and Plant No. 2 is conveyed by sheet flow (surface runoff) into existing onsite storm drains and then to the existing wastewater treatment facilities.

Surface Water

Both OCSD Plant No. 1 and Plant No. 2 are located adjacent to the Santa Ana River. Surface water in the region primarily consists of urban drainages flowing to the Santa Ana River.

Surface Water Hydrology

The flows of the Santa Ana River consist of storm flows and perennial flow (base flow) that increases in the winter and decreases in the summer. The Santa Ana Region Basin Plan divides the Santa Ana River into six reaches (SARWQCB, 2016). 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 Santa Ana River 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 in the City of Santa Ana to the Santa Ana River mouth at the ocean. The program area is located adjacent to Reach 1.

Surface Water Quality

The State Water Resources Control Board (SWRCB) has identified Santa Ana River Reaches 2, 3, 4, and 6 as "impaired" under the Clean Water Act (CWA) in the State Section 303d list. These reaches are listed for indicator bacteria, cadmium, copper, lead, pathogens, and salinity/total dissolved solids (TDS)/chlorides. A water body is placed on the State Section 303d list when the receiving water does not meet applicable water quality standards listed in the Basin Plan and determined not to be supporting the beneficial uses associated with the applicable water quality standard. Once placed on the State Section 303(d) list, the water body or segment is then subject to the development of a Total Maximum Daily Load (TMDL) allocation. Reach 1, the portion of the Santa Ana River within the program area, is not listed on the 303(d) list (SWRCB, 2017).

Groundwater

The Orange County Water District (OCWD) manages, replenishes and protects the Orange County Groundwater Basin. The 270-square-mile basin provides approximately 75 percent of the water supply to 2.4 million residents in north and central Orange County (OCWD, 2017). OCWD captures Santa Ana River flows and recharges it into the Orange County Groundwater Basin. The Groundwater Replenishment System (GWRS) is a project jointly-funded by the OCWD and OCSD. 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 Hydrology

The Orange County Groundwater Basin underlies central and northern Orange County and is bordered by the Santa Ana Mountains to the east, the Pacific Ocean to the west, the Newport-Inglewood Fault to the southwest and Coyote Hills to the north. The basin is contiguous and directly connected with the Central Basin of Los Angeles County to the northwest. The basin reaches depths of over 2,000 feet and is comprised of a complex series of interconnected sand and gravel deposits (OCWD, 2016). Groundwater in the program 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.

Groundwater Quality

To maintain groundwater quality, OCWD conducts an extensive monitoring program that serves to manage the Basin's groundwater production, control groundwater contamination, and comply with all necessary laws and regulations. A network of nearly 700 wells provides OCWD a source for samples. OCWD collects 600 to 1,700 samples each month to monitor the quality of the Orange County Groundwater Basin's water. These samples are collected and tested according to approved federal and state procedures (OCWD, 2015).

Flooding

Orange County is vulnerable to flooding during peak rainfall events. The U.S. Army Corp of Engineers (USACE) 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 No. 1 and Plant No. 2 are protected from the 100-year floodplain by the river levees constructed in 1995. The Federal Emergency Management Agency (FEMA) flood insurance maps show that Plant No. 1 and Plant No. 2 are located in an area designated as Zone X, Area with Reduced Risk Due to Levee, as shown on **Figure 3.8-1**. 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, 2017a; FEMA, 2017b). The Orange County Flood Control District (OCFCD) now owns and maintains the river levees.

Tsunami, Seiche and Mudflow

Earthquakes can cause flooding due to tsunamis, seiches, or dam failure. Tsunamis are a potential hazard for areas adjacent to the ocean. 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. Plant No. 2 is located within a tsunami inundation area, and Plant No. 1 is located outside of the tsunami inundation area (CEMA, 2009). Seiches are earthquake-induced waves in an enclosed or partially enclosed body of water, which may produce flooding in local areas. The program area is not located near a body of water that could experience seiches.

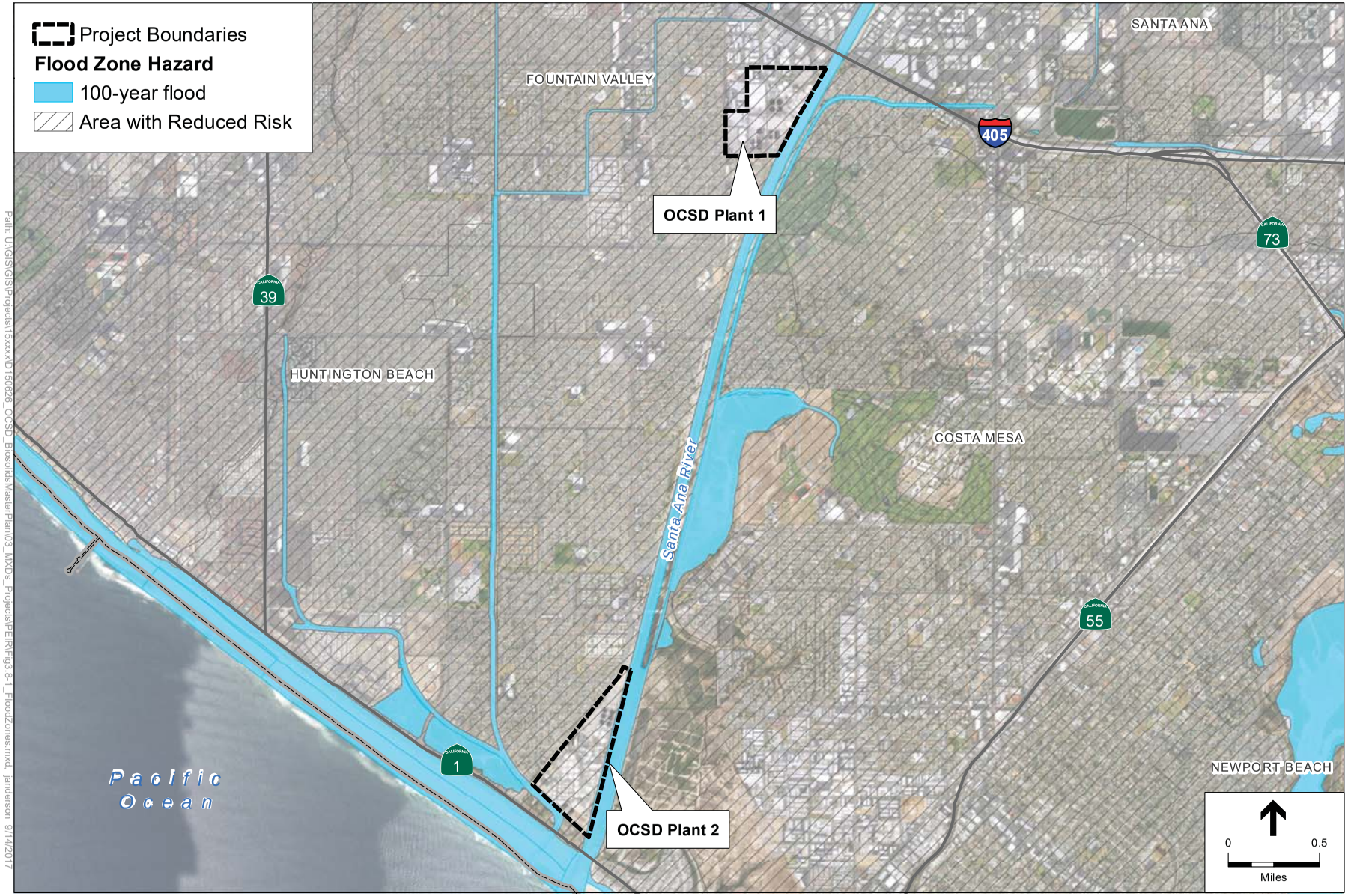
Flood Inundation Maps prepared by the USACE show that the program area is located within the Prado Dam Inundation Area. The Prado Dam was completed in 1941 by the USACE to control flooding in the Lower Santa Ana River Basin. Prado Dam is a major component of the Santa Ana Mainstem Project, which extends from the upper canyon in the San Bernardino Mountains downstream to the Pacific Ocean at Newport Beach, along the Santa Ana River. 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 (USACE, 2009; County of Orange, 2005).

3.8.2 Regulatory Framework

Federal

Clean Water Act

The CWA, also known as the Federal Water Pollution Control Act as amended by the Federal Water Pollution Control Act Amendments of 1972, (33 USC 1251-1376) is the major federal legislation governing water quality. The CWA established the basic structure for regulating discharges of pollutants into the waters of the U.S. and gave the U.S. Environmental Protection Agency (USEPA) the authority to implement pollution control programs, such as setting wastewater standards for industry. The CWA sets water quality standards for all contaminants in surface waters. The statute employs a variety of regulatory and non-regulatory tools to reduce direct pollutant discharges into waterways, finance municipal wastewater treatment facilities, and manage polluted runoff.



SOURCE: ESA, ESRI.

OCSD Biosolids Master Plan . 150626

Figure 3.8-1
Flood Zones

The USACE has jurisdiction over all waters of the U.S. including, but not limited to, perennial and intermittent streams, lakes, and ponds, as well as wetlands in marshes, wet meadows, and side hill seeps. The 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 established a framework for regulating municipal and industrial stormwater discharges under the NPDES program. In addition, the USEPA published final regulations that establish application requirements for stormwater permits in 1990.

The relevant sections of the CWA are summarized below.

Clean Water Act Section 303 - Water Quality Criteria and Standards

Under federal law, the USEPA has published water quality regulations under Title 40 of the Code of Federal Regulations (CFR), and Section 303 of the CWA requires states to adopt water quality standards for all surface waters of the United States (33 U.S.C. § 1313). As defined by the CWA, water quality standards consist of two elements: identified designated beneficial uses of the water body in question and criteria that protect the designated uses. Where multiple uses of a water body exist, water quality standards must protect the most sensitive use. In California, the USEPA has granted SWRCB and its local RWQCBs the authority to identify beneficial uses and adopt applicable water quality objectives.

Clean Water Act Section 401

Section 401 of the federal CWA requires that any person applying for a federal permit or license that may result in the discharges of dredged or fill material or pollutants (including sediment) into waters of the United States must obtain a state certification that the activity complies with all applicable water quality standards, limitations, and restrictions (33 U.S.C. § 1341). In California, this certification is administered by the SWRCB via the local RWQCB. No license or permit may be granted by a federal agency until certification required by Section 401 has been granted. Further, no license or permit may be issued if certification has been denied. An entity seeking a Section 401 water quality certification typically must obtain a CWA Section 404 permit from USACE. This certification ensures that the proposed activity does not violate state or federal water quality standards.

Clean Water Act Section 402

CWA Section 402 regulates discharges to surface waters of the United States through the NPDES program. In California, the USEPA authorizes the SWRCB to oversee the NPDES program through the local RWQCB (33 U.S.C. § 1342). Stormwater discharges are also regulated under CWA Section 402. Construction activities disturbing one acre of land or greater must be covered under the NPDES Construction General Permit, discussed in Section 3.5.2, Regulatory Framework, in Section 3.5, *Geology, Soils, and Seismicity*, which requires the preparation and implementation of a Stormwater Pollution Prevention Plan (SWPPP) for construction activities. The SWPP must include erosion and sediment controls, runoff water quality monitoring, means of waste disposal, implementation of approved local plans, control of post-construction sediment, and maintenance responsibilities.

Clean Water Act Section 404

Section 404 of the CWA requires that any person conducting any activity that involves any discharge of dredged or fill material into waters of the United States, including wetlands, obtain a permit. USACE is responsible for issuing permits for the placement of fill or discharge of material into waters of the United States required under CWA Sections 401 and 404 (33 U.S.C. § 1344). Projects that involve construction in streams or wetlands trigger the need for these permits and related environmental reviews by USACE. 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 USACE, which generally defines wetlands through consideration of three criteria: hydrology, soils and vegetation. Under Section 404 of the CWA, the USACE is responsible for regulating the discharge of dredged or fill material into waters of the United States. The term "waters of the United States" includes wetlands and non-wetland bodies of water that meet specific criteria as defined in the Code of Federal Regulations.

National Flood Insurance Program

The National Flood Insurance Program (NFIP) was created to promote flood awareness and reduce flood losses of properties within Special Flood Hazard Areas. Drainage and related flooding hazards are managed in response to requirements established by the National Flood Insurance Act of 1986 and the Flood Disaster Protection Act of 1973, as amended. Requirements of the NFIP are included in the Building Code and through overall City and interagency programs for flood management. In implementing the NFIP, the Federal Emergency Management Agency (FEMA) requires that new construction in a flood hazard area meet minimum design standards to place occupied structures above flood hazard areas.

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 of water or the prevention of nuisance within a specific area (Cal. Water Code § 13050(h)). The SWRCB administers water rights, water pollution control, and water quality functions throughout the state, while the local Water Boards (in this case, Santa Ana RWQCB) conducts planning, permitting, and enforcement activities. The Porter-Cologne Act requires the Santa Ana 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. The Porter-Cologne Water Quality Act is promulgated in Division 7 of the California Water Code and Title 23 of the California Code of Regulations. Title 23 of the California Code of Regulations includes treatment and reuse requirements for recycled water projects throughout California.

Anti-Degradation Policy

The SWRCB's Anti-Degradation Policy, otherwise known as Resolution No. 68-16, sets specific restrictions for surface water and groundwater resources that have higher than the required quality to avoid degradation of those water bodies. Similar policies must be included within all Basin Plans throughout California. Under this policy, actions that would lower the water quality in designated water bodies would only be allowed if the action would provide a maximum benefit to the people of California, if it will not unreasonably affect beneficial uses, and if it will not lower water quality below applicable standards.

National Pollutant Discharge Elimination System (NPDES) Program

The NPDES permit program is administered in the State of California by the SWRCB and RWQCBs under the authority of the USEPA 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 discharge to waters of the U.S. 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. The proposed program would be covered under the general permits discussed below.

General Dewatering Permit

The SWRCB has issued General Waste Discharge Requirements (WDRs) under Order No. R8-2003-0061, NPDES No. CAG 998001 (Dewatering General Permit) governing non-stormwater 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. This permit would apply to the proposed program in the event that shallow perched groundwater is encountered during construction that requires dewatering.

Construction General Permit

The Construction General Permit *NPDES General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities* (Order 2009-0009-DWQ, NPDES No. CAS000002, Construction General Permit) regulates discharges of pollutants in stormwater associated with construction activity to waters of the U.S. from construction sites that disturb one or more acres of land surface, or that are part of a common plan of development or sale that disturbs more than one acre of land surface. The permit regulates stormwater discharges associated with construction or demolition activities, such as clearing and excavation; construction of buildings; and linear underground projects (LUP), including installation of water pipelines and other utility lines.

The Construction General Permit requires the development and implementation of a SWPPP that includes specific BMPs designed to prevent pollutants from entering stormwater and keep all products of erosion from moving offsite into receiving waters. The SWPPP BMPs are intended to protect surface water quality by preventing the off-site migration of eroded soil and construction-related pollutants from the construction area. Routine inspection of all BMPs is required under the provisions of the Construction General Permit. In addition, the SWPPP is required to contain a visual monitoring program, a chemical monitoring program for non-visible pollutants, and a sediment monitoring plan if the site discharges directly to a water body listed on the 303(d) list for sediment.

Industrial General Permit

The Industrial General Permit (IGP) became effective July 1, 2015 (Order No. 2014-0057-DWQ). The IGP covers ten broad categories of industrial activities, including sewage or wastewater treatment works that store, treat, recycle, and reclaim municipal or domestic sewage with a design flow of one million gallons per day or more, or are required to have an approved pretreatment program under 40 Code of Federal Regulations Part 403. For a sewage treatment facility, the IGP covers both the municipal or domestic sewage being sent to the facility for treatment, and rainwater falling on the facility that must be managed as stormwater. This is because rainwater falling on the facility is routed to the onsite treatment system to prevent contaminants from migrating offsite from the treatment facility.

Municipal Separate Storm Sewer System (MS4) Permits

To prevent harmful pollutants from being washed or dumped into specific types of MS4s, operators might be required to obtain NPDES permits and develop stormwater management programs (SWMPs). Within the jurisdiction of the Santa Ana Regional Board, these discharges from Orange County's Phase I MS4s are regulated through the Orange County MS4 Permit (Order No. R8-2009-0030 NPDES No. CAS618030, as amended by Order No. R8-2010-0062) pursuant to section 402(p) of the Federal Clean Water Act.

Regional

Santa Ana Basin Plan

The SWRCB sets statewide policy and, together with the RWQCBs, implements state and federal laws and regulations. Each of the nine Regional Boards has adopted a Basin Plan. The Santa Ana Region Basin Plan covers parts of southwestern San Bernardino County, western Riverside County, and northwestern Orange County. The Basin Plan specifies water quality objectives for all surface waters within the Santa Ana Watershed. Water quality objectives specified for the creeks and streams include TDS, hardness, chloride, sulfate, fluoride, sodium, and total inorganic nitrogen. The Basin Plan has developed water quality objectives for both surface water and groundwater resources within the Santa Ana Watershed. Water quality objectives for all resources address nitrate, TDS, metals, total coliform, chemical constituents, radioactivity, and taste and odor (SARWQCB, 2016).

The *Water Quality Control Plan for the Santa Ana River Basin Region 8* (Basin Plan) provides the framework for the RWQCB's regulatory program. Specifically, it:

1. Sets forth surface and groundwater quality standards for the Santa Ana Region;
2. Identifies beneficial uses of water and discusses objectives that shall be maintained or attained to protect those uses;
3. Provides an overview of types of water quality issues, and discusses them in the context of potential threats to beneficial uses;
4. Denotes recommended or required control measures to address the aforementioned water quality issues;
5. Prohibits certain types of discharge in particular areas of the Region;
6. Summarizes relevant State Board and Regional Board planning and policy documents, and discusses other relevant water quality management plans adopted by federal, state, and regional agencies; and
7. Identifies past and present water quality monitoring programs, and discusses monitoring activities that could be implemented in future Basin Plan updates.

Overall, the Basin Plan functions as the regulatory authority for water quality standards established in local NPDES permits and other RWQCB decisions.

Local

Orange County Flood Control District

The 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 (County of Orange, 2017).

City of Fountain Valley Municipal Code

The City of Fountain Valley Municipal Code (Municipal Code Title 14, Chapter 14.40) requires that local agencies implement regulations to control stormwater pollution. The specific regulations are pursuant to the NPDES Permit System, as described above (City of Fountain Valley, 2017).

City of Huntington Beach Municipal Code

The SWRCB 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, Erosion Control, for construction periods, addresses the issue of soil loss. The requirements include preparation and implementation of a 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 (City of Huntington Beach, 2017a).

The City's Water and Sewer Code (Municipal Code Title 14, Chapter 14.24), contain information regarding water pollution, including storm drain and sewer use regulations and permitting requirements. Municipal Code Title 14, Chapter 14.25 contains stormwater and urban runoff management requirements for the City, including illicit connections, prohibited discharges, redevelopment specifications, and permit information (City of Huntington Beach, 2017a).

City of Huntington Beach Emergency Management & Homeland Security Program

The City of Huntington Beach established the Emergency Management & Homeland Security Program to coordinate emergency preparedness activities of the City. The program includes emergency response plans and the fire stations within the City have warning sirens that would be used in the event of a tsunami. The City has additional emergency alerting systems including radio and television broadcasts and phone messages (City of Huntington Beach, 2017b).

3.8.3 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 program would result in a significant impact to hydrology or water quality if it would:

- Violate any water quality standards or waste discharge requirements (see Impact 3.8-1, below);
- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted) (see Impact 3.8-2, below);
- Substantially alter the existing drainage pattern of a site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on- or off-site (see Impact 3.8-3, below);
- Substantially alter the existing drainage pattern of a site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site (see Impact 3.8-3, below)
- 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 (see Impact 3.8-3, below);
- Otherwise substantially degrade water quality (see Impact 3.8-1, below);
- 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 (see Section 4.1.6 in Chapter 4.0, Other CEQA Considerations);

- Place within a 100-year flood hazard area structures that would impede or redirect flood flows (see Impact 3.8-4, below);
- 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 (see Impact 3.9-5, below);
- Expose people or structures to a significant risk of loss, injury or death involving inundation by seiche, tsunami, or mudflow (see Impact 3.8-6, below).

Methodology

Hydrology and water quality information for the program area was derived from various sources and compiled in this section to develop a comprehensive understanding of the potential for adverse hydrologic and water quality impacts associated with construction and operation of the proposed program.

Impacts Discussion

Water Quality Standards and Waste Discharge Requirements

Impact 3.8-1: The proposed program would have less than significant and less than cumulatively considerable water quality impacts and would not otherwise violate water quality standards or substantially degrade water quality.

Program Impact Analysis

Construction

The proposed program would require earthwork activities such as site preparation, grading, stockpiling of soils and excavation. These construction activities would involve the disturbance of surface soils. Once disturbed, these soils could be exposed to the effects of wind and water erosion causing sedimentation in stormwater runoff. Construction would also involve use of chemicals and solvents such as fuel and lubricating grease for motorized heavy equipment. Inadvertent spills or releases of such chemicals could cause an adverse water quality impact. Please refer to Section 3.7, Hazards and Hazardous Materials section for additional information.

Construction of the proposed facilities would be subject to a General Construction Permit under the NPDES permit program of the federal Clean Water Act. As required under the General Construction Permit, the contractor would prepare and implement a SWPPP. The SWPPP requires submission of a notice of intent (NOI) application to the Santa Ana Regional Water Quality Control Board prior to construction activities. Implementation of the SWPPP would be consistent with the Orange County Stormwater Program and Orange County NPDES Permit, and would begin with the commencement of construction and continue through the completion of each individual project. The objectives of a SWPPP is to identify pollutant sources (such as sediment) that may affect the quality of stormwater discharge and to implement best management practices (BMPs) to reduce pollutants in stormwater.

Erosion control BMPs identified in the SWPPP would be used to prevent the degradation of water quality in the construction areas. BMPs that could be used to enhance erosion control include scheduling to avoid wet weather events; hydraulic mulching; hydroseeding; using soil binders; straw mulching; using geotextiles, plastic covers, and erosion control blankets/mats; and wood

mulching. BMPs would also include practices for proper handling of chemicals such as avoidance of fueling at the construction site and overtopping during fueling, and installation of containment pans. Further, implementation of standard construction procedures and precautions as discussed in Section 3.7, Hazards and Hazardous Materials, and compliance with the Orange County Stormwater Program requirements would also ensure that the water quality impacts related to the handling of hazardous materials from proposed program construction would be less than significant.

Further, the program area contains shallow groundwater, which could potentially interfere with construction activities, requiring groundwater dewatering in support of construction. Dewatering may be required in order to facilitate the construction of underground facilities, such as structural building and tank foundations for treatment plant facilities. If groundwater dewatering is determined to be necessary during construction, compliance with a SARWQCB Groundwater Dewatering General Permit would be required. Dewatering typically involves the extraction of shallow groundwater and subsequent discharge into the existing plant-wide drainage system and conveyed to headworks to be treated, then discharged into the Pacific Ocean. Compliance with the conditions of this general permit would ensure that dewatering discharges would not elevate pollutant concentrations beyond existing water quality limitations, or otherwise affect beneficial use of receiving waters.

Compliance with these permits during construction of all facilities would minimize potential release of pollutants via storm water runoff from construction sites and reduce the potential for violation of water quality standards to less than significant.

Operation

All proposed facilities would be located within the existing Plant No. 2 and Plant No. 1 footprints. The presence of new facilities at each program site may increase impervious surfaces that could increase stormwater runoff, if uncontrolled. Based on OCSD standard practice, any increased runoff within each treatment plant would be captured onsite and delivered to the onsite wastewater treatment system for treatment.

OCSD frequently updates their On-Site Stormwater Management Plan (OSSWMP). The OSSWMP regulates stormwater management for both OCSD treatment plants and stormwater management during operation of Plant No. 2 and Plant No. 1. The OSSWMP is frequently updated and complies with the Orange County NPDES Permit described above. Therefore, no substantial adverse impacts to water quality would occur and operational impacts would be less than significant.

Significance Determination before Mitigation: Less than Significant

Cumulative Impact Analysis

During construction, disturbed soils could be exposed to the effects of wind and water erosion causing sedimentation in stormwater runoff. As future cumulative development occurs, projects within the program vicinity could result in temporary impacts to surface hydrology and water quality. However, all related projects above one acre would be subject to federal, State, and local regulations regarding implementation of best management practices under the CGP and SWPPP.

Therefore, cumulative development is not expected to contribute to a violation of water quality standards, waste discharge requirements, or otherwise substantially degrade water quality.

The OCSD OSSWMP regulates stormwater management for both OCSD treatment plants and stormwater management during operation of Plant No. 1 and Plant No. 2. The OSSWMP is frequently updated and complies with the Orange County NPDES Permit described above. Compliance with the NPDES permit, SWPPP best management practices, and OCSD OSSWMP regulations would ensure that construction and operation of the program would not result in a violation of water quality standards, waste discharge requirements, or otherwise substantially degrade water quality. Further, all stormwater is captured and treated on-site; therefore, the program's incremental contribution to cumulative impacts associated with water quality and waste discharge requirements off-site would not be cumulatively considerable.

Significance Determination before Mitigation: Less than Significant

Mitigation Measures

Program Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

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Groundwater Supplies and Recharge

Impact 3.8-2: The proposed program would have less than significant and less than cumulatively considerable groundwater impacts due to potentially depleting groundwater supplies or interfering with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level.

Program Impact Analysis

Construction

During construction, the program area would be watered during dry and windy conditions to prevent dust and debris from migrating off-site. The demand for construction watering would be minor and temporary during intermittent construction times. Further, groundwater may be encountered in excavations below approximately 3 feet during construction of the proposed program. Dewatering typically involves the extraction of shallow groundwater and subsequent discharge into the existing plant-wide drainage system and conveyed to the headworks to be treated, then discharged into the Pacific Ocean. Dewatering as part of the construction of proposed program components would not directly interfere with groundwater supplies or interfere substantially with groundwater recharge. Impacts would be less than significant.

Operation

The proposed program includes the construction of new biosolids handling facilities to reduce the structural and seismic risk of structures over time, phase-out diversion of biosolids organics for landfills, transition from Class B to Class A biosolids, and increase digester gas production to be used as renewable energy. Operation of the proposed facilities would have no direct effect on groundwater supplies or interfere with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table. No impact would occur.

Significance Determination before Mitigation: Less than Significant

Cumulative Impact Analysis

Future cumulative development within the program vicinity could develop properties that would require large amounts of water such as residential tracts, or could develop on areas utilized for groundwater recharge. The proposed program may require minor dewatering during construction activities. Dewatering typically involves the extraction of shallow groundwater. Because the proposed program would be implemented within Plant No. 1 and Plant No. 2, the water collected after dewatering would discharge into the plant-wide drainage system, be treated on-site, then would be discharged to the Pacific Ocean. Dewatering would not remove large amounts of groundwater such that the program would interfere with regional groundwater supplies. The proposed program would not construct or operate facilities on areas used for groundwater recharge or directly extract groundwater for operational processes. Therefore, the proposed program would not contribute to cumulative extraction of groundwater supplies. Impacts of the project would be less than cumulatively considerable.

Significance Determination before Mitigation: Less than Significant

Mitigation Measures

Program Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Drainage Patterns

Impact 3.8-3: The proposed program would result in less than significant and less than cumulatively considerable impacts due to potentially altering the existing drainage pattern of a site or area, including the alteration of the course of a stream or river, in a manner that would result in substantial erosion, siltation, or flooding on- or off-site.

Program Impact Analysis

Construction

Plant No. 1 and Plant No. 2 do not contain a stream or river or convey stormwater to a stream or river, and therefore, the proposed facilities would not alter the course of a stream or river. The Santa Ana River is located adjacent to Plant No. 1 and Plant No. 2; however, stormwater drainage from the program area would not be conveyed to the Santa Ana River. Implementation of the proposed program would add impervious surfaces to the program area and increase surface water runoff that could alter existing drainage patterns within the program area in other ways. The construction of proposed facilities would require activities such as pavement breaking, ditching, excavation and demolition, which would temporarily alter each site's existing ground surface and drainage patterns. Compliance with the CGP and SWPPP, as described previously, would require the implementation of BMPs that manage overland runoff from construction sites and establish permanent drainage pathways to stabilized outlets. With implementation of such BMPs and compliance with conditions of required permits governing storm water runoff from construction sites, potential onsite flooding impacts would be less than significant and discharges from construction areas would not exceed the capacity of the existing plant-wide storm water drainage system. These procedures and practices would also ensure that erosion or siltation from each construction area would be less than significant.

Operation

During operation, the proposed program would not involve activities that could substantially impact local drainage patterns such as substantial grading, topographic alteration, or impacts to drainages or storm drain facilities. However, the presence of new facilities within the program area and changes in the extent of permeable or impermeable surfaces could alter the direction and volume of overland flows during both wet and dry periods. Further, following demolition of the remaining digesters on Plant No. 2 (P2-508), the program area would be highly disturbed and this could alter the existing drainage pattern of the site.

The proposed program components are designed to implement new drainage facilities to accommodate potential changes in overland flow after program implementation. The new drainage facilities would connect to the existing plant-wide drainage system, which is adequate to capture/convey flows to OCSD headworks. Therefore, the proposed program would not alter the existing drainage pattern of the program area in a way such that substantial flooding, erosion, or siltation would occur. Impacts would be less than significant.

Significance Determination before Mitigation: Less than Significant

Cumulative Impact Analysis

Future cumulative development within the program vicinity could result in impacts to drainage patterns that may result in erosion, siltation, flooding, or insufficient capacity of drainage systems. Stormwater that falls onto the treatment plants is collected and conveyed to the treatment facilities and discharged to the ocean. The proposed project does not contribute to cumulative modifications to drainages. Implementation of the proposed program would result in less than cumulatively considerable impacts associated with drainage patterns.

Significance Determination before Mitigation: Less than Significant

Mitigation Measures

Program Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

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Structures: Flood Hazard Area

Impact 3.8-4: The proposed program would have less than significant and less than cumulatively considerable flooding impacts on structures because the program would not place within a 100-year flood hazard area structures that could impede or redirect flood flows.

Program Impact Analysis

Construction

The program area is located adjacent to the Santa Ana River, the Pacific Ocean, and wetlands; however, the area is protected from flooding by walls and levees constructed by the U.S. Army Corps of Engineers in 1995. The FEMA Flood Insurance Rate Maps (FIRM) for the program area shows that the program area is located within the 500-year floodplain, or Zone X, “Reduced Risk Due to Levees” location. The OCFCD owns and maintains the Santa Ana River levees. Further, OCSD routinely implements levee repairs and soil stabilization projects along the Santa Ana River embankment. Accordingly, the program will have a less than significant flooding impacts on structures.

Operation

Impacts would be the same as those identified above for construction.

Significance Determination before Mitigation: Less than Significant

Cumulative Impact Analysis

No future developments within the program vicinity are proposed within a 100-year flood hazard area such that they would impede or redirect flows. Future projects in the program vicinity could be located adjacent to the Santa Ana River, but these would be protected by the existing levee and would not fall within the 100-year flood hazard area. Therefore, cumulative development would result in less than significant cumulative flooding impacts on structures.

Significance Determination before Mitigation: Less than Significant

Mitigation Measures

Program Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

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Flood Hazards: Levee or Dam Failure

Impact 3.8-5: The proposed program would have less than significant and less than cumulatively considerable impacts from the exposure of 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.

Program Impact Analysis

Construction

The program area is located downstream of the Prado Dam and within the inundation area of Prado Dam. Improvements to Prado Dam to provide downstream protection from a 100-year flood have been completed. Although the proposed program improvements would be located within the inundation area of Prado Dam, failure of Prado Dam is not expected because Prado Dam was recently improved within the last 20 years and regularly maintained by the USACE. In addition, the Santa Ana River levee provides protection to the wastewater treatment facilities on Plant No. 1 and Plant No. 2 adjacent to the River from a 100-year flood. Failure of the River levee is also not expected because the levee included recent improvements and is regularly maintained. Therefore, the proposed facilities would result in less than significant flooding impacts as a result of the failure of a levee or dam.

Operation

Impacts would be the same as those identified above for construction.

Significance Determination before Mitigation: Less than Significant

Cumulative Impact Analysis

Future cumulative development within the program vicinity would be located downstream of Prado Dam and within the inundation area of Prado Dam. Improvements to Prado Dam to provide downstream protection from a 100-year flood have been completed. In addition, the Santa Ana River levee provides protection to urban development adjacent to the River from a 100-year flood. Therefore, cumulative development would result in less than significant impacts regarding exposure of people or structures to a significant risk of loss, injury or death as a result of the failure of a levee or dam. Both Prado Dam and the Santa Ana River Levee have been recently improved and regularly maintained by the USACE and various local entities. The proposed program would construct and operate facilities within the boundaries of Plant No. 1 and Plant No. 2. Although the proposed improvements would be located within the Prado Dam inundation area and adjacent to the Santa Ana River Levee, the proposed program would not impact or alter conditions in a way such that the program would increase or impact flooding risks of cumulative development off-site. Therefore, the proposed program's contribution to cumulative flooding impacts would be less than cumulatively considerable.

Significance Determination before Mitigation: Less than Significant

Mitigation Measures

Program Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

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Seiche, Tsunami or Mudflow

Impact 3.8-6: **The proposed program could have significant and cumulatively considerable impacts from the exposure of people or structures to a significant risk of loss, injury, or death involving inundation by seiche, tsunami, or mudflow.**

Program Impact Analysis

Construction

A seiche is the sloshing of a closed body of water from earthquake shaking. No closed bodies of water are located near the program area. Therefore, the implementation of the proposed program would not expose people or structures to a significant risk of loss, injury or death involving inundation by seiche. Further, the proposed program components would be located in relatively flat areas within the existing treatment plant boundaries, which would not be susceptible to mudflows. No impacts regarding seiches or mudflows would occur.

A tsunami is a sea wave of local or distant origin that results from large-scale seafloor displacements associated with earthquakes, major submarine slides or exploding volcanic islands. An event such as an earthquake creates a large displacement of water resulting in a rise or mounding at the ocean surface that moves away from this center as a sea wave. The California Emergency Management Agency (CEMA) has created tsunami inundation area maps to assist cities in the development of emergency response plans if such an event were to occur. Plant No. 1 is located approximately four miles from the Pacific Ocean and Plant No. 2 is located 0.25 mile from the Pacific Ocean. Based on a review of the CEMA tsunami inundation map, facilities proposed at Plant No. 1 would not be affected by tsunami inundation areas; however, facilities within Plant No. 2 could be impacted by tsunami inundations. Because the proposed BMP facilities would not include resident populations, and the City of Huntington Beach has an Emergency Management and Homeland Security Program which includes procedures and evacuation plans in the event of flooding caused by tsunamis, potential tsunami impacts are considered less than significant.

In addition to tsunamis, sea level rise is a potential impact. Climate changes could potentially affect: the amount of snowfall, rainfall and snow pack; the intensity and frequency of storms; flood hydrographs (flash floods, rain or snow events, coincidental high tide and high runoff events); sea level rise and coastal flooding; coastal erosion; and the potential for salt water intrusion. Sea level rise can be a product of global warming through two main processes: expansion of seawater as the oceans warm, and melting of ice over land. A rise in sea levels could result in coastal flooding and erosion and could jeopardize California's water supply. Increased storm intensity and frequency could affect the ability of flood-control facilities, including levees, to handle storm events. The proposed program includes structures that would not be used as residences, and therefore, the implementation of the proposed facilities under the proposed program would not directly expose residents to potential sea level rise. Furthermore, the new treatment facilities would augment and update existing land use on the site, increasing the facility's resiliency to future sea level conditions. Implementation of the new projects does not change the risk of inundation from sea level rise or tsunami on vital public infrastructure compared to existing conditions. The existing treatment facility is consistent with the LCP and will be subject to LCP requirements regarding sea level rise as they are adapted or updated in the future. As a result, the proposed program would result in a less than significant sea level rise impact.

Operation

Impacts would be the same as those identified above for construction.

Significance Determination before Mitigation: Less than Significant

Cumulative Impact Analysis

Future cumulative development in the program vicinity would not be exposed to seiches or mudflows because there are no closed bodies of water located near the program vicinity and the program vicinity contains relatively flat topography that would not be susceptible to mudflows. Therefore, cumulative development would result in no impacts related to seiches or mudflows.

Because the program area would not be exposed to seiches or mudflows, the implementation of the proposed facilities would not contribute to cumulative impacts from seiches or mudflows.

Future cumulative development could expose people or structures to a significant risk of loss, injury, or death involving inundation by tsunamis. However, because the City of Huntington Beach has an Emergency Management and Homeland Security Program which includes procedures and evacuation plans in the event of flooding caused by tsunamis, potential cumulative tsunami impacts are considered less than significant. Like all other cumulative development, OCSD would coordinate and follow the appropriate procedures and plans identified by the City of Huntington Beach if a tsunami were to occur. The proposed program would not directly contribute to or effect tsunami impacts that may occur with cumulative development. The proposed program would result in a less than cumulative considerable impact regarding tsunamis.

Cumulative development includes residential development that could expose future residents to sea level rise impacts. The proposed program does not contribute to new development along the coast that could be subject to sea level rise impacts since the proposed project augments existing land use already subject to future climate change effects. The proposed program would enhance the vital public infrastructure, increasing its resiliency to climate change effects and would not result in cumulatively considerable impacts.

Significance Determination before Mitigation: Less than Significant

Mitigation Measures

Program Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

3.8.4 References

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3.9 Land Use and Planning

This section describes the existing land uses of the program area, as well as applicable regulatory framework, and potential land use impacts associated with implementation of the proposed program.

3.9.1 Environmental Setting

Regional Setting

Both OCSD Plant No. 1 and Plant No. 2 are located in Orange County (County). The County encompasses approximately 798 square miles of land, bound by Los Angeles County to the north and northwest, San Bernardino County to the northeast, Riverside County to the east, and San Diego County to the southeast. Orange County is made up of 34 cities with a total land area of approximately 606,720 acres. Each incorporated city within Orange County has its own General Plan with specific land use designations. The County incorporates 40 miles of coastline and extends 20 miles inland, has 33 beaches, and serves a population of over 3 million residents (County of Orange, 2015).

The Orange County General Plan describes unincorporated Orange County as being predominately rural and natural in character; while all incorporated cities are urbanized and predominantly contain dense residential and mixed-use land uses. Approximately 74 percent (130,433 acres) of the unincorporated area in Orange County is designated as Open Space, while approximately 23 percent is designated as rural and suburban residential (County of Orange, 2015). Primary natural features within Orange County include: the SAR, which flows through the northwestern portion of the County and eventually into the Pacific Ocean; and the Cleveland National Forest, which is predominantly within the southeastern portion of Orange County (County of Orange, 2015).

Existing Land Uses in the Program Area

Plant No. 1 is located in the City of Fountain Valley, which is geographically located just north of the cities of Huntington Beach, Costa Mesa, and Newport Beach, and just south of the cities of Santa Ana and Anaheim (City of Fountain Valley, 2017). The City is entirely land-locked and heavily urbanized with a mix of residential, commercial and industrial uses. The City contains predominantly flat terrain and is largely characterized by one or two-story structures (City of Fountain Valley, 1995). The proposed P2-503B, Plant 2 Collections Yard Relocation project is planned to be located within the boundaries of Plant No. 1, which is zoned as Specific Plan (SP) (City of Fountain Valley, 2013). Plant No. 1 is bound by Ellis Avenue to the north, OCWD and Ward Street to the west, Garfield Avenue to the south, and the SAR and SAR Trail to the east. Residential neighborhoods are located west of Ward Street, commercial uses are located north of Ellis Avenue, and industrial uses are located just south of Garfield Avenue.

Plant No. 2 is located in the City of Huntington Beach, which is geographically located in the northwestern portion of Orange County along the Pacific Ocean. The City is bound by the Pacific Ocean to the southwest, the City of Seal Beach to the northwest, the City of Westminster to the

north, the City of Fountain Valley to the northeast, and the cities of Newport and Costa Mesa to the east. The City contains a mix of coastal resources, protected open spaces, residential, commercial and industrial uses (City of Huntington Beach, 2017a). The City is within the California Coastal Zone, and therefore, as required under the California Coastal Act, is part of a Local Costal Program. The City's coastal program is divided into two components; a Coastal Element and Implementation Program (City of Huntington Beach, 2017b).

Other than P2-503B, all BMP projects would be located within the boundaries of Plant No. 2, which is zoned as Industrial Limited (IL) (City of Huntington Beach, 2015). Plant No. 2 is bound by residential areas located approximately 375 feet north of the intersection of Baybreeze Drive and Brookhurst Street to the north, Brookhurst Street and residential areas to the west, the SAR and SAR Trail to the east, and Talbert Marsh, PCH and the Pacific Ocean to the south.

3.9.2 Regulatory Framework

State

California Government Code Section 53091

California Government Code Section 53091 specifies that wastewater treatment facilities such as those associated with the proposed program, are exempt from zoning restrictions. Specifically, Section 53091 states:

(d) Building ordinances of a county or city shall not apply to the location or construction of facilities for the production, generation, storage, treatment, or transmission of water, wastewater, or electrical energy by a local agency.

(e) Zoning ordinances of a county or city shall not apply to the location or construction of facilities for the production, generation, storage, treatment, or transmission of water.

California Coastal Commission

The California Coastal Commission (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).

Regional

Southern California Association of Governments

SCAG is the designated Metropolitan Planning Organization (MPO) for six counties: Los Angeles, Orange, San Bernardino, Riverside, Ventura, and Imperial. As the designated MPO for the region, SCAG is mandated by the federal government to research and create plans for transportation, growth management, hazardous waste management, and air quality. SCAG's major responsibilities include:

- Maintenance of a continuous, comprehensive, and coordinated planning process resulting in a Regional Transportation Plan (RTP) and a Regional Transportation Improvement Program (RTIP).
- Development of demographic projections plus the integrated land use, housing, employment, transportation programs, measures, and strategies portions of the South Coast Air Quality Management Plan (AQMP), as well as serving as co-lead agency for air quality planning for the Central Coast and Southeast Desert air basin districts.
- Responsibility under the federal Clean Air Act (CAA) for determining whether projects, plans, and programs conform to the CAA.
- To function as the authorized regional agency for intergovernmental review of programs proposed for federal financial assistance and direct development activities.
- Review of environmental impact reports for projects having regional significance for consistency with regional plans.
- To function as the authorized area-wide waste treatment management planning agency pursuant to federal water pollution control statutes.
- Responsibility under state law for preparation of the Regional Housing Needs Assessment (RHNA).

Because the proposed program is a project with regional significance, per CEQA Guidelines Sections 15125(d) and 15206, the proposed program would be submitted to SCAG. However, these regional plans provide policies for population, housing and employment growth within the region. The implementation of the proposed program would upgrade the existing OCSD biosolids handling facilities at Plant No. 2, including a relocation of a collection yard to Plant No. 1. This upgrade would not result in urban growth, and therefore, the policies related to the regional plans such as the Regional Comprehensive Plan and Guide (RCPG), the RTP, and the Compass Blueprint Growth Vision are not applicable to the proposed program. This PEIR, however, uses the adopted SCAG population, housing and job forecasts for the cities in the vicinity to evaluate cumulative impacts.

Local

City of Fountain Valley General Plan

The Land Use Element of the City of Fountain Valley General Plan designates the proposed general distribution and general location and extent of the uses of land for housing, business, industry, open space, and other categories of public and private uses of land. The land use element regulates the uses of City land through established goals and policies.

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 (City of Huntington Beach, 2017c).

City of Huntington Beach, Zoning Code Designation

The zoning designation for Plant No. 2 includes:

- **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 provides areas to accommodate only oil operations with no drilling.

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. LCPs 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 (City of Huntington Beach, 2017b).

City of Huntington Beach General Plan, 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 (City of Huntington Beach, 2012). The following are objectives and policies applicable to the proposed program:

> **C 1.1** Ensure that adverse impacts associated with coastal zone development are mitigated or minimized to the greatest extent feasible

C 4.1.4: Preserve skyward, night time views through minimization of lighting levels along the shoreline.

C 4.2: Promote the protection of the Coastal Zone's visual and aesthetic resources through design review and development requirements.

C 4.2.1: Ensure that the following minimum standards are met by new development in the Coastal zone as feasible and appropriately:

a) Preservation of public views to and from the bluffs, to the shoreline and ocean and to the wetlands.

b) Adequate landscaping and vegetation.

c) Evaluation of project design regarding visual impact and compatibility.

d) Incorporate landscaping to mask oil operations and major utilities, such as the electrical power plant on PCH.

C 4.2.2: Require that the massing, height, and orientation of new development be designed to protect public coastal views.

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

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.6.1.7 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 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.

City of Huntington Beach Zoning Code

Chapter 221 CZ Coastal Zone Overlay District was established to 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 (City of Huntington Beach, 2017d). Applicable codes include:

221.10 Requirements for New Development Adjacent to Resource Protection Area

As a condition of new development adjacent to a resource protection area, which includes any wetland, environmentally sensitive habitat area (ESHA), associated buffers, land zoned coastal conservation, as the same are defined in the City's Local Coastal Program, an applicant shall comply with the requirements listed below. These requirements shall be applicable to all lots within new subdivisions as well as development proposed on existing lots within and/or adjacent to resource protection areas.

G. Protective fencing or barriers shall be installed and maintained between the resource protection areas and areas developed for homes or recreational use for the purpose of minimizing human and domestic animal presence in resource protection areas, including restored and preserved wetland and ESHA buffer areas; however, public access to designated passive recreational use areas shall be provided. Visual impacts created from any walls or barriers adjacent to open space conservation and passive recreational use areas shall be minimized through measures such as open fencing/wall design, landscape screening, use of undulating or off-set wall features, etc.

H. Walls, fences, gates and boundary treatments shall use wood, wrought iron, frosted or partially-frosted glass or other visually permeable barriers that are designed to prevent creation of a bird strike hazard. Clear glass or plexiglass shall not be installed unless appliqués (e.g. stickers/decals) designed to reduce bird-strikes by reducing reflectivity and transparency are also used.

I. Uses allowed adjacent to designated wetlands and environmentally sensitive habitat areas shall ensure the continuance of the habitat value and function of preserved and restored wetlands and ESHA. (3834-7/09, 3903-12/10 (certified by California Coastal Commission 12/10))

221.14 Preservation of Visual Resources

A. An applicant proposing new development shall provide the director with an evaluation of the project's visual impact, and incorporate in its design, to the satisfaction of the director, the following elements:

1. Preservation of public views to and from the bluffs, to the shoreline and ocean, and to the wetlands;
2. Preservation of existing mature trees to the maximum extent feasible.

221.22 Buffer Requirements

As a condition of development adjacent to environmentally sensitive habitats delineated in the General Plan and, for development in the coastal zone, environmentally sensitive habitats identified in the Local Coastal Program, a minimum 100-foot buffer from the edge of the habitat as determined by a site specific biological assessment area shall be provided. In the case of substantial development or significantly increased human impacts, a wider buffer may be required in accordance with an analysis of the factors identified in subsections A through C of this section. If the existing development or site configuration cannot accommodate a 100-foot buffer, then the buffer shall be reviewed by the California Department of Fish and Game and designed to:

B. Ensure that the most sensitive species will not be disturbed significantly by permitted development, based on habitat requirements of both resident and migratory species, and the short- and long-term adaptability of various species to the presence of human beings

221.28 Maximum Height

A The maximum height limits within the CZ Overlay District are 35 feet for a residential structure and 50 feet for a commercial structure, or the base district height limit, whichever is lower.

3.9.3 Impacts and Mitigation Measures

Significance Criteria

The criteria used to determine the significance of impacts related to Land Use and Planning are based on Appendix G of the *CEQA Guidelines*. The proposed program would result in a significant impact to Land Use and Planning if it would:

- Physically divide an established community (see Section 4.1.7 in Chapter 4.0, Other CEQA Considerations);
- 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 purposed of avoiding or mitigating an environmental effect (see Impact 3.9-1 below); or
- Conflict with any applicable habitat conservation plan or natural community conservation plan (see Section 4.1.7 in Chapter 4.0, Other CEQA Considerations).

Methodology

The analysis of land use consistency impacts considers whether the proposed program would be in conformance with local plans, policies and regulations that are applicable to the proposed program. Consistent with the scope and purpose of this PEIR, this discussion primarily focuses on those goals and policies that relate to avoiding or mitigating environmental impacts, and an assessment of whether any inconsistency with these standards creates a significant physical impact on the environment. State CEQA Guidelines Section 15125(d) requires than an EIR discuss inconsistencies with applicable plans that the decision-makers should address. A project

need not be consistent with each and every policy and objective in a planning document. Rather, a project is considered consistent with the provisions of the identified local plans if it meets the general intent of the plans and would not preclude the attainment of the primary goals of the land use plan or policy.

Impacts Discussion

Conflict with Applicable Plans, Policies, or Regulations

Impact 3.9-1: The proposed program would have no impact and would not contribute to a cumulative environmental impact associated with an applicable land use plan, policy, or regulation of an agency with jurisdiction over the program.

Program Impact Analysis

The proposed facilities would be implemented entirely within the boundaries of Plant No. 1 and Plant No. 2. All facility improvements would be consistent with the character of the existing treatment plants and would not substantially alter the existing character of the surrounding environment.

Construction

Land Use Compatibility and Zoning

The Fountain Valley General Plan designates Plant No. 1 as a Specific Plan Area and is zoned as SP - Orange County Sanitation District (OCSD). Plant No. 1 contains light industrial and manufacturing uses. The property is developed with wastewater treatment facilities and other habitable structures for employees. The proposed project P2-503B, Collections Yard Relocation could be implemented within a northern or southern site within the Plant No. 1 boundary. The project would include a parking area with parking spaces and could potentially include a 25-foot tall, 20,000 square-foot structure. These uses are compatible with the existing character of the site and would not require any changes in zoning. Plant No. 1 is zoned specifically to allow facilities that support the treatment of water, including biosolids handling facilities, water conveyance, collections facilities, office buildings, parking, etc. The proposed collections yard and collection structure would be consistent with existing facilities on Plant No. 1; therefore, the proposed program components would not conflict with allowable uses within the SP - OCSD or existing neighboring land uses. No impacts would occur.

The City of Huntington Beach General Plan designates Plant No. 2 as a Public (P) land use and is zoned for Industrial Limited (IL) and Residential Agriculture with an Oil Overlay (RA-O). The proposed program components would be constructed entirely within the existing Plant No. 2 property. The proposed program would introduce facilities that are consistent with existing facilities on-site. The proposed program components would not conflict with allowable uses as described within the IL and RA-O zones (see above), nor would the proposed program facilities impact existing neighboring land uses.

Plant No. 2 is also located within the City of Huntington Beach's Coastal Zone and is subject to the City's Local Coastal Program. **Table 3.9-1** lists the goals and policies from the City of Huntington Beach General Plan Coastal Element and the City of Huntington Beach Zoning Code that are relevant to the proposed program, and provides a discussion of the proposed program's level of consistency with each policy/goal. The Coastal Element and Zoning Code for the Coastal Overlay Zone make up the City of Huntington Beach's Local Coastal Program.

TABLE 3.9-1
BIOSOLIDS MASTER PLAN CONSISTENCY ANALYSIS – CITY OF HUNTINGTON BEACH LOCAL COASTAL PROGRAM

General Plan Coastal Element and Coastal Overlay Zoning Code - Goals and Policies	Consistency Determination	Analysis
C 1.1: Ensure that adverse impacts associated with coastal zone development are mitigated or minimized to the greatest extent feasible.	Consistent	The proposed program would construct biosolids handling facilities within the existing Plant No. 2 boundary. The proposed facilities are not anticipated to impact resources surrounding Plant No. 2 within the coastal zone. The proposed program would implement mitigation measures to reduce potentially significant impacts to less than significant levels. Therefore, the proposed program would be consistent with this goal.
C4.1.4: Preserve skyward, night time views through minimization of lighting levels along the shoreline.	Consistent	Construction of the proposed facilities would take place during the hours of 7:00 a.m. and 8:00 p.m., Monday through Friday. No overnight construction would occur; therefore, lighting for construction activities would not be required. All new permanent exterior lighting associated with proposed program facilities would be shielded and directed downward to avoid light intrusion to surrounding uses. Further, all proposed program facilities would comply with existing and future lighting ordinances for the City of Huntington Beach. Therefore, the proposed program would be consistent with this policy.
C4.2: Promote the protection of the Coastal Zone's visual and aesthetic resources through design review and development requirements.	Consistent	At Plant No. 2, the presence of permanent facilities could be viewed from surrounding areas. None of the proposed facilities would require a height variance or be taller than existing facilities onsite; therefore, the new facilities would not have the size or massing to obstruct distant views of aesthetic resources within the proposed program area. The new facilities would blend in with the existing visual character of Plant No. 2 and would abide by all development requirements as required by the Coastal Zone Overlay. Therefore, the proposed program would be consistent with this goal.
C.4.2.1: Ensure that the following minimum standards are met by new development in the Coastal zone as feasible and appropriately: a) Preservation of public views to and from the bluffs, to the shoreline and ocean and to the wetlands. b) Adequate landscaping and vegetation. c) Evaluation of project design regarding visual impact and compatibility. d) Incorporate landscaping to mask oil operations and major utilities, such as the electrical power plant on PCH.	Consistent	One of the initial projects of the proposed program includes the Southwest Perimeter Screening project which would improve or replace the existing Plant No. 2 perimeter screening along Brookhurst Street and the Talbert Marsh. The perimeter screening would be extended up to approximately 1,600 feet in length along Brookhurst Street and up to approximately 1,030 feet along Talbert Marsh. The improved screening would obstruct the majority of the views of construction equipment and new facilities. This screening includes landscaping and vegetation to partially screen facilities and preserve landscape corridor views along Brookhurst Street and PCH. None of the proposed facilities would require a height variance or be taller than existing facilities onsite; therefore, the new facilities would not have the size or massing to obstruct public views the shoreline, ocean, and wetlands. See Section 3.1 of this PEIR for further detail. The proposed program would be consistent with this policy.
C4.2.2: Require that the massing, height, and orientation of new development be designed to protect public coastal views	Consistent	As mentioned above, none of the proposed facilities would require a height variance or be taller than existing facilities onsite; therefore, the new facilities would not have the size or massing to obstruct public views of the shoreline, ocean, and wetlands. Therefore, the proposed program would be consistent with this policy.

General Plan Coastal Element and Coastal Overlay Zoning Code - Goals and Policies	Consistency Determination	Analysis
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 where necessary and feasible.	Consistent	The proposed program would implement mitigation measures and monitoring practices to reduce potential impacts to local species to less than significant levels. See Section 3.3 for more detail. Activities associated with the proposed program are expected to result in less than significant impacts on local marine organisms located within the Talbert Marsh and SAR. The proposed program would be consistent with this goal.
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	Consistent	The proposed program would comply with the General Construction Permit and NPDES during construction and operation of all facilities. Compliance with these permits would minimize potential release of pollutants via storm water runoff and reduce the potential for degradation of water quality on-site. All stormwater collected is treated onsite to appropriate standards. The proposed program would not degrade the water quality of basins, wetlands or surface water. Therefore, the proposed program would be consistent with this policy.
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.	Consistent	The proposed program would not impact species of special biological or economic significance. The proposed program includes mitigation measures to reduce all potential impacts to biological resources to less than significant. Therefore, the proposed program would be consistent with this policy.
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.	Consistent	The proposed program would improve existing biosolids facilities to prevent future failure of biosolids systems if a seismic event were to occur. After demolition and construction of these biosolids facilities, the facilities would be regularly maintained. The proposed program would reduce the chances of system failure at Plant No. 2. Therefore, the proposed program would be consistent with this policy.
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.	Consistent	The proposed program would be implemented within Plant No. 2, which is adjacent to the SAR Trail, the SAR, the Talbert Marsh Trail, and Talbert Marsh. The proposed program includes design features and mitigation measures to reduce potential impacts to resources to less than significant. The proposed program would not degrade aesthetic views to the areas or interfere with species located within these recreational and sensitive natural areas. Therefore, the proposed program would be consistent with this policy.
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.	Consistent	Plant No. 2 contains a property fence line, vegetated areas, berms, walls, and appropriate setback distances of facilities. The proposed program facilities would be located at least 100 feet away from the Talbert Marsh and surrounding wetlands. Further, the proposed perimeter screening would provide an updated buffer zone. Therefore, the proposed program would be consistent with this policy.

General Plan Coastal Element and Coastal Overlay Zoning Code - Goals and Policies	Consistency Determination	Analysis
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.	Consistent	In accordance with Sections 15063 and 15082 of the *CEQA Guidelines*, OCSD published a Notice of Preparation of a Draft EIR of the proposed program, and circulated it to the appropriate governmental agencies, organizations, and persons who may be interested in the proposed program. Therefore, the proposed program would be consistent with this policy.
G. Protective fencing or barriers shall be installed and maintained between the resource protection areas and areas developed for homes or recreational use for the purpose of minimizing human and domestic animal presence in resource protection areas, including restored and preserved wetland and ESHA buffer areas; however, public access to designated passive recreational use areas shall be provided. Visual impacts created from any walls or barriers adjacent to open space conservation and passive recreational use areas shall be minimized through measures such as open fencing/wall design, landscape screening, use of undulating or off-set wall features, etc.	Consistent	Described above, the Southwest Perimeter Screening project would improve or replace the existing Plant No. 2 perimeter screening along Brookhurst Street and Talbert Marsh. The improved screening would obstruct the majority of the views of construction equipment and new facilities. This screening includes landscaping and vegetation to partially screen facilities and preserve landscape views along Brookhurst Street and PCH. Therefore, the proposed program would be consistent with this code.
H. Walls, fences, gates and boundary treatments shall use wood, wrought iron, frosted or partially-frosted glass or other visually permeable barriers that are designed to prevent creation of a bird strike hazard. Clear glass or plexiglass shall not be installed unless appliqués (e.g. stickers/decals) designed to reduce bird-strikes by reducing reflectivity and transparency are also used.	Consistent	The Southwest Perimeter Screening Project would improve the Plant No. 2 boundary. The screening includes the addition of trees, vegetation, and/or berms. The screening would not include clear glass or other materials that could result in a bird strike hazard. Therefore, the proposed program would be consistent with this code.
I. Uses allowed adjacent to designated wetlands and environmentally sensitive habitat areas shall ensure the continuance of the habitat value and function of preserved and restored wetlands and ESHA. (3834-7/09, 3903-12/10 (certified by California Coastal Commission 12/10))	Consistent	The proposed program would implement biosolids facilities within the Plant No. 2 boundary. These uses are consistent with the allowable uses on-site. Further, the proposed program would not substantially impact the local wetlands or sensitive habitat located south of the proposed program area. Therefore, the proposed program would be consistent with this code.
A. An applicant proposing new development shall provide the director with an evaluation of the project's visual impact, and incorporate in its design, to the satisfaction of the director, the following elements: 1. Preservation of public views to and from the bluffs, to the shoreline and ocean, and to the wetlands; 2. Preservation of existing mature trees to the maximum extent feasible.	Consistent	At Plant No. 2, the presence of permanent facilities could be viewed from surrounding areas. None of the proposed facilities would require a height variance or be taller than existing facilities onsite; therefore, the new facilities would not have the size or massing to obstruct distant views of aesthetic resources within the proposed program area. The new facilities would blend in with the existing visual character of Plant No. 2 and would not substantially impact public views of the local shoreline, ocean, or wetlands. Therefore, the proposed program would be consistent with this code.

General Plan Coastal Element and Coastal Overlay Zoning Code - Goals and Policies	Consistency Determination	Analysis
B. Ensure that the most sensitive species will not be disturbed significantly by permitted development, based on habitat requirements of both resident and migratory species, and the short- and long-term adaptability of various species to the presence of human beings	Consistent	The proposed program would implement mitigation measures and practices to ensure that sensitive species within and around the proposed program area would not be substantially impacted during construction and operation of the proposed facilities. See Section 3.3 of this PEIR for further detail. Therefore, the proposed program would be consistent with this code.
A. The maximum height limits within the CZ Overlay District are 35 feet for a residential structure and 50 feet for a commercial structure, or the base district height limit, whichever is lower.	Consistent	The tallest proposed structure would be 40 feet in height. None of the proposed facilities would require a height variance or be taller than existing facilities onsite. Therefore, the proposed program would be consistent with this code.

As described above in Table 3.9-1, the proposed program is consistent with the goals, policies, and codes of the City of Huntington Beach Local Coastal Program that are relevant to the proposed program; therefore, the proposed program would not conflict with any applicable land use plan, policy, or regulation.

Operation

Impacts would be the same as those identified above for construction.

Significance Determination before Mitigation: No Impact

Cumulative Impact Analysis

Future cumulative development within the proposed program area could conflict with applicable land use plans, policies, or regulations of an agency with jurisdiction over the proposed program (including, but not limited to the general plan, specific plan, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect. Therefore, cumulative development within the program area could result in significant cumulative environmental effects due to land use incompatibilities and conflicts with land use plans, policies or regulations. The proposed program is entirely consistent with local and regional plans; therefore, the proposed program's contribution to cumulative land use impacts would not be cumulatively considerable.

Significance Determination before Mitigation: No Impact

Mitigation Measures

Program Measures

No mitigation measures are required.

Significance Determination after Mitigation: No Impact

Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: No Impact

3.9.4 References

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3.10 Noise

This section analyzes potential noise and vibration impacts that would result from the proposed program. The analysis describes the existing noise environment in the program area, estimates future noise and vibration levels at surrounding land uses resulting from construction and operation of the proposed program, and identifies the potential for significant impacts. An evaluation of the proposed program's contribution to potential cumulative noise impacts is also provided. Noise worksheets and technical information and data used in this analysis are provided in Appendix E of this Draft PEIR.

3.10.1 Environmental Setting

Noise and Vibration Basics

Noise Principles and Descriptors

Sound can be described as the mechanical energy of a vibrating object transmitted by pressure waves through a liquid or gaseous medium (e.g., air). Noise is generally defined as unwanted sound (i.e., loud, unexpected, or annoying sound). Acoustics is defined as the physics of sound. In acoustics, the fundamental scientific model consists of a sound (or noise) source, a receiver, and the propagation path between the two. The loudness of the noise source and obstructions or atmospheric factors affecting the propagation path to the receiver determines the sound level and characteristics of the noise perceived by the receiver. Acoustics addresses primarily the propagation and control of sound.

Sound, traveling in the form of waves from a source, exerts a sound pressure level (referred to as sound level) that is measured in decibels (dB), which is the standard unit of sound amplitude measurement. The dB scale is a logarithmic scale that describes the physical intensity of the pressure vibrations that make up any sound, with 0 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. 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 this frequency range. As a consequence, when assessing potential noise impacts, sound is measured using an electronic filter that deemphasizes the frequencies below 1,000 Hz and above 5,000 Hz in a manner corresponding to the human ear's decreased sensitivity to these extremely low and extremely high frequencies. This method of frequency filtering or weighting is referred to as A-weighting, expressed in units of A-weighted decibels (dBA), which is typically applied to community noise measurements. Some representative common outdoor and indoor noise sources and their corresponding A-weighted noise levels are shown in **Figure 3.10-1**.

Noise Exposure and Community Noise

An individual's noise exposure is a measure of noise over a period of time; a noise level is a measure of noise at a given instant in time, as presented in Figure 3.10-1. However, noise levels rarely persist at that level over a long period of time. Rather, community noise varies continuously over a period of time with respect to the sound sources contributing to the community noise environment. Community noise is primarily the product of many distant noise sources, which constitute a relatively stable background noise exposure, with many of the individual 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 changes in traffic volume. What makes community noise 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 change the community noise level from instant to instant, requiring the noise exposure to be measured over periods of time to legitimately characterize a community noise environment and evaluate cumulative noise impacts. The following noise descriptors are used to characterize environmental noise levels over time, which are applicable to the proposed program.

L_{eq}: The equivalent sound level over a specified period of time, typically, 1 hour (L_{eq}). The L_{eq} may also be referred to as the average sound level.

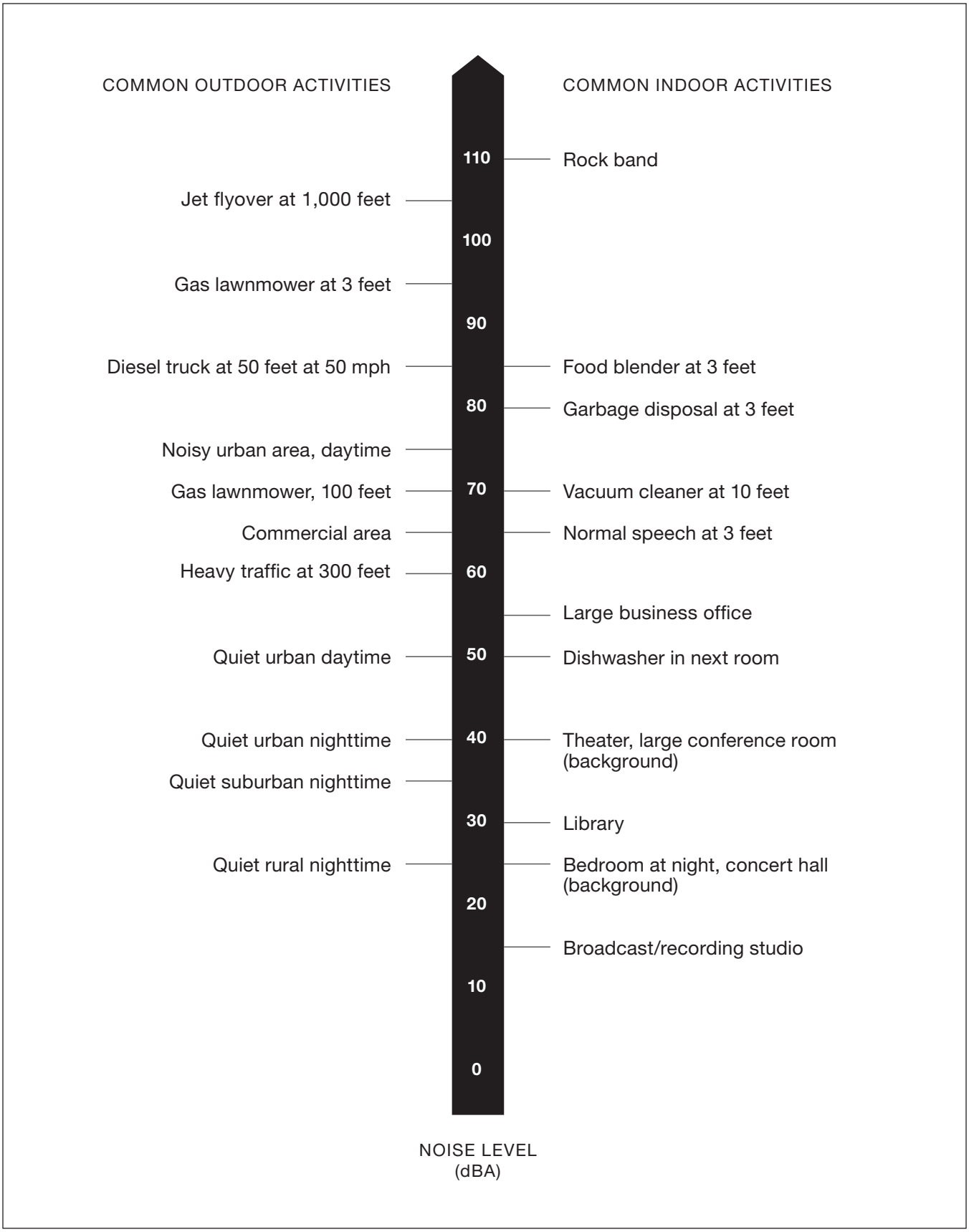
L_{max}: The maximum, instantaneous noise level experienced during a given period of time.

L_{min}: The minimum, instantaneous noise level experienced during a given period of time.

L_x: The noise level exceeded a percentage of a specified time period. For instance, L_{50} and L_{90} represent the noise levels that are exceeded 50 percent and 90 percent of the time, respectively.

L_{dn}: The average A-weighted noise level during a 24-hour day, obtained after an addition of 10 dB to measured noise levels between the hours of 10:00 p.m. to 7:00 a.m. to account nighttime noise sensitivity. The L_{dn} is also termed the day-night average noise level (DNL).

CNEL: The Community Noise Equivalent Level (CNEL) is the average A-weighted noise level during a 24-hour day that includes an addition of 5 dB to measured noise levels between the hours of 7:00 a.m. to 10:00 p.m. and an addition of 10 dB to noise levels between the hours of 10:00 p.m. to 7:00 a.m. to account for noise sensitivity in the evening and nighttime, respectively.



SOURCE: Caltrans

OCSD Biosolids Master Plan

Figure 3.10-1
Decibel Scale and Common Noise Sources

ESA

Effects of Noise on People

Noise is generally loud, unpleasant, unexpected, or undesired sound that is typically associated with human activity that is a nuisance or disruptive. The effects of noise on people can be placed into four general categories:

- Subjective effects (e.g., dissatisfaction, annoyance);
- Interference effects (e.g., communication, sleep, and learning interference);
- Physiological effects (e.g., startle response); and
- Physical effects (e.g., hearing loss).

Although exposure to high noise levels has been demonstrated to cause physical and physiological effects, the principal human responses to typical environmental noise exposure are related to subjective effects and interference with activities. Interference effects interrupt daily activities and include interference with human communication activities, such as normal conversations, watching television, telephone conversations, and interference with sleep. Sleep interference effects can include both awakening and arousal to a lesser state of sleep.

With regard to the subjective effects, the responses of individuals to similar noise events are diverse and influenced by many factors, including the type of noise, the perceived importance of the noise, the appropriateness of the noise to the setting, the duration of the noise, the time of day and the type of activity during which the noise occurs, and individual noise sensitivity. Overall, there is no completely satisfactory way to measure the subjective effects of noise, or the corresponding reactions of annoyance and dissatisfaction on people. 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 (i.e., comparison to the ambient noise environment). In general, the more a new noise level exceeds the previously existing ambient noise level, the less acceptable the new noise level will be judged by those hearing it. With regard to increases in A-weighted noise level, the following relationships generally occur (Caltrans, 2013a):

- Except in carefully controlled laboratory experiments, a change of 1 dBA in ambient noise levels cannot be perceived;
- Outside of the laboratory, a 3 dBA change in ambient noise levels is considered to be a barely perceivable difference;
- A change in ambient noise levels of 5 dBA is considered to be a readily perceivable difference; and
- A change in ambient noise levels of 10 dBA is subjectively heard as doubling of the perceived loudness.

These relationships occur in part because of the logarithmic nature of sound and the decibel scale. The human ear perceives sound in a non-linear fashion; therefore, the dBA scale was developed. Because the dBA scale is based on logarithms, two noise sources do not combine in a simple additive fashion, but rather logarithmically. Under the dBA scale, a doubling of sound energy corresponds to a 3 dBA increase. In other words, when two sources are each producing sound of

the same loudness, the resulting sound level at a given distance would be approximately 3 dBA higher than one of the sources under the same conditions. For example, if two identical noise sources produce noise levels of 50 dBA, the combined sound level would be 53 dBA, not 100 dBA. Under the dB scale, three sources of equal loudness together produce a sound level of approximately 5 dBA louder than one source, and ten sources of equal loudness together produce a sound level of approximately 10 dBA louder than the single source (Caltrans, 2013a).

Noise Attenuation

When noise propagates over a distance, the noise level reduces with distance depending on the type of noise source and the propagation path. Noise from a localized source (i.e., point source) propagates uniformly outward in a spherical pattern, referred to as "spherical spreading." Stationary point sources of noise, including stationary mobile sources such as idling vehicles, attenuate (i.e., reduce) at a rate between 6 dBA for acoustically "hard" sites and 7.5 dBA for "soft" sites for each doubling of distance from the reference measurement, as their energy is continuously spread out over a spherical surface (e.g., for hard surfaces, 80 dBA at 50 feet attenuates to 74 at 100 feet, 68 dBA at 200 feet, etc.). Hard sites are those with a reflective surface between the source and the receiver, such as asphalt or concrete surfaces or smooth bodies of water. No excess ground attenuation is assumed for hard sites and the reduction 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, which in addition to geometric spreading, provides an excess ground attenuation value of 1.5 dBA (per doubling distance) (Caltrans, 2013a).

Roadways and highways consist of several localized noise sources on a defined path, and hence are treated as "line" sources, which approximate the effect of several point sources. Noise from a line source propagates over a cylindrical surface, often referred to as "cylindrical spreading." Line sources (e.g., 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, 2013a). Therefore, noise due to a line source attenuates less with distance than that of a point source with increased distance.

Additionally, receptors located downwind from a noise source can be exposed to increased noise levels relative to calm conditions, whereas locations upwind can have lowered noise levels. Atmospheric temperature inversion (i.e., increasing temperature with elevation) can increase sound levels at long distances (e.g., more than 500 feet). Other factors such as air temperature, humidity, and turbulence can also have significant effects on noise levels (Caltrans, 2013a).

Foundations of Vibration

Vibration can be interpreted as energy transmitted in waves through the ground or man-made structures, which generally dissipate with distance from the vibration source. Because energy is lost during the transfer of energy from one particle to another, vibration becomes less perceptible with increasing distance from the source.

As discussed in the California Department of Transportation's (Caltrans) *Transportation and Construction Vibration Guidance Manual,* operation of construction equipment generates ground

vibration. Maintenance operations and traffic traveling on roadways can also be a source of such vibration. If it's amplitudes are high enough, ground vibration has the potential to damage structures, cause cosmetic damage or disrupt the operation of vibration-sensitive equipment such as electron microscopes and advanced technology production and research equipment. Ground vibration and groundborne noise can also be a source of annoyance to individuals who live or work close to vibration-generating activities (Caltrans, 2013b).

In describing vibration in the ground and in structures, the motion of a particle (i.e., a point in or on the ground or structure) is used. The concepts of particle displacement, velocity, and acceleration are used to describe how the ground or structure responds to excitation. Although displacement is generally easier to understand than velocity or acceleration, it is rarely used to describe ground and structure borne vibration because most transducers used to measure vibration directly measure velocity or acceleration, not displacement. Accordingly, vibratory motion is commonly described by identifying the peak particle velocity (PPV) (Caltrans, 2013b).

Existing Conditions

Noise-Sensitive Receptor Locations

Some land uses are considered more sensitive to ambient noise levels than others are, due to the amount of noise exposure (in terms of both exposure duration and insulation from noise) and the types of activities typically involved. According to the City of Fountain Valley and City of Huntington Beach general plans, residential areas are to be the most noise-sensitive type of land use to noise and industrial/commercial areas are considered to be the least sensitive. Existing noise sensitive uses in the vicinity of the program site include the following:

- Residential Uses: In the vicinity of Plant No. 1, single-family residences are located west of Ward Street. In the vicinity of Plant No. 2, single-family residences are located west of Brookhurst Street and multi-family residential uses are located north of Plant No. 2 between Brookhurst Street and the Santa Ana River.

Ambient Noise Levels

The predominant existing noise source in the vicinity of Plant No. 1 is roadway noise along Ellis Avenue and Ward Street and the predominate existing noise source in the vicinity of Plant No. 2 is roadway noise along Brookhurst Street.

At Plant No. 1, ambient noise levels were determined based on average motor vehicle trips along Ellis Avenue and Ward Street. The average daily trips (ADT) along Ellis Street east of Ward Street is 24,320 ADT which corresponds to a noise level of 71 dBA CNEL and along Ward Street south of Ellis Street is 17,790 ADT which corresponds to a noise level of 72 dBA CNEL (see **Table 3.10-1**). Ambient noise measurements in the vicinity of Plant No. 1 were not conducted since the nearest sensitive receptors are located more than 400 feet from either of the optional construction sites at Plant No. 1. Table 3.10-1 provides an estimate of the daytime and nighttime noise levels along Ward Street and Ellis Street.

At Plant No. 2, ambient noise measurements were conducted in 2016 along Brookhurst Street in the northern portion of Plant No. 2. These measurements provide representative ambient noise

levels adjacent to Brookhurst Street. Long-term (24-hour) measurements were conducted on Wednesday, July 13, 2016. The predominant noise levels were from traffic along Brookhurst. Since 2016, average daily traffic has not substantially changed and therefore, ambient noise levels are assumed to be similar in 2017.

The ambient noise measurements were conducted using the Larson-Davis 820 Precision Integrated Sound Level Meter ("SLM"). The Larson-Davis 820 SLM is a Type 1 standard instrument as defined in the American National Standard Institute S1.4. All instruments were calibrated and operated according to the applicable manufacturer specification. The microphone was placed at a height of 5 feet above the local grade; both along the western property boundary of Plant No. 2.

TABLE 3.10-1
SUMMARY OF AMBIENT NOISE LEVELS AT PLANT NO. 1 AND PLANT NO. 2

Location, Duration, Existing Land Uses and, Date of Measurements	Daytime (7 a.m. to 10 p.m.) Hourly Leq	Daytime Average Hourly Leq	Nighttime (10 p.m. to 7 a.m.) Hourly Leq	Nighttime Average Hourly Leq	24-Hour Average, CNEL
Plant No. 1					
Within 25 feet of Ellis Avenue (i.e., commercial uses) (Based on Average Daily Traffic)[a]	68-72	70	59-67	64	72
Within 25 feet of Ward Street (i.e., residential uses) (Based on Average Daily Traffic)[a]	67-70	68	57-65	62	71
Plant No. 2					
Single-family Residential Uses 7/13/16 (24 hour)/Wednesday[b]	66 – 69	67	56 – 67	61	69
Multi-family Residential Uses 7/13/16 (24 hour)/Wednesday[c]	68 – 70	69	58 – 66	62	71

[a] Hourly noise levels were determined based on factoring average daily traffic and hourly noise levels along Brookhurst Street to apply to noise levels along Ellis Avenue and Ward Street.

[b] This monitoring location is on the east side of Brookhurst Street and the noise levels are representative to those at the single family residential uses along the west side of Brookhurst Street. This location is 25 feet from Brookhurst Street.

[c] This monitoring location is on the east side of Brookhurst Street and along the northern property line that separates Plant No. 2 from the multiple family residential uses. The noise levels at this monitoring location are representative to those at the multiple family residential uses located between Brookhurst Street and the SAR north of Plant No. 2. This location is 25 feet from Brookhurst Street.

SOURCE: ESA, 2017

A summary of ambient noise levels is provided in Table 3.10-1. As shown in Table 3.10-1, the ambient noise levels in the vicinity of Plant 1 are 72 dBA CNEL along Ellis Avenue and 71 dBA CNEL along Ward Street. The existing ambient noise levels along Brookhurst and located at Plant No. 2 range from 69 dBA CNEL and 71 dBA CNEL. In addition, the existing ambient daytime noise levels ranged from 66 dBA L_{eq} to 70 dBA L_{eq} along Brookhurst Street at Plant No. 2. The existing ambient nighttime noise levels ranged from 56 dBA L_{eq} to 67 dBA L_{eq} along Brookhurst Street.

Existing Groundborne Vibration Levels

Aside from periodic construction work that may occur throughout the City, other sources of groundborne vibration in the program site vicinity may include heavy-duty vehicular travel (e.g., refuse trucks, delivery trucks, etc.) on local roadways. Truck traffic at a distance of 50 feet typically generate groundborne vibration velocity levels of approximately 0.006 in/sec PPV (FTA, 2006).

3.10.2 Regulatory Framework

Federal

Federal Noise Standards

Under the authority of the Noise Control Act of 1972, the United States Environmental Protection Agency (EPA) established noise emission criteria and testing methods published in Parts 201 through 205 of Title 40 of the Code of Federal Regulations (CFR) that apply to some transportation equipment (e.g., interstate rail carriers, medium trucks, and heavy trucks) and construction equipment. In 1974, the USEPA issued guidance levels for the protection of public health and welfare in residential land use areas of an outdoor L_{dn} of 55 dBA and an indoor L_{dn} of 45 dBA (USEPA, 1974). These guidance levels are not considered as standards or regulations and were developed without consideration of technical or economic feasibility. There are no federal noise standards that directly regulate environmental noise related to the construction or operation of the proposed program.

Under the Occupational Safety and Health Act of 1970 (29 U.S.C. §1919 et seq.), the Occupational Safety and Health Administration (OSHA) has adopted regulations designed to protect workers against the effects of occupational noise exposure. These regulations list permissible noise level exposure as a function of the amount of time during which the worker is exposed. The regulations further specify a hearing conservation program that involves monitoring the noise to which workers are exposed, ensuring that workers are made aware of overexposure to noise, and periodically testing the workers' hearing to detect any degradation.

Federal Vibration Standards

The FTA has adopted vibration standards that are used to evaluate potential building damage impacts related to construction activities. The vibration damage criteria adopted by the FTA are shown in **Table 3.10-2**.

In addition, the FTA has also adopted standards associated with human annoyance for groundborne vibration impacts for the following three land-use categories: Vibration Category 1 – High Sensitivity, Vibration Category 2 – Residential, and Vibration Category 3 – Institutional. The FTA defines Category 1 as buildings where vibration would interfere with operations within the building, including vibration-sensitive research and manufacturing facilities, hospitals with vibration-sensitive equipment, and university research operations. Vibration-sensitive equipment includes, but is not limited to, electron microscopes, high-resolution lithographic equipment, and normal optical microscopes. Category 2 refers to all residential land uses and any buildings where people sleep, such as hotels and hospitals. Category 3 refers to institutional land uses such as

schools, churches, other institutions, and quiet offices that do not have vibration-sensitive equipment, but still have the potential for activity interference.

TABLE 3.10-2
CONSTRUCTION VIBRATION DAMAGE CRITERIA

Building Category	PPV (in/sec)
I. Reinforced-concrete, steel or timber (no plaster)	0.5
II. Engineered concrete and masonry (no plaster)	0.3
III. Non-engineered timber and masonry buildings	0.2
IV. Buildings extremely susceptible to vibration damage	0.12

SOURCE: FTA, 2006.

The vibration thresholds associated with human annoyance for these three land-use categories are shown in **Table 3.10-3**. No vibration thresholds have been adopted or recommended for commercial and office uses.

TABLE 3.10-3
GROUNDBORNE VIBRATION IMPACT CRITERIA FOR GENERAL ASSESSMENT

Land Use Category	Frequent Events	Occasional Events	Infrequent Events
Category 1: Buildings where vibration would interfere with interior operations.	65 VdB[d]	65 VdB[d]	65 VdB[d]
Category 2: Residences and buildings where people normally sleep.	72 VdB	75 VdB	80 VdB
Category 3: Institutional land uses with primarily daytime use.	75 VdB	78 VdB	83 VdB

[a] "Frequent Events" is defined as more than 70 vibration events of the same source per day.
[b] "Occasional Events" is defined as between 30 and 70 vibration events of the same source per day.
[c] "Infrequent Events" is defined as fewer than 30 vibration events of the same kind per day.
[d] This criterion is based on levels that are acceptable for most moderately sensitive equipment such as optical microscopes.
SOURCE: FTA, 2006.

State

California Noise Standards

The State of California does not have statewide standards for environmental noise, but the California Department of Health Services (DHS) has established guidelines for evaluating the compatibility of various land uses as a function of community noise exposure. The purpose of these guidelines is to maintain acceptable noise levels in a community setting for different land use types. Noise compatibility by different land use types is categorized into four general levels for new construction: "normally acceptable," "conditionally acceptable," "normally unacceptable," and "clearly unacceptable." For instance, a noise environment ranging from 50 dBA CNEL to 65 dBA CNEL is considered to be "normally acceptable" for newly constructed multi-family residential uses, while a noise environment of 75 dBA CNEL or above for newly constructed multi-family residential uses is considered to be "clearly unacceptable." In addition,

California Government Code Section 65300 requires each county and city in the State to prepare and adopt a comprehensive long-range general plan for its physical development. California Government Code Section 65302(g) requires that the general plan include a noise element, which must: (1) identify and appraise noise problems in the community; and (2) analyze and quantify, to the extent practicable, as determined by the legislative body of the county or city, current and projected noise levels.

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 (California Administrative Code, Title 24, Section 1092). The noise insulation standards set forth an interior standard of 45 dBA CNEL 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 60 dBA CNEL. Title 24 standards are typically enforced by local jurisdictions through the building permit application process.

California Vibration Standards

There are no state vibration standards. Moreover, according to the California Department of Transportation's (Caltrans) *Transportation and Construction Vibration Guidance Manual*, there are no official Caltrans standards for vibration (Caltrans, 2013b). However, this manual provides guidelines that can be used as screening tools for assessing the potential for adverse vibration effects related to structural damage and human perception. The manual is meant to provide practical guidance to Caltrans engineers, planners, and consultants who must address vibration issues associated with the construction, operation, and maintenance of Caltrans projects. The vibration criteria established by Caltrans for assessing structural damage and human perception are shown in **Table 3.10-4** and **Table 3.10-5**, respectively.

TABLE 3.10-4
CALTRANS 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, such as blasting or drop balls. Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.

SOURCE: Caltrans, 2013b.

TABLE 3.10-5
CALTRANS VIBRATION ANNOYANCE POTENTIAL CRITERIA

	Maximum PPV (in/sec)	
Structure and Condition	**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, such as blasting or drop balls. Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.

SOURCE: Caltrans, 2013b.

Local

In California, local regulation of noise involves implementation of general plan policies and noise ordinance standards. Local general plans identify general principles intended to guide and influence development plans, and noise ordinances set forth the specific standards and procedures for addressing particular noise sources and activities. General plans recognize that different types of land uses have different sensitivities toward their noise environment; residential areas are considered to be the most noise sensitive type of land use and industrial/commercial areas are considered to be the least sensitive.

City of Fountain Valley

General Plan Noise Element

The Noise Element of the Fountain Valley General Plan acknowledges that many land use areas deemed noise sensitive by the local jurisdiction such as schools, hospitals, rest homes, long-term medical care facilities, and residential uses are impacted by vehicular traffic noise levels that exceed city noise/land use compatibility standards (City of Fountain Valley, 1995). The predominant source of vehicular noise is the Interstate 405 (I-405) freeway that runs through the City from southeast to northwest as it supports vehicular traffic from all surrounding cities. For residential land uses, the normally acceptable interior and exterior noise standards are 45 and 60 L_{dn}, respectively.

Relevant noise policies from the Noise Element include:

> **Policy 7.1.1b** – The City may require an environmental and noise impact evaluation for projects if determined necessary by the Environmental Review Committee. Should noise abatement be necessary, the City shall require the implementation of mitigation measures based on a detailed technical study prepared by a qualified acoustical engineer.
>
> **Policy 7.1.3b** – The City shall evaluate noise generated by construction activities, and subject them to the requirements of the Noise Ordinance.

Policy 7.13d – The City shall insure the effective enforcement of City, State and Federal noise levels by all appropriate City divisions. The City shall provide quick response to complaints and rapid abatement of noise nuisances within the scope of the City's police powers.

Municipal Code

Chapter 6.28 of the Fountain Valley Municipal Code (FVMC) serves as the City's Noise Ordinance, which establishes stationary noise standards to control unnecessary, excessive, and annoying noise levels in the City. **Table 3.10-6** presents the applicable stationary noise standards for interior and exterior areas of designated noise zones established in the FVMC.

TABLE 3.10-6
FOUNTAIN VALLEY EXTERIOR NOISE STANDARDS

Noise Zone	Interior Noise Standards	Exterior Noise Standards	Time Period
1 – All residential properties.	55 db(A) 45 db(A)	55 db(A) 50 db(A)	7:00 a.m. – 10:00 p.m. 10:00 p.m. – 7:00 a.m.

SOURCE: City of Huntington Beach Municipal Code Section 8.40.050

The exterior noise levels shown in Table 3.10-6 are meant to be further applied as noise standards based on the duration of the noise; i.e., the louder the noise, the shorter the time it can last. According to Section 6.28.050 of the FVMC, it is unlawful for any person at any location within the city to create any noise, or to allow the creation of any noise on property owned, leased, occupied or otherwise controlled by such person, when the foregoing causes the noise level, when measured on any other residential property, either incorporated or unincorporated, to exceed the noise standard shown in Table 3.10-6:

- For a cumulative period of more than thirty (30) minutes in any hour;
- Plus 5 dB(A) for a cumulative period of more than fifteen (15) minutes in any hour;
- Plus 10 dB(A) for a cumulative period of more than five (5) minutes in any hour;
- Plus 15 dB(A) for a cumulative period of more than one (1) minute in any hour; or
- Plus 20 dB(A) for any period of time.

Section 6.28.050(c) further states that in the event the ambient noise level exceeds any of the noise limit categories provided above, the cumulative period noise level applicable to said category shall be increased to reflect said ambient noise level. In the event the ambient noise level exceeds the fifth noise limit category, the maximum allowable noise level under said category shall be increased to reflect the maximum ambient noise level.

According to Section 6.28.070 of the FVMC, construction noise is among one of the noise sources that are exempt from the City's established noise standards. Noise sources associated with construction, repair, remodeling, or grading of any real property are deemed to be exempt from the City's noise standards as long as such activities are conducted between the hours of 7:00

a.m. and 8:00 p.m. on weekdays, and 9:00 a.m. to 8:00 p.m. on Saturdays, and construction activities are to take place on Sundays or any federal holidays.

City of Huntington Beach

General Plan Noise Element

The Noise Element of the Huntington Beach General Plan acknowledges that a number of residential, commercial, and industrial land uses in the City of Huntington Beach, particularly along arterial roadways, are impacted by vehicular noise levels that exceed city noise/land use compatibility standards (City of Huntington Beach, 1995). For residential land uses, the normally acceptable interior and exterior noise standards are 45 and 60 L_{dn}, respectively.

Relevant noise policies from the Noise Element include:

> **Policy N 1.2.2** – Require new industrial and commercial land uses or the major expansion of existing land uses to demonstrate that the new or expanded use would not be directly responsible for causing exterior noise levels to exceed 65 Ldn in areas containing noise sensitive land uses.
>
> **Policy N 1.2.5** – Require development that generates increased traffic and subsequent increases in ambient noise levels adjacent to noise sensitive land uses to provide for appropriate mitigation measures in accordance with acceptable limits of the City's Noise Ordinance.
>
> **Policy N 1.6.1** – Ensure that construction activities be regulated to establish hours of operation, to prevent and/or mitigate the generation of excessive or adverse noise impacts through implementation of the City's Noise Ordinance.
>
> **Policy N 1.12.1** – Require detailed and independent acoustical studies be completed for any new or renovated land uses or structures determined to be potential major stationary noise sources.

Municipal Code

Chapter 8.40 of the Huntington Beach Municipal Code (HBMC) serves as the City's Noise Ordinance, which establishes stationary noise standards to control unnecessary, excessive, and annoying noise levels in the City. **Table 3.10-7** presents the applicable stationary noise standards for interior and exterior areas of designated noise zones established in the City's Noise Ordinance.

Section 8.40.060 further states that in the event the ambient noise level exceeds any of the first four noise limit categories provided above, the cumulative period noise level applicable to said category shall be increased to reflect said ambient noise level. In the event the ambient noise level exceeds the fifth noise limit category, the maximum allowable noise level under said category shall be increased to reflect the maximum ambient noise level.

TABLE 3.10-7
HUNTINGTON BEACH EXTERIOR NOISE STANDARDS

Noise Zone	Interior Noise Standards	Exterior Noise Standards	Time Period
1 – All residential properties.	55 db(A) 45 db(A)	55 db(A) 50 db(A)	7:00 a.m. – 10:00 p.m. 10:00 p.m. – 7:00 a.m.
2 – All professional office & public institution properties.	55 db(A)	55 db(A)	Anytime
3 – All commercial properties with the exception of professional office properties.	55 db(A)	60 db(A)	Anytime
4 – All industrial properties.	55 db(A)	70 db(A)	Anytime

SOURCE: City of Huntington Beach, 2017.

According to Section 8.40.090(D) of the HBMC, construction noise is among one of the noise sources that are exempt from the HBMC. Provided that a permit has been obtained from the City of Huntington Beach, noise sources associated with construction, repair, remodeling, or grading of any real property are deemed to be exempt from the HBMC as long as such activities are not conducted 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.

3.10.3 Impacts and Mitigation Measures

Significance Criteria

Consistent with the CEQA *Guidelines* Appendix G, the proposed program would result in a significant impact on the environment if it would result in:

- Exposure of persons to or generation of noise levels in excess of standards in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies (see Impact 3.10-1 below);
- Exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels (see Impact 3.10-2 below);
- A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project (see Impact 3.10-3 below);
- A substantial temporary or periodic increase in ambient noise levels in the project vicinity above existing levels existing without the project (see Impact 3.10-4 below);
- For a project located with an airport land use plan, or where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels (see Section 4.1.9 in Chapter 4.0, Other CEQA Considerations); or
- For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels (see Section 4.1.9 in Chapter 4.0, Other CEQA Considerations).

The program area is not located within two miles of an airport, and no public airport or private airstrip is currently located in the vicinity of the program site. The nearest airport to the program area is the John Wayne Airport, which is located approximately five miles northeast of Plant No. 1 and approximately four miles southeast of Plant No. 2. Therefore, the proposed program would not expose people to excessive noise from a public airport or private airstrip, and these issue areas would not be further analyzed in this report.

Noise Criteria

As set forth in the HBMC and FVMC, a project would normally have a significant impact on noise levels from construction if:

Construction activities in the City of Fountain Valley are undertaken between 8:00 p.m. and 7:00 a.m. on weekdays, between 8:00 p.m. and 9:00 a.m. on Saturdays or any time on Sundays or federal holidays; and construction activities exceed the stationary interior or exterior noise thresholds of 55 dBA at sensitive receptors between 8:00 p.m. and 10:00 p.m. and 50 dBA between 10:00 p.m. and 7:00 a.m. for exterior areas and 45 dBA between 10:00 p.m. and 7:00 a.m. for interior areas, or exceed ambient noise levels where the ambient noise exceeds the above standards.

Construction activities in the City of Huntington Beach are undertaken between 8:00 p.m. and 7:00 a.m. on weekdays or Saturdays or any time on Sundays or federal holidays; and construction activities exceed the stationary interior or exterior noise thresholds of 55 dBA at sensitive receptors between 7:00 a.m. and 10:00 p.m. and 50 dBA between 10:00 p.m. and 7:00 a.m. for exterior areas and 45 dBA between 10:00 p.m. and 7:00 a.m. for interior areas, or exceed ambient noise levels where the ambient noise exceeds the above standards.

Although construction noise is exempt by FVMC and HBMC, some construction activities could still result in higher noise levels. Therefore, a noise threshold utilizing the OSHA agency limits of noise exposure is used. Identifying a significance threshold using an OSHA standard is considered conservative. The OSHA standard is limiting noise exposure of workers to 90 dB or less over 8 continuous hours, or 105 dB or less over 1 continuous hour (OSHA, 2017). For the purpose of analyzing potential noise impacts using the OSHA-established noise threshold, on-site construction noise levels that could expose residents or workers to more than 90 dB for over 8 continuous hours, or more than 105 dB for over 1 continuous hour are considered a significant noise impact.

Substantial increase in noise levels are defined as follows:

- Project construction activities expose residents or workers to more than 90 dBA for over 8 continuous hours, or more than 105 dB for over 1 continuous hour.
- Noise from project-related operational (non-transportation) noise sources exceeds the average ambient noise levels in Table 10.3-1.

Vibration Criteria

The *CEQA Guidelines* do not define the levels at which groundborne vibration or groundborne noises are considered "excessive." The City of Huntington Beach and Fountain Valley currently do not have a significance threshold to assess vibration impacts during construction. Additionally, there are no federal, state, or local vibration regulations or guidelines directly applicable to the proposed program. However, publications of the FTA and Caltrans are two of the seminal works for the analysis of vibration relating to transportation and construction-induced vibration. The proposed program is not subject to FTA or Caltrans regulations; nonetheless, these guidelines serve as a useful tool to evaluate vibration impacts. For the purpose of this analysis, the vibration criteria for structural damage and human annoyance established in the most recent Caltrans' *Transportation and Construction Vibration Guidance Manual*, which are shown previously in Table 3.10-4 and Table 3.10-5, respectively, are used to evaluate the potential vibration impacts of the program on nearby sensitive receptors.

Given the nature of the program, "excessive" groundborne vibration or noises that would occur at the program site would only be those generated during program construction. Construction activities at the program site have the potential to generate low levels of groundborne vibration as the operation of heavy equipment (i.e., dozer, excavators, backhoes, haul trucks, etc.) generates vibrations that propagate though the ground and diminish in intensity with distance from the source. The proposed construction activities could also include high-impact activities; such as pile driving. The nearest offsite sensitive receptors are located approximately 120 feet from construction activities at Plant No. 2 and approximately 400 feet from construction activities at Plant No. 1.

Methodology

Construction Noise Levels

Program construction noise levels were estimated using the FHWA's Roadway Construction Noise Model (RCNM) and construction equipment information provided by the OCSD. Potential noise levels were identified for the nearest sensitive receptors located offsite based on their respective distances from the program site. To present a conservative impact analysis, the estimated noise levels were calculated for a scenario in which all construction equipment was assumed to be operating simultaneously and located at the construction area nearest to the affected receptors. These assumptions represent the worst-case noise scenario because construction activities would typically be spread out throughout the individual project sites and would be located further away from the affected receptors. The estimated noise levels at the affected receptors were then analyzed against the construction noise standards established in the HBMC and FVMC.

Roadway Noise Levels

Off-site construction related traffic noise levels were calculated based on traffic volumes derived from information provided by the OCSD. Brookhurst Street was selected for analysis and is expected to be most directly impacted by construction-related traffic. Noise levels along Brookhurst Street were calculated using the FHWA-RD-77-108 model and construction-related

traffic volumes provided by the OCSD because noise sensitive residential uses are located along the street.

Onsite Stationary Source Noise Levels

During operation of the program, noise levels would be generated onsite by stationary noise sources similar to the existing noise sources such as pumps, grinders, and scrubbers. The noise levels generated by the proposed facilities are proposed within structures and are assessed based on the FVMC and HBMC requirements. The potential impacts on the nearby offsite receptors are determined based on the distances of the noise generating uses from these receptors. The noise levels determined at the offsite, noise-sensitive receptors are then compared to the stationary source noise significance thresholds identified in the FVMC and HBMC.

Groundborne Vibration Levels

Groundborne vibration levels resulting from construction activities at the program site were estimated using data in the Federal Transit Administration's (FTA) *Transit Noise and Vibration Impact Assessment* document (FTA, 2006). Potential vibration levels resulting from construction of the program are identified for offsite locations that are sensitive to vibration (i.e., existing residential buildings) based on their distance from construction activities.

Impacts Discussion

Exceedance of Established Noise Standards

Impact 3.10-1: The proposed program would result in less than significant and less than cumulatively considerable noise impacts resulting from the 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.

Program Impact Analysis

Construction Noise

The proposed program consists of nine different projects that would upgrade Plant No. 2 solid handling facilities to align with OCSD's goals and objectives. The existing collections yard (parking lot) at Plant No. 2 would be relocated to Plant No. 1.

On-Site Construction Noise

Construction of the proposed program would require the use of heavy equipment during the demolition, grading/excavation, and building construction activities at Plant No. 1 and Plant No. 2. During each stage of development, a different mix of equipment would be used. As such, construction activity noise levels at Plant No. 1 and Plant No. 2 would fluctuate depending on the particular type, number, and duration of use of the various pieces of construction equipment.

Individual pieces of construction equipment expected to be used during program construction could produce maximum noise levels of 75 dBA to 101 dBA L_{max} at a reference distance of 50 feet from the noise source, as shown in **Table 3.10-8**. These maximum noise levels would occur when the equipment is operating at full power. The estimated usage factor for the equipment is

also shown in Table 3.10-8. The usage factors are based on FHWA's RCNM User's Guide (FHWA, 2006).

TABLE 3.10-8
CONSTRUCTION EQUIPMENT NOISE LEVELS

Construction Equipment	Estimated Usage Factor, %	Noise Level at 50 Feet (dBA, Lmax)
Backhoe	40%	80
Crane	40%	81
Dump Truck	20%	76
Forklift	10%	75
Grader	40%	85
Haul Truck	20%	76
Loader	40%	79
Paver	50%	77
Pile Driver (Impact)	20%	101
Rubber Tired Dozer	40%	82
Scraper	40%	84

SOURCE: FHWA, 2006.

Plant No. 1

The Collection Yard Relocation project is the only project proposed at Plant No. 1. This project includes the demolition of the existing surface asphalt on Plant No. 2 as part of the removal of the existing Collection Yard from Plant No. 2. The project also includes the demolition of the existing surface asphalt and potentially one existing building on the Plant No. 1 site. This project also includes the excavation of soil at the Plant No. 1 site for pad foundation and the construction of an approximately 20,000 square foot building. The demolition and construction equipment needed for this project includes backhoes, loaders, crane, and dump trucks, and paving equipment needed for this project includes a grader, loader and paver.

Table 3.10-9 shows the estimated construction noise levels that would occur at the nearest off-site sensitive uses during a peak day of construction activity at Plant No. 1.

As shown in Table 3.10-9, construction noise levels are estimated to reach a maximum of 60 dBA at the nearest sensitive receptors. Construction activities would temporarily increase the existing ambient noise in close proximity of the program area. Construction hours would be limited to 7:00 a.m. to 8:00 p.m. on weekdays and 9:00 a.m. to 8:00 p.m. on Saturdays. This time period would comply with the FVMC's allowable construction hours under Section 6.28.070.

TABLE 3.10-9
ESTIMATE OF CONSTRUCTION NOISE LEVELS (L_{EQ}) AT EXISTING OFF-SITE SENSITIVE RECEPTOR LOCATIONS (PLANT NO. 1)

Phase	Location	Nearest Distance from Construction Activity to Noise Receptor (ft.) [a]	Estimated Maximum Construction Noise Levels (dBA L_{eq}) [b]
Demolition	West of the Project Site along Ward Street	400	58
Grading/ Excavation	West of the Project Site along Ward Street	400	60
Building Construction	West of the Project Site along Ward Street	400	56
Paving	West of the Project Site along Ward Street	400	58

a The distance represents the nearest construction area on the program Site to the property line of the off-site receptor.
b A 5 dBA noise shielding reduction was applied as the walls that line the perimeter of single-residential uses along Ward Street provide partial noise shielding.
SOURCE: ESA, 2017.

While exempt from local statutes, some construction activities could still result in higher noise levels. A noise threshold utilizing the OSHA standard limits of noise exposure is used. Identifying a significance threshold using an OSHA standard is considered conservative. The OSHA standard is limiting noise exposure of workers to 90 dB or less over 8 continuous hours, or 105 dB or less over 1 continuous hour. As shown in Table 3.10-10, noise levels attributed to the onsite use of construction equipment would reach a maximum of 60 dBA and would not exceed the 90 dBA thresholds established based on OSHA standards at the nearest noise sensitive receptor locations. Therefore, construction activities would comply with the FVMC and impacts would be less than significant.

Plant No. 2

During program construction at Plant No. 2, the nearest and most affected off-site noise-sensitive receptors that would be exposed to increased construction noise levels would be the existing residential uses located in proximity to the TPAD project location in the southwest corner of Plant No. 2. Specifically, the nearest off-site noise sensitive receptors would be residential neighborhoods located west of Brookhurst Street and are located approximately 120 feet from the construction area.

Over the course of a construction day, the highest noise levels would be generated when multiple pieces of construction equipment would be operated concurrently. As discussed previously, the proposed program's estimated construction noise levels were calculated for a scenario in which all construction equipment was assumed to be operating simultaneously and located at the construction area nearest the affected receptors to present a conservative impact analysis. The estimated noise levels at the off-site sensitive receptors were calculated using the FHWA's RCNM, and were based on a maximum concurrent operation of up to 30 pieces of hand tools and equipment (cranes, tractors, loaders, backhoes, forklifts, generator sets, welders, etc.), which is considered a worst-case evaluation because the proposed program would typically use less equipment overall on a daily basis, and as such would generate lower noise levels. **Table 3.10-10**

shows the estimated construction noise levels that would occur at the nearest off-site sensitive uses during a peak day of construction activity at Plant No. 2.

TABLE 3.10-10
ESTIMATE OF CONSTRUCTION NOISE LEVELS (L_{EQ}) AT EXISTING OFF-SITE SENSITIVE RECEPTOR LOCATIONS (PLANT NO. 2)

Phase	Location	Nearest Distance from Construction Activity to Noise Receptor (ft.) a	Estimated Maximum Construction Noise Levels (dBA Leq) b
Demolition	West of the Project Site along Brookhurst Street	200	65
Grading/ Excavation	West of the Project Site along Brookhurst Street	120	77
Building Construction	West of the Project Site along Brookhurst Street	180	78
Paving	West of the Project Site along Brookhurst Street	130	68

a The distance represents the nearest construction area on the program Site to the property line of the off-site receptor.
b A 5 dBA noise shielding reduction was applied as the walls that line the perimeter of single-residential uses along Brookhurst Street provide partial noise shielding.
c The significance threshold is the daytime ambient noise level as shown in Table 3.10-1.
SOURCE: ESA, 2017.

As shown in Table 3.10-10, construction noise levels are estimated to reach a maximum of 78 dBA at the nearest sensitive receptor. Construction activities would temporarily increase the existing ambient noise in close proximity of the program area. Construction hours would be limited to 7:00 a.m. to 8:00 p.m. on weekdays and Saturdays. This time period would comply with the HBMC's allowable construction hours under Section 8.40.090(D).

While exempt from local statutes, since some construction activities could still result in higher noise levels, a noise threshold utilizing the OSHA standard limits of noise exposure is used. Identifying a significance threshold using an OSHA standard is considered conservative. The OSHA standard is limiting noise exposure of workers to 90 dB or less over 8 continuous hours, or 105 dB or less over 1 continuous hour. As shown in Table 3.10-9, noise levels attributed to the onsite use of construction equipment would reach a maximum of 78 dBA and would not exceed the 90 dBA threshold established by OSHA standards at the nearest noise sensitive receptor locations. Therefore, construction activities would comply with the HBMC and impacts would be less than significant.

Off-Site Construction Noise

Construction employee, delivery and haul truck trips would occur throughout the construction period. Trucks traveling to and from Plant No. 1 and Plant No. 2 would be required to travel along approved haul routes as well as during time periods that reflect the jurisdiction's permitted hours of construction. Haul trucks traveling to and from Plant No. 1 are anticipated to travel along Ward Street, Ellis Street, and Euclid Avenue to access the San Diego Freeway (I-405). Haul trucks traveling to and from Plant No. 2 are anticipated to travel to the I-405 or to the Costa Mesa Freeway (SR-55). Haul trucks traveling to I-405 would travel along Brookhurst Street. Haul

trucks traveling to SR-55 would travel on Brookhurst Street, Hamilton Avenue and Victoria Street. The proposed program would limit haul trucks traveling along the roadways that are within the jurisdictions of the City of Fountain Valley, City of Huntington Beach and City of Costa Mesa. The operation of the haul trucks would be limited to the hours of 7 a.m. to 7 p.m. Monday through Friday and 9 a.m. to 6 p.m. on Saturdays. This analysis assumes that construction employee trips would also utilize the haul routes to/from I-405 and SR-55. **Table 3.10-11** includes the existing 2014/2015 average daily traffic volumes and future 2035/2040 projected average daily traffic volumes along the existing roadways that would be used by program construction vehicles including haul trucks.

TABLE 3.10-11
AVERAGE DAILY TRAFFIC VOLUMES ALONG HAUL ROUTES

Roadway Segment	Existing 2014/2015 Average Daily Traffic Volume	Future 2035/2040 Projected Average Daily Traffic Volume
Plant No. 1		
Ellis Avenue east of Ward Street	24,320[1]	31,000[1]
Ward Street south of Ellis Avenue[a]	16,620[1]	21,340[1]
Euclid Avenue, north of I-405	28,940[1]	42,040[1]
Plant No. 2		
Brookhurst Street between I-405 and Hamilton Avenue	32,720 - 39,130[1,2]	38,470 - 53,980[1,2]
Brookhurst Street between PCH and Hamilton Avenue[b]	11,000 - 13,000[2]	11,000 - 14,000[2]
Hamilton Avenue/Victoria Street between Brookhurst Street and State Route 55[c]	27,000 - 30,000[3]	31,000 - 39,000[3]

SOURCES:

[a]. Fehr & Peers. 2017. Fountain Valley Crossings Specific Plan Transportation Impact Analysis Final Report. Available at: http://www.fountainvalley.org/DocumentCenter/View/5841, accessed on September 8, 2017.

[b]. Stantec Consulting Services Inc. 2017. General Plan Circulation Update, City of Huntington Beach, CA. Available at: http://www.huntingtonbeachca.gov/files/users/planning/Volume-III-Appendix-B-Circulation-Traffic-Study.pdf, accessed on September 8, 2017.

[c]. Stantec Consulting Services Inc. 2016. City of Costa Mesa General Plan Update Traffic Analysis. Available at: http://www.costamesaca.gov/ftp/generalplan2015-2035/Appendix%20C%20-%20Traffic%20Study.pdf, accessed on September 8, 2017.

Plant No. 1

The proposed construction activities at Plant No. 1 are estimated to result in a maximum of approximately 5 two-way truck trips (10 one-way truck trips) and 40 two-way worker vehicle trips (80 one-way trips) for a total of 90 one-way trips per day. Access to Plant No. 1 primarily utilizes the I-405, Euclid Avenue freeway ramp, Ellis Avenue freeway ramp, Ellis Avenue and Ward Street. As identified above, construction traffic is assumed to contribute up to 90 one-way trips to the existing average daily traffic (ADT) of 16,620 along Ward Street which represents an approximately 0.5 percent increase and 90 trips to the existing ADT of 24,320 along Ellis Street which represents an approximately 0.4 percent increase. Although some construction vehicles would access I-405 at Ellis Avenue, the worst-case increase of 90 one-way trips to the existing

ADT of 28,940 along Euclid Avenue represents an approximately 0.3 percent increase. Because traffic volumes would need to double (100 percent increase) for noise levels to increase by 3 dBA, the nominal increases in traffic shown above would result in substantially lower noise level increases than 3 dBA. Therefore, because the haul trips would comply with the FVMC related to use of haul routes and because the program construction vehicles associated with Plant No. 1 would result in substantially lower noise level increases than 3 dBA, the proposed program would result in a less than significant traffic noise impact to sensitive receptors along roadways accessed by construction traffic.

Plant No. 2

The proposed construction activities at Plant No. 2 are estimated to result in a maximum of approximately 130 round trips (260 one-way trips). The proposed program would contribute up to 260 one-way construction trips to the existing ADT of 11,000 along Brookhurst Street adjacent to Plant No. 2 which represents an approximately 3 percent increase. Although the construction truck trips could use two haul routes and construction workers could use other routes, this analysis assumes a maximum of 260 one-way construction trips could travel along Brookhurst Street north of Hamilton Avenue to/from I-405 and along Hamilton Avenue/Victoria Street to/from SR-55. The addition of 260 one-way trips to the existing ADT of 32,720 to 39,130 along Brookhurst Street north of Hamilton Avenue would represent an approximately 0.7 percent to 0.8 percent of the existing ADT. The addition of 260 one-way trips to the existing ADT of 27,000 to 30,000 along Hamilton Avenue/Victoria Street would represent an approximately 0.8 percent to 0.9 percent of the existing ADT. Because traffic volumes would need to double (100 percent increase) for noise levels to increase by 3 dBA, the nominal increases in traffic shown above would result in substantially lower noise level increases than 3 dBA. Therefore, because the haul trips would comply with the HBMC and the FVMC as well as the construction hours identified in the Costa Mesa Municipal Code related to use of haul routes and because the program construction vehicles associated with Plant No. 2 would result in substantially lower noise level increases than 3 dBA, the proposed program would result in a less than significant traffic noise impact to sensitive receptors along roadways accessed by construction traffic.

Operational Noise

To assess certain future impacts from the implementation of the BMP, it is essential to understand future operations relative to current operations. For example, operational noise impacts would consist of vehicle trips to service the proposed facilities and delivery of chemicals. Operational impacts vary depending upon the type of infrastructure proposed. The existing collections yard (parking lot) at Plant No. 2 would be relocated to Plant No. 1.

Operational and Maintenance Vehicle Trips

Operation of most proposed facilities, such as digesters, food waste facilities, electrical rooms, and piping, would only require periodic maintenance, not daily staffing. The proposed facilities are anticipated to have the same number of employees as the existing facilities. Therefore, the proposed program would not require a net increase in OCSD full-time employees for operation and maintenance of new facilities. Therefore, no additional vehicle trips would occur from employees or maintenance activities of the new facilities.

Because operation of the proposed program would require additional food waste, implementation of the Interim and Ultimate Food Waste Facility would include daily truck trips arriving at Plant No. 2 and food waste would become biosolids and depart Plant No. 2 along with the truck that export the biosolids. Food waste trips associated with the Interim Food Waste Facility would begin in approximately the year 2020 and would result in approximately 14 maximum one-way daily trips. In the year 2030 through year 2040, when the ultimate food waste facility is implemented, approximately 54 maximum one-way daily trips would occur.

Total trucks associated with food waste and biosolids would increase by 38 daily one-way trips compared to existing trips and by 54 daily one-way trips compared to trips currently projected for the year 2040 without the implementation of the proposed program (see Table 2-16 in Section 2, Project Description). Because the increase of construction trips (260 one-way trips) would represent less than significant traffic impacts to the haul routes, the maximum operational trips of 54 daily one-way trips would also result in less than significant impacts to haul routes.

On-Site Stationary Noise Sources

During program operations, noise sources at the program site would consist primarily of pumps, grinders, and scrubbers associated with Plant No. 2 solid handling facilities. These proposed facilities would be housed within structures.

Because the proposed program includes a water pump station associated with the TPAD project, representative noise levels from an existing pump station were obtained. The representative pump station is located at Plant No. 1 and noise measurements were conducted on July 15, 2016. Pump related noise levels were measured inside of the pump station and outside of the pump station at 5 feet from a louver. A noise level of 80 dBA L_{eq} was measured inside of the pump station and noise level of 66 dBA L_{eq} was measured at 5 feet from the louver outside of the pump station. Based on these measurements, the pump station house with louvers provides a noise level reduction of approximately 14 dBA.

The nearest single-family residential uses west of the program site are to be located approximately 200 feet from Plant No. 2 facilities. Based on a noise level source strength of 66 dBA at a reference distance of 5 feet, and accounting for distance attenuation (minimum 32 dBA insertion loss), pump related noise would be reduced to 34 dBA at the nearest noise sensitive uses along Brookhurst Street. As such, pump related noise would not exceed the significance threshold of 61 dBA (the average nighttime ambient noise level as shown in Table 3.10-1). Operation of the program would not expose persons to, or generate noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies, Therefore, impacts would be less than significant.

Combined Construction and Operational Noise

Plant No. 1

Because operational trips associated with the Collection Yard Relocation project would occur after construction of the Collection Yard Relocation Project, noise levels from the construction activities would represent the highest noise levels experienced in the vicinity of Plant No. 1. As discussed above, the addition of a maximum of 90 ADT to the intersections in the vicinity of

Plant No. 1 would represent a maximum of 0.5 percent increase to the existing intersections. Because traffic volumes would need to double for noise levels to increase by 3 dBA, the nominal increase in traffic would result in a substantially lower noise level increase than 3 dBA. Therefore, program noise levels at Plant No. 1 would be less than significant.

Plant No. 2

The combination of 260 one-way construction trips and 54 one-way operational trips associated with the proposed program would result in a total of 314 one-way trips. The worst-case addition of 314 one-way trips to Brookhurst Street which has a range of 11,000 ADT to 39,130 ADT would result in an increase of 0.8 percent to 2.8 percent of the existing traffic. The worst-case addition of 314 one-way trips to Victoria Street/Hamilton Avenue which has a range of 27,000 ADT to 30,000 ADT would result in an increase of 1.0 percent to 1.2 percent of the existing traffic. Because traffic volumes would need to double (100 percent increase) for noise levels to increase by 3 dBA, the nominal increases in traffic along Brookhurst Street and Victoria Street/Hamilton Avenue would result in substantially lower noise level increases than 3 dBA. Therefore, because the haul trips would comply with the HBMC and the FVMC as well as the construction hours identified in the Costa Mesa Municipal Code related to use of haul routes and because the program construction vehicles associated with Plant No. 2 would result in substantially lower noise level increases than 3 dBA, the proposed program would result in a less than significant traffic noise impact to sensitive receptors along roadways accessed by the proposed program traffic.

Significance Determination before Mitigation: Less than Significant

Cumulative Impact Analysis

Future cumulative development could increase traffic noise levels during construction and operational activities. As shown in Table 3.10-11, future ADT levels which include traffic volumes from anticipated cumulative development are expected to be substantially less than twice the existing ADT volumes. As discussed above, traffic volumes would need to double (100 percent increase) for noise levels to increase by 3 dBA. These future traffic volume estimates do not include construction traffic; however, the addition of construction traffic along any of the haul route roadways would not substantially increase the existing ADT along these roadways because existing ADT volumes would not double. Therefore, traffic volumes associated with cumulative development would result in less than significant cumulative noise impacts. The addition of proposed program traffic noise levels to cumulative noise levels would not substantially increase traffic noise along the haul routes and therefore, the proposed program would result in less than cumulatively considerable traffic noise impacts along the haul routes.

Future cumulative development could increase operational noise levels. This development includes cumulative projects that are currently planned to be implemented on Plant No. 1 and Plant No. 2. At Plant No. 1 and Plant No. 2, future cumulative projects would occur at least 400 feet from existing sensitive noise-sensitive receptors (i.e., residents west of Ward Street and residents west of Brookhurst Street). In addition to being 400 feet from the nearest residents, operational noise from cumulative development on Plant No. 1 and Plant No. 2 would also be shielded by existing buildings and structures that are located between the receptors and Plant No.

1 and receptors and Plant No. 2. The future cumulative development at Plant No. 1 and Plant No. 2 is expected to result in less than significant increases in existing ambient noise levels. The addition of noise levels associated with the proposed program at Plant No. 1 and 2 would be also be substantially less than existing ambient noise levels. As discussed under Impact 3.10-1, the noise levels from a pump station would generate approximately 34 dBA at the nearest residence. This level of noise is substantially less than the ambient noise level of 61 dBA. The addition of more noise sources similar to the pump station (i.e., 34 dBA) would add approximately 3 dBA to the estimated 34 dBA noise level. The cumulative projects at Plant No. 1 and Plant No. 2 are primarily rehabilitating and upgrading existing facilities, and therefore, a substantial amount of new noise sources would not occur with the implementation of the cumulative projects at both plants. As a result, cumulative projects would result in less than significant operational noise impacts at the nearest noise-sensitive receptors (residents). Because the proposed program would result in less than significant operational noise impacts, the proposed program would result in less than cumulatively considerable operational impacts.

Significance Determination before Mitigation: Less than Significant

Mitigation Measures

Program Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

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Exposure to Vibration Levels

Impact 3.10-2: The proposed program would result in less than significant and less than cumulatively considerable vibration impacts resulting from the exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.

Program Impact Analysis

Construction Vibration

Construction activities at the program site have the potential to generate low levels of groundborne vibration as the operation of heavy equipment (i.e., impact pile driver, dozer, excavator, grader, loader, scraper, and paver, etc.) generates vibrations that propagate though the ground and diminish in intensity with distance from the source. The nearest off-site buildings to the proposed construction areas that could be exposed to vibration levels generated from program construction are located approximately 120 feet to the west of Plant No. 2. Operation of impact pile drivers would occur approximately 180 feet from the nearest noise sensitive receptors adjacent to Plant No. 2. Because the sensitive receptors are closer to Plant No. 2 compared to Plant No.1, the analysis focuses on potential vibration impacts on the receptors near Plant No. 2.

Groundborne vibrations from construction activities very rarely reach the levels that can damage structures, but they may be perceived in buildings very close to a construction site.

The PPV vibration velocities for several types of construction equipment that can generate perceptible vibration levels are identified in **Table 3.10-12**. Based on the information presented in Table 3.10-12, vibration velocities could range from 0.003 to 0.644 in/sec PPV at 25 feet from the source of activity.

TABLE 3.10-12
VIBRATION SOURCE LEVELS FOR CONSTRUCTION EQUIPMENT

	Approximate PPV (in/sec)				
Equipment	**25 Feet**	**50 Feet**	**60 Feet**	**75 Feet**	**100 Feet**
Impact Pile Driver	0.644	0.228	0.173	0.124	0.081
Large Bulldozer	0.089	0.031	0.024	0.017	0.011
Caisson Drilling	0.089	0.031	0.024	0.017	0.011
Loaded Trucks	0.076	0.027	0.020	0.015	0.010
Jackhammer	0.035	0.012	0.009	0.007	0.004
Small Bulldozer	0.003	0.001	0.0008	0.0006	0.0004

SOURCE: FTA, 2006.

Although the Caltrans' construction vibration damaged criteria is for new residential structures, this analysis uses these criteria for the existing residential structures along the west side of Brookhurst Street. With respect to the vibration sources associated with program construction, it is anticipated that continuous/frequent intermittent sources of vibration, as defined under Caltrans' criteria, would occur from compaction activities at the program site. As such, the vibration level criteria for continuous/frequent intermittent sources are used in this analysis. As shown in **Table 3.10-13**, at a distance of 120 feet, the maximum vibration level would be up to approximately 0.033 in/sec PPV at the nearest single-family residential uses.

Based on the information shown in Table 3.10-13 which shows a maximum estimated PPV of 0.033, none of the existing offsite residential structures located west of Plant No. 2 would be exposed to PPV groundborne vibration levels that exceed the Caltrans' 0.5 inches per second criteria as shown in **Table 3.10-4**. As such, the vibration impacts at these residential structures would be less than significant.

With respect to human annoyance, the construction activities at Plant No. 2, which are estimated to expose the nearby residences to an inches per second PPV of 0.033, would not exceed the Caltrans vibration annoyance criteria of 0.04 PPV for continuous/frequent intermittent sources as shown in Table 3.10-4. Thus, vibration impacts related to human annoyance would be less than significant.

TABLE 3.10-13
GROUNDBORNE VIBRATION LEVELS AT OFF-SITE SENSITIVE USES COMPARED TO CALTRANS' VIBRATION DAMAGE POTENTIAL THRESHOLD

Offsite Sensitive Land Use	Approximate Distance to Project Site (ft.)[a]	Estimated PPV (in/sec)	Caltrans' Vibration Damage Potential Threshold, PPV (in/sec)[b]	Exceed Caltrans' Vibration Threshold? (Yes or No)
Single-family residential uses: West of the project site along Brookhurst Street	120/180	0.008/0.033	0.5	No

ft. = feet
in/sec = inches per second.
[a] Approximate distances are measured from the nearest construction area within the project site where vibration levels would be generated to the nearest offsite structure. (distance for large bulldozer/distance for impact pile driver)
[b] Caltrans' Vibration Damage Potential Thresholds were taken from Table 3.10-4.
SOURCE: ESA, 2017.

Operational Vibration

The program's day-to-day operations would include typical commercial-grade stationary mechanical and electrical equipment, such as pumps and exhaust fans, which would produce vibration. In addition, the primary sources of transient vibration would include truck trips within the program site. Ground-borne vibration generated by each of the above-mentioned equipment and activities would generate approximately up to 0.006 inches per second PPV at the residences along Brookhurst Street west of Plant No. 2. The potential vibration levels from all program operational sources at the nearest existing sensitive receptor location would not exceed the 0.5 in/sec PPV threshold for building damage and 0.04 in/sec PPV threshold for human annoyance, and therefore, the proposed program would have a less than significant vibration impact on the nearest vibration-sensitive receptors.

Significance Determination before Mitigation: Less than Significant

Cumulative Impact Analysis

The implementation of future cumulative development could increase vibration levels from construction activities in the vicinity of Plant No. 2. Future Plant No. 2 cumulative projects could include the use of pile driving equipment; however, due to the substantial distance of these future projects (i.e., more than twice the distance, 400 feet, as the proposed program), vibration levels at the residences along Brookhurst Street would not exceed the structural damage threshold or human annoyance threshold. The addition of the proposed program construction activities over a 20-year time period is not planned to result in simultaneous pile driving activities as those activities anticipated for the proposed program's TPAD project. Therefore, because the proposed program would result in less than significant construction vibration impacts and potential pile driving activities associated with the proposed program would not occur simultaneously with other potential pile driving activities for future projects on Plant No. 2, the program would result in less than cumulatively considerable construction

Although future cumulative development could increase operational vibration levels, this increase could occur due to typical commercial-grade stationary mechanical and electrical equipment,

such as pumps and exhaust fans. As discussed above, these operational pieces of equipment generate a nominal amount of vibration and would result in less than significant operational vibration impacts. The addition of the operations of the proposed program would add vibration; however, this vibration level is nominal (i.e., 0.006 inches per second PPV at the residences along Brookhurst Street west of Plant No. 2). The additional of cumulative and proposed program's vibration levels would be substantially lower than the structural damage threshold or human annoyance threshold. As a result, the proposed program would result in less than cumulatively considerable operational vibration impacts.

Significance Determination before Mitigation: Less than Significant

Mitigation Measures

Program Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

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Permanent Increase in Ambient Noise Levels

Impact 3.10-3: The proposed program would have a less than significant and less than cumulatively considerable impact resulting from permanent increases in ambient noise levels in the program vicinity above levels existing without the program.

Program Impact Analysis

Operation

The analysis provided for Impact 3.10-1 addresses the potential for project operations to result in permanent increases in ambient noise levels in the program vicinity. As stated therein, the proposed program would result in nominal increases along roadways in the vicinity of Plant No. 1 and Plant No. 2 that would be used by operational vehicles. As a result, the proposed program would result in less than significant noise impacts along roadways.

Impact 3.10.1 also addresses program noise increases from on-site operations. As discussed above, the operation of a pump station would provide representative noise levels that would be generated from Plant No. 2. These noise levels would represent the worst-case noise levels that could occur at Plant No. 1 or Plant No. 2 and the residences west of Plant No. 2 are located closer to potential noise sources than residences in the vicinity of Plant No. 2. The onsite operations from Plant No. 2 could generate noise levels up to 34 dBA L_{eq} at the nearest single-family residential uses along Brookhurst Street. This noise level is less than the daytime criteria of 55 dBA L_{eq} and less than the nighttime criteria of 50 dBA L_{eq} criteria established by both the City of Fountain Valley and the City of Huntington Beach for residential areas during the operational

activities associated with the proposed program. Therefore, the proposed program would result in less than significant permanent noise impacts on the surrounding uses.

Significance Determination before Mitigation: Less Than Significant.

Cumulative Impact Analysis

The implementation of future cumulative development could increase permanent noise levels from operational activities in the program vicinity. As discussed under Impact 3.10-1, the cumulative projects at Plant No. 1 and Plant No. 2 are primarily rehabilitating and upgrading existing facilities, and therefore, a substantial amount of new noise sources would not occur with the implementation of the cumulative projects at both plants. As a result, cumulative projects would result in less than significant operational noise impacts at the nearest noise-sensitive receptors (residents). Because the proposed program would result in less than significant operational noise impacts, the proposed program would result in less than cumulatively considerable operational impacts.

Significance Determination before Mitigation: Less than Significant

Mitigation Measures

Program Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

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Temporary Increase in Ambient Noise Levels

Impact 3.10-4: The proposed program would result in a less than significant and less than cumulative considerable impact regarding the temporary or periodic increase in ambient noise levels in the program vicinity above levels existing without the program.

Program Impact Analysis

Construction

The analysis provided for Impact 3.10-1 addresses the potential for temporary program construction activities to result in temporary increases in ambient noise levels in the program vicinity. As stated therein, the proposed program would result in nominal increases along roadways in the vicinity of Plant No. 1 and Plant No. 2 that would be used by construction vehicles. As a result, the proposed program would result in less than significant noise impacts along roadways.

Impact 3.10.1 also addresses program noise increases from on-site construction equipment. As discussed above, construction noise levels are estimated to reach a maximum of 78.0 dBA at the nearest sensitive receptors along Brookhurst Street. The proposed program would include hours for construction activities that comply with the FVMC and HBMC. Although construction activities are exempt within the FVMC and HBMC, a noise threshold utilizing the OSHA standard limits of noise exposure is used. This standard is 90 dB or less over 8 continuous hours, or 105 dB or less over 1 continuous hour. Because the maximum construction noise level would be 78 dBA, the construction activities would not exceed the OSHA standard and would result in less than significant impacts on the nearby residences.

Significance Determination before Mitigation: Less than Significant

Cumulative Impact Analysis

The implementation of future cumulative development will increase temporary noise levels from construction activities in the program vicinity and primarily from future project on Plant No. 1 and Plant No. 2. Construction noise levels from cumulative development could overlap and the maximum construction noise level would occur during grading activities. Grading activities could result in noise levels that reach a maximum of 78.0 dBA at the nearest residence along Brookhurst and because the residences along Ward Street are further away than those along Brookhurst, the Ward Street residences would experience a lower construction noise level. If simultaneous grading activities occur on two cumulative projects at Plant No. 1 or Plant No. 2, a maximum of 78 dBA from one construction site could add to a maximum of 78 dBA from another construction site. The addition of these grading noise levels would be 81 dBA at the nearest residence. Although construction activities are exempt within the FVMC and HBMC, a noise threshold utilizing the OSHA standard limits of noise exposure is used. This standard is 90 dB or less over 8 continuous hours, or 105 dB or less over 1 continuous hour. Because the maximum cumulative construction noise level with two overlapping grading activities occurring would be 81 dBA, the construction activities would not exceed the OSHA standard and would result in less than significant cumulative noise impact on the nearby residences. If grading activities from the proposed program results in three grading activities overlapping, there would be a worst-case noise level of 84 dBA. This cumulative impact would also be lower than the OSHA standard limits of noise exposure of 90 dB or less over 8 continuous hours, or 105 dB or less over 1 continuous hour. Therefore, the proposed program would result in less than cumulatively considerable temporary noise impact.

Significance Determination before Mitigation: Less than Significant

Mitigation Measures

Program Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

3.10.4 References

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3.11 Traffic and Transportation

This section includes an overview of the existing circulation network in the vicinity of Plant No. 1 and Plant No. 2 and addresses potential traffic and circulation impacts as a result of the proposed program.

3.11.1 Existing Setting

Regional Setting

The proposed program is located in the City of Fountain Valley and City of Huntington Beach in Orange County, as shown in Figure 2-1 in Section 2, Project Description. The regional transportation system of the program area is comprised of an interconnected network of roadways, local transit systems, and pedestrian and bicycle facilities. Major regional roadways include the Interstate-405 (I-405) to the northeast, Beach Boulevard [State Route 39 (SR-39)] to the west, Costa Mesa Freeway [State Route 55 (SR-55)] to the east and Pacific Coast Highway (PCH) to the south. Ward Street west of Plant No.1 is classified as a secondary arterial.

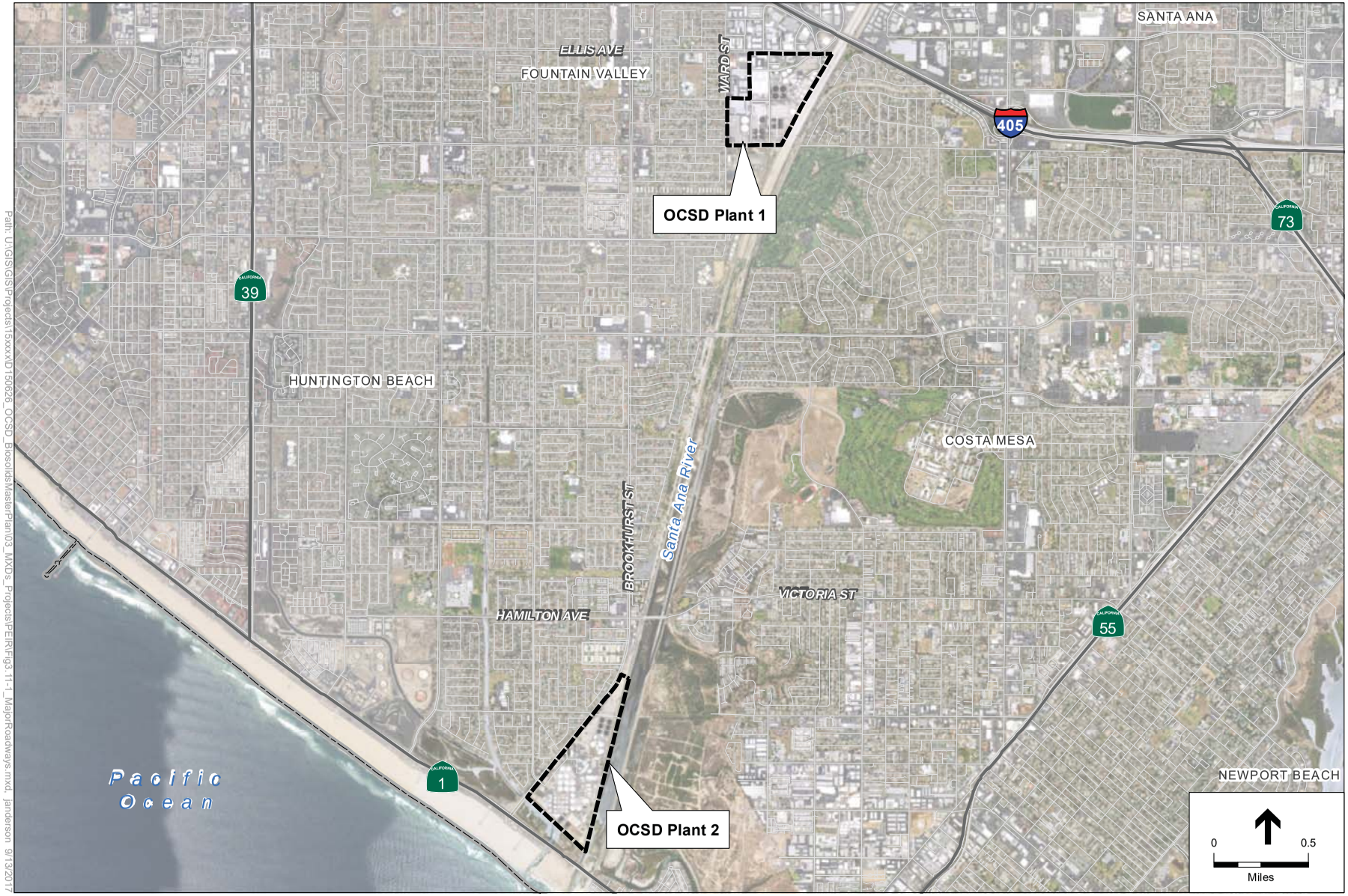
Brookhurst Street to the west of Plant No. 2 is classified as a major arterial by the Huntington Beach General Plan. **Figure 3.11-1** shows regional highways and arterial roads in the vicinity of the proposed program.

Regional Roadways

Interstate 405 (I-405), also known as the San Diego Freeway, is a major north-south freeway 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 six 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. According to the City of Huntington Beach General Plan Circulation Update (Stantec, 2017), there are approximately 37,000 average daily trips south of Brookhurst Street and 32,000 ADT north of Brookhurst Street on PCH (Stantec, 2017).

Beach Boulevard (SR-39) is an eight lane north-south principal arterial designated as a "Smart Street Corridor" by the Orange County Transportation Agency. Beach Boulevard begins at PCH in the City of Huntington Beach and extends north through the cities of Westminster, Garden Grove, Buena Park, and Anaheim. Within City limits, Beach Boulevard has up to approximately 76,000 ADTs and as few as 12,000 ADT as the roadway approaches PCH (Stantec, 2017).



Path: U:\GIS\GIS\Projects\15xxx\D150626_OCSD_BiosolidsMasterPlan\03_MXDs_Projects\PER\Fig3.11-1_MajorRoadways.mxd, janderson 9/13/2017

SOURCE: ESA, ESRI.

OCSD Biosolids Master Plan . 150626

Figure 3.11-1

Major Roadways within Program Vicinity

Local Roadways

The proposed program is located north of PCH and south of I-405. The roadways that provide local access to Plant No. 1 and Plant No. 2 are shown in Figure 3.11-1.

Plant No. 1

Ward Street is a four lane north-south secondary arterial. It extends from Yorktown Avenue in the City of Huntington Beach to Warner Avenue in the City of Fountain Valley. Ward Street has a Class II bike lane in each direction and a posted speed limit of 45 miles per hour.

Ellis Avenue is a four lane east-west facility. It extends from Euclid Street in the City of Fountain Valley to Beach Boulevard in the City of Huntington Beach.

Plant No. 2

Brookhurst Street is a six lane north-south major. It extends from PCH in Huntington Beach to the City of Fullerton.

Hamilton Avenue/Victoria Street is a four-lane major arterial in Huntington Beach and a four-lane primary arterial extending west to SR-55 in the City of Costa Mesa.

Traffic Volumes

Based on a review of traffic data from the Fountain Valley Crossings Specific Plan Transportation Impact Analysis Final Report, the City of Huntington Beach General Plan Circulation Update, and the City of Costa Mesa General Plan Update Traffic Analysis, existing and future projected peak hour traffic volumes for intersections anticipated to be used by construction employees and by trucks for construction and operational activities were obtained. Within the City of Fountain Valley, the nearest designated truck routes to Plant No. 1 is Euclid Avenue on the north side of I-405 and Brookhurst Street to the east. Within the City of Huntington Beach, Brookhurst Street and Hamilton Avenue are designated as truck routes. In addition, in the City of Costa Mesa, Victoria Avenue (extension of Hamilton Avenue) is designated as a truck route between the Santa Ana River and SR-55. In addition to the designated truck routes, construction employees are anticipated to use Ellis Avenue, Ward Street and PCH. **Table 3.11-1** includes the existing and future peak hour traffic volumes along the streets anticipated to be used by program traffic.

Public Transportation

The program vicinity is served by the OCTA and local bus service. Currently, bus routes are located along Brookhurst Street, Ward Street, and Ellis Avenue in the City of Fountain Valley. Bus routes are located along Brookhurst Street, Pacific Coast Highway and Hamilton Avenue in the City of Huntington Beach. In the City of Costa Mesa, a bus route exists along Victoria Avenue.

TABLE 3.11-1
EXISTING AND FUTURE PROJECTED PEAK HOUR TRAFFIC VOLUMES

	Existing 2014/2015 Peak Hour Traffic Volumes		Future 2035/2040 Projected Peak Hour Traffic Volume	
Intersections	**AM**	**PM**	**AM**	**PM**
City of Fountain Valley[1]				
Euclid Avenue/I-405 Ramp	3,329	3,672	4,272	4,736
Ellis Avenue/I-405 Ramp	3,492	3,357	3,802	3,632
Ellis Avenue/Ward Street	3,352	3,226	4,257	4,058
Brookhurst Street/Talbert Avenue	4,509	5,172	5,021	5,734
City of Huntington Beach[2]				
Brookhurst Street PCH	3,920	4,270	4,150	4,570
Brookhurst Street Hamilton Avenue	3,580	4,130	4,520	5,110
Brookhurst Street/Garfield Avenue	3,160	4,120	4,170	4,990
City of Costa Mesa[3]				
Victoria Avenue/Placentia Avenue	3,990	4,450	4,270	4,840
Victoria Avenue/Harbor Boulevard	4,020	4,960	4,680	5,720

[1] Fehr & Peers. 2017. Fountain Valley Crossings Specific Plan Transportation Impact Analysis Final Report. Available at: http://www.fountainvalley.org/DocumentCenter/View/5841, accessed on September 8, 2017. Existing volumes are 2015 and future volumes is 2035.

[2] Stantec Consulting Services Inc. 2017. General Plan Circulation Update, City of Huntington Beach, CA. Available at: http://www.huntingtonbeachca.gov/files/users/planning/Volume-III-Appendix-B-Circulation-Traffic-Study.pdf, accessed on September 8, 2017. Existing volumes are 2014 and future volumes is 2040.

[3] Stantec Consulting Services Inc. 2016. City of Costa Mesa General Plan Update Traffic Analysis. Available at: http://www.costamesaca.gov/ftp/generalplan2015-2035/Appendix%20C%20-%20Traffic%20Study.pdf, accessed on September 8, 2017. Existing volumes are 2015 and future volumes is 2035.

Bicycle Transportation

The program vicinity is served by various bicycle paths. Currently, the City of Fountain Valley has bike lanes along Ellis Avenue, Ward Street and Garfield Avenue. The City of Huntington Beach has bike lanes along Brookhurst south of Bushard Street to PCH, and Hamilton Avenue. In the City of Costa Mesa, on-street and off-street bike lanes are located along Victoria Street. The Santa Ana River Bike Path is located on the west side of the Santa Ana River adjacent to Plant No. 1 and Plant No. 2.

3.11.2 Regulatory Framework

State

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 also requires that permits be obtained for transportation of oversized loads and transportation of certain

materials, and for construction-related traffic disturbance. OCSD's Traffic Management Plan would be prepared in conformance with Caltrans requirements for permitting for construction related activities concerning oversize loads, if necessary.

Regional

Congestion Management Plan

Proposition 111 established a nine percent per gallon gas tax for the funding of statewide transportation-related improvements. For urbanized counties to be eligible for the revenues, the preparation and implementation of a CMP is required. The purpose of the state-mandated Congestion Management Plan (CMP) is to monitor roadway congestion and assess the overall performance of the region's transportation system. The CMP contains specific strategies and improvements to reduce traffic congestion and improve the performance of a multi-modal 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). The nearest CMP highway system is Adams Avenue in Huntington Beach which crosses Brookhurst Street between Plant No. 1 and Plant No. 2 and Harbor Boulevard in the City of Costa Mesa which crosses Victoria Avenue between the Santa Ana River and SR-55. The nearest CMP intersections are the Adams Street/Harbor Boulevard intersection in the City of Costa Mesa and Adams Street/Beach Boulevard intersection in the City of Huntington Beach (OCTA, 2015).

2016 - 2040 Regional Transportation Plan/Sustainable Communities Strategy

The Regional Transportation Plan (RTP)/Sustainable Communities Strategy (SCS) is a long-range transportation plan that is developed and updated by the Southern California Association of Governments (SCAG) every four years. As the planning authority for the six counties of Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura, as well as 189 cities, SCAG is the lead agency in facilitating the development of the RTP to provide a vision for transportation investments throughout the region. Using growth forecasts and economic trends that project out over a 20-year period, the RTP/SCS considers the role of transportation in the broader context of economic, environmental, and quality-of-life goals for the future, identifying regional transportation strategies to address mobility needs. The preparation of an RTP every four years by SCAG is required under federal and state regulations in order for transportation projects in the Southern California region to qualify for federal and state funding. The RTP is updated to reflect changes in trends, progress made on projects, and to adjust the growth forecast for population changes. The most recent RTP was adopted by SCAG's Regional Council in April 2016, and is known as the 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS). Compared to previous RTPs, the 2016-2040 RTP/SCS places a greater emphasis on sustainability and integrated planning, and includes a strong commitment to reduce emissions from transportation sources to comply with California Senate Bill (SB) 375, improve public health, and meet the National Ambient Air Quality Standards as set forth by the federal Clean Air Act. Overall, the 2016–2040 RTP/SCS contains a regional commitment for the broad deployment of zero- and near-zero emission transportation technologies. The 2016-2040 RTP/SCS is linked to OCTA and local jurisdictions' transportation plans and models in the form of shared growth and travel projections (SCAG, 2016).

Local

City of Fountain Valley General Plan

The City's Circulation Element provides the guidance to ensure that the circulation system provides adequate facilities to move goods and people, including pedestrians, bicycles, buses, trucks and automobiles. The circulation element guides development of the City's circulation system to support City and regional growth (City of Fountain Valley, 2008).

City of Huntington Beach General Plan

The Circulation Element of the General Plan ensures that mobility options in Huntington Beach remain diverse and efficient. It describes and directs how people, goods, and services move within and through Huntington Beach and responds to the needs and desires of the community by reducing and preventing traffic congestion, providing for safe active transportation and planning new transit opportunities (City of Huntington Beach, 2017).

City of Costa Mesa General Plan

The City of Costa Mesa Circulation Element establishes an integrated circulation system that supports connectivity among major activity areas and residential neighborhoods and brings people to and through the City. The purpose of the Circulation Element is to meet the needs of all users of streets, roads and highways for safe and convenient travel. The circulation network is intended to accommodate planned growth in a manner that minimizes delay and create efficiencies while moving persons and goods throughout the City (City of Costa Mesa, 2016).

3.11.3 Impacts and Mitigation Measures

Significance Criteria

For the purposes of this PEIR and consistent with Appendix G of the *CEQA Guidelines*, the proposed program would have a significant impact on transportation and traffic if it would:

- Conflict with an applicable plan, ordinance or policy establishing measure of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit (see Impact 3.11-1 below);
- Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards and travel demand measures, or other standards established by the county congestion management agency for designated road or highways (see Impact 3.11-2 below);
- Result in change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risk (see Section 4.1.13 in Chapter 4.01, Other CEQA Considerations);
- Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment) (see Section 4.1.13 in Chapter 4.01, Other CEQA Considerations);
- Result in inadequate emergency access (see Impact 3.11-3 below); or

- Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance of safety of such facilities (see Impact 3.11-4 below).

Methodology

This section assesses the transportation impacts that could result from the construction and operation of the OCSD BMP program. This assessment was conducted at a programmatic level and utilized the anticipated worst-case daily construction and operational traffic volumes associated with the nine individual projects located at Plant No. 1 and Plant No. 2. The construction trip assumptions include employee trips, haul trucks for demolition material, haul trucks for soil transport, and truck deliveries for construction materials. The operational trip assumptions include food waste trucks and biosolids trucks. No additional employees during operation are expected.

The significance criteria for Fountain Valley, Huntington Beach and Costa Mesa is as follows:

- A project will cause a significant impact if it contributes 0.01 or more to an Intersection Capacity Utilization when the performance standard is exceeded. The performance standard is level of service (LOS) D or better.

Typically, peak hour traffic through an intersection represents approximately 10 percent of the average daily traffic through the intersection. Projects that have a potential to contribute the one percent threshold to intersections generally translate to around 20 peak hour vehicles or more entering an intersection (since most intersections along the access routes have more than 2,000 peak hour trips). As shown in Table 3.11-1, there are only three roadway segments identified that have less than 20,000 average daily traffic volumes and a corresponding peak hour volume of less than 2,000 trips. These roadway segments include Ward Street south of Ellis Avenue in the City of Fountain Valley, Brookhurst Street south of Hamilton Avenue in the City of Huntington Beach and Garfield Avenue between Ward Street and Brookhurst Street in the City of Huntington Beach.

Impacts Discussion

Traffic Increase

Impact 3.11-1: Implementation of the proposed program would have a less than significant impact and less than cumulatively considerable impact on 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.

Program Impact Analysis

Construction/Operation

Construction activities include the use of equipment such as scrapers, loaders, backhoes, dozers, cranes, forklifts, pavers, water trucks, and haul trucks. All construction equipment, vehicles, personnel, and materials staging areas would be located onsite at Plant No. 1 related to the Collection Yard Relocation project and onsite at Plant No. 2 for all other individual projects. Access to Plant No. 1 would primarily utilize the I-405 Freeway, the Euclid Street off-ramp, Ellis Avenue,

Ward Street and Garfield Avenue. Construction traffic would utilize the entrance along Garfield Avenue. Access to Plant No. 2 would primarily utilize I-405 Freeway to Brookhurst Street and SR-55 to Victoria Street/Hamilton Avenue and to Brookhurst Street. Construction traffic would utilize either entrance on Brookhurst to access Plant No. 2. No detours, lane closures, or road closures are anticipated as a result of the proposed construction activities.

Construction activities at Plant No. 1 would require crews ranging from 3 to 40 construction workers depending on the construction phase. Each construction worker is assumed to commute to Plant No. 1. It is anticipated that no more than five truck deliveries of construction material would occur each day. Therefore, a maximum of 45 vehicles would travel to Plant No. 1 during construction activities which would represent 90 one-way average daily trips. Furthermore, to account for the size of the truck used for the truck deliveries, it is assumed that each of the 10 one-way truck trips result in a passenger car equivalent (PCE) ratio of 2:1 which results in a worst-case 100 one-way average daily PCE trips (80 one-way construction worker trips and 20 one-way truck PCE trips). This worst-case average daily trip volume would occur for less than one-year during building construction activities associated with the Collection Yard Relocation project.

Operational activities at Plant No.1 associated with the Collection Yard Relocation project would relocate storage of materials from Plant No. 2 to Plant No. 1. Operational vehicular trips associated with the Collection Yard Relocation project would include no increase in operational employee trips because the proposed program would not require an increase of operational employees and would include an increase of no more than 10 one-way average daily trips (or 20 one-way truck trips with a PCE of 2:1) for storage of material at this location.

Because operational trips associated with the Collection Yard Relocation project would occur after construction of the Collection Yard Relocation Project, the maximum average daily PCE trips traveling to and from Plant No. 1 associated with the proposed program is 100. Peak hour trips are commonly estimated at approximately 10 percent of average daily trips. Therefore, there could be approximately 10 peak hour trips to/from Plant No. 1. As shown in Table 3.11-1, all analyzed intersections currently have at least 3,000 peak hour trips. Therefore, the addition of 10 peak hour trips would represent less than 0.3 percent of the peak hour trips at the intersections. Therefore, the proposed program would not exceed the significance criteria of contributing one percent or more to peak hour intersection trips.

Construction activities at Plant No. 2 would require crews ranging from 3 to 120 construction workers depending on the construction phase. Each construction worker is assumed to commute to Plant No. 2. It is anticipated that no more than 10 truck deliveries of construction material would occur each day. Therefore, a maximum of 130 vehicles would travel to Plant No. 2 during construction activities which would represent 260 one-way average daily trips. This worst-case average daily trips would occur periodically for approximately three years during building construction activities associated with the TPAD project.

Operational activities at Plant No. 2 would not increase employee trips because no additional OCSD employees would be needed with the improvements proposed in the Biosolids Master Plan program. The existing employees would adequately maintain the proposed facilities. Daily truck

trips associated with the Biosolids Master Plan would increase by approximately 54 one-way truck trips per day as shown in Table 2-16, Proposed Biosolids and Food Waste Truck Trips, due to the incoming food waste as well as the portion of the biosolids that are produced from the food waste. These additional 54 one-way truck trips are anticipated to use I-405 or SR-55 to access Plant No. 2. Trucks for biosolids and food waste that use the I-405 would travel along Brookhurst Street to Plant No. 2. Trucks for biosolids and food waste that use the SR-55 would travel along Victoria Street/Hamilton Avenue and Brookhurst Street to Plant No. 2.

Although the Ultimate Food Waste Facility is anticipated to operate after the construction of the TPAD facility, the impact analysis uses a total of 314 one-way daily trips that assumed the addition of the construction and operational trips which would result in 260 one-way construction trips and 54 one-way daily food waste truck trips. The worst-case 314 daily one-way trips would be more than the maximum one-way trips that includes a factor for passenger car equivalent (PCE) trips as identified in **Table 3.11-2**. The maximum one-way PCE trips in Table 3.11-2 accounted for the anticipated maximum combined trips of construction and operation activities after the Interim Food Waste Facility is constructed and after the Ultimate Food Waste Facility is constructed. To account for the size of the truck vehicles used compared to passenger cars, each one-way truck trip accounted for two one-way passenger car trips.

As shown in Table 3.11-2, the volume of 314 one-way daily PCE trips is greater than the combined trips shown in Table 3.11-2. Therefore, the use of the 314 one-way daily PCE trips is considered a worst-case volume of trips. The 314 one-way daily PCE trips could occur along two separate haul routes (i.e., access to/from I-405 and SR-55) and construction employee trips could use routes other than the two haul routes. Although different routes to access Plant No. 2 could be used by the haul trucks and construction workers, this analysis assumes 50 percent of the trips (157 trips) would travel along Brookhurst to/from the I-405 and 50 percent of the trips (157 trips) would travel along Victoria Street/Hamilton Avenue to/from SR-55.

As discussed above, peak hour trips are commonly estimated at approximately 10 percent of the daily trips. Therefore, the 157 proposed program trips traveling along both access routes would represent approximately 16 peak hour trips. Based on a review of the existing average peak hour traffic volumes shown in Table 3.11-1 for intersections that would be accessed by construction workers, trucks that haul biosolids, and trucks that haul food waste, the intersections currently have at least 3,000 peak hour trips. Therefore, the addition, of 16 peak hour trips would represent approximately 0.5 percent or less than the total existing peak hour trips accessing the intersection.

Because the Brookhurst Street/Hamilton Avenue intersection would experience peak hour trips traveling to/from I-405 as well as trips to/from SR-55, the proposed program would contribute approximately 32 peak hour trips to this intersection. Based on a review of the current peak hour trips at this intersection as shown on Table 3.11-1, the Brookhurst Street/Hamilton Avenue intersection currently has at least 3,580 peak hour trips. Therefore, the 32 peak hour trips that could be contributed by the proposed program would represent approximately 0.9 percent of the total peak hour traffic. Overall, the proposed program would not exceed the significance criteria of contributing one percent or more to peak hour intersection traffic, and therefore, the proposed program would result in a less than significant traffic impact.

TABLE 3.11-2
TOTAL ONE-WAY TRIPS COMBINING CONSTRUCTION AND OPERATIONAL ACTIVITIES AT PLANT NO. 2

Trip Type	Two-way Trips	One-way Trips	PCE[1]	Total One-Way PCE Trips
Maximum Trips After Interim Food Waste Facility is Constructed				
Construction				
Export Soil Trucks for TPAD Facility	60	120	2:1	240
Employees for Grading Operations of TPAD Facility	20	40	1:1	40
Subtotal Construction Trips	80	160	NA	280
Operation				
Incoming Food Waste Trucks	6	12	2:1	24
Outgoing Biosolids Trucks	1	2	2:1	4
Subtotal Operational Trips	7	14	2:1	28
Total Combined Construction and Operational Trips	87	174	NA	**308**
Maximum Trips After Ultimate Food Waste Facility is Constructed				
Construction				
Export Soil Trucks for P,Q,R,S	25	50	2:1	100
Employees for Grading Operations of P,Q,R,S	10	20	1:1	20
Subtotal Construction Trips	35	70	NA	120
Operation				
Incoming Food Waste Trucks	22	44	2:1	88
Outgoing Biosolids Trucks	5	10	2:1	20
Subtotal Operational Trips	27	54	2:1	108
Total Combined Construction and Operational Trips	62	124	NA	**228**
One-way Trips Used in this Analysis	157	**314**	NA	NA

[1] PCE – Passenger car equivalent. Each one-way truck trip accounted for two one-way passenger car trips

Significance Determination before Mitigation: Less than Significant

Cumulative Impact Analysis

The vicinity of Plant No. 1 is largely urbanized with residential, commercial and industrial uses while the vicinity of Plant No. 2 is primarily residential with undeveloped areas east of the Santa Ana River. As the program vicinity continues to increase in density, the addition of residential, commercial and industrial uses could increase traffic volumes at intersections in the area. Table 3.11-1 includes estimated peak hour traffic volumes for 2035/2040 based on future development in the program area. The peak hour traffic volumes in 2035/2040 are higher than the existing volumes, and some of the volumes are greater than one percent of the existing volumes. However, because the significance criteria for a traffic impact to an intersection is a project contributing one percent or more to peak hour intersection traffic, the proposed program's maximum contribution is 0.9 percent to the Brookhurst Street/Hamilton Avenue intersection. In addition, based on further review of the City of Huntington Beach General Plan Circulation Update, the level of service at this intersection is projected to be at least LOS C or better in 2040 which would further meet the performance standard of level of service (LOS) D or better. Therefore, the proposed program's contribution to cumulative traffic impacts would be less than cumulatively considerable.

Significance Determination before Mitigation: Less than Significant

Mitigation Measures

Program Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

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Congestion Management Program

Impact 3.11-2: Implementation of the proposed program would have a less than significant impact and less than cumulatively considerable impact on an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards and travel demand measures, or other standards established by the county congestion management agency for designated road or highways.

Program Impact Analysis

Construction/Operation

Construction activities associated with the proposed program would result in an increase of 90 one-way daily vehicle trips to and from Plant No. 1 and an increase of up to 280 one-way daily PCE trips to and from Plant No. 2. These construction vehicle trips would be limited to the time needed to construct the individual projects. The CMP is intended to monitor and address long-

term traffic impacts resulting from future development and does not apply to temporary impacts associated with construction activities. Because construction activities would occur over an approximate 20-year time period, the construction trips are added to the potential operational trips. As shown in Table 3.11-2, the maximum combined construction and operational trips used in this analysis is 314 one-way daily PCE trips.

The CMP facilities in the vicinity of the program include Adams Avenue in Huntington Beach and Harbor Boulevard in Costa Mesa. As identified above in Section 3.11.3, 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 CMPHS. Because the proposed program could generate a maximum of 314 one-way daily PCE trips during construction and operational activities, these program trips would be substantially less that the CMP trip threshold of 2,400 daily trips. Therefore, the combined construction and operational activities associated with the proposed program would result in less than significant traffic impacts on CMP facilities.

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 CMPHS. The nearest CMP highway system is Adams Avenue in Huntington Beach which crosses Brookhurst Street between Plant No. 1 and Plant No. 2 and Harbor Boulevard in the City of Costa Mesa which crosses Victoria Avenue between the Santa Ana River and SR-55. The nearest CMP intersections are the Adams Street/Harbor Boulevard intersection in the City of Costa Mesa and Adams Street/Beach Boulevard intersection in the City of Huntington Beach. The proposed program would result in nominal traffic at these intersections, would not exceed the CMP threshold of 2,400 or more daily trips, and would result in less than significant traffic impacts.

Significance Determination before Mitigation: Less than Significant

Cumulative Impact Analysis

Future development in the vicinity of the proposed program could increase daily traffic at CMP facilities and result in potential significant cumulative impacts. Because the proposed program would nominally increase one-way daily PCE trips (i.e., a maximum of 314), the proposed program would not exceed the CMP threshold of generating 2,400 or more daily trips. Therefore, the proposed program's contribution to potentially significant traffic impacts on CMP facilities would be less than cumulatively considerable.

Significance Determination before Mitigation: Less than Significant

Mitigation Measures

Program Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

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Emergency Access

Impact 3.11-3: The proposed program would have no program impact and no cumulative impact on emergency access.

Program Impact Analysis

Construction

Construction trucks and employee vehicles associated with the proposed program would interact with other vehicles on program area roadways, including emergency vehicles, but would not alter the physical configuration of the existing roadway network serving the area. While individual emergency vehicles could be slowed if travelling behind a slow-moving truck, per vehicle code requirements, vehicles must yield to emergency vehicles using a siren and red lights. Because the construction activities associated with the proposed program would occur within Plant No. 1 or Plant No. 2, lane closures for the construction activities are not expected to be required. Therefore, access impacts to emergency vehicles during construction activities are considered to result in no impact.

Operation

The addition of food waste trucks associated with the proposed program would also interact with other vehicles on program area roadways, including emergency vehicles, but would not alter the physical configuration of the existing roadway network serving the area. Similar to construction vehicles, the food waste trucks must yield to emergency vehicles using a siren and red lights. Therefore, access impacts to emergency vehicles during operational activities are considered to result in no impact.

Significance Determination before Mitigation: No Impact

Cumulative Impact Analysis

As future growth in the program vicinity occur, development projects as well as roadway and pipeline improvements could result in an increase in traffic volumes as well as require lane closures. Lane closures due to cumulative construction activities could result in potential access impacts on emergency vehicles. These potential cumulative impacts are considered significant. Because the proposed construction activities would not require lane closures, the program would not contribute to cumulative impacts on emergency access.

Significance Determination before Mitigation: No Impact

Mitigation Measures

Program Measures

No mitigation measures are required.

Significance Determination after Mitigation: No Impact

Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: No Impact

Public Transit

Impact 3.11-4: The proposed program would have no program impact and no cumulative impact on adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance of safety of such facilities.

Program Impact Analysis

Construction

Construction trucks and employee vehicles associated with the proposed program would interact with public transportation vehicles as well as bicyclists on the roadway system in the program vicinity, but would not alter the physical configuration of the existing bus routes or stops or bicycle lanes. While construction vehicles will utilize existing roadways, these program vehicles would not impact the use of public transportation or bicycle lanes; and therefore, no impact on existing adopted policies, plans or programs or a reduction of safety in using public transportation or bicycle lanes would occur during construction activities.

Operation

Operational trips associated with food waste trucks would interact with public transportation vehicles as well as bicyclists on the roadway system in the program vicinity, but would not alter the physical configuration of the existing bus routes or stops or bicycle lanes. While the food waste trucks during operational activities will utilize existing roadways, these program vehicles would not impact the use of public transportation or bicycle lanes; and therefore, no impact on existing adopted policies, plans or programs or a reduction of safety in using public transportation or bicycle lanes would occur.

Significance Determination before Mitigation: No Impact

Cumulative Impact Analysis

As future growth in the program vicinity occur, development projects as well as roadway and pipeline improvements could impact public transportation bus stops and bicycle lanes during construction activities. These potential cumulative impacts would be significant. Because the proposed construction and operational activities would not impact the use of public transportation

or bicycle lanes and would have no impact on existing adopted policies, plans or programs or a reduction of safety in using public transportation or bicycle lanes, the program would not contribute to potential cumulative impacts on public transportation or bicycle lanes.

Significance Determination before Mitigation: No Impact

Mitigation Measures

Program Measures

No mitigation measures are required.

Significance Determination after Mitigation: No Impact

Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: No Impact

3.11.4 References

City of Costa Mesa, 2016. City of Costa Mesa 2015-2035 Adopted General Plan. Available at: http://www.costamesaca.gov/index.aspx?page=2054, accessed on September 9, 2017.

City of Fountain Valley, 2008. City of Fountain Valley General Plan Circulation Element. Available at: http://www.fountainvalley.org/DocumentCenter/Home/View/513, accessed on September 9, 2017.

City of Huntington Beach, 2017. City of Huntington Beach General Plan. Available at: http://www.huntingtonbeachca.gov/files/users/planning/HB-General-Plan-Update_August_8_2017.pdf, accessed on September 9, 2017.

Orange County Transportation Authority (OCTA), 2015. Available at: http://www.octa.net/pdf/Final%202015%20CMP.pdf, accessed on September 9, 2017.

Southern California Association of Government (SCAG), 2016. 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy. Available at: http://scagrtpscs.net/Documents/2016/final/f2016RTPSCS.pdf, accessed on September 12, 2017.

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3.12 Tribal Cultural Resources

This section provides an assessment of potential impacts related to tribal cultural resources that could result from implementation of the proposed program.

3.12.1 Environmental Setting

Tribal Cultural Resources Definition

Tribal cultural resources are defined as sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either included or determined to be eligible for inclusion in the California Register of Historical Resources (California Register) or included in a local register of historical resources, or a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant. A cultural landscape that meets these criteria is a tribal cultural resource to the extent that the landscape is geographically defined in terms of the size and scope of the landscape. Historical resources, unique archaeological resources, or non-unique archaeological resources may also be tribal cultural resources if they meet these criteria.

Natural Setting

The program is located in the cities of Huntington Beach and Fountain Valley, 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 is located adjacent to and just east of the proposed program area.

The City of Fountain Valley is located in the Santa Ana Valley-Capistrano Valley Province, "which is a lowland strip separating the coastal hills from the Santa Ana Mountains" (City of Fountain Valley, 2015). The majority of Fountain Valley is located on a gentle sloping flood zone. The soils in the proposed program area consist primarily of alluvial sediments with interbedded silts and sands (Fountain Valley General Plan, 1995:5-3).

The City of Huntington Beach 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 program area 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).

Ethnographic Setting

The program is located at the southern extent of Gabrielino-Tongva territory, near the boundary with the Juaneño, or more properly Acjachemen, to the south. Traditionally, the boundary between the two is identified as either Aliso Creek or the drainage divide to the north of the creek. Both are included here.

Gabrielino-Tongva

Prior to European colonization, the Gabrielino-Tongva, a Takic-speaking group, 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 were hunter-gatherers and lived in permanent communities located near the presence of a stable food supply. 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, with many recorded villages along the drainages mentioned above and in the Los Angeles basin proper (Kroeber, 1925).

Beginning with the Spanish Period and the establishment of Mission San Gabriel Arcángel, Native Americans throughout the Los Angeles area 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.

Juaneño-Acjachemen

The Juaneño or Acjachemen, also Takic-speaking, occupied a more restricted area extending across southern Orange County and northern San Diego County. Juaneño territory extended along the Pacific coast from midway between Arroyo San Onofre and Las Pulgas Canyon in the south to Aliso Creek in the north, and continued east into the Santa Ana Mountains from Santiago Peak in the northwest to the headwaters of Arroyo San Mateo in the southeast (Kroeber 1925). The Juaneño were bounded by the Gabrielino-Tongva to the north, and the Luiseño to the east and south.

The Juaneño-Acjachemen, like the Gabrielino-Tongva, subsisted on small game, coastal marine resources, and a wide variety of plant foods such as grass seeds and acorns. Their houses were conical thatched reed, brush, or bark structures. The Juaneño inhabited permanent villages centered around patrilineal clans, with each village headed by a chief, known as a nu (Kroeber 1925; Sparkman 1908). Seasonal camps associated with villages were also used. Each village or clan had an associated territory and hunting, collecting, and fishing areas. Villages were typically located in proximity to a food or water source, or in defensive locations, often near valley bottoms, streams, sheltered coves or canyons, or coastal strands (Bean and Shipek 1978).

The Juaneño-Acjachemen population was estimated to have numbered approximately 1,000 at the time of European contact. Beginning with the Spanish Period and the establishment of Mission San Juan Capistrano, the Juaneño-Acjachemen suffered severe depopulation and their traditional culture was radically altered. Nonetheless, descendants still reside in the Orange County area and maintain an active interest in their heritage.

Native American Heritage Commission Sacred Lands File

The California Native American Heritage Commission (NAHC) maintains a confidential Sacred Lands File (SLF) that contains sites of traditional, cultural, or religious value to the Native American community. ESA contacted the NAHC on August 31, 2017 to request a search of the SLF. The NAHC responded in a letter dated September 1, 2017. The letter stated that the SLF search returned negative results.

Native American Consultation

On May 2, 2017, the OCSD notified the designated contact of, or a tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notification of projects within the OCSD's service area, pursuant to Public Resources Code Section 21080.3.1. Letters were sent via certified mail to Mr. Andrew Salas, Chairman for the Gabrieleño Band of Mission Indians – Kizh Nation; Ms. Joyce Stanfield Perry, Tribal Manager for the Juaneño Band of Mission Indians/Acjachemen Nation; and Anthony Morales, Chief for the San Gabriel Band of Mission Indians. The letters included a description of the proposed program, a map depicting the program location, and contact information for OCSD. Recipients were requested to respond within 30 days of receipt of the letter if they wished to engage in government-to-government consultation per AB 52. On May 18, 2017, Mr. Salas replied via email and provided a response letter pertaining to the AB 52 consultation.

Mr. Salas indicated that the letter was a request for consultation and that the program lies within their ancestral territory and more specifically "within a sensitive area and may cause a substantial adverse change in the significance" of tribal cultural resources. Furthermore, Mr. Salas also mentioned that their "Elder Committee & tribal historians are the experts for [their] Tribe and are able to provide a more complete history…regarding the location of historic villages, trade routes, cemeteries and sacred/religious sites in the project area".

The response letter did not reference the specific OCSD project number and this resulted in a delayed response from OCSD; however, on August 30, 2017, OCSD contacted Mr. Salas to confirm that consultation was requested for the proposed BMP and not another CEQA project at Plant No. 2. On September 29, 2017, OCSD reached out to Mr. Salas to request a consultation meeting either via conference call or in person. On September 29, 2017, the OCSD received a response back from Mr. Salas Office Administrator, and a teleconference meeting was conducted on October 18, 2017 and attended by Andy Salas, Kizh Gabrielino Band of Mission Indians Tribal Chairman, and Matt Teutimez, Kizh Gabrielino Band of Mission Indians, OCSD Staff and ESA archaeologist Sara Dietler During the meeting, representatives of the Gabrieleno Band of Mission Indians explained the reasons for their concerns at the site stemming from its proximity to historic villages and resource gathering areas near freshwater resources along the coast. In

summary, Mr. Salas and Mr. Teutimez stated, that the project location was a marsh area during prehistoric times, with three large villages that overlapped the Bolsa Chica and Huntington Beach areas. These villages include *Lopuuknga, Moyogna, and Mutuucheynga* Native Americans relied on the Santa Ana River, as it provided food and plant resources and was along a nearby trading route located near the modern day Brookhurst Boulevard and Beach Boulevard and leading up to the Azusa foothills. During the Rancho period, this area was part of the Rancho Los Nietos land grant, owned by Manuel Nietos (Mr. Salas' great uncle). Native Americans worked and lived on the ranches, although much of the tribal land was restricted and tribal history was lost over time. The rerouting of the Santa Ana River in the 1930's, and the backfilling of the marshes and wetlands in the 1950's, could indicate that there are cultural resources that are present in that fill pushed up from the marshes. Or the fill and development on the site could be capping archaeological sites that could be unearthed during ground disturbance. These materials are of a high value to the tribe.

Mr. Salas and Mr. Teutimez further explained that although they are not aware of the existence of any known tribal cultural resources within the Project site, they are concerned about the sensitivity of the site based on the known history and other sites in the area. OCSD agreed to remain in contact with the tribe as projects were implemented, and noted that Native American monitoring would be required during any excavations within the Project site.

3.12.2 Regulatory Framework

State

Assembly Bill (AB) 52 was approved by California State Governor Edmund Gerry "Jerry" Brown, Jr. on September 25, 2014. The act amended California Public Resources Code (PRC) Section 5097.94, and added PRC Sections 21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09, 21084.2, and 21084.3. AB 52 applies specifically to projects for which a NOP or a Notice of Intent to Adopt a Negative Declaration or MND will be filed on or after July 1, 2015. The primary intent of AB 52 was to include California Native American Tribes early in the environmental review process and to establish a new category of resources related to Native Americans that require consideration under the CEQA, known as tribal cultural resources (as defined in PRC Section 21074(a)). On July 30, 2016, the California Natural Resources Agency adopted the final text for tribal cultural resources update to Appendix G of the CEQA Guidelines, which was approved by the Office of Administrative Law on September 27, 2016.

PRC Section 21080.3.1 requires that within 14 days of a lead agency determining that an application for a project is complete, or a decision by a public agency to undertake a project, the lead agency provide formal notification to the designated contact, or a tribal representative, of California Native American Tribes that are traditionally and culturally affiliated with the geographic area of the project (as defined in PRC Section 21073) and who have requested in writing to be informed by the lead agency (PRC Section 21080.3.1(b)). Tribes interested in consultation must respond in writing within 30 days from receipt of the lead agency's formal notification and the lead agency must begin consultation within 30 days of receiving the tribe's request for consultation (PRC Sections 21080.3.1(d) and 21080.3.1(e)).

PRC Section 21080.3.2(a) identifies the following as potential consultation discussion topics: the type of environmental review necessary; the significance of tribal cultural resources; the significance of the project's impacts on the tribal cultural resources; project alternatives or appropriate measures for preservation; and mitigation measures. Consultation is considered concluded when either: (1) the parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or (2) a party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached (PRC Section 21080.3.2(b)).

If a California Native American tribe has requested consultation pursuant to Section 21080.3.1 and has failed to provide comments to the lead agency, or otherwise failed to engage in the consultation process, or if the lead agency has complied with Section 21080.3.1(d) and the California Native American tribe has failed to request consultation within 30 days, the lead agency may certify an Environmental Impact Report or adopt an Mitigated Negative Declaration (PRC Section 21082.3(d)(2) and (3)).

PRC Section 21082.3(c)(1) states that any information, including, but not limited to, the location, description, and use of the tribal cultural resources, that is submitted by a California Native American tribe during the environmental review process shall not be included in the environmental document or otherwise disclosed by the lead agency or any other public agency to the public without the prior consent of the tribe that provided the information. If the lead agency publishes any information submitted by a California Native American tribe during the consultation or environmental review process, that information shall be published in a confidential appendix to the environmental document unless the tribe that provided the information consents, in writing, to the disclosure of some or all of the information to the public.

3.12.3 Impacts and Mitigation Measures

Significance Criteria

For the purposes of this PEIR and consistent with Appendix G of the *CEQA Guidelines*, the proposed program would have a significant impact on tribal cultural resources if it would cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

- Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k) (see Impact 3.12-1, below); or
- A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe (see Impact 3.12-1, below).

Methodology

As noted in PCR Section 21084.2, a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment. PRC Section 21084.3 states that:

(a) Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource.

(b) If the lead agency determines that a project may cause a substantial adverse change to a tribal cultural resource, and measures are not otherwise identified in the consultation process provided in Section 21080.3.2, the following are examples of mitigation measures that, if feasible, may be considered to avoid or minimize the significant adverse impacts:

  (1) Avoidance and preservation of the resources in place, including, but not limited to, planning and construction to avoid the resources and protect the cultural and natural context, or planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.

  (2) Treating the resource with culturally appropriate dignity taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:

    (A) Protecting the cultural character and integrity of the resource.

    (B) Protecting the traditional use of the resource.

    (C) Protecting the confidentiality of the resource.

  (3) Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.

  (4) Protecting the resource.

Impacts Discussion

Tribal Cultural Resource

Impact 3.12-1: Implementation of the proposed program would not have an impact or contribute to a cumulative impact on a tribal cultural resource defined in Public Resources Code section 21074.

Program Impact Analysis

No tribal cultural resources have been identified in the Project Site. The results provided by the NAHC on September 1, 2017 indicated that the SLF search yielded negative results. The District conducted consultation with tribal representatives from the Gabrieleño Band of Mission Indians – Kizh Nation in October 2017, and although a high sensitivity was expressed, no known tribal cultural resources were identified as a result of the consultation.

Therefore, the implementation of the proposed program would result in no impacts to known tribal cultural resources. The consultation concluded with the understanding that Native American monitoring would be required during grading and excavation activities associated with the proposed program as required by Mitigation Measure CUL-1 through CUL-4.

Significance Determination before Mitigation: No Impact

Cumulative Impact Analysis

No tribal cultural resources have been identified in the Project Site. The SLF search prepared by the NAHC yielded negative results. The District conducted consultation with tribal representatives from the Gabrieleño Band of Mission Indians – Kizh Nation in October 2017 and no known tribal cultural resources were identified during consultation. Further, in association with CEQA review, future AB 52 consultations with Native American tribes in order to identify tribal cultural resources would be required for projects that have the potential to cause significant impacts to tribal cultural resources. Therefore, to the extent impacts on tribal cultural resources from cumulative projects may occur, contribution from the Project would not be cumulatively considerable and there would be no cumulative impact.

Significance Determination before Mitigation: No Impact

3.12.4 References

Bean, L.J. and C.R. Smith. 1978. "Gabrieliño." In Handbook of North American Indians, Vol. 8: California, edited by R.F. Heizer, 538-549. Washington, DC: Smithsonian Institution.

Bean, L.J. and F.C. Shipek. 1978. Luiseño. In R.F. Heizer, (ed.) Handbook of North American Indians, Vol. 8: California. Washington, D.C. Smithsonian Institution.

City of Huntington Beach, General Plan, Environmental Hazards Element, 1996.

Kroeber, A.L. 1925. Handbook of the Indians of California. Bulletin 78: Bureau of American Ethnology. Washington, DC: Smithsonian Institution.

Oakeshott, G.B., California's Changing Landscapes, A guide to the Geology of the States, 2nd Edition. McGraw-Hill Book Company, San Francisco, 1978.

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3.13 Utilities, Service Systems and Energy

This section identifies existing utilities and energy systems within the program area, analyzes potential impacts to these services and systems associated with the implementation of the proposed program, and identifies mitigation measures that would avoid or reduce the significance of any identified impacts.

3.13.1 Environmental Setting

Water Facilities and Supply

City of Fountain Valley

Water distribution service within the City of Fountain Valley is provided by the Fountain Valley Water Utility (FVWU), which operates as a division of the City of Fountain Valley Public Works Department. The FVWU operates two 5-million gallon storage and distribution reservoirs at two sites with a combined capacity of ten million gallons. In addition, the water distribution system includes 202 miles of distribution piping, approximately 17,131 service connections, and 2,050 fire hydrants (City of Fountain Valley, 2016).

The FVWU receives its water from three main sources, recycled water from Orange County Water District's (OCWD) Green Acres Project (GAP), local well water from the Lower Santa Ana River Groundwater basin, which is managed by the OCWD, and imported water from the Municipal Water District of Orange County (MWDOC). MWDOC is Orange County's wholesale supplier and is a member agency of the Metropolitan Water District of Southern California (Metropolitan). The FVWU implements various management measures, a water shortage contingency plan, and various water conservation programs in order to ensure adequate water supply through the 2040 planning year (City of Fountain Valley, 2016).

City of Huntington Beach

The Huntington Beach Public Works Department (HBPWD) is responsible for operating and maintaining wells, reservoirs, imported water connections, distribution pipelines, fire hydrants, water meters, and related water utilities infrastructure. The HBPWD has owned and operated its own water utility since 1964. The HBPWD has water systems that serve approximately 273 square miles and also provides water services to the Sunset Beach area and unincorporated areas of Orange County (City of Huntington Beach, 2016).

The HBPWD relies on a combination of imported water and local groundwater to meet its water needs. The HBPWD works with three primary agencies, Metropolitan, MWDOC, and OCWD to ensure a reliable water supply that will continue to serve the community in periods of drought and shortage. The City's main source of water supply is groundwater from the Lower Santa Ana River Groundwater Basin (part of the Orange County Groundwater Basin). Imported water supply is provided by Metropolitan and delivered through MWDOC. Similar to FVWU, the HBPWD implements various management measures, a water shortage contingency plan, and various water conservation programs in order to ensure adequate water supply through the 2040 planning year (City of Huntington Beach, 2016).

Wastewater Facilities

City of Fountain Valley

The FVWU operates and maintains the local sewer collection pipes that feed into OCSD's trunk sewer system to convey wastewater to OCSD's treatment plants. FVWU's sewer system includes 133 miles of sewer lines, 2,600 manholes and one lift station (City of Fountain Valley, 2016).

City of Huntington Beach

The HBPWD operates and maintains the local sewer collection pipes that feed into OCSD's trunk sewer system to convey wastewater to OCSD's treatment plants. The HBPWD 's sewer system includes 360 miles of sewer lines ranging from 6 inches to 30 inches in diameter, 10,000 manholes and 27 lift stations (City of Huntington Beach, 2016).

Orange County Sanitation District

OCSD is responsible for collecting, treating, disposing, and recycling wastewater from residential, commercial, and industrial sources for more than 2.6 million residents within a 471 square mile service area located in northern and central Orange County. OCSD's service area includes 20 cities, 4 special districts, and the County. It operates the third largest wastewater system on the West Coast and operates 396 miles of sewers, 15 pumping stations, and two treatment plants. OCSD has joined the OCWD in recycling wastewater by developing the Groundwater Replenishment System which is a water purification project.

OCSD currently treats approximately 188 million gallons per day (mgd) of wastewater at two treatment plants; Plant No. 1 located in the City of Fountain Valley and Plant No. 2 located in Huntington Beach. Plant No. 1 treats wastewater generated by the northern portion of Huntington Beach and the other served cities, and Plant No. 2 treats the remainder of the City's sewage. Plant No. 2 provides both advanced primary and secondary treatment which is then discharged into the ocean disposal system. Plant No. 2 has a current average flow of 74 mgd. Approximately 130 mgd of secondary treated effluent from Plant No. 1 is diverted to the OCWD's Groundwater Replenishment System for further treatment and discharge to spreading basins, reclaimed water use and groundwater barrier protection.

Storm Drainage Systems

The City of Fountain Valley and City of Huntington Beach storm drainage systems are operated by the cities' Public Works Departments 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 cities' Public Works Departments are responsible for their own sub-regional and local drainage facilities. Recent improvements to the regional storm drainage system have increased capacity to accommodate a 100-year storm event.

Plant No. 1 and Plant No. 2 are characterized by relatively flat topography and have internal drainage systems. The plant-wide internal drainage systems are designed to collect and treat stormwater and collect wastewater and chemical spills from the treatment facilities within each site. Stormwater runoff is currently captured, treated, and disposed through the ocean outfall.

Solid Waste Management

The cities of Fountain Valley and Huntington Beach Public Works Departments are responsible for weekly residential and commercial trash collection services and contracts with Rainbow Disposal Company, Inc, which is currently associated with Republic Services (Republic Services, 2017; City of Fountain Valley 2017a; City of Huntington Beach, 2017a). All trash collected by the cities refuse services are sorted and processed at a Materials Recovery Facility (MRF) within the City of Huntington Beach. The Rainbow Disposal Company/Republic Services operates a MRF located at 17121 Nichols Street with a design capacity of approximately 2,800 tons per day (tpd). Rainbow Environmental Services/Republic Services is currently expanding their existing transfer station and MRF to include approximately 193,150 square feet of new building area including two transfer stations, a secondary recycling building, office, and enclosure of existing MRF canopy. Rainbow's capacity is proposed to increase from the current 2,800 tpd to 4,000 tpd (City of Huntington Beach, 2017a). Non-recyclable materials and solid waste are then transported to the appropriate landfill.

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 3.13-1** describes the maximum permitted capacity of the serving landfills.

TABLE 3.13-1
CAPACITY OF ORANGE COUNTY LANDFILLS

Landfill	Daily Maximum (tons)	Maximum Capacity (cubic yards)	Remaining Capacity (cubic yards)	Anticipated Closure Date
Frank R. Bowerman	11,500	266,000,000	205,000,000	2053
Olinda Alpha	8,000	148,800,000	34,200,000	2021
Prima Deshecha	4,000	172,900,000	87,384,799	2067

SOURCE: CalRecycle, 2008; CalRecycle, 2014; CalRecycle, 2005

The landfill closest to the program area is the Frank R. Bowerman Landfill, a 725-acre, non-hazardous, municipal solid waste landfill located approximately 13 miles northeast of the program area. The Frank R. Bowerman Landfill is permitted to receive 11,500 tpd, receives a daily average of approximately 6,800 tpd (Orange County Waste & Recycling, 2017; City of Fountain Valley, 2017b), and is scheduled to close in the year 2053 (Orange County Waste & Recycling, 2017). The landfill is subject to regular inspection by state regulatory agencies such as the California Department of Resource Recycling and Recovery (CalRecycle), the California Regional Water Quality Control Board (RWQCB), and the South Coast Air Quality Management District (SCAQMD).

Energy

OCSD 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 (Cen Gen) facility. OCSD has converted its operating machinery to natural gas or electric power while emergency back-up generators are equipped to operate on diesel fuel. Many onsite vehicles also use electric power or compressed gas. Plant No. 2 is served by SCE's 12.47 kilovolts (kV) transformer at the Electric Service Center (ESC), which feeds into two switchgears, "A" and "B" at 1,200 A, located north of Plant No. 2. The switchgears feed into the Cen Gen facility. The generators operate parallel with SCE to provide normal power and can also be used as standby power source for the plant. Since the beginning of the Cen Gen facility operation, imported electricity from SCE has been reduced and continues to reduce with modern improvements to the efficiency of facilities. Excess power generated at Plant No. 2 is occasionally sold to SCE.

3.13.2 Regulatory Framework

Federal

Clean Water Act

The Federal Water Pollution Control Act or Clean Water Act (CWA) serves to restore and maintain the chemical, physical, and biological integrity of the Nation's waters. The CWA was created in 1972, and then amended in 1977, and again in 1987 when the National Pollutant Discharge Elimination System (NPDES) program was created. NPDES requires a permit for discharge of pollutants from industrial sources and publicly owned treatment works into navigable waters. The discharge must meet applicable requirements, which are outlined in the CWA and which reflect the need to meet federal effluent limitations and state water quality standards.

Section 303(d) of the CWA states that each state shall identify those waters within its boundaries for which the effluent limitations required by section 301(b)(1)(A) and section 301(b)(1)(B) are not stringent enough to implement any water quality standard applicable to such waters. The state shall establish a priority ranking for such waters, taking into account the severity of the pollution and the uses to be made of such water (see Section 3.8, Hydrology and Water Quality, of this PEIR).

Resource Conservation and Recovery Act

The Resource Conservation and Recovery Act (RCRA) (40 CFR, Part 258 Subtitle D) establishes minimum location standards for siting municipal solid waste landfills. In addition, because California laws and regulations governing the approval of solid waste landfills meet the requirements of Subtitle D, the U.S. EPA has delegated the enforcement responsibility to the State of California.

Title 40 of the Code of Federal Regulations Part 503

The federal biosolids regulations are contained in Title 40 of the Code of Federal Regulations Part 503 (40 CFR Part 503) as Standards for the Use or Disposal of Sewage Sludge. Known as

the Part 503 Rule, or Part 503, these regulations govern the use and disposal of biosolids. Part 503 established requirements for the final use or disposal of biosolids when biosolids are:

- Applied to land to condition the soil or fertilize crops or other vegetation;
- Placed on a surface disposal site for final disposal; or
- Fired in a biosolids incinerator (USEPA, 1994).

Part 503 permits are issued by the USEPA and are required for all biosolids generators. Part 503 requirements can be incorporated into the NPDES permits that also are issued to publicly-owned treatment works.

State

California Code of Regulations (CCR)

Pursuant to CCR Chapter 15, Division 3, Title 23, Article 2 (Waste Classification and Management) and Article 3 (Waste Unit Classification and Siting), Class III (municipal solid waste) landfills are sited in accordance with criteria that are similar to those found in Subtitle D of RCRA. CCR Title 27 includes various regulations pertaining to siting, design, construction, and operation of solid waste landfills.

CCR Title 22, Division 4, Sections 60301 through 60355 (Articles 1 through 9), includes descriptions of overall allowable sources of and uses for recycled water, as well as specific use descriptions depending on treatments. Title 22 also includes specific treatment pathways including disinfection procedures, oxidation, soils and bed filter media, and requirements for impoundments. It covers use area requirements, water testing and analysis, and plant design and operational requirements.

California Integrated Waste Management Act of 1989

The California Integrated Waste Management Act of 1989 (AB 939) redefined solid waste management in terms of both objectives and planning responsibilities for local jurisdictions and the state. AB 939 was adopted in an effort to reduce the volume and toxicity of solid waste that is landfilled and incinerated by requiring local governments to prepare and implement plans to improve the management of waste resources. AB 939 required each of the cities and unincorporated portions of the counties to divert a minimum of 25 percent of the solid waste sent to landfills by 1995 and 50 percent by the year 2000. To attain goals for reductions in disposal, AB 939 established a planning hierarchy utilizing new integrated solid waste management practices. These practices include source reduction, recycling and composting, and environmentally safe landfill disposal and transformation. Other state statutes pertaining to solid waste include compliance with the California Solid Waste Reuse and Recycling Act of 1991 (AB 1327), which requires adequate areas for collecting and loading recyclable materials within a project site.

Protection of Underground Infrastructure

The California Government Code Section 4216-4216.9 “Protection of Underground Infrastructure” requires an excavator to contact a regional notification center (e.g., Underground

Services Alert or Dig Alert) at least two days prior to excavation of any subsurface installations. Any utility provider seeking to begin a project that could damage underground infrastructure can call Underground Service Alert, the regional notification center for southern California.

Underground Service Alert will notify the utilities that may have buried lines within 1,000 feet of the project. Representatives of the utilities are then notified and are required to mark the specific location of their facilities within the work area prior to the start of project excavation activities in the area.

California Energy Action Plan II

The California Energy Action Plan II is the state's principal energy planning and policy document (California Energy Commission, 2005, 2008). The plan identifies state-wide energy goals, describes a coordinated implementation plan for state energy policies, and identifies specific action areas to ensure that California's energy is adequate, affordable, technologically advanced, and environmentally sound. In accordance with this plan, the first priority actions to address California's increasing energy demands are energy efficiency and demand response (i.e., reduction of customer energy usage during peak periods in order to address system reliability and support the best use of energy infrastructure). Additional priorities include the use of renewable sources of power and distributed generation (i.e., the use of relatively small power plants near or at centers of high demand). To the extent that these actions are unable to satisfy the increasing energy and capacity needs, clean and efficient fossil-fired generation is supported.

In 2002, California established its Renewable Portfolio Standard program,[1] with the goal of increasing the percentage of renewable energy in the state's electricity mix to 20 percent by 2017. The California Energy Commission subsequently accelerated that goal to 2010, and further recommended increasing the target to 33 percent by 2020. Because much of electricity demand growth is expected to be met by increases in natural-gas-fired generation, reducing consumption of electricity and diversifying electricity generation resources are significant elements of plans to reduce natural gas demand.

California Department of Resources Recycling and Recovery (CalRecycle) Formerly California Integrated Waste Management Board (CIWMB)

CalRecycle is the State agency designated to oversee, manage, and track California's 76 million tons of waste generated each year. It is one of the six agencies under the umbrella of the California Environmental Protection Agency. CalRecycle develops laws and regulations to control and manage waste, for which enforcement authority is typically delegated to the local government. CalRecycle works jointly with local government to implement regulations and fund programs.

The Integrated Waste Management Act of 1989 (Public Resources Code [PRC] 40050 et seq. or Assembly Bill [AB] 939), administered by CalRecycle, requires all local and county governments

[1] The Renewable Portfolio Standard is a flexible, market-driven policy to ensure that the public benefits of wind, solar, biomass, and geothermal energy continue to be realized as electricity markets become more competitive. The policy ensures that a minimum amount of renewable energy is included in the portfolio of electricity resources serving a state or country. By increasing the required minimum amount over time, the Renewable Portfolio Standard puts the electricity industry on a path toward increasing sustainability.

to adopt a Source Reduction and Recycling Element to identify means of reducing the amount of solid waste sent to landfills. This law set reduction targets at 25 percent by the year 1995 and 50 percent by the year 2000. To assist local jurisdictions in achieving these targets, the California Solid Waste Reuse and Recycling Access Act of 1991 requires all new developments to include adequate, accessible, and convenient areas for collecting and loading recyclable and green waste materials.

Regional Water Quality Control Board (RWQCB)

The primary responsibility for the protection of water quality in California rests with the State Water Resources Control Board (SWRCB) and nine RWQCBs. The SWRCB sets statewide policy for the implementation of state and federal laws and regulations. The RWQCBs adopt and implement Water Quality Control Plans (Basin Plans) which recognize regional differences in natural water quality, actual and potential beneficial uses, and water quality problems associated with human activities. The program area is within the jurisdiction of the Santa Ana Region.

California Department of Water Resources (DWR)

The California DWR is a department within the California Resources Agency. The DWR is responsible for the State of California's management and regulation of water usage.

Regional

Orange County Construction and Demolition (C&D) Debris Re-Use and Recycling Program

Orange County requires the preparation of a C&D Program Application Packet and Final Compliance Report for various construction and demolition projects. The C&D program's goal is to ensure a minimum of 65 percent diversion of construction building materials and demolition debris from landfills. Projects can achieve diversion through reuse, recycling, and/or composting of construction and demolition materials at County-approved facilities or use of a County Franchised Waste Hauler. Information provided in the Application and Compliance Report includes hauler identification and anticipated material wastes type and quantity (County of Orange, 2017).

Local

City of Fountain Valley Municipal Code

The City of Fountain Valley adopted the Water Conservation and Supply Shortage Program in 2009 in the City's Municipal Code as Chapter 14.18 Water Conservation. Ordinance No. 1430 establishes permanent water conservation requirements and prohibition against waste that are effective at all times and is not dependent upon a water shortage for implementation. In an event of a water supply shortage, the ordinance further establishes four levels of water supply shortage response actions to be implemented during times of declared water shortage or declared water shortage emergency, with increasing restrictions on water use in response to worsening drought or emergency conditions and decreasing supplies (City of Fountain Valley, 2016).

City of Huntington Beach Municipal Code

The City's Water Management Program is defined in Chapter 14.18 of the Huntington Beach Municipal Code. This program establishes a staged water conservation program that will encourage reduced water consumption within the City through conservation, enable effective water supply planning, assure reasonable and beneficial use of water, prevent waste of water, and maximize the efficient use of water within the City (City of Huntington Beach, 2016).

Orange County Cities Energy Efficiency Partnership

In keeping with the intent of the California Energy Efficiency Strategic Plan, the Orange County Cities Energy Efficiency Partnership (which consists of SCE and the cities of Costa Mesa, Huntington Beach, Fountain Valley and Westminster) perform a number of key functions relating to promoting energy efficiency, energy conservation and renewable energy resource development. The Partnership comes together to create energy training and workshops, energy assessments, comprehensive energy plans, and energy saving initiatives (Orange County Cities Partnership, 2008).

City of Fountain Valley Environmental Services Department

The City of Fountain Valley's Environmental Services Department works with the Orange County Cities Energy Partnership to identify and create projects to improve long term energy efficiency and sustainability throughout the local area. The City of Fountain Valley plans to reduce greenhouse emissions and energy consumption by 20% before 2020. Specific efforts by the Department include (City of Fountain Valley, 2017c):

- Achieving Platinum partner status with SCE (community-wide and government facilities)
- Carbon reporting by utilizing an energy management information system
- Installing energy efficient lighting, lighting and temperature controls, HVAC improvements
- Installing Energy Star rated appliances and benchmarking
- Measuring and verifying
- Monitoring local government utility accounts

City of Huntington Beach Energy Action Plan

In April 2011, the City adopted an Energy Action Plan to protect the environment and be more sustainable. The Energy Action Plan outlines the City's history and commitment to eliminating energy waste; preparing for peak oil production; and reducing greenhouse gas emissions. The Energy Action Plan includes (City of Huntington Beach, 2017b):

- Utility Bill audits and expenditure tracking
- Developing and managing energy efficiency projects
- Utility partnerships
- Monitoring Based Commissioning (MBC)
- Energy efficiency
- Energy efficiency retrofits/upgrades

- Heating, ventilation, and air conditioning (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)

3.13.3 Impacts and Mitigation Measures

Significance Criteria

For the purposes of this PEIR and consistency with Appendix G of the *CEQA Guidelines*, applicable local plans, and agency and professional standards, the proposed program would have a significant effect on utilities, service systems and energy if it would:

- Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board (see Impact 3.13-1 below);
- 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 (see Section 4.1.14 in Chapter 4.0, Other CEQA Considerations);
- Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects (see Impact 3.13-2 below);
- Require new or expanded water supply resources or entitlements (see Impact 3.13-3 below);
- Result in a determination by the wastewater treatment provider which serves or may serve the project that it has inadequate capacity to serve the projects projected demand in addition to the provider's existing commitments (see Section 4.1.14 in Chapter 4.0, Other CEQA Considerations);
- Be served by a landfill with insufficient permitted capacity to accommodate the project solid waste disposal needs (see Impact 3.13-4 below);
- Not comply with federal, state, and local statutes and regulations related to solid waste (see Impact 3.13-5 below);
- Result in a substantial increase in overall or per capita energy consumption (see Impact 3.13-6 below);
- Result in wasteful or unnecessary consumption of energy (see Impact 3.13-6 below);
- 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 (see Impact 3.13-6 below); or
- Conflict with applicable energy efficiency policies or standards (see Impact 3.13-6 below).

Methodology

The potential for adverse impacts on utilities, service systems and energy has been evaluated based on information concerning current service levels and the ability of the service providers to

accommodate the construction and operation of the proposed program. See Section 3.8 Hydrology and Water Quality, of this PEIR for more detailed information regarding water treatment and water quality issues.

Impacts Discussion

Wastewater Treatment Requirements

Impact 3.13-1: The proposed program would have less than significant and less than cumulatively considerable effects regarding wastewater treatment requirements of the applicable Regional Water Quality Control Board.

Program Impact Analysis

Construction

The program would include construction of new facilities within Plant No. 1 and Plant No. 2 boundaries. During project construction of the proposed facilities, a minimal amount of wastewater would be generated by construction workers and collected by portable toilet facilities. All waste generated in portable toilets would be collected by a permitted portable toilet waste hauler and appropriately disposed of at the waste hauler station at Plant No. 1. These waste disposal stations are permitted by the Santa Ana RWQCB. In addition, surface water generated by storms or by construction activities would be collected by the onsite drainage system and directed to the onsite wastewater treatment facilities. Therefore, impacts would be less than significant.

Operation

During operation, the proposed facilities would separate and digest biosolids, a process of waste water treatment. However, the facilities themselves would not generate wastewater, and therefore would not exceed wastewater treatment requirements. In addition, surface water drainage at the two plants would continue to be collected and conveyed to the treatment facilities. All facilities on-site would be in compliance with permit conditions under RWQCB Order R-8-2004-002, and subsequent amendment R8-2008-0058. Compliance with the permit conditions would ensure that all RWQCB requirements would not be exceeded. Therefore, the implementation of the proposed program would result in no impacts related to the exceedance of wastewater treatment requirements.

Significance Determination before Mitigation: Less than Significant

Cumulative Impact Analysis

Depending on the constituents generated, future cumulative development could exceed wastewater treatment requirements of the Santa Ana RWQCB and could result in potentially significant cumulative impacts. The proposed program would construct and operate facilities that would be in compliance with permit conditions under RWQCB Order R-8-2004-002. Compliance with the permit conditions would ensure that all RWQCB requirements would not be exceeded. Because the program would not exceed wastewater treatment requirements, the programs contribution to potential cumulative impacts would be considered less than cumulatively considerable.

Significance Determination before Mitigation: Less than Significant

Mitigation Measures

Program Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

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Stormwater Drainage Facilities

Impact 3.13-2: The proposed program would have less than significant and less than cumulatively considerable environmental effects from the construction of new stormwater drainage facilities or expansion of existing facilities.

Program Impact Analysis

Construction

The construction of proposed biosolids facilities would require activities such as pavement breaking, excavation and demolition, which would temporarily alter each site's existing ground surface and drainage patterns. However, these potential changes to drainage courses would be temporary, and would not require the construction or expansion of stormwater drainage facilities in addition to those already located at the program locations. Both OCSD Plants are equipped with an internal drainage system designed to collect and treat stormwater and collect wastewater and chemical spills from the treatment facilities within each site, which is then conveyed back to the plant's headworks for treatment. Construction of the proposed program facilities would not require a new system or require the expansion of any off-site stormwater drainage facilities. Impacts would be less than significant.

Operation

During operation, the proposed program would not involve activities that could substantially impact local drainage patterns such as substantial grading, topographic alteration, or impacts to drainages or storm drain facilities. However, the presence of new facilities within the program area and changes in the extent of permeable or impermeable surfaces could alter the direction and volume of overland flows during both wet and dry periods. Further, following demolition of the remaining digesters on Plant No. 2 (P2-508), the program area would be highly disturbed and this could alter the existing drainage pattern of the site.

The proposed program components are designed to implement new drainage facilities in order to accommodate potential changes in overland flow after program implementation. The new drainage facilities would connect to the existing plant-wide drainage system, which has adequate capacity to capture/convey flows to OCSD headworks. Therefore, the proposed program would

modify the existing system but would not require a new system or require the expansion of any off-site stormwater drainage facilities. Impacts would be less than significant.

Significance Determination before Mitigation: Less than Significant

Cumulative Impact Analysis

Future cumulative development within the program vicinity would include the removal of pervious surfaces and increase impervious surfaces. Increases in impervious surfaces would increase stormwater quantity. This increase could cumulatively affect on-site drainage patterns as well as off-site drainage volume and require the construction and operation of new and/or expanded stormwater drainage facilities. This cumulative need for the construction of new and/or expanded stormwater drainage facilities could result in significant environmental effects.

All stormwater is collected on Plant No. 1 and Plant No. 2 and treated on-site. The proposed program components as well as all other cumulative development on-site are designed to implement new drainage facilities in order to accommodate potential changes in overland flow. The proposed program's new drainage facilities would connect to the existing plant-wide drainage system which is expanded or reconfigured to ensure adequate capacity to capture/convey flows to OCSD headworks.

Further, because stormwater is collected and treated on-site, the proposed program would not increase off-site drainage volume and therefore would not contribute to cumulative impacts off-site. The proposed program would be less than cumulatively considerable.

Significance Determination before Mitigation: Less than Significant

Mitigation Measures

Program Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Water Supplies

Impact 3.13-3: The proposed program would have less than significant and less than cumulatively considerable effects from new or expanded water supply resources or entitlements.

Program Impact Analysis

Construction

Water needs of the proposed program during construction would be relatively minor and temporary. Construction of the proposed facilities would require nominal amounts of water for dust control to meet SCAQMD Rule 403 standards, concrete mixing and sanitary purposes. Construction water would be accessed via a local water line. The construction demand would be minimal and accommodated by existing supplies. Impacts would be less than significant.

Operation

During operation of the new facilities, water supplies from cities of Huntington Beach and Fountain Valley Water (POTW), reclaimed water (RW), and plant water (PW) (treated water used for plant facilities) would be required. The proposed program would require a nominal amount of water for landscaping associated with the proposed perimeter screening and various biosolids facilities' operations. The proposed program would not require the addition of any new on-site employees; therefore, no additional potable water is necessary for employee sanitation purposes. Plant water would be the primary supply for all non-potable water demands. Implementation of the proposed program would not require any new or expanded water supply resources or entitlements; therefore, impacts would be less than significant.

Significance Determination before Mitigation: Less than Significant

Cumulative Impact Analysis

Future cumulative development within the program vicinity is expected to increase the demand for water that could require new or expanded water supply resources or entitlements to serve the increase in urban development. The FVWU and HBPWD's Urban Water Management Plans identify management actions required to achieve adequate water supply through 2040. The plans evaluate new growth, development, and water demand patterns within the program vicinity. Management actions to ensure adequate water supplies were evaluated based on various demand factors such as land development and community density. Practices and management actions would assist in reducing demands of the FVWU and HBPWD's service area water supplies; however, future development could be cumulatively significant.

The proposed program would not substantially increase water demand and would not contribute to the need for new or expanded water supply resources or entitlements. Thus, the program's contribution to cumulative impacts would be less than cumulatively considerable.

Significance Determination before Mitigation: Less than Significant

Mitigation Measures

Program Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

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Landfill Capacity

Impact 3.13-4: The proposed program would have a less than significant impact and less than cumulatively considerable impacts on solid waste disposal facilities.

Program Impact Analysis

Construction

Landfills in the program 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 program. The solid waste generated during construction of the proposed facilities would mainly consist of general construction debris, building material wrapping, worker personal waste, and excavated soils. In addition, the program also includes the demolition of existing digesters and associated electrical equipment rooms. The program would prepare a construction and demolition solid waste management plan. The plan would demonstrate a minimum of 65 percent diversion of construction building materials and demolition debris from landfills through reuse or recycling. Information provided in this waste management plan would include how the waste will be managed, hauler identification, and anticipated material wastes.

The portion of construction waste that is not diverted for recycling would likely be disposed of at 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 No. 2. However, all the landfills within the program vicinity could serve the program. The three landfills permit thousands of tons of waste per day, which is well beyond the expected amount of waste that would be generated by the program during construction. Further, these landfills are expected to continue to operate for 5-40 more years, and combined, have adequate permitted remaining capacity of 326,584,799 cubic yards. The landfills are Class III which permits non-hazardous solid waste. Impacts regarding permitted remaining landfill capacity would be less than significant.

Operation

As described in Chapter 2, Project Description, the amount of Biosolids is planned to be decreased in the year 2040 compared to existing conditions as a result of the implementation of the dewatering centrifuge system that was recently approved and is currently under construction. Therefore, operation of the proposed program would not change the projected number of daily or annual truck trips hauling biosolids from Plant No. 2. In addition, the proposed program includes the import of food waste to Plant No. 2. The receipt of food waste would divert food waste from landfills and would increase the available capacity at the landfills. This diversion of food waste would assist in the state's anticipated requirement to divert all organics from entering landfills by the year 2025. Because the proposed program would not increase the amount of Biosolids being

diverted to landfills, the program would not exceed landfill capacities. Therefore, the program's impact on landfills would be less than significant.

Significance Determination before Mitigation: Less than Significant

Cumulative Impact Analysis

Future development within the program vicinity would cumulatively contribute to the generation of solid waste and disposal of solid waste at the Frank R. Bowerman, Olinda Alpha, and Prima Deshecha landfills. Based on growth projections, these three landfills have approximately 5 to 40 more years of capacity. Future cumulative development could eventually exceed the capacities of these landfills. Therefore, cumulative development could result in significant cumulative impacts on landfills. Because the proposed BMP program would not substantially increase the generation of solid waste during construction activities and would not increase waste being directed to landfills during operational activities, the program's contribution to cumulative effects on landfills would be less than cumulatively considerable.

Significance Determination before Mitigation: Less than Significant

Mitigation Measures

Program Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

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Compliance with Solid Waste Regulations and Statutes

Impact 3.13-5: The proposed program would have a less than significant impact and less than cumulatively considerable impacts associated with solid waste federal, state, and local statutes and regulations.

Program Impact Analysis

Construction

The proposed program would comply with all city and County construction and demolition requirements during construction of the proposed facilities as described above in the Regulatory Framework. All excavated soil would be hauled offsite by truck to an appropriately permitted recycled waste or solid waste facility. The daily amount of soil to be disposed per day would not exceed the maximum permitted capacity. The proposed program would be in compliance with all federal, State, and local statues related to solid waste disposal. Therefore, the proposed program would result in less than significant impacts associated with solid waste statutes and regulations during construction activities.

Operation

The City of Fountain Valley, Huntington Beach and the County are required to comply with the California Integrated Waste Management Act of 1989, requiring diversion of solid waste from landfills through reuse and recycling. The program would be required to recycle during its operation. The proposed program would result in less than significant impacts associated with solid waste statutes and regulations during operational activities.

Significance Determination before Mitigation: Less than Significant

Cumulative Impact Analysis

Cumulative projects would generally be served by the local municipal solid waste disposal facilities and hazardous waste disposal facilities, resulting in potential cumulative impacts to solid waste facilities. However, new cumulative development projects would participate in local programs designed to divert waste from landfills. In addition, all cumulative projects implemented in the area would also be required to comply with federal, State, and local solid waste regulations and statutes. Therefore, cumulative development would result in less than significant impacts associated with solid waste statutes and regulations.

Significance Determination before Mitigation: Less than Significant

Mitigation Measures

Program Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

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Energy

Impact 3.13-6: The proposed program would improve methane capture and on-site energy generation and would not increase OCSD's total energy consumption. The program would not impact local and regional energy supplies, and would result in less than significant and less than cumulatively considerable impacts associated with energy supplies and consumption.

Program Impact Analysis

Construction

Energy use during construction activities would occur from the use of petroleum-based fuel (diesel and gasoline). As described in Table 2-15 in Chapter 2, Project Description, construction haul trucks are estimated to travel approximately 1.2 million miles over the 20-year construction time period for the proposed program. Based on an assumption that haul trucks consume approximately one gallon of diesel fuel per eight miles, approximately 250,000 gallons of diesel

would be consumed during construction which is an average of 12,500 gallons per year. As shown in Table 2-15 in Chapter 2, Project Description, construction employees are estimated to travel approximately 8.4 million vehicle miles. Based on an assumption that employee vehicles consume approximately one gallon of gasoline per 15 miles, approximately 560,000 gallons of gasoline would be consumed which is an average of 28,000 gallons per year.

The average amount of annual diesel fuel (12,500 gallons) and gasoline (28,000 gallons) that would be consumed during construction activities is considered nominal compared to approximately 56 million gallons of diesel and 1.4 billion gallons of gasoline consumed annually in Orange County. The proposed program's annual average consumption of diesel represents 0.02 percent of the diesel consumed in Orange County in 2015 and 0.002 percent of gasoline consumed in Orange County in 2015 (CEC, 2016). Therefore, construction activities associated with the proposed program would result in a less than significant impact on regional energy supplies and energy consumption.

Operation

Operational activities associated with the implementation of the BMP would require varying amounts of petroleum-based fuel (diesel and gasoline), electricity and natural gas for biosolids and maintenance vehicle trips and operation of the proposed facilities. As described in Table 2-17 in Chapter 2, Project Description, the truck trips associated with the outgoing biosolids and incoming food waste would increase annually; however as shown in Table 2-17, there would be a decrease in the number of vehicle miles traveled (VMT) due to the proposed modification to the end users of the biosolids. As a result, the total vehicle miles traveled would decrease compared to existing VMT as well as compared to current projected VMT. Because VMT would reduce, the amount of diesel fuel consumed would reduce. In addition, the proposed program would not result in an increase in the number of employees, and therefore, there would not be an increase in the amount of gasoline fuel consumed.

The program facilities would include upgraded, energy efficient equipment such as system pumps and lighting to minimize energy impacts. In addition, various ancillary facilities would be scheduled to operate as much as possible during off-peak energy demand periods. These strategies would be consistent with State policies for maximizing off-peak power usage for utilities. The proposed program would comply with all applicable energy policies and standards.

Further, the proposed Interim and Ultimate Food Waste facilities would introduce source separated organics (SSO) food waste to future digester operation. This food waste would increase the amount of organic matter being digested and increase the amount of biogas[2] being released. This excess biogas would then be captured and sent to the Plant No. 2 Cen Gen facility to be converted to energy. This increase in energy generated would offset any energy needs required by new facilities proposed within the BMP. Therefore, operational activities associated with the proposed program would not result in an impact on regional energy supplies and energy consumption.

[2] Biogas is a fuel gas; a mixture consisting of approximately 65 percent methane and 35 percent carbon dioxide. It is a renewable energy resulting from biomass.

In summary, the demand for energy by the proposed program during construction activities would be nominal and there would be no increase in the demand for energy during operational activities. Therefore, the proposed program would result in a less than significant impact on regional energy supplies and energy consumption.

Significance Determination before Mitigation: Less than Significant

Cumulative Impact Analysis

The program vicinity is anticipating population growth, and therefore, associated housing, commercial, and industrial developments would cumulatively increase the demand for energy. Future development would result in cumulative impacts associated with increased energy demand and consumption. This future demand could result in a significant impact on regional energy supplies and energy consumption. Because the proposed program would require a nominal amount of energy during construction activities and no increase in the demand for energy during operational activities, the proposed program would have a less than cumulatively considerable impact associated with regional energy supplies and energy consumption.

Significance Determination before Mitigation: Less than Significant

Mitigation Measures

Program Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

Cumulative Measures

No mitigation measures are required.

Significance Determination after Mitigation: Less than Significant

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3.13.4 References

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CHAPTER 4
Other CEQA Considerations

This chapter presents the evaluation of other types of environmental impacts required by CEQA that are not covered within the other chapters of this PEIR. The other CEQA considerations include environmental effects that were found not to be significant, significant and unavoidable adverse impacts, significant irreversible environmental changes that would be caused by the program, and growth-inducing impacts.

4.1 Effects That Were Found Not to Be Significant

An Initial Study was prepared for the program in July of 2017 (Appendix A). Each of the environmental issues identified in Appendix G of the State CEQA Guidelines that were found not to be significant are summarized below in Sections 4.1.1 through 4.1.14.

4.1.1 Aesthetics

Issue 1: Would the program substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

Based on a review of the California Department of Transportation (Caltrans) List of Scenic Highways, the program area is not located along a State Scenic Highway (Caltrans, 2017). A segment of State Route 1, PCH, is approximately 0.50-mile south of Plant No. 2 along the Pacific Ocean coastline. PCH is an Eligible Scenic Highway but is not officially designated. Further, the proposed facilities are not expected to be visible to motorists traveling along this portion of PCH due to the two-story residential housing located on the north side of PCH. Therefore, the proposed program would not impact scenic resources, which include rock outcroppings, trees, or historic buildings within a designated State Scenic Highway corridor. No impacts would occur.

4.1.2 Agriculture and Forestry Resources

Issue 1: Would the program Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

The program area is currently developed and void of any agricultural uses. The California Department of Conservation Important Farmland Map for Orange County identified the program area as urban and built-up land. Further, there is no Prime Farmland, Unique Farmland, or Farmland of Statewide Importance located adjacent to the program area (CDC, 2017). Therefore,

no impact to Prime Farmland, Unique Farmland, or Farmland of Statewide Importance would occur.

Issue 2: Would the program conflict with existing zoning for agricultural use, or a Williamson Act contract?

A Williamson Act Contract requires private landowners to voluntarily restrict their land to agriculture and compatible open-space uses. The program area is void of agricultural uses and does not include land enrolled in a Williamson Act Contract (CDC, 2004). Therefore, no impact would occur regarding conversion of existing agriculture uses or Williamson Act contracts.

Issue 3: Would the program conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?

The proposed program would not conflict with existing zoning of forest land or cause rezoning of forest land, timberland, or timberland zoned for Timberland Production. The program area is currently zoned as Industrial Limited (IL) and Manufacturing (MP). The proposed program does not involve any changes to current General Plan land use or zoning designations for forest land, or timberland. Additionally, there are no timberland zoned production areas within the program area or surrounding areas. Therefore, no impact to forest land or timberland would occur.

Issue 4: Would the program result in the loss of forest land or conversion of forest land to non-forest use?

The program area and surrounding areas contain no forest land. Thus, implementation of the proposed program would result in no impacts related to the loss or conversion of forest land to non-forest use.

Issue 5: Would the program involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?

Refer to Issues 1 through 4. The program area is developed with wastewater treatment and conveyance facilities and impervious surfaces. No other changes to the existing environment would occur from implementation of the proposed program that could result in conversion of farmland to nonagricultural use or forest land to non-forest use. Thus, no impact would occur.

4.1.3 Biological Resources

Issue 1: Would the program have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFW or USFWS?

The majority of Plant No. 1 and Plant No. 2 is improved with paved surfaces; the program area consists solely of developed land. Adjacent land cover types in the vicinity of the program area

include ornamental, disturbed habitat, and open water associated with the Santa Ana River. According to the *Orange County Water District Groundwater Replenishment System Final Expansion Project, Addendum No. 6*, prepared for both Plant No. 1 and No. 2 (OCWD, 2016); no sensitive vegetation communities were identified on Plant No. 1 or No. 2. Therefore, implementation of the proposed program would result in no impacts to sensitive natural communities.

Issue 2: Would the program 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?

Plant No. 1 and No.2 are developed with wastewater treatment facilities. The Santa Ana River and Talbert Marsh are adjacent to the program area. The locations where the proposed program facilities and improvements would occur are paved and in a disturbed condition. All improvements would be implemented within Plant No. 1 and Plant No. 2 boundaries; therefore, the Santa Ana River and Talbert Marsh would not be directly impacted by the proposed program. Therefore, no impacts would occur.

Issue 3: Would the program conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

The program area is located within the Orange County Habitat Conservation Plan/Natural Community Conservation Plan (HCP/NCCP) (CDFW, 2017). However, the program area is not within an area that is specifically protected or has additional conditions for conservation. Construction activities would be contained entirely within the Plant No. 1 and Plant No. 2 property, and the proposed program would not conflict with the provisions for the management of designated areas. No impacts would occur.

4.1.4 Geology, Soils, and Seismicity

Issue 1: Would the program expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving landslides?

The implementation of the proposed program would not result in landslides. Landslides are deep-seated ground failures (several tens to hundreds of feet deep) in which a large section of a slope detaches and slides downhill. The program and surrounding areas have relatively flat terrain that has previously been graded and developed. There is no known history of landsliding in the general area of Plants 1 and 2. Further, the program area is not within a State-Designated Seismic Hazard Zone for Earthquake-Induced Landslides (DOC, 1997). Therefore, landsliding is not considered a hazard within the program area, and no impacts would occur.

Issue 2: Would the program 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?

The proposed program does not include septic tanks or alternative waste disposal systems. As a result, there is no potential for soil failure associated with the installation of septic tanks or alternative waste disposal systems. No impact would occur.

4.1.5 Hazards and Hazardous Materials

Issue 1: Would the program, if located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, result in a safety hazard for people residing or working in the project area?

The nearest airport to the program area is the John Wayne Airport, located approximately 4 miles east of Plant No. 1 and 8 miles to the northeast of Plant No. 2, at 18601 Airport Way in the unincorporated area of the Orange County. Therefore, the proposed program is not located within an airport land use plan or within 2 miles of a public airport or public use airport. No impact would occur.

Issue 2: Would the program, if located within the vicinity of a private airstrip, result in a safety hazard for people residing or working in the project area?

No private airstrips exist in the vicinity of the program area. Therefore, the proposed program would not result in a safety hazard for people residing or working in the program area. No impact would occur.

Issue 3: Would the program expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

The program area is located within the developed Plant No. 1 and Plant No. 2. Further, the Plant No. 2 property is developed and located adjacent to the coastal zone. Both Plants are not located within or in the vicinity of a high fire hazard zone. The program areas are not located adjacent to wildlands or near a substantial amount of dry brush that could expose people to wildfire risks. No impacts would occur.

4.1.6 Hydrology and Water Quality

Issue 1: Would the program place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?

The FEMA Flood Insurance Rate Map (FIRM) for the program area (FIRM Nos. 06059C0264J and 06059C0262J) shows that the program area is located within a Zone X “Other Flood Areas” location. This area is a 100-year flood zone that is protected by a levee (FEMA, 2009a; FEMA, 2009b); however, because no housing is proposed, there would be no impacts regarding placement of housing within a flood zone.

4.1.7 Land Use and Planning

Issue 1: Would the program physically divide an established community?

The proposed program does not propose any action that could divide an established community. The physical division of an established community generally refers to the construction of a feature such as an interstate highway or railroad tracks, or removal of a means of access, such as a local road or bridge that would impact mobility within an existing community or between a community and outlying area. Given the proposed program would construct facilities on the existing Plant No. 1 and Plant No. 2 properties, the proposed program would result in no impact to the physical division of an established community.

Issue 2: Would the program conflict with any applicable habitat conservation plan or natural community conservation plan?

The program area is located within the Orange County Habitat Conservation Plan/Natural Community Conservation Plan (HCP/NCCP) (CDFW, 2017). However, the program area is not within an area that is specifically protected or has additional conditions for conservation. Construction activities would be contained entirely within the Plant No. 1 and Plant No. 2 property, and the proposed program would not conflict with the provisions of the management of designated areas. No impacts would occur.

4.1.8 Mineral Resources

Issue 1: Would the program result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

According to USGS' Mineral Resources Data System (USGS, 2017), the program area is not identified as a known mineral resource area and does not have a history of mineral extraction uses. In addition, according to the State of California Department of Conservation, Division of Oil, Gas, and Geothermal Resources, 18 oil well exists on Plant No. 2 and one oil well on Plant No. 1; however, these wells are "plugged" and therefore are no longer active (DOC, 2016). The proposed program would not result in the loss of availability of a known mineral resource, and no impacts would occur.

Issue 2: Would the program result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?

The City of Huntington Beach and City of Fountain Valley General Plan (City of Huntington Beach, 2006; City of Fountain Valley, 1995) do not identify the program area as a mineral resource zone. Therefore, the implementation of the proposed program would not result in the loss of a locally important mineral resource recovery site. No impacts would occur.

4.1.9 Noise

Issue 1: Would the program be located with an airport land use plan, or where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

As described above in impact analysis 4.1.5, Hazards and Hazardous Materials, the nearest airport to the program area is the John Wayne Airport, located approximately 4 miles to the east of Plant No. 1. The proposed program is not located within an airport land use plan or within 2 miles of a public airport or public use airport. No impact would occur.

Issue 2: Would the program be located within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?

The program area is not located within the vicinity of a private airstrip. No impacts would occur.

4.1.10 Population and Housing

Issue 1: Would the program induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

The proposed program includes a modification to the OCSD biosolids treatment. The program would not increase the current capacity of the wastewater treatment plant. Therefore, the proposed program would not induce population growth in the area serviced by the OCSD wastewater treatment plants.

Issue 2: Would the program displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?

There are no existing residences on Plant No. 1 or Plant No. 2, and no residences would be condemned or displaced by the proposed program. Therefore, the proposed program would not displace people or housing, and there would be no impact.

Issue 3: Would the program displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?

The proposed program would not remove housing and would not displace people, necessitating the construction of replacement housing elsewhere. Therefore, no impacts would occur.

4.1.11 Public Services

Issue 1: Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered government facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services:

i) Fire protection

An existing collections facility on Plant No. 2 could be relocated to Plant No. 1; however, implementation of this collections storage lot would not change existing demand for fire protection services.

A majority of the proposed facilities would be implemented within Plant No. 2 in the City of Huntington Beach. The Huntington Beach Fire Department (HBFD) provides fire protection within the City (City of Huntington Beach, 2017a). The nearest station to the program area is Station 4 located approximately 1 mile northwest at 21441 Magnolia St. The proposed program would not change existing demand for fire protection services because operation would not result in a substantial increase in employees or population. Therefore, the proposed program would not substantially increase the need for new fire department staff or new facilities, and because no new facilities would be required, no construction impacts due to new facilities would occur.

ii) Police protection

An existing collections facility on Plant No. 2 could be relocated to Plant No. 1; however, implementation of this collections lot would not change existing demand for police protection services.

A majority of the proposed facilities would be implemented within Plant No. 2 in the City of Huntington Beach. The City of Huntington Beach is provided with police protection services by the Huntington Beach Police Department (HBPD) (City of Huntington Beach, 2017b). The police station is located 3.5 miles northwest of the program area at 2000 Main Street. The proposed program does not include new homes or businesses that would require any additional services or extended response times for police protection services beyond those required with the existing on-site uses. Therefore, the HBPD would not be required to expand or construct new police stations to serve the proposed program. No impacts would occur with the proposed program because additional police protection facilities would not be needed.

iii) Schools

The program area lies within the Huntington Beach Union High School District (HBUHSD) service area and Fountain Valley School District (FVSD) (HBUHSD, 2017; FVSD, 2017). The student generation rates within HBUSD and FVSD would not be substantially affected or altered by the redevelopment of the proposed program. The proposed program would not affect local school enrollment. No school facilities would be impacted by the proposed program. In addition, no construction impacts would occur with the proposed program because new or expanded school facilities would not be needed.

iv) Parks

The proposed program would not interfere with or have adverse impacts on parks. The proposed program would not involve new housing and would not result in a substantial increase in employees that would need new parks. The program area is located adjacent to the Santa Ana River

and Talbert Regional Park; however, construction and operation of the proposed program would not impact the use of nearby recreational uses.

v) Other public facilities

The proposed program would not introduce inhabitants to the program area that would require additional public facilities. No impacts would occur with the proposed program because public facilities would not be needed.

4.1.12 Recreation

Issue 1: Would the program 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?

Within the vicinity of the program area, the cities of Huntington Beach and Fountain Valley and Orange County Parks (OC Parks) maintains the parks and provides recreational services. The nearest recreational facility is the SAR Trail and Talbert Marshlands located adjacent to Plant No. 2. The proposed program would not directly introduce new residents within the City of Huntington Beach or Fountain Valley. Therefore, the proposed program would not increase the use of these existing recreational facilities within the cities and would result in no impact to the physical deterioration of recreational facilities.

Issue 2: Does the program include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

The implementation of the proposed program would not require recreational facilities to serve the projects associated with the proposed program. Therefore, the proposed program would not result in an adverse physical effect on the environment from the construction or expansion of additional recreational facilities because the proposed program would not require new or expanded recreational facilities.

4.1.13 Traffic and Transportation

Issue 1: Would the program 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?

The program area is not located within the Airport Influence Area of any nearby airports. The nearest airport to the program area is John Wayne Airport, a public airport approximately 4 miles east of Plant No. 1. The proposed program does not involve any aviation components or structures at heights that would potentially pose an aviation concern. No program activities would alter the existing air traffic patterns, levels, or locations that result in safety risks. No impact would occur.

Issue 2: Would the program substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

The proposed program would be implemented entirely within Plant No. 1 and Plant No. 2, and does not include the construction or design of any roadway infrastructure that would cause a safety risk to vehicle operations. Neither construction nor operation of the proposed program components would adversely alter the physical configuration of the existing roadway network serving the program area, and would not introduce unsafe design features. In addition, the proposed program would not introduce uses (types of vehicles) that are incompatible with existing uses already served by the area's road system. There would be no impact.

4.1.14 Utilities, Service Systems, and Energy

Issue 1: Would the program 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?

Program development could increase the amount of wastewater generated within the program area and increase the amount of potable water demand on Plant No. 2. It is not anticipated that additional waste and wastewater treatment facilities would be required to serve the future uses associated with the proposed program. Potential impacts would be less than significant.

Issue 2: Would the program result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

The proposed program includes projects associated with the biosolids process. The implementation of the proposed program will not have an adverse effect on the capacity of the existing Plant No. 2 treatment plant. Therefore, there would be no impact.

4.2 Significant and Unavoidable Adverse Environmental Impacts

As required by Section 15126.2 (b) of the CEQA Guidelines, an EIR must identify any significant environmental effects which cannot be avoided if the proposed program is implemented. After conducting environmental analyses for each of the environmental issues identified in Appendix G of the State CEQA Guidelines, it was determined that the proposed program would not result in any significant and unavoidable adverse environmental impacts.

4.3 Significant Irreversible Environmental Changes

CEQA Guidelines 21100(b) (2) and 15126.2(b) require that any significant effect on the environment that would be irreversible if the program is implemented must be identified. A project would generally result in a significant irreversible impact if:

- Primary and secondary impacts (such as roadway improvements that provide access to previously inaccessible areas, etc.) would commit future generations to similar uses.
- The project would involve a large commitment of nonrenewable resources.

- The project would involve uses in which irreversible damage could result from any potential environmental accidents associated with the project.

Construction and operation of the proposed program would require the use and consumption of nonrenewable resources, such as steel and other metals. Renewable resources, such as lumber and other wood byproducts, would also be used. Unlike renewable resources, nonrenewable resources cannot be regenerated over time. Construction of facilities would require the commitment of a relatively small amount of building materials. The small quantity of building materials used during implementation of proposed program would not result in a significant impact because these types of resources are anticipated to be in adequate supply into the foreseeable future.

Energy would be consumed during both construction and operation of the proposed program. Nonrenewable resources and energy would also be consumed during the manufacturing and transportation of building materials, preparation of the site, and construction and site restoration activities. The program would not result in the wasteful, inefficient or unnecessary consumption of energy during construction or operation. The proposed program would result in the irretrievable and irreversible commitment of energy resources in the form of diesel fuel, gasoline and electricity during construction and operation. However, these types of resources are anticipated to be in adequate supply into the foreseeable future. Further, the proposed Interim and Ultimate Food Waste facilities would introduce SSO food waste to future digester operation. This food waste would increase the amount of organic matter being digested and increase the amount of biogas being released which would be captured and sent to the Plant No. 2 Cen Gen facility to be converted to energy. This increase in energy generated would offset any energy needs required by new facilities proposed within the BMP. (See Section 3.13, Utilities, Service Systems, and Energy for additional information.) Therefore, impacts due to these irretrievable and irreversible commitments of resources are considered less than significant.

4.4 Growth-Inducing Impacts

The California Environmental Quality Act (CEQA) Guidelines (Section 15126.2(d)) require that an EIR discuss the potential growth-inducing impacts of a proposed project. The CEQA Guidelines provide the following guidance for such discussion:

> *Discuss the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects which would remove obstacles to population growth (a major expansion of a wastewater 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 inducement would result if a project involved construction of new housing. A project can have indirect growth-inducement potential if it would establish 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, under CEQA, 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. Under CEQA, growth is not considered necessarily detrimental or beneficial.

Based on the CEQA definition above, assessing the growth-inducement potential of the proposed plan involves answering the question: "Would implementation of the proposed plan directly or indirectly support economic expansion, population growth, or residential construction?" Wastewater treatment is one of the chief public services needed to support growth and community development. While wastewater treatment plays a role in supporting additional growth, it is not the single determinant of such growth. Other factors, including General Plan policies, land use plans, and zoning, the availability of solid waste disposal capacity, public schools, transportation services, and other important public infrastructure, also influence business and residential population growth. Economic factors, in particular, greatly affect development rates and locations.

4.4.1 Methodology

This section evaluates how the BMP could affect population growth in the region. The growth anticipated in the region has been identified in local General Plans prepared by local land use agencies and municipalities. OCSD has no control over land use decisions or future population growth.

Growth inducement itself is not necessarily an adverse impact. It is the potential consequences of growth, the secondary effects of growth, which may result in environmental impacts. Potential secondary effects of growth could include increased demand on other public services; increased traffic and noise; degradation of air quality; loss of plant and animal habitats; and the conversion of agriculture and open space to developed uses. Growth inducement may result in adverse impacts if the growth is not consistent with the land use plans and growth management plans and policies for the area, as "disorderly" growth could indirectly result in additional adverse environmental impacts. Thus, it is important to assess the degree to which the growth accommodated by a project would or would not be consistent with applicable land use plans.

To determine direct growth-inducement potential, the proposed program was evaluated to verify whether an increase in population or employment, or the construction of new housing would occur as a direct or indirect result of the proposed program. If either of these scenarios occurred, the proposed program could result in direct growth-inducement within the region.

4.4.2 Growth Inducement Potential

Direct Growth

The proposed BMP is part of the larger OCSD Strategic Plan to maintain and upgrade existing facilities to meet current and future demands for wastewater services and conveyance throughout the Orange County service region.

Implementation of the BMP would not have direct growth inducement effects, as it does not propose development of new housing that would attract additional population. Nor would program construction extend roads or other infrastructure that could indirectly induce growth.

Furthermore, implementation of the BMP would not result in substantial permanent or even short-term construction employment. The proposed program would generate short-term construction jobs, but it would not create new construction jobs. Construction projects are awarded to a construction company. This company has a set construction staff that is assigned to various job sites that the company is working on. Typically, workers travel amongst construction sites as individual projects are completed within a particular area and are not brought from other areas to work on developments such as the proposed program. Moreover, these jobs would be temporary in nature with respect to the area within the projects are located. Therefore, construction jobs under the proposed program would not directly induce population growth by establishing new employment opportunities. New housing for construction employees would not be required. Lastly, operation of the proposed facilities would not require new employees to operate the facilities.

The existing biosolids handling facilities are already sized to serve the projected population of the region. Both Plant No. 1 and Plant No. 2 have capacity for the projected flows expected in 2040 and the proposed new biosolids facilities at Plant No. 2 would be designed to treat the solids from these projected flows up to the existing capacity. The proposed program would mitigate the structural and seismic risks for onsite biosolids structures over time and increase biosolids management diversity for end users of biosolids. The program would update and replace the existing outdated biosolids handling facilities at Plant No. 2 with more efficient technology that can operate at varying levels of wastewater influent flows, thereby accommodating future variable levels of wastewater influent flows. Thus, the proposed program would not have substantial direct or indirect growth-inducing impacts.

Secondary Effects of Growth

Growth is not in and of itself a significant adverse impact. However, population growth could result in secondary environmental effects that could be significant. The environmental impact analysis conducted for cumulative development within the program vicinity identified significant environmental impacts associated with growth. Secondary effects of growth typically found to be significant and unavoidable include air quality degradation, hydrology and water quality modification and degradation, traffic congestion, transportation demand increase, increased noise, and increased demand on utilities.

One impact of growth is the potential for out-growing existing utility infrastructure. The proposed program would not directly cause the capacities of existing utility infrastructure to be exceeded. The program would mitigate the potential impact of future growth associated with cumulative development through the construction of more reliable and variable biosolids handling facilities which in turn accommodate wastewater treatment.

The County of Orange and local cities' General Plans all plan for increased growth. The General Plan EIRs acknowledge that planned development results in adverse secondary effects. Pursuant to CEQA, the County of Orange and local cities have adopted statements of overriding consideration for the anticipated significant unavoidable effects. The proposed program would not cause additional secondary effects. Regional adverse effects caused by growth are generally mitigated through regional resource management agencies. **Table 4-1** lists some of the agencies with the authority and mandate to mitigate secondary effects of growth.

TABLE 4-1
AGENCIES HAVING AUTHORITY TO IMPLEMENT MITIGATION MEASURES FOR GROWTH-RELATED IMPACTS

Agency	Authority
Orange County	Responsible for planning, land use, and environmental protection of unincorporated areas. Of particular importance is development of presently undeveloped lands, provision of regional solid waste management facilities, and regional transportation, air quality and flood control improvement programs.
City of Huntington Beach, City of Fountain Valley	Responsible for adoption of the General Plan and various planning elements and local land use regulations. Adopts and implement local ordinances for control of noise and other environmental concerns. Participates in regional air quality maintenance planning through adoption of local programs to control emissions via transportation improvements. Responsible for enforcing adopted energy efficiency standards in new construction.
Local Agency Formation Commissions	Empowered to approve or disapprove all proposals to incorporate cities, to form special districts or to annex territories to cities or special districts. Also empowered to guide growth of governmental service responsibilities.
Orange County Council of Governments	Under State and federal law, have authority and responsibility over transportation planning and funding. Allocate transportation infrastructure and housing.
Regional Water Quality Control Board	Share responsibility with SWRCB to coordinate and control water quality. Formulates and adopts water quality control plans. Implements portions of the Clean Water Act when EPA and SWRCB delegate authority, as is the case with issuance of NPDES permits for waste discharge, reclamation, and storm water drainage.
State Department of Health	Responsible for the purity and potability of domestic water supplies for the State. Assists SWRCB and RWQCBs in setting quality standards.
California Air Resources Board	Responsible for adopting and enforcing standards, rules, and regulations for the control of air pollution from mobile sources throughout the State.
South Coast Air Quality Management District	Adopt and enforce local regulations governing stationary sources of air pollutants. Issue Authority to Construct Permits and Permits to Operate. Provide compliance inspections of facilities and monitors regional air quality. Developed the Clean Air Plan in compliance with the Clean Air Act.
U.S. Fish and Wildlife Service	Requires consultation under Section 7 or Section 10 of the Endangered Species Act for projects which could potentially impact endangered or threatened species. Prepares biological opinions on the status of species in specific areas and potential effects of proposed projects. Approves mitigation measures to reduce impacts and establishes Habitat Conservation Plans.
U.S. Army Corps of Engineers	Issues permits to place fill in waterways pursuant to Section 404 of the Clean Water Act.
California Department of Fish and Wildlife	Issues Streambed Alteration Agreements for projects potentially impacting waterways.

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CHAPTER 5
Alternatives Analysis

5.1 Overview of Alternatives Analysis

In accordance with *CEQA Guidelines* (Section 15126.6), an EIR must describe and compare a range of reasonable alternatives to a project, or alternative locations for a project, that could feasibly attain most of the basic project objectives while avoiding or substantially lessening any significant environmental impacts associated with the project. An EIR must consider a reasonable range of feasible alternatives to facilitate informed decision making and public participation. An EIR need not consider every conceivable alternative to a project and is not required to consider alternatives which are infeasible. The lead agency shall select a range of project alternatives and disclose its reasoning for selecting those alternatives. The selection of such alternatives is governed only by the rule of reason, as described further below.

5.1.1 Selection of a Range of Reasonable Alternatives

Because an EIR must identify ways to mitigate or avoid significant environmental effects of a project, the analysis of alternatives shall focus on alternatives that are capable of avoiding or substantially lessening one or more significant environmental effects (*CEQA Guidelines*, Section 15126.6(b)). The EIR must explain the rationale for selecting the alternatives to be evaluated and identify alternatives that were considered but rejected (*CEQA Guidelines*, Section 15126.6(c)). The lead agency is required to explain the reasons for rejecting alternatives. The factors that may be used to eliminate alternatives from detailed consideration in an EIR include, but are not limited to, the following: (1) failure to meet most of the basic project objectives, (2) inability to avoid significant environmental impacts, and (3) infeasibility. When considering the feasibility of an alternative, the following factors may be considered: site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries, and the ability to reasonably acquire, control, or otherwise have access to the alternative site (*CEQA Guidelines*, Section 15126.6(f)(1)).

5.1.2 Evaluation of Alternatives

An EIR shall include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed program (*CEQA Guidelines*, Section 15126.6(d)). The environmental impacts associated with the alternatives are evaluated relative to the impacts associated with the proposed program. A matrix can be used to summarize and compare the major characteristics and significant environmental effects of each alternative. If an alternative would cause additional significant effects, in addition to those caused by the proposed

program, they are required to be discussed but in less detail than the significant effects of the proposed program.

Section 15126.6(e)(1) of the *CEQA Guidelines* requires that a no project alternative be addressed in this analysis. The purpose of evaluating a no-project alternative is to allow decision-makers to compare the potential consequences of the proposed program with the consequences that would occur without implementation of the proposed program. An EIR must also identify the environmentally superior alternative. A no-project alternative may be environmentally superior to the proposed program based on the minimization or avoidance of physical environmental impacts. However, a no-project alternative must also achieve the basic program objectives to be considered a feasible alternative. Section 15126.6(e)(2) of the *CEQA Guidelines* requires that if the environmentally superior alternative is the no-project alternative, an EIR shall identify an environmentally superior alternative among the other alternatives.

5.2 Proposed Program Summary

5.2.1 Objectives

As stated earlier in Chapter 2, *Project Description*, the primary objectives of the proposed program are to:

- Mitigate the structural and seismic risk for onsite biosolids structures over time;
- Phase-out the diversion of biosolids organics as an alternative daily cover for landfills;
- Transition from Class B to Class A biosolids quality at Plant No. 2 to increase biosolids management diversity for end users of biosolids; and
- Receive pre-process food waste (source separated organics) for co-digestion to assist in diverting organics from landfills and to increase digester gas production used as a renewable energy.

5.2.2 Potentially Significant Impacts of the Proposed Program

Chapter 3 provides analyses of potentially significant impacts that could result from implementation of the BMP. The significant impacts, which would require mitigation measures to reduce the impacts, would occur to the following environmental issue areas: Aesthetics, Air Quality, Biological Resources, Cultural Resources, Greenhouse Gas Emissions, and Hazards and Hazardous Materials, and Tribal Cultural Resources. Table 5-1 provides a general summary of the environmental impacts to each environmental issue area addressed in Chapter 3 in the PEIR.

TABLE 5-1
SUMMARY OF PROGRAM IMPACT ANALYSIS

Environmental Issue Area	Significance Determination
Aesthetics	LSM
Air Quality	LSM
Biological Resources	LSM
Cultural Resources	LSM
Geology, Soils, and Seismicity	LTS
Greenhouse Gas Emissions	LTS
Hazards and Hazardous Materials	LSM
Hydrology and Water Quality	LTS
Land Use and Planning	NI
Noise	LTS
Traffic and Transportation	LTS
Tribal Cultural Resources	NI
Utilities, Service Systems and Energy	LTS

NI = No Impact
LTS = Less than Significant
LSM = Less than Significant with Mitigation

SOURCE: ESA, 2017

5.3 Development of Alternatives

5.3.1 Product and Technology Screening Process

In the development of the Draft BMP, OCSD conducted an extensive review of alternative markets and technologies to achieve biosolids handling objectives. The process began with selecting the most viable product and market pairings to be coupled with onsite treatment technologies. Biosolids market criteria were established based off the following scenarios: whether or not the market was realistic and/or proven; how large the market size was; if the market had proven value; the future market capacity; resiliency to regulatory change associated with biosolids; and year-round dependability.

Biosolids products were evaluated on the following criteria: management costs; marketability; product safety and reliability; compatibility with OCSD's biosolids management goals, policy, and operations; regulatory requirements; carbon footprint; potential impacts from negative side streams and emissions; and enhancement of community relations. Once the criteria were established for the products, OCSD established weights for each criterion to reflect the most important factors in creating a successful biosolids end-use program. **Table 5-2** summarizes the results of the end use product and market screening process. These results are detailed in Technical Memorandum 3 of the BMP.

TABLE 5-2
BEST RANKED PRODUCTS AND MATERIALS

Product	Highest-Scoring Markets (by Product)
Class A Compost	Soil Blending
	Bulk Agriculture, California
	Bulk Agriculture, Arizona
	Bulk Horticulture/Landscaping
	Distribution as Bagged Product
	Golf Course and Other Specialty
Class B Cake	Bulk Agriculture, Arizona
Class A Cake	Bulk Agriculture, California
	Bulk Agriculture, Arizona
	Land Reclamation
Class A THP Soil Blend	Bulk Horticulture/Landscaping
Class A THP Cake	Bulk Agriculture, California
	Soil Blending
	Land Reclamation
Class A Soil Blend	Bulk Horticulture/Landscaping
Class A High Quality Granule	Bulk Agriculture, California
	Bulk Agriculture, Arizona
	Bulk Horticulture/Landscaping
	Distribution as a Bagged Product
	Fertilizer Blending
Partially Dried Class B Cake	Bulk Agriculture, Arizona
Class A Partially Dried Cake	Bulk Agriculture, Arizona
	Bulk Agriculture, California
Class A THP Partially Dried Product	Bulk Agriculture, California
	Bulk Agriculture, Arizona
	Soil Blending
	Bulk Horticulture/Landscaping
	Land Reclamation

NOTES:
Class A – Class A Biosolids are dewatered and heated sewage sludge that is not allowed to have detectable pathogens, it meets pollutant concentration limits for Biosolids and meets vector attraction reduction requirements.
Class B – Class B Biosolids are treated sewage sludge that is allowed to have detectable pathogens and have restrictions for its application on land used for harvesting crops and turf.
THP – Thermal hydrolysis process

Following the assessment of realistic market end uses, OCSD conducted an evaluation of technology alternatives available to produce products that are part of a flexible, reliable and cost effective marketplace. A detailed alternatives screening was conducted. The technologies evaluated included the following:

Thickening Technologies

- Primary clarifier thickening (for primary sludge only)
- DAFT thickening (for secondary sludge only)
- Centrifuge thickening (combined sludge)

Digestion Technologies

- Class B Mesophilic anaerobic digestion (MAD)
- Class B Staged MAD
- Class A or B thermophilic anaerobic digestion
- Class A or B temperature phased anaerobic digestion (TPAD)
- Class A Thermal hydrolysis process (THP)

Post-dewatering Technologies

- Thermal drying – Rotary drum drying with high quality Class A granules
- Partial drying – Paddle or belt dryer with cake blending to yield partially dried Class A or B product

These technology alternatives were further evaluated along the following criteria:

1. End use market compatibility
2. Proven technology performance
3. Energy/resource recovery
4. Operations and Maintenance (O&M) impacts
5. Safety impacts
6. Environmental impacts
7. Community impacts
8. Flexibility
9. Project site compatibility

The alternatives screening process resulted in the selected alternative that included: Class B mesophilic digestion, Class A TAD, Class A TPAD, and Class A THP with mesophilic digestion. No thickening technologies or post-dewatering technologies other than the existing technologies at both Plant No. 1 and Plant No. 2 were considered because these existing technologies were preferred to remain. The alternative digestion technologies had scoring differences. The BMP originally considered ten different digestion technologies. Based on an initial non-economic criteria evaluation, the ten technologies were reduced to the five digestion technologies listed above. A conceptual design was then performed for the digestion technologies in order to develop conceptual cost estimates (capital and operational and maintenance) for these alternatives. A second detailed non-economic evaluation of the combined technology-product alternatives then led to a ranking of these digestion alternatives. Based on the economic and non-

economic analysis of each alternative technology, it was recommended that 6 new thermophilic digesters and a design basis of TPAD be adopted for implementation at Plant No. 2.

5.3.2 Program Alternatives for Further Study

Three alternatives were selected for detailed analysis. The goal for selecting these alternatives is to identify alternatives that would avoid or lessen the significant environmental effects of the program, while attaining most of the program objectives. A general description of each alternative to the proposed program is provided below.

Alternative 1: No Program Alternative

An analysis of the No Program Alternative is required under CEQA Guidelines Section 15126.6(e). According to Section 15126.6(e)(2) of the CEQA Guidelines, the "no program" analysis shall discuss:

> *what is 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.*

The No Program Alternative represents a "no build" scenario in which the proposed program would not be constructed or operated. It assumes that all proposed facilities along with other elements of the program would not be implemented and no program components would be constructed. Under the No Program Alternative, OCSD would continue to treat wastewater at Plant No. 1 and Plant No. 2. There would be no change in the type of biosolids handling facilities being used and no updates to the efficiency of the technology, structural integrity of the structures, or diversification of biosolids end-uses.

Alternative 2: Baseline, Mesophilic Digestion, Class B

The Baseline, Mesophilic Digestion, Class B Alternative represents a scenario in which the proposed program facilities associated with the TPAD process would not be constructed or operated. This alternative would not construct the following facilities that are included in the proposed program: six, new thermophilic digesters; Class A batch tanks; Digester Feed Facility; and TPAD Sludge Cooling facilities. These specific facilities are contained within the following proposed projects:

- P2-504/504A/504B, TPAD Digester Facility at Plant No. 2

Furthermore, project P2-503A, Plant No. 2 Warehouse Relocation and P2-503B, Plant No. 2 Collections Yard Relocation would not be implemented. These projects were proposed as part of the proposed program to provide space for the construction and operation of the thermophilic digesters and Class A batch tank facilities.

Alternative 2 would implement project P2-124 and P2-506, which include the construction and operation of food waste facilities. In addition, Alternative 2 would implement project P2-505, Digester P, Q, R, and S Replacement. The four existing mesophilic digesters would be

demolished and reconstructed to current California Building Code standards in order to address existing structural impairments. Furthermore, the remaining digesters (L, M, O, T, J, K, N, I, E, H, C, F, and G) would be demolished and rebuilt at the same location as they require extensive structural modifications and ground improvements to mitigate potential seismic risks. Digester D would be demolished and relocated to the west side of Digester S or a suitable alternative location. This would be necessary to ensure that no digesters or other facilities would be constructed and operated on an active fault (as shown in Figure 3.5-1).

A total of 10 acres would be graded for Alternative 2. Under Alternative 2, OCSD would continue to treat wastewater at Plant No. 2 with mesophilic digestion and would continue to produce Class B biosolids. There would be no change in the type of biosolids handling facilities being used and no diversification of biosolids end-uses. However, this alternative would allow for the mitigation of structural and seismic risk for onsite biosolids at Plant No. 2 facilities over time. This alternative would meet three of the four objectives of the proposed program. This alternative would meet two of the four objectives of the proposed program: the Alternative would not meet the objective to phase out the diversion of biosolids used as daily cover for landfills, nor would it support the transition from Class B to Class A biosolids.

Alternative 3: Proposed Program Without Food Waste Facilities

The Reduced TPAD Alternative represents the proposed program projects without the incorporation of food waste facilities. This alternative would not construct the proposed Interim and Ultimate food waste receiving and ancillary facilities. These facilities are contained within the following proposed projects:

- P2-502 Interim Food Waste Facility; and
- P2-506, Ultimate Food Waste Facility

Under Alternative 2, OCSD would transition into treating wastewater at Plant No. 2 with thermophilic digestion and would begin to produce Class A biosolids. This alternative would change the type of biosolids handling facilities being used, update the efficiency of the technology, and diversify biosolids end-uses. However, this alternative would not receive pre-process food waste (source separated organics) for co-digestion to assist in diverting organics from landfills. This alternative would meet three of the four objectives of the proposed program. This alternative would meet three of the four objectives of the proposed program. It would not accommodate the object to receive pre-processed food waste for co-digestion.

A total of 16.5 acres would be graded for Alternative 3. Because the food waste facilities would not be implemented under Alternative 2, the amount of excavation and grading would be reduced. By not implementing the new food waste facilities, there would be a reduction in the total amount of cubic yards of soil that would need to be excavated. Furthermore, trucks would no longer need to enter Plant No. 2 to deliver the pre-process food waste.

The addition of SSO to the digestion process increases the amount of biogas generated that can be captured, converted, and used as energy to operate facilities on Plant No. 2. Alternative 3 would not incorporate SSO (food waste), and therefore, digestion would result in less biogas being

generated. Although less biogas would be generated, this alternative would not require offsite energy for the proposed facilities.

5.4 Summary Comparison of Environmental Issues Between Alternatives and Proposed Program

This section includes a summary comparison of the environmental impacts of the proposed program and the program alternatives. The summary in **Table 5-3** provides a comparison of each individual environmental issue area for each alternative to the proposed program.

TABLE 5-3
SUMMARY OF IMPACTS OF ALTERNATIVES COMPARED TO THE PROPOSED PROGRAM

Environmental Topic	Proposed Program	Alternative 1: No Program	Alternative 2: Baseline, Mesophilic Digestion, Class B	Alternative 3: Proposed Program Without Food Waste Facilities
Aesthetics				
Scenic Vista	LTS	Less	Similar	Similar
Visual Character	LTS	Less	Similar	Similar
Light or Glare	LSM	Less	Less	Less
Air Quality				
Air Quality Plan	LSM	Less	Less	Less
Air Quality Standards/Violations	LSM	Less	Less	Less
Cumulative Increase of Criteria Pollutant	LSM	Less	Less	Less
Sensitive Receptors	LSM	Less	Less	Less
Odors	LTS	Less	Similar	Less
Biological Resources				
Effects on Species	LSM	Less	Less	Less
Wildlife Corridor and Nursery Sites	LTS	Less	Similar	Similar
Local Policies or Ordinances Protecting Biological Resources	NI	Less	Similar	Similar
Cultural Resources				
Historical Resources	NI	Similar	Similar	Similar
Archeological Resources	LSM	Less	Less	Less
Paleontological Resources	LSM	Less	Less	Less
Human Remains	LSM	Less	Less	Less
Geology, Soils, and Seismicity				
Earthquakes	LTS	Greater	Similar	Similar
Soil Erosion or Topsoil Loss	LTS	Less	Less	Less
Unstable Geologic Location	LTS	Less	Similar	Similar
Expansive Soil	LTS	Less	Similar	Similar
GHG Emissions				
Greenhouse Gas Emissions	LTS	Less	Greater	Less

Environmental Topic	Proposed Program	Alternative 1: No Program	Alternative 2: Baseline, Mesophilic Digestion, Class B	Alternative 3: Proposed Program Without Food Waste Facilities
Conflict with Plan, Policy, or Regulation that Reduces Emissions	LTS	Less	Similar	Similar
Hazards and Hazardous Materials				
Routine Use	LTS	Less	Similar	Similar
Accident Conditions	LTS	Less	Similar	Similar
Schools	LTS	Less	Similar	Similar
Hazardous Materials Site Listing	LSM	Less	Less	Similar
Emergency Plans	LTS	Less	Similar	Similar
Hydrology and Water Quality				
Water Quality Standards and Waste Discharge Requirements	LTS	Less	Similar	Similar
Groundwater Supplies and Recharge	LTS	Less	Less	Less
Drainage Patterns	LTS	Less	Less	Less
Structures: Flood Hazard Area	LTS	Less	Similar	Similar
Flood Hazards: Levee or Dam Failure	LTS	Less	Similar	Similar
Seiche, Tsunami or Mudflow	LTS	Less	Similar	Similar
Land Use and Planning				
Conflict with Applicable Plans, Policies, or Regulations	NI	Similar	Similar	Similar
Noise and Vibration				
Exceedance of Established Noise Standards	LTS	Less	Similar	Similar
Exposure of Vibration Levels	LTS	Less	Less	Less
Permanent Increase in Ambient Noise Levels	LTS	Less	Similar	Similar
Temporary Increase in Ambient Noise Levels	LTS	Less	Less	Less
Traffic and Transportation				
Traffic Increase	LTS	Less	Similar	Less
Congestion Management Program	LTS	Less	Similar	Similar
Emergency Access	LTS	Less	Similar	Similar
Public Transit	LTS	Less	Similar	Similar
Tribal Cultural Resources				
Tribal Cultural Resource	NI	Similar	Similar	Similar
Utilities, Service Systems, and Energy				
Wastewater Treatment Requirements	LTS	Less	Similar	Similar
Stormwater Drainage Facilities	LTS	Less	Less	Less
Water Supplies	LTS	Less	Similar	Similar
Landfill Capacity	LTS	Less	Less	Similar

Environmental Topic	Proposed Program	Alternative 1: No Program	Alternative 2: Baseline, Mesophilic Digestion, Class B	Alternative 3: Proposed Program Without Food Waste Facilities
Compliance with Solid Waste Regulations and Statutes	LTS	Less	Similar	Similar
Energy	LTS	Less	Similar	Greater

NI = No Impact
LTS = Less than Significant
LSM = Less than Significant with Mitigation
SU = Significant and Unavoidable
Less = Less impact compared to the proposed program
Similar = Similar impacts compared to the proposed program
Greater = Greater impact compared to the proposed program

SOURCE: ESA, 2017

5.5 Summary Comparison of Alternatives Meeting the Program Objectives

Table 5-4 includes a summary of the ability of the program alternative to meet each of the program objectives.

TABLE 5-4
ABILITY OF PROGRAM ALTERNATIVES TO MEET OBJECTIVES

Program Objectives	Proposed Program	Alternative 1: No Program	Alternative 2: Baseline, Mesophilic Digestion, Class B	Alternative 3: Proposed Program Without Food Waste Facilities
Mitigate the structural and seismic risk for onsite biosolids structures over time	Yes	No	Yes	Yes
Phase-out the diversion of biosolids organics as an alternative daily cover for landfills	Yes	No	Yes	Yes
Transition from Class B to Class A biosolids quality at Plant No. 2 to increase biosolids management diversity for end users of biosolids	Yes	No	No	Yes
Receive pre-process food waste (source separated organics) for co-digestion to assist in diverting organics from landfills and to increase digester gas production used as a renewable energy	Yes	No	Yes	No

SOURCE: ESA, 2017

5.6 Impact Analysis for Program Alternatives

5.6.1 Alternative 1: No Program Alternative

The No Program Alternative excludes the proposed facilities upgrades. As a result, there would be less construction activity when compared to the proposed program. Fewer projects and no new facilities result in fewer construction-related impacts and fewer operational-related impacts. The relative difference in environmental impacts associated with the No Program Alternative when compared to the proposed program is provided below.

Aesthetics

The proposed program would result in a less than significant impact to aesthetics with mitigation (see Section 3.1). Under the No Program Alternative, Plant No. 1 and Plant No. 2 would remain the same as existing conditions, retaining their current visual character; therefore, no views of the sites would be altered. Additionally, no new sources of light and glare would be created. Therefore, this alternative would have no impacts to aesthetics, and would have fewer impacts compared to the proposed program.

Air Quality

The proposed program would result in a less than significant impact to air quality with mitigation (see Section 3.2). Under the No Program Alternative, there would be no construction-related emissions (from construction activities, vehicles and equipment). Therefore, Alternative 1 would result in no impacts to an air quality plan, air quality standards/violations, cumulative increased of criteria pollutants, impacts to sensitives receptors, or changes to odors. However, air emissions associated with energy demands would remain high compared to the proposed program's objective of implementing renewable energy supplies via excess biogas. Therefore, this alternative would have less than significant impacts to air quality, and would have fewer impacts compared to the proposed program.

Biological Resources

The proposed program would result in less than significant impacts to biological resources with mitigation (see Section 3.3). Under the No Program Alternative, Plant No. 1 and Plant No. 2 would not undergo construction or operation of new facilities onsite; therefore, this Alternative would not expose candidate, sensitive, or special-status species currently located adjacent to the program area to potential indirect noise impacts. Similar to the proposed program, Alterative 1 would not conflict with biological resource regulations, ordinances, or conservation plans. Overall, this alternative would have no impacts to areas containing biological resources, and would have less impacts compared to the proposed program.

Cultural Resources

The proposed program has the potential to encounter human remains and archaeological and paleontological resources during ground disturbing activities, however, the proposed program would result in less than significant impacts to cultural resources with mitigation (see Section 3.4). Under the No Program Alternative, no ground disturbing activities would occur to any

known or unknown human remains, or archaeological or paleontological resources. Therefore, this alternative would result in no impacts to cultural resources and less impacts as compared to the proposed program.

Geology, Soils, and Seismicity

The proposed program would result in less than significant impacts related to exposure to geologic hazards with mitigation incorporated (see Section 3.5). Under the No Program Alternative, there would be no development, and the potential effects associated with geology and soils, such as soil erosion during construction would not occur. However, Alternative 1 would result in greater impacts regarding earthquakes, because Alternative 1 would not upgrade existing facilities or build new facilities to the current California Building Code standards. Therefore, if an earthquake event were to occur, the outdated structures may fail and result in more impacts such as to hazardous waste spills. Therefore, this alternative would have fewer impacts to geology and soils but greater impacts regarding earthquakes as compared to the proposed program.

Greenhouse Gas Emissions

The proposed program would result in less than significant impacts related to greenhouse gases (see Section 3.6). Under the No Program Alternative, there would be no construction-related emissions (from construction activities, vehicles and equipment). Therefore, Alternative 1 would result in no impacts related to greenhouse gases. Therefore, this alternative would have no impacts related to greenhouse gases, and would have fewer impacts compared to the proposed program.

Hazards and Hazardous Materials

The proposed program would result in a less than significant impact related to hazards and hazardous materials with mitigation (see Section 3.7). Under the No Program Alternative, no construction would occur; therefore, no new facilities would be placed on or near the hazardous material site located at Plant No. 1. Further, because no construction would occur, Alterative 1 would not expose structures or persons to hazardous materials. Therefore, this alternative would result in no impacts related to hazards and hazardous materials and less impacts compared to the proposed program.

Hydrology and Water Quality

The proposed program would result in less than significant impacts to hydrology and water quality (see Section 3.8). Under the No Program Alternative, there would be no development and thus no changes to the natural drainage patterns of Plant No.1 or Plant No. 2, or to the potential to contribute to runoff into existing stormwater drainage systems. Further, Alternative 1 would not place additional facilities within flood hazard areas or put people or structures at risks due to the failure of the SAR levee or tsunami of the Pacific Ocean. This alternative would result in no impacts to hydrology and water quality and less impacts compared to the proposed program.

Land Use and Planning

The proposed program would result in no impact to land use and planning (see section 3.9). The proposed program would not conflict with the City of Huntington Beach Local Coastal Program's policies or regulations. Under the No Program Alternative, no development would occur and Plant No. 1 and No. 2 would remain in their current state. As such, this alternative would not change existing land use or have an effect on land use plans and policies related to the program area. Therefore, this alternative would result in similar impacts regarding land use as compared to the proposed program.

Noise and Vibration

The proposed program would result in a less than significant impacts regarding noise and vibration (see Section 3.10). Under the No Program Alternative, there would be no development and no change to existing ambient noise levels. No noise and vibration impacts would occur under Alternative 1. Therefore, this alternative would result in fewer impacts from noise and vibration compared to the proposed program.

Traffic and Transportation

The proposed program would result in a less than significant impact to traffic and transportation (see Section 3.11). Under the No Program Alternative, there would be no development, thus no additional traffic would be generated by uses on Plant No. 1 or Plant No. 2, and no impacts related to traffic and transportation of biosolids would occur. Therefore, this alternative would result in fewer transportation and traffic impacts as compared to the proposed program.

Tribal Cultural Resources

The proposed program would result in a no impact to tribal cultural resources (see Section 3.12). Under the No Program Alternative, no ground disturbing activities would occur to any known or unknown tribal cultural resources. Therefore, this alternative would result also in no impacts to tribal cultural resources similar to the proposed program.

Utilities, Service Systems, and Energy

The proposed program would result in a less than significant impacts to utilities, service systems, and energy (see Section 3.13). Under the No Program Alternative, no development would occur and no changes to stormwater drainage facilities would need to be implemented. Further, Alternative 1 would not require additional water supplies. No demolition or construction would occur, so there would no impacts regarding landfill capacity or compliance with solid waste regulations. Lastly, no additional energy would be required to operate facilities as facilities would not be build or upgrades. Therefore, this alternative would result in fewer impacts related to utilities and energy than the proposed program.

5.6.2 Alternative 2: Baseline, Mesophilic Digestion, Class B

The relative difference in environmental impacts associated with the Baseline, Mesophilic Digestion, Class B Alternative when compared to the proposed program is provided below.

Aesthetics

The proposed program would result in a less than significant impact to aesthetics with mitigation (see Section 3.1). Alternative 2 would construct less facilities and result in the grading of approximately 9.5 acres less area than the proposed program. Demolition of digesters would still occur, and then the digesters would be rebuilt. P2-501, Perimeter Screening would still take place, and therefore, would partially screen construction equipment and processes during demolition and construction. Similar to the proposed program, Alternative 2 would result in less than significant impacts regarding scenic vistas and visual character of the area. Because Alternative 2 would result in less facilities being constructed, Alternative 2 would introduce fewer new sources of light or glare to the program area. Overall, Alternative 2 would result in less than significant impacts regarding scenic vistas, visual character, and light or glare, and would result in fewer impacts than the proposed program.

Air Quality

The proposed program would result in a less than significant impact to air quality with mitigation (see Section 3.2). Alternative 2 would construct less facilities and result in the grading of approximately 9.5 acres less area than the proposed program. Under Alternative 2, less haul trucks would be required for demolition material (the warehouse would not need to be demolished and relocated on Plant No. 2), import of material, and export of material, thereby reducing the total amount of VMT. Less construction material trucks would be required as well. Further, the proposed program would generate Class A biosolids which could be delivered to more local end-users in California. Alternative 2 would continue to generate Class B biosolids which are sent to end-users in Arizona and some parts of California. The total VMT for operational biosolids delivery trips specifically, would be greater for Alternative 2 than the proposed program. Overall, Alternative 2 would have less than significant impacts to air quality and would result in fewer impacts than the proposed program.

With less grading under this alternative, less construction NOx emissions would be generated; however, this reduction would still require the proposed program mitigation measures to reduce potential regional construction emissions to less than significant. In addition, localized construction emissions of PM10 and PM2.5 would be less compared to the proposed program; however, Alternative 3 would still require the proposed program mitigation measures to reduce increases of PM10 and PM2.5 to less than significant. Alternative 3 would result in less localized construction emissions impacts compared to the proposed program.

Biological Resources

The proposed program would result in less than significant impacts to biological resources with mitigation (see Section 3.3). Under Alternative 2, less construction would take place overall; therefore, fewer non-native ornamental trees would need to be removed for construction activities. Indirect impacts to bird nesting in the vicinity of the program area would be less under Alternative 2 compared to the proposed program. Further, noise levels due to construction activities would be reduced. The reduced noise levels would have less of a potential impact on nearby nesting birds. Further, operational noise of the facilities would stay the same because no new facilities would be implemented within the proposed program area. Overall, Alternative 2

would result in less than significant impacts to biological resources and would result in fewer impacts than the proposed program.

Cultural Resources

The proposed program has the potential to encounter human remains and archaeological and paleontological resources during ground disturbing activities, however, the program would result in less than significant impacts to cultural resources with mitigation (see Section 3.4). The proposed program would result in less excavation and ground disturbance at Plant No. 2 compared to the excavation and ground disturbance under Alternative 2. Therefore, the potential for encountering human remains, archeological and paleontological resources during construction activities would be reduced. Overall, Alternative 2 would result in less than significant impacts to cultural resources and fewer impacts than the proposed program.

Geology, Soils, and Seismicity

The proposed program would result in less than significant impacts related to exposure to geologic hazards with mitigation incorporated (see Section 3.5). Alternative 2 would not construct new facilities, but would demolish and rebuild existing digester facilities to current California Building Code standards. Further, Digester D would be relocated on Plant No. 2 to address potential structural issues if a ground shaking event were to occur. Therefore, Alternative 2 would result in similar impacts regarding earthquakes, unstable geologic locations, and expansive soils as the proposed program. Because Alternative 2 would result in less ground disturbance and excavation overall, the potential for soil erosion or topsoil loss would be reduced. Therefore, Alternative 2 would result in less impacts regarding soil erosion as compared to the proposed program. Overall, Alterative 2 would result in less than significant impacts regarding geology, soils, and seismicity, and would result in fewer impacts overall than the proposed program.

Greenhouse Gas Emissions

The proposed program would result in a less than significant impacts to greenhouse gases (see Section 3.6). Under Alternative 2, the total amount of VMT and biosolids truck trips would be the same as existing VMT and truck trips because the export of biosolids to the end users would be the same. When compared to the proposed program, Alternative 2 would result in greater VMT and increased trips. As a result, Alternative 2 would have a greater amount of greenhouse gas emissions compared to the proposed program. Alternative 2 would result in similar impacts regarding plans, policies, and regulations related to the reduction of greenhouse gas emissions. Overall, Alternative 2 would result in less than significant impacts to greenhouse gas emissions, but the emissions would be greater than those that would occur with the proposed program.

Hazards and Hazardous Materials

The proposed program would result in a less than significant impact to hazards and hazardous materials with mitigation (see Section 3.7). The proposed program would result in a potentially significant impact regarding a hazardous materials site listing if the collections yard is relocated to the northern location of Plant No. 1. Under Alternative 2, the collections yard would not be

relocated to Plant No. 1; therefore, Alternative 2 would result in no potential significant hazardous materials impact because the collection yard would not be constructed under Alternative 2. Alternative 2 would result in similar impacts as the proposed program regarding the routine use of hazardous materials, accidental release of hazardous materials, the use of hazardous materials near a school, and conflicts with emergency plans. Overall, Alternative 2 would result in less than significant impacts to hazards and hazardous materials and fewer impacts than the proposed program.

Hydrology and Water Quality

The proposed program would result in less than significant impacts to hydrology and water quality (see Section 3.8). Under Alternative 2, there would be less acres of area disturbed because it does not add any new facilities, it only rebuilds and renovates existing facilities. Thus, the potential for sedimentation and erosion to occur due to exposed soil during construction activities would be reduced. Further, because less facilities would be implemented on Plant No. 1 and Plant No. 2, the natural drainage courses of the sites would remain largely the same and existing stormwater drainage facilities would not need to be altered. Because Alternative 2 would result in less excavation for new facility implementation, the impacts to groundwater levels would be reduced because construction watering during dry and windy conditions for dust and debris control would be minimized and less dewatering would occur overall. This alternative would result in similar impacts regarding water quality standards and waste discharge requirements, and flood and tsunami hazards compared to the proposed program. Overall, Alternative 2 would result in less than significant impacts regarding hydrology and water quality and fewer impacts than the proposed program.

Land Use and Planning

The proposed program would result in no impact to land use and planning (see section 3.9). The proposed program would not conflict with the City of Huntington Beach Local Coastal Program's policies or regulations. Under Alternative 2, no development would occur and Plant No. 1 and No. 2 would not develop any new facilities. As such, this alternative would not change existing land use or have an effect on land use plans and policies related to the program area. Overall, this alternative would result in similar impacts regarding land use as compared to the proposed program.

Noise and Vibration

The proposed program would result in less than significant impacts regarding noise and vibration (see Section 3.10). Under the Alternative 2, there would be 100 less days of pile driving required for TPAD facility implementation, therefore, vibration levels would be greatly reduced as compared to the proposed program. Further, because less construction noise would take place overall and less construction haul trucks would be required, temporary increases of ambient noise levels within the program area would be reduced. Alternative 2 would result in similar, less than significant impacts regarding noise standards and permanent noise levels as the proposed program. Overall, this alternative would result in less than significant impacts regarding noise and vibration and fewer impacts compared to the proposed program.

Traffic and Transportation

The proposed program would result in a less than significant impact to traffic and transportation (see Section 3.11). The amount of biosolids truck trips would be the same for Alternative 2 compared to the proposed program. An increase of 44 one-way truck trips would occur because of the implementation of the food waste facilities at Plant No. 2. This increase in truck trips is nominal and would not substantially impact traffic in the program area. Overall, this alternative would result in similar transportation and traffic impacts compared to the proposed program.

Tribal Cultural Resources

The proposed program would result in no impact to tribal cultural resources (see Section 3.12). Under Alternative 2, less ground disturbing activities would occur. Therefore, this alternative would result also in no impacts to tribal cultural resources similar to the proposed program.

Utilities, Service Systems, and Energy

The proposed program would result in a less than significant impacts to utilities, service systems, and energy (see Section 3.13). Because less facilities would be implemented on Plant No. 1 and Plant No. 2 under Alternative 2, the natural drainage courses of the sites would remain the same and existing stormwater drainage facilities would not need to be altered. Further, Alternative 2 would not be demolishing the existing warehouse at Plant No. 2, therefore, the potential increase in demolition debris to impact landfill capacity serving the proposed program would be reduced. Alternative 2 would result in similar impacts to wastewater treatment requirements, water supplies, compliance with solid waste regulations, and energy as the proposed program. Overall this alternative would result in less than significant impacts to utilities, service systems, and energy and fewer impacts than the proposed program.

5.6.3 Alternative 3: Proposed Program Without Food Waste Facilities

The relative difference in environmental impacts associated with the Proposed Program Without Food Waste Facilities Alternative when compared to the proposed program is provided below.

Aesthetics

The proposed program would result in a less than significant impact to aesthetics with mitigation (see Section 3.1). Alternative 3 would not construct the interim or ultimate food waste facilities and result in the grading of approximately 3.0 less acres than the proposed program. Similar to the proposed program, Alternative 3 would result in less than significant impacts regarding scenic vistas and visual character of the area. Because Alternative 3 would result in less facilities being constructed, Alternative 3 would introduce fewer new sources of light or glare to the program area. Overall, Alternative 3 would result in less than significant impacts regarding scenic vistas, visual character, and light or glare, and would result in fewer impacts than the proposed program.

Air Quality

The proposed program would result in a less than significant impact to air quality with mitigation (see Section 3.2). Alternative 3 would not construct the interim or ultimate food waste facilities and result in the grading of approximately 3.0 less acres than the proposed program. Under Alternative 3, less grading would reduce the amount of construction NOx emissions; however, this reduction would still require the proposed program mitigation measures to reduce potential regional construction emissions to less than significant. In addition, localized construction emissions of PM10 and PM2.5 would be less compared to the proposed program; however, Alternative 3 would still require the proposed program mitigation measures to reduce increases of PM10 and PM2.5 to less than significant. Alternative 3 would result in less localized construction emissions impacts compared to the proposed program.

The food waste facilities would store SSO, which could contribute to odors in the program area. Therefore, because Alternative 3 would not implement the food waste facilities, potential impacts regarding odors would be reduced as compared to the proposed program. Overall, Alternative 3 would have less than significant impacts to air quality and would result in fewer impacts than the proposed program.

Biological Resources

The proposed program would result in less than significant impacts to biological resources with mitigation (see Section 3.3). Under Alternative 3, less construction would take place overall; therefore, noise levels due to construction activities would be reduced. The reduced noise levels would have less of a potential impact on nearby nesting birds. Overall, Alternative 3 would result in less than significant impacts to biological resources and would result in fewer impacts than the proposed program.

Cultural Resources

The proposed program has the potential to encounter human remains and archaeological and paleontological resources during ground disturbing activities, however, the program would result in less than significant impacts to cultural resources with mitigation (see Section 3.4). Under Alternative 3, less excavation and ground disturbance would occur at Plant No. 2; therefore, the potential for encountering human remains, archeological and paleontological resources during construction activities would be reduced. Overall, Alternative 3 would result in potentially significant impacts to historical resources and less than significant impacts to archeological and paleontological resources and human remains, and fewer impacts than the proposed program.

Geology, Soils, and Seismicity

The proposed program would result in less than significant impacts related to exposure to geologic hazards with mitigation incorporated (see Section 3.5). Alternative 3 would result in similar impacts regarding earthquakes, unstable geologic locations, and expansive soils as the proposed program. Because Alternative 3 would result in less ground disturbance and excavation overall, the potential for soil erosion or topsoil loss to occur would be reduced. Therefore, Alternative 3 would result in less impacts regarding soil erosion as compared to the proposed

program. Overall, Alterative 3 would result in less than significant impacts regarding geology, soils, and seismicity, and would result in fewer impacts overall than the proposed program.

Greenhouse Gas Emissions

The proposed program would result in a less than significant impacts to greenhouse gases (see Section 3.6). Alternative 3 would result in lesser amounts of greenhouse gas emissions because less construction truck haul trips would be required. Alternative 3 would result in similar impacts regarding plans, policies, and regulations related to the reduction of greenhouse gas emissions. Overall, Alternative 3 would result in less than significant impacts to greenhouse gas emissions and less impacts than the proposed program.

Hazards and Hazardous Materials

The proposed program would result in a less than significant impact to hazards and hazardous materials with mitigation (see Section 3.7). The proposed program would result in a potentially significant impact regarding a hazardous materials site listing if the collections yard is relocated to the northern location of Plant No. 1. Under Alternative 3, the collections yard would be relocated to Plant No. 1; therefore, Alternative 3 would result in a similar potential significant impact regarding construction near or on a hazardous materials site. Further, Alternative 3 would result in similar impacts as the proposed program regarding the routine use of hazardous materials, accidental release of hazardous materials, the use of hazardous materials near a school, and confliction with emergency plans. Overall, Alternative 3 would result in less than significant impacts to hazards and hazardous materials and similar impacts than the proposed program.

Hydrology and Water Quality

The proposed program would result in less than significant impacts to hydrology and water quality (see Section 3.8). Under Alternative 3, there would be less acres of disturbed area because the food waste facilities would not be implemented. The potential for sedimentation and erosion to occur due to exposed soil during construction activities would be reduced. Further, because less facilities would be implemented on Plant No. 2, impacts regarding the alteration of stormwater drainage facilities would be reduced. Because Alternative 3 would result in less excavation for food waste facility implementation, the impacts to groundwater levels would be reduced because construction watering during dry and windy conditions for dust and debris control would be minimized and less dewatering would occur overall. This alternative would result in similar impacts regarding water quality standards and waste discharge requirements, and flood and tsunami hazards compared to the proposed program. Overall, Alternative 3 would result in less than significant impacts regarding hydrology and water quality and fewer impacts than the proposed program.

Land Use and Planning

The proposed program would result in no impact to land use and planning (see section 3.9). The proposed program would not conflict with the City of Huntington Beach Local Coastal Program's policies or regulations. Under Alternative 3, similar development would occur at Plant No. 1 and Plant No. 2 as the proposed program. As such, this alternative would not change existing land

uses or have an effect on land use plans and policies related to the program area. Overall, this alternative would result in similar impacts regarding land use as compared to the proposed program.

Noise and Vibration

The proposed program would result in less than significant impacts regarding noise and vibration (see Section 3.10). Under the Alternative 3, there would be 10 less days of pile driving required for food waste facility implementation, therefore, vibration levels would be reduced as compared to the proposed program. Further, because less construction noise would take place overall and less construction haul trucks would be required, temporary increases of ambient noise levels within the proposed program area would be reduced. Alternative 3 would result in similar, less than significant impacts regarding noise standards and permanent noise levels as the proposed program. Overall, this alternative would result in less than significant impacts regarding noise and vibration and fewer impacts compared to the proposed program.

Traffic and Transportation

The proposed program would result in a less than significant impact to traffic and transportation (see Section 3.11). The amount of biosolids truck trips would be the same for Alternative 3 compared to the proposed program. A decrease of 44 one-way truck trips would occur because the food waste facilities associated with the proposed program would not be implemented at Plant No. 2 under Alternative 3. This decrease of incoming truck trips would lessen traffic in the immediate program area. Overall, this alternative would result in less than significant impacts to traffic and transportation and fewer impacts compared to the proposed program.

Tribal Cultural Resources

The proposed program would result in no impact to tribal cultural resources (see Section 3.12). Under Alternative 3, less ground disturbing activities would occur. Therefore, this alternative would result also in no impacts to tribal cultural resources similar to the proposed program.

Utilities, Service Systems, and Energy

The proposed program would result in a less than significant impacts to utilities, service systems, and energy (see Section 3.13). Because less facilities would be implemented on Plant No. 2, impacts regarding the alternation of stormwater drainage facilities would be reduced. Alternative 3 would result in similar impacts to wastewater treatment requirements, water supplies, landfill capacity, and compliance with solid waste regulations. However, because Alternative 3 would not incorporate SSO (food waste), digestion would result in less biogas being generated. Biogas can be sent to the CenGen facility to be converted to energy. Alternative 3 would result in a reduction of biogas and potentially greater impact to energy as compared to the proposed program. Overall, this alternative would result in less than significant impacts to utilities and service systems and fewer impacts than the proposed program and this alternative would result in less than significant impacts regarding energy, but greater impacts compared to the proposed program.

5.7 Environmentally Superior Alternative

CEQA requires that an EIR identify an environmentally superior alternative of a project other than the No Project Alternative (CEQA Guidelines Section 15126.6(e)(2)). Table 5-3 shows an impact determination comparison for potentially significant impacts of the proposed program to all the proposed program alternatives. The following is a summary of the impacts associated with each proposed program alternative compared to the proposed program.

The No Program Alternative (Alternative 1) would reduce or eliminate most proposed program impacts, but it would result in new potentially significant impacts that could result from aging equipment including process malfunctions and inefficiencies that could result in geologic hazards, hazardous material spills, increased energy usage, and increased air emissions.

Alternative 2 would reduce but not eliminate potential significant impacts of the proposed program. By not implementing all individual projects within the proposed program, there would be a reduction in the total amount of construction; therefore, impacts to air quality, cultural resources, and other environmental resources would be proportionately reduced. However, the transition from Class B biosolids to Class A biosolids ultimately results in a reduction of vehicle miles traveled (VMT) because Class A biosolids can be transported to closer end-users. Alternative 2 would result in continuation of Class B biosolids being generated and transported to end-users in Arizona. Alternative 2 would not decrease the amount of VMT; therefore, the amount of truck trips/VMT would stay the same as existing conditions and have a potentially greater impact on greenhouse gases and traffic than the proposed program. Alternative 2 would meet three of the four proposed program objectives; however, it would not meet the objective of transitioning from Class B to Class A biosolids quality at Plant No. 2 and would not be able to increase biosolids management diversity for end users of biosolids.

Alternative 3 would reduce but not eliminate potential significant impacts of the proposed program. By not implementing all individual projects within the proposed program, there would be a reduction in the total amount of construction; therefore, impacts to air quality, cultural resources, and other environmental resources would be proportionately reduced. However, the inclusion of food waste facilities significantly increases the amount of renewable energy that can be used for Plant No. 2 facilities. Alternative 3 would not generate as much biogas as the proposed program and therefore could result in a potentially greater impact on energy. Alternative 3 would meet three of the four proposed program objectives; however, it would not meet the objective of receiving pre-processed food waste for co-digestion to assist in diverting organics from landfills and to increase digester gas production used as a renewable energy.

Based on the comparative analysis provided in Section 5.6 above, Alternative 2 (Baseline, Mesophilic Digestion, Class B Alternative), would result in less significant environmental effects compared to the proposed project and other alternatives. Alternative 2 would lessen the proposed program's environmental impacts in areas such as aesthetics, air quality, biological resources, cultural resources, geology, soils and seismicity, greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality, noise and vibration, traffic and transportation, tribal cultural resources, and utilities and service systems. This alternative would be the

environmentally superior alternative. Alternative 2 would meet three of the four proposed program objectives, but it would not meet the objective of transitioning from Class B to Class A biosolids quality at Plant No. 2, and would not be able to increase biosolids management diversity for end users of biosolids.

CHAPTER 6
Report Preparation

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