Draft

2020
Program Environmental Impact Report

for the 2017 Facilities Master Plan

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DUDEK

DRAFT

Orange County Sanitation District Facilities Master Plan Program Environmental Impact Report

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Acronyms and Abbreviations

Acronym/Abbreviation	Definition
AB	Assembly Bill
ACM	asbestos-containing materials
ADT	average daily traffic
amsl	above mean sea level
AQMP	Air Quality Management Plan
BenMAP	Benefits Mapping and Analysis Program
BenMAP-CE	Benefits Mapping and Analysis Program–Community Edition
BMP	best management practice
C&D	Construction & Demolition
CAAQS	California Ambient Air Quality Standard
Cal/OSHA	California Occupational Safety and Health Administration
CalARP	California Accidental Release Prevention
CalEEMod	California Emissions Estimator Model
CAL FIRE	California Department of Forestry and Fire Prevention
CalGEM	California Geologic Energy Management Division
CALGreen	California Green Building Standards
CalRecycle	California Department of Resources Recycling and Recovery
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CDFW	California Department of Fish and Wildlife
CEC	California Energy Commission
Cen Gen	Central Power Generation
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFGC	California Fish and Game Code
CH_4	methane
CHP	California Highway Patrol
CNDDB	California Natural Diversity Database
CNEL	community noise equivalent level
CNPS	California Native Plant Society
CNRA	California Natural Resources Agency
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
CRPR	California Rare Plant Rank
CSS	coastal sage scrub
CUPA	Certified Unified Program Agency
CWA	Clean Water Act
DAMP	Drainage Area Management Plan
dB	decibel
dBA	A-weighted decibel
DPM	diesel particulate matter
DTSC	Department of Toxic Substances Control

Acronym/Abbreviation	Definition
EIR	environmental impact report
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ESCP	erosion and sediment control plan
ESL	environmental screening level
EV	electric vehicle
FEMA	Federal Emergency Management Agency
FESA	federal Endangered Species Act
FMP	Facilities Master Plan
FTA	Federal Transit Administration
GGRP	Greenhouse Gas Reduction Program
GHG	greenhouse gas
GIS	geographic information system
GWP	global warming potential
GWRS	Groundwater Replenishment System
HAP	hazardous air pollutant
HCFC	hydrochlorofluorocarbons
HCP	habitat conservation plan
HDD	horizontal directional drilling
HERO	Human and Ecological Risk Office
HFC	hydrofluorocarbons
HIA	health impact assessment
HMBP	hazardous materials business plan
HMMP	habitat mitigation monitoring plan
HMP	hazard mitigation plan
HRA	health risk assessment
IFC	International Fire Code
IPCC	Intergovernmental Panel on Climate Change
IS	Initial Study
LBP	lead-based paint
LCD	liquid-crystal display
LCFS	Low Carbon Fuel Standard
L_{eq}	equivalent continuous sound level
LID	low-impact development
L_{max}	maximum sound level during the measurement interval
LST	localized significance threshold
LUST	leaking underground storage tank
MBTA	Migratory Bird Treaty Act
MM	Mitigation Measure
MRZ	Mineral Resource Zone
MT	metric ton
MWD	Metropolitan Water District of Southern California
MWDOC	Municipal Water District of Orange County
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standard
NCCP	Natural Community Conservation Plan
NF_3	nitrogen trifluoride

Acronym/Abbreviation	Definition
NHTSA	National Highway Traffic Safety Administration
NO_2	nitrogen dioxide
NOP	Notice of Preparation
NO_x	oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System
O_2	molecular oxygen
O_3	ozone
OCFA	Orange County Fire Authority
OCHCA	Orange County Health Care Agency
OCWD	Orange County Water District
OCWR	Orange County Waste & Recycling
OWOW	One Water One Watershed
PCB	polychlorinated biphenyl
PCE	passenger car equivalent
PEIR	program environmental impact report
PFC	perfluorocarbons
PGM	photochemical grid model
$PM_{2.5}$	fine particulate matter
PM_{10}	coarse particulate matter
ppm	parts per million
ppv	peak particle velocity
RAS	Return Activated Sludge
RCNM	Roadway Construction Noise Model
ROW	right-of-way
RPS	Renewables Portfolio Standard
RSL	regional screening level
RTP	Regional Transportation Plan
RWQCB	Regional Water Quality Control Board
Sanitation District	Orange County Sanitation District
SAR	Santa Ana River
SB	Senate Bill
SCAB	South Coast Air Basin
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCS	Sustainable Communities Strategy
SF_6	sulfur hexafluoride
SO_2	sulfur dioxide
SO_x	sulfur oxides
SRA	Source-Receptor Area
SSC	Species of Special Concern
SWPPP	stormwater pollution prevention plan
SWRCB	State Water Resources Control Board
TAC	toxic air contaminant
TMDL	total maximum daily load
UNFCCC	United Nations Framework Convention on Climate Change
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service

Acronym/Abbreviation	Definition
UST	underground storage tank
VdB	velocity decibel
VMT	vehicle miles traveled
VOC	volatile organic compound
WQMP	water quality management plan

1 Executive Summary

This section provides a summary of the draft program environmental impact report (PEIR) for projects proposed by the Orange County Sanitation District (Sanitation District) in the Facilities Master Plan (FMP). The California Environmental Quality Act (CEQA) requires environmental impact reports (EIRs) to contain a brief summary of the project and its consequences. The summary must include each significant effect with proposed mitigation measures and alternatives that would reduce or avoid that effect; areas of controversy known to the lead agency, including issues raised by agencies and the public; and issues to be resolved, including the choice among alternatives and whether or how to mitigate the significant effects (14 CCR 15123). In accordance with these requirements, this chapter provides a summary of the FMP and of FMP project impacts, lists mitigation measures and alternatives, describes areas of known controversy, and discusses issues to be resolved. Because the proposed FMP includes 75 projects, this executive summary exceeds the guideline to keep the summary to 15 pages.

1.1 Introduction

CEQA requires the preparation and certification of an EIR for any project that a lead agency determines may have a significant effect on the environment. This EIR has been prepared in compliance with criteria, standards, and procedures of the CEQA Guidelines. This document has been prepared as a hybrid Program/Project EIR (pursuant to Section 15168 of the CEQA Guidelines) and represents the independent judgment of the Sanitation District as lead agency (14 CCR 15050). Where detailed information is known, FMP projects are analyzed at the project level. This is typical for near-term projects, which would be implemented sooner than 2030. Where detailed information is unknown, and for projects later in time, FMP projects are analyzed at a program level. This approach is described in further detail in Section 2.3.2, Scope of the PEIR.

The Sanitation District prepared a Notice of Preparation (NOP) and Initial Study in July 2019 that included a checklist from Appendix G of the CEQA Guidelines. For certain topical areas such as agriculture and forestry resources, mineral resources, population and housing, recreation, and wildfire, it was determined that the FMP would have no impact or less than significant impacts; the rationale for these determinations is provided in the Initial Study (attached as Appendix A to this PEIR). These resource topics are not further analyzed in this PEIR.

1.2 FMP Locations and Setting

Sanitation District Service Area

The FMP projects addressed in this PEIR would be located at various sites throughout the Sanitation District's service area, which covers an approximately 479-square-mile area within the northwestern and central portions of Orange County. The boundaries of the Sanitation District's service area relative to the Orange County boundaries are shown on Figure 2-1, Project Location. The service area includes the entirety or portions of municipal boundaries for 20 cities, as well as unincorporated land and four special districts (see Section 2.1.1, Sanitation District History and Governance). Project components are located at the sites of existing Sanitation District facilities, and work would be limited primarily to existing Sanitation District easements. Some construction activity and staging would occur outside Sanitation District easements, in the land use jurisdiction of the various municipalities listed in Section 2.1.1 and on unincorporated land within Orange County.

Reclamation Plant No. 1

The proposed FMP includes projects that would be implemented within the boundaries of the existing Reclamation Plant No. 1 (Plant 1), including joint plant projects located at both Plant 1 and Treatment Plant No. 2 (Plant 2). Plant 1, whose site plan is shown on Figure 3-1 (Reclamation Plant No. 1), is located on an approximately 109-acre property owned by the Sanitation District at 10844 Ellis Avenue, in the southeastern portion of the City of Fountain Valley, just south of Interstate 405. The Plant 1 site is bordered by Ellis Avenue on the north, the Santa Ana River channel on the southeast, Garfield Avenue on the south, and Ward Street and Orange County Water District facilities on the west, including the Groundwater Replenishment System. The Plant 1 site is flat and is fully developed with existing facilities related to various aspects of the wastewater treatment process, Sanitation District offices, and internal access roads. The site is surrounded by commercial/industrial development to the north, residential development to the east across the Santa Ana River channel, and additional residential development farther west of the Orange County Water District facilities. Plant 1 is located 4 miles upstream from Plant 2, and receives flow from the eastern, some western, and inland parts of the Sanitation District's service area.

Treatment Plant No. 2

The proposed FMP includes projects that would be implemented within the boundaries of the existing Plant 2, including joint plant projects located at both Plant 1 and Plant 2. Plant 2, whose site plan is shown on Figure 3-2 (Treatment Plant No. 2), is located on an approximately 111-acre property owned by the Sanitation District at 22212 Brookhurst Street, in the southernmost part of the City of Huntington Beach, and adjacent to Huntington State Beach. The triangular Plant 2 site is bordered by Brookhurst Avenue on the west, the Santa Ana River channel on the east, and a lagoon on the south where Talbert Channel discharges into the Pacific Ocean. The Plant 2 site is flat and is fully developed with existing facilities related to various aspects of the wastewater treatment and disposal process, Sanitation District offices, and internal access roads. Residential development is located west and north of the site across Brookhurst Avenue. The Talbert Regional Park and Banning Ranch are located east of the site across the Santa Ana River channel.

Collection System

The remaining FMP projects are located throughout the Sanitation District's collection system (e.g., pipelines, pump stations, and lift stations), the components of which are dispersed throughout the Sanitation District's service area. Because of the disparate nature of the Sanitation District's service area, the FMP projects are situated within a diversity of settings that reflect the range of land uses occurring in Orange County. Most facilities are located in existing roads and Sanitation District rights-of-way traversing developed areas, including residential, commercial, and industrial uses. Certain facilities also sit adjacent to public uses such as schools and parks, and some are near small areas of open space.

1.3 FMP Summary

As will be discussed in detail in Section 2.2, Facilities Master Plan Background, the 2017 FMP (Sanitation District 2017) and 2019 updates to the FMP present a series of Capital Improvement Program projects the Sanitation District proposes to implement through 2040 to rehabilitate, replace, and optimize their existing facilities in continued service to residents and businesses within their service area. The proposed FMP includes rehabilitation, replacement, and other miscellaneous projects within the boundaries of Plant 1 in Fountain Valley and Plant 2 in Huntington Beach, as well as joint plant projects at both Plant 1 and Plant 2. Additionally,

the FMP would include rehabilitation, replacement, and miscellaneous projects located throughout the Sanitation District's collection system and pump stations, the components of which are dispersed throughout the Sanitation District's service area.

1.4 FMP Objectives

Section 15124(b) of the CEQA Guidelines requires an EIR's project description to include a statement of the project's objectives. The objectives noted below will help the Sanitation District evaluate the proposed FMP and its environmental impacts, and aid in its consideration of potential alternatives, as described in Chapter 6. The objectives of the FMP are as follows:

1. Maintain the Sanitation District's wastewater conveyance and treatment system in optimal condition for full functionality.
2. Safely extend the service life of existing Sanitation District facilities.
3. Meet existing and projected demands for wastewater conveyance and treatment in the Sanitation District's service area.
4. Ensure the Sanitation District can accommodate the expanded Groundwater Replenishment System operations approved in 2016.
5. Maximize efficient use of existing Sanitation District property, rights-of-way, and existing facilities.
6. Provide operational redundancy where needed to prevent service outages.
7. Minimize disruption in service as projects are implemented.
8. Comply with existing regulations governing wastewater treatment and disposal.

1.5 Areas of Controversy/Issues to Be Resolved

The Sanitation District issued an NOP to prepare a PEIR for the proposed FMP. Issuance of the NOP began the 30-day public scoping period for the FMP. The purpose of scoping is to seek input from public agencies and the general public regarding the environmental issues and concerns that may potentially result from a proposed project. The NOP was circulated to interested agencies, organizations, and individuals on July 25, 2019. The NOP offered interested parties an opportunity to review the FMP and Initial Study and respond with specific comments and/or questions regarding the scope and content of the PEIR, and provided notice of two public hearings held by the Sanitation District, one on August 12, 2019, at Plant 1 and online via webcast, and the other on August 15, 2019, at Plant 2 and online via webcast. During the scoping period, comment letters were received in response to the NOP and Initial Study. Copies of the Initial Study and the NOP are provided in Appendix A to the PEIR, and copies of the comment letters are provided in Appendix B. The primary areas of controversy identified by the public and agencies included the following potential issues (the PEIR section that addresses the issue raised is provided in parentheses):

- Potential impacts on wildlife species from bentonite use during trenchless pipeline improvement, effects of lighting/noise/human activity/exotic species, and potential impacts to rare natural communities and to trees from shot hole borers (Section 4.3, Biological Resources).
- Potential traffic impacts associated with lane closures; impacts to bike lanes, sidewalks, and transit stops; and impacts to State Route 1 (Section 4.13, Transportation).

- Potential impacts to tribal cultural resources (Section 4.4, Cultural Resources, and Section 4.14, Tribal Cultural Resources).
- Potential impacts resulting from construction and operation activities (Section 4.2, Air Quality; Section 4.5, Energy; and Section 4.7, Greenhouse Gas Emissions).

1.6 Summary of Environmental Impacts

The proposed FMP's potential environmental impacts are summarized in Table 1-1. This table contains a summary of the impacts described in this PEIR, as well as the impacts that were addressed in the Initial Study and determined to require no further detailed analysis in the PEIR. Table 1-1 also includes a list of the proposed mitigation measures that are recommended in response to the FMP's potentially significant impacts, as well as a determination of the level of significance of the impacts after implementation of the recommended mitigation measures.

Table 1-1. Summary of Facilities Master Plan Impacts

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance
Aesthetics			
Would the project have a substantial adverse effect on a scenic vista?	Potentially significant impact	**MM-AES-1: Construction Screening at Plant 1 and Plant 2.** For Facilities Master Plan projects located within Reclamation Plant No. 1 or Treatment Plant No. 2, prior to commencement of construction, the Sanitation District shall screen views of ground level construction activities from public view with fencing, vegetation, or buildings. If there are gaps in these existing barriers that allow construction activities to be viewed from public viewpoints, the Orange County Sanitation District shall install temporary visual screening barriers within these viewing windows to minimize the visual impacts of construction activities.	Less-than-significant impact with mitigation incorporated
Would the project substantially damage scenic resources including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	Less-than-significant impact	No mitigation would be required.	Less-than significant-impact
In non-urbanized areas, would the project substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	Less-than-significant impact	No mitigation would be required.	Less-than significant-impact
Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	Potentially significant impact	**MM-AES-2: Construction Lighting.** Should nighttime construction be required, a construction safety lighting plan shall be submitted to the Orange County Sanitation District Director of Engineering for review and approval prior to any nighttime construction activities. The Construction Safety Lighting Plan shall require that all construction-related lighting fixtures (including portable fixtures) shall be oriented downward	Less-than-significant impact with mitigation incorporated

Table 1-1. Summary of Facilities Master Plan Impacts

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance
		and away from adjacent sensitive areas (including residential and biologically sensitive areas) and that all lighting shall consist of the minimal wattage necessary to provide safety at the construction site. **MM-AES-3: Operational Lighting.** All new permanent exterior lighting associated with Facilities Master Plan project facilities shall be shielded and directed downward to minimize any light intrusion to surrounding uses. Development of the FMP facilities shall comply with existing and future lighting ordinances of each applicable jurisdiction. Per these requirements, all outdoor lighting fixtures shall be designed, shielded, aimed, located, and maintained to minimize impacts to adjacent sites and to not produce glare onto adjacent sites or roadways.	
Would the project have a cumulative effect on aesthetic resources?	Potentially significant impact	**MM-AES-1** **MM-AES-2** **MM-AES-3**	Less-than-significant impact with mitigation incorporated
Agriculture and Forestry Resources			
Would the project 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?	No impact	No mitigation would be required.	No impact
Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?	No impact	No mitigation would be required.	No impact
Would the project 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	No impact	No mitigation would be required.	No impact

Table 1-1. Summary of Facilities Master Plan Impacts

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance
section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?			
Would the project result in the loss of forest land or conversion of forest land to non-forest use?	No impact	No mitigation would be required.	No impact
Would the project 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?	No impact	No mitigation would be required.	No impact
Would the project have a cumulative effect on agriculture and forestry resources?	No impact	No mitigation would be required.	No impact
Air Quality			
Would the project conflict with or obstruct implementation of the applicable air quality plan?	Potentially significant impact	**MM-AQ-1:** Prior to the commencement of construction activities for each project, the Orange County Sanitation District (Sanitation District) shall require its construction contractor to demonstrate that all 50-horsepower or greater diesel-powered equipment is powered with California Air Resources Board (CARB)-certified Tier 4 Final engines. An exemption from this requirement may be granted if (1) the Sanitation District documents equipment with Tier 4 Final engines are not reasonably available, and (2) the required corresponding reductions in criteria air pollutant emissions can be achieved for the project from other combinations of construction equipment. Before an exemption may be granted, the Sanitation District's construction contractor shall: (1) demonstrate that at least two construction fleet owners/operators in Orange County were contacted and that those owners/operators confirmed Tier 4 Final equipment could not be located within Orange County during the desired construction schedule; and (2) the proposed replacement	Less-than-significant impact with mitigation incorporated

Table 1-1. Summary of Facilities Master Plan Impacts

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance
		equipment has been evaluated using California Emissions Estimator Model (CalEEMod) or other industry standard emission estimation method and documentation provided to the Sanitation District to confirm that project-generated emissions do not exceed applicable South Coast Air Quality Management District (SCAQMD) mass daily thresholds, the applicable SCAQMD localized significance thresholds, or the SCAQMD carcinogenic (cancer) risk threshold.	
Would the project 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?	Potentially significant impact	**MM-AQ-1**	Less-than-significant impact with mitigation incorporated
Would the project expose sensitive receptors to substantial pollutant concentrations?	Potentially significant impact (Plant 1 and Plant 2 construction health risk assessment)	**MM-AQ-1**	Less-than-significant impact with mitigation incorporated
Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	Potentially significant impact	**MM-AQ-1**	Less-than-significant impact with mitigation incorporated
Would the project have a cumulative effect on air quality resources?	Potentially significant impact	**MM-AQ-1**	Less-than-significant impact with mitigation incorporated
Biological Resources			
Would the project 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	Potentially significant Impact	**MM-BIO-1: Nesting Bird Avoidance.** Construction activities for project-level and program-level projects shall avoid the migratory bird nesting season (typically February 1 through August 31), to reduce any potential significant impact to birds that may be nesting within 500 feet of project sites. If construction activities must occur during the migratory bird nesting season, an avian nesting survey of the project site and	Less-than-significant impact with mitigation incorporated

Table 1-1. Summary of Facilities Master Plan Impacts

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance
California Department of Fish and Game or U.S. Fish and Wildlife Service?		suitable habitat within 500 feet of the site shall be conducted for protected migratory birds and active nests. The avian nesting survey shall be performed by a qualified biologist meeting the standards in the field within 72 hours prior to the start of construction in accordance with the Migratory Bird Treaty Act (16 USC 703–712) and California Fish and Game Code, Sections 3503, 3503.5, and 3513. If an active bird nest is found, the nest shall be flagged and an appropriate buffer established around the nest, which shall be determined by the biologist based on the species' sensitivity to disturbance (up to 300 feet for passerines and up to 500 feet for raptors and special-status species). The nest area shall be avoided until the nest is vacated and the juveniles have fledged. No project activities may encroach into the buffer until a qualified biologist has determined that the nestlings have fledged, and the nest is no longer active. **MM-BIO-2: Special-Status Species Surveys and Mitigation**. For any program-level projects identified in this program environmental impact report (PEIR) that may result in a significant impact to a special-status species, a biological reconnaissance of the project site will be conducted by a qualified biologist within 1 year prior to the start of construction of future program-level projects to determine if suitable habitat for special-status species occurs on the project site. If suitable habitat is present on or within the immediate vicinity (100–500 feet) of the project site, additional focused surveys and subsequent mitigation measures will be required as described below. The following species-specific measures will be implemented for projects identified with a potential to contain suitable habitat for special-status species. *Least Bell's Vireo and Southwestern Willow Flycatcher Protocol Level Surveys*. As determined by a qualified biologist during the biological reconnaissance described above for program-level projects that would result in potential direct and indirect	

Table 1-1. Summary of Facilities Master Plan Impacts

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance
		impacts to willow riparian habitat, specifically project X-066, U.S. Fish and Wildlife Survey (USFWS) protocol surveys for least Bell's vireo and southwestern willow flycatcher must be conducted by a biologist holding a USFWS permit for least bell's vireo and southwestern willow flycatcher to determine the presence or absence of these species on the project site and within 500 feet of the project site. Prior to construction, a total of eight visits are required to cover both species (three least Bell's vireo-only surveys and five combined least Bell's vireo and southwestern willow flycatcher surveys) with a minimum 10-day interval between surveys. If either listed species is observed during focused protocol surveys, all project activities shall cease during the combined nesting season of April through July to reduce impacts to a less-than-significant level. However, if project activities cannot avoid the nesting season, potential direct impacts to either species may occur, which would be considered significant. To reduce impacts to less than significant, prior to implementing the project consultation with USFWS and the California Department of Fish and Wildlife (CDFW) will be required to initiate Section 7/10 consultation under the federal Endangered Species Act and apply for an Incidental Take Permit under Section 2081 of California Fish and Game Code. Additionally, impacts to occupied habitat for either species will require compensatory habitat-based mitigation through either the restoration of habitat and long-term conservation through a habitat conservation plan or through the purchase of mitigation credits at a minimum 1:1 ratio from an approved mitigation bank that sells credits for the conservation, creation, and enhancement of similar habitat types. However, the final mitigation strategy will be determined through agency consultation. *Burrowing Owl Focused Surveys*. For program-level projects that occur in the vicinity of disturbed habitat that could provide suitable nesting habitat for burrowing owl with nearby	

Table 1-1. Summary of Facilities Master Plan Impacts

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance
		occurrences, specifically projects X-086 and 5-66, focused surveys for burrowing owl shall be conducted in order to positively determine burrowing owl presence or absence prior to the start of construction as described below. In accordance with the protocol outlined in the 2012 California Department of Fish and Game Staff Report on Burrowing Owl Mitigation, four survey visits will be conducted by a qualified biologist on the study area (project site plus 500-foot buffer), spaced apart to allow an adequate amount of time to detect burrowing owl throughout the breeding season. At least one survey will be conducted between February 15 and April 15, and a minimum of three surveys conducted at least 3 weeks apart between April 15 and July 15, with at least one visit after June 15. If burrowing owl is found within the study area, then avoidance of the owl's breeding season of February through July should occur to reduce potential indirect impacts to a less-than-significant level. If the breeding season cannot be avoided, then a qualified biologist must be on site during all project activities to monitor if adjacent construction noise (within 500 feet) and increased human presence are resulting in significant harassment of a nesting owl. If the biological monitor determines that project activities are significantly harassing burrowing owl, all activities shall halt until the nesting season has concluded. Because no suitable habitat for this species will be impacted, no compensatory habitat-based mitigation will be required. *Coastal California Gnatcatcher Surveys*. For program-level projects that occur within suitable Coastal California gnatcatcher habitat, specifically project X-086, surveys shall be conducted by a qualified biologist to determine the presence/absence of this species prior to the start of construction as described below. Because project X-086 is not located within a Natural Community Conservation Plan area, per the 1997 USFWS Coastal California Gnatcatcher (*Polioptila*	

Table 1-1. Summary of Facilities Master Plan Impacts

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance
		californica californica) Presence/Absence Survey Guidelines, six survey visits are required from March 15 through June 30 at least 1 week apart. If this species is absent, no further action is required. If this species is present within the survey area (project site plus 500-foot buffer), the nest location will be recorded. There is a potential for indirect impacts to occur if construction commences during the breeding season (February 15 to August 31). Therefore, project activities for project X-086 shall avoid the breeding season to avoid potential indirect impacts. If construction must occur during the breeding season when this species is present, a biological monitor will be on site to determine if adjacent project activities will result in the significant harassment and potential nest failure of a nesting gnatcatcher. If the biological monitor determines significant harassment is occurring, project activities must halt until the nesting season has concluded and the biological monitor verifies the nest is no longer active. If construction results in nest failure and ultimate take of the species, consultation with USFWS will be required to permit the take and mitigate for species loss through the Section 7/10 process of the federal Endangered Species Act. Because no direct impacts through habitat removal will occur, no compensatory habitat-based mitigation or agency permitting is required. *Tricolored Blackbird Preconstruction Survey*. Within 10 days prior to construction, a qualified biologist knowledgeable in tri-colored blackbird biology shall conduct a preconstruction survey within areas of suitable habitat for tricolored blackbird, such as Carr Park adjacent to project X-071. The biologist shall look for tricolored blackbirds that may be located within or immediately adjacent to the project site (within 500 feet). If any tricolored blackbirds are found, the biologist shall identify their location for avoidance and establish a buffer of up to 500 feet. If tricolored blackbird are found and cannot be avoided by the	

Table 1-1. Summary of Facilities Master Plan Impacts

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance
		project, additional mitigation will be required to comply with the California Endangered Species Act, such as applying for an Incidental Take Permit under Section 2081 of California Fish and Game Code prior to project implementation. Additionally, impacts to occupied habitat for this species will require compensatory habitat-based mitigation through the purchase of mitigation credits at a minimum 1:1 ratio from an approved mitigation bank. The final mitigation ratio will be determined through consultation with CDFW.	
Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	Potentially significant impact	**MM-BIO-3: Sensitive Natural Communities**. If it is determined through implementation of **MM-BIO-2** that least Bell's vireo and/or southwestern willow flycatcher occur within suitable habitat within the project X-066 study area (project site plus 500-foot buffer area), and the final project design will result in tree trimming or vegetation removal, the following compensatory habitat-based mitigation will be required prior to project implementation. Mitigation will be carried out by the Orange County Sanitation District (Sanitation District) working with the regulatory agencies and can include the following options: A. Conduct on-site or off-site habitat restoration of in-kind habitat at a ratio agreed upon by the regulatory agencies. B. On-site revegetation of habitat will be identified in a habitat mitigation monitoring plan (HMMP) that meets regulatory agency standards, which also includes the design for restoration, monitoring requirements to determine if established performance criteria is met, and recommended remedial measures. The HMMP will also include enhancement activities of the remaining habitat on site. C. If on-site restoration/enhancement is not feasible, the Sanitation District may also purchase off-site mitigation credits from a California Department of Fish and Wildlife-approved mitigation bank in the region that sells credits for the conservation, creation, and enhancement of similar habitat types.	Less-than-significant impact with mitigation incorporated

Table 1-1. Summary of Facilities Master Plan Impacts

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance
Would the project have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	Potentially significant impact	**MM-BIO-4: Jurisdictional Waters and Wetlands**. Direct impacts to jurisdictional waters that may occur through program-level projects such as project X-066, shall be addressed during project-level California Environmental Quality Act review of the project prior to implementation through first a biological reconnaissance conducted by a qualified biologist, and a delineation of waters and wetlands to determine potential regulatory agency jurisdiction. If the reconnaissance and delineation determine potentially jurisdictional waters or wetlands occur and may be impacted by the project, mitigation to reduce impacts will be determined through the regulatory application process to implement Clean Water Act Section 401 and Section 404, the Porter-Cologne Water Quality Act, and California Fish and Game Code Section 1602. Direct impacts to jurisdictional non-wetland waters shall be mitigated through either the on-site restoration of habitat discussed in **MM-BIO-3**, or through the purchase of off-site mitigation credits. The Orange County Sanitation District may purchase credits through an agency-approved mitigation bank, in-lieu fee program, or other agreement. A ratio agreed upon by the regulatory agencies for establishment or reestablishment credits will be required for impacts to jurisdictional waters and associated willow riparian habitat. The compensatory mitigation ratio is based on the existing relatively low-quality aquatic resources that occur on the project site. However, the final mitigation ratio required will be determined through consultation with the regulatory resource agencies during the permitting process.	Less-than-significant impact with mitigation incorporated
Would the project 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 impact	No mitigation would be required.	Less-than-significant impact

Table 1-1. Summary of Facilities Master Plan Impacts

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance
Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	Potentially significant impact	**MM-BIO-5: Public and Parkway Trees.** If the final project design for project-level and program-level projects determines that public and parkway trees may be impacted during project construction for any project-level and program-level projects that occur within the City of Huntington Beach, the City of Fountain Valley, and any other city with a tree protection ordinance, a permit or permission from the applicable city must be obtained prior to cutting, trimming, pruning, or removing any tree, shrub or plant.	Less-than-significant impact with mitigation incorporated
Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	No impact	No mitigation would be required.	No impact
Would the project have a cumulative effect on biological resources?	Potentially significant impact	**MM-BIO-1** **MM-BIO-2** **MM-BIO-3** **MM-BIO-4** **MM-BIO-5**	Less-than-significant impact with mitigation incorporated
Cultural Resources			
Would the project cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	Potentially significant impact	**MM-CUL-1:** Prior to start of ground-disturbing activities, the qualified archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for archaeology (or an archaeologist working under the direct supervision of the qualified archaeologist) shall be retained by the Orange County Sanitation District (Sanitation District) and 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. The Sanitation District's contractor shall ensure that construction personnel are made available for	Less-than-significant impact with mitigation incorporated

Table 1-1. Summary of Facilities Master Plan Impacts

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance
		and attend the training and retain documentation demonstrating attendance. **MM-CUL-2:** Archaeological monitoring shall be conducted for ground-disturbing activities at Reclamation Plant No. 1, Treatment Plant No. 2, the Seal Beach Pump Station Replacement (3-67), and Los Alamitos Sub-Trunk Extension project (3-68) in Seal Beach. Archaeological monitoring shall be conducted for ground-disturbing activities associated with Newport Beach Pump Station Odor Control Improvements (5-68) only as they intersect with ground-disturbing activities at the 15th Street Pump Station Rehabilitation (X-022), Lido Pump Station Rehabilitation (X-023), Rocky Point Pump Station Rehabilitation(X-024), and A Street Pump Station Rehabilitation (X-041). Archaeological monitoring shall be conducted for ground-disturbing activities associated with high cultural sensitivity portions of the Tustin-Orange Interceptor Sewer at Reach 17 Rehabilitation (X-065), Tustin-Orange Interceptor Sewer at Reach 18 Rehabilitation (X-066), Crystal Cove Pumping Station Upgrade and Rehabilitation (5-66), DAFT Demolition (X-043), Hoover-Western Sub-Trunks Sewer Rehabilitation (X-067/X-085), Edinger/Springdale Trunk Sewer Rehabilitation (X-071), Substation and Warehouse Replacement at Plant 2 (P2-126), Operations and Maintenance Complex at Plant 2 (P2-138). 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 ground-disturbing activities, the materials being excavated (native versus artificial fill soils and older versus younger soils), and the depth of excavation. The frequency of the monitoring shall be determined by the qualified archaeologist and in coordination with the Sanitation District. In the event that archaeological resources are unearthed during ground-disturbing activities, the	

Table 1-1. Summary of Facilities Master Plan Impacts

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance
		archaeological monitor shall be empowered to halt or redirect ground-disturbing activities away from the vicinity of the discovery until the Sanitation District and a qualified archaeologist have evaluated the discovery and determined appropriate treatment (as prescribed in **MM-CUL-3**). The archaeological monitor shall keep 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 the Sanitation District, the South Central Coastal Information Center, and any Native American tribe that requests a copy. **MM-CUL-3:** In the event of the unanticipated discovery of archaeological materials during ground-disturbing activities associated with the proposed Facilities Master Plan, the Orange County Sanitation District (Sanitation District) shall immediately cease all work activities in the area (within 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 the Sanitation District 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, in accordance with the Advisory Council on Historic Preservation's 2009 Section 106 Archaeology Guidance, shall be prepared and implemented by the qualified archaeologist in consultation with the Sanitation District. The Archaeological Resources Treatment Plan will provide for the adequate recovery of the scientifically consequential information contained in the archaeological resource. The Sanitation District shall consult with appropriate Native American representatives in determining treatment for prehistoric or Native American resources. The treatment options after data recovery efforts occur may include returning the resource to the appropriate tribe or donation of the	

Table 1-1. Summary of Facilities Master Plan Impacts

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance
		resource to a repository identified by the tribe. If preservation in place is not an option or re-deposition on site is not an option, the resource will be curated at an archaeological curation facility (compliant with standards established in 36 CFR 79, Sections 9, 10, and 11).	
Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	Potentially significant impact	**MM-CUL-1** **MM-CUL-2** **MM-CUL-3**	Less-than-significant impact with mitigation incorporated
Would the project disturb any human remains, including those interred outside of dedicated cemeteries?	Less-than-significant impact	No mitigation would be required.	Less-than-significant impact
Would the project have a cumulative effect on cultural resources?	Potentially significant impact	**MM-CUL-1** **MM-CUL-2** **MM-CUL-3**	Less-than-significant impact with mitigation incorporated
Energy			
Would the project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	Less-than-significant impact	No mitigation would be required.	Less-than-significant impact
Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	Less-than-significant impact	No mitigation would be required.	Less-than-significant impact
Would the project have a cumulative effect on energy resources?	Less-than-significant impact	No mitigation would be required.	Less-than-significant impact
Geology and Soils			
Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:			
a. 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	Less-than-significant impact	No mitigation would be required.	Less-than-significant impact

Table 1-1. Summary of Facilities Master Plan Impacts

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance
based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42?			
b. Strong seismic ground shaking?	Less-than-significant impact	No mitigation would be required.	Less-than-significant impact
c. Seismic related ground failure including liquefaction?	Less-than-significant impact	No mitigation would be required.	Less-than-significant impact.
d. Landslides?	No impact.	No mitigation would be required.	No impact
Would the project result in substantial soil erosion or the loss of topsoil?	Less-than-significant impact	No mitigation would be required.	Less-than-significant impact
Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	Less-than-significant impact	No mitigation would be required.	Less-than-significant impact
Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	Less-than-significant impact	No mitigation would be required.	Less-than-significant impact
Would the project 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?	No impact	No mitigation would be required.	No impact
Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	Potentially significant impact	**MM-GEO-1: Paleontological Resources.** Prior to commencement of any ground-disturbing activity in areas of moderate to high paleontological sensitivity, the Orange County Sanitation District shall retain a qualified paleontologist per the 2010 Society of Vertebrate Paleontology guidelines. The paleontologist shall prepare a paleontological resources impact mitigation program	Less-than-significant impact with mitigation incorporated

Table 1-1. Summary of Facilities Master Plan Impacts

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance
		for the project that reduces all impacts to less than significant. The paleontological resources impact mitigation program shall be consistent with the Society of Vertebrate Paleontology guidelines and shall include: requirements for preconstruction meeting attendance and worker environmental awareness training, where monitoring is required within the project area based on construction plans and/or geotechnical reports; procedures for adequate paleontological monitoring and discoveries treatment; and paleontological methods (including sediment sampling for microvertebrate fossils), reporting, and collections management. The qualified paleontologist shall attend the preconstruction meeting, and a paleontological monitor under the direction of the qualified paleontologist shall be on site during initial ground-disturbing activities in areas of previously undisturbed moderate and/or high paleontological resources sensitivity. In the event that paleontological resources (e.g., fossils) are unearthed, the paleontological monitor shall temporarily halt and/or divert ground-disturbing activity to allow recovery of paleontological resources. The area of discovery shall be roped off with a 50-foot-radius buffer. Once documentation and collection of the find is completed, the paleontological monitor shall allow ground-disturbing activities to recommence in the area of the find.	
Would the project have a cumulative effect on geology and soils resources?	Potentially significant impact	**MM-GEO-1**	Less-than-significant impact with mitigation incorporated
Greenhouse Gas Emissions			
Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	Less-than-significant impact	No mitigation would be required.	Less-than-significant impact

Table 1-1. Summary of Facilities Master Plan Impacts

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance
Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	Less-than-significant impact	No mitigation would be required.	Less-than-significant impact
Would the project have a cumulative effect on greenhouse gas emissions?	Less-than-significant impact	No mitigation would be required.	Less-than-significant impact
Hazards and Hazardous Materials			
Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	Potentially significant impact	**MM-HAZ-1: Pre-Demolition Hazardous Building Materials Survey and Abatement.** A hazardous building materials survey shall be conducted prior to demolition or renovation activities at Reclamation Plant No. 1 and Treatment Plant No. 2. The survey will include polychlorinated biphenyls and universal wastes. A survey will also be conducted on collection system projects to identify yellow traffic striping that may contain lead chromate. Following results of the hazardous materials survey, and incorporating information from current asbestos and lead inventories, demolition or renovation plans and contract specifications, including those for road-disturbing activities, shall incorporate abatement procedures for the removal of materials containing asbestos, lead, polychlorinated biphenyls, and universal waste items, as required by law. All abatement work shall be done in accordance with federal, state, and local regulations, including those of the U.S. Environmental Protection Agency, Occupational Safety and Health Administration, California Occupational Safety and Health Administration, and the South Coast Air Quality Management District.	Less-than-significant impact with mitigation incorporated
Would the project 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?	Potentially significant impact	**MM-HAZ-1** **MM-HAZ-2: Methane Management and Mitigation.** If a proposed rehabilitation, renovation, or construction project that involves the construction or occupancy of a building or structure is within a designated methane district, guidance from the applicable jurisdiction shall be consulted prior to project implementation to determine if the proposed Facilities Master	Less-than-significant impact with mitigation incorporated

Table 1-1. Summary of Facilities Master Plan Impacts

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance
		Plan (FMP) is subject to any requirements, including health and safety requirements, related to the jurisdiction's methane districts. These jurisdictions include City of Huntington Beach, City of Newport Beach, City of Yorba Linda, and Orange County Fire Authority (OCFA). Additionally, projects located within a designated methane district or located within 100 feet of a plugged or active oil and gas well (a distance defined by OCFA) will have a methane survey conducted prior to ground-disturbing activities. The survey shall be conducted by a professional engineer or geologist with experience and credentials that meet the requirements of the County or local jurisdiction. Based on the result of the methane survey, a methane safety plan will be developed that identifies health and safety procedures for construction (such as ambient air monitoring) and operation (such as passive or active venting systems on buildings) of proposed FMP projects that adequately mitigate risks associated with identified methane. The safety plan will meet minimum requirements set forth by OCFA Combustible Soil Gas Hazard Mitigation C-03, and applicable city-specific methane safety requirements. The Orange County Sanitation District and its contractors shall follow the methane safety plan during applicable projects. Should oil and gas wells require abandonment or re-abandonment to facilitate construction or operation of the proposed FMP, this shall be done in accordance with California Geologic Energy Management Division (CalGEM) requirements. Abandonment approval from CalGEM will be required prior to construction or other activities that could affect the oil and gas well. **MM-HAZ-3: Hazardous Material Pipeline Location and Notification.** Prior to excavation or other ground-disturbing activities on proposed collection line projects, the Orange County Sanitation District (Sanitation District) or its contractor will determine if hazardous material pipelines are located in the area of excavation or other ground-disturbing activity. The	

Table 1-1. Summary of Facilities Master Plan Impacts

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance
		National Pipeline Mapping System may be utilized to identify the location and owner/operator of hazardous material pipelines that may cross or run parallel to the proposed excavation area. The Sanitation District or its contractor will consult the pipeline owner, and will take the necessary precautions, such as setbacks, to avoid contact with the hazardous material pipeline, as required by the pipeline owner and by applicable federal, state, and local laws and regulations. **MM-HAZ-4: Hazards Contingency Plan.** Prior to commencement of any ground-disturbing activities where it has been determined that hazardous materials are present and will be disturbed (see **MM-HAZ-6**), a Hazards Contingency Plan shall be developed that addresses potential impacts to soil, soil vapor, and groundwater from releases on or near the project sites. The Hazards Contingency Plan shall include training procedures for identification of contamination. The Hazards Contingency Plan shall describe procedures for assessment, characterization, management, and disposal of hazardous constituents, materials, and wastes, in accordance with all applicable state and local regulations. Contaminated soils and/or groundwater shall be managed and disposed of in accordance with local and state regulations. The Hazards Contingency Plan shall include health and safety measures, which may include but are not limited to periodic work breathing zone monitoring and monitoring for volatile organic compounds using a handheld organic vapor analyzer in the event impacted soils are encountered during excavation activities. As opposed to a single document, all necessary elements of a Hazards Contingency Plan may be developed into contract specifications.	

Table 1-1. Summary of Facilities Master Plan Impacts

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance
Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	Potentially significant impact	MM-HAZ-2 MM-HAZ-4	Less-than-significant impact with mitigation incorporated
Would the project be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	Potentially significant impact	MM-HAZ-4 **MM-HAZ-5: Monitoring Well Protection.** Monitoring wells associated with nearby cleanup sites may be located within proposed collection system project boundaries. Some of these wells may still be actively monitored as part of required cleanup activities. The agency overseeing the associated cleanup site (Regional Water Quality Control Board, Department of Toxic Substances Control, or Orange County Health Care Agency) will be consulted prior to Facilities Master Plan project activities that could affect the monitoring wells to determine the best plan of action to either decommission and destroy, protect, and/or replace affected monitoring wells. **MM-HAZ-6: Review of Cortese List Databases.** Within proposed collection system project boundaries and prior to construction where ground disturbance is required, a review of Cortese List databases pursuant to Government Code 65962.5(a) and hazardous material sites listed on Department of Toxic Substances Control EnviroStor and State Water Resources Control Board GeoTracker will be conducted within 0.5 miles of the specific Facilities Master Plan project site where the ground disturbance is proposed (project site). The review should be conducted by an environmental professional with experience in review and assessment of hazardous material sites. A search shall be conducted no more than 6 months prior to construction. In addition to the Cortese List and hazardous material sites identified in this program environmental impact report, each new Cortese List and hazardous material site identified within 0.5 miles of the project site will be reviewed for environmental contamination that could impact the project site,	Less-than-significant impact with mitigation incorporated

Table 1-1. Summary of Facilities Master Plan Impacts

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance
		including soil, soil vapor, and groundwater contamination. The Hazards Contingency Plan developed in accordance with **MM-HAZ-4** would be modified to incorporate findings from this review.	
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 or excessive noise for people residing or working in the project area?	Less-than-significant impact	No mitigation would be required.	Less-than-significant impact
Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	Potentially significant impact	**MM-TRA-1:** Prior to initiation of construction activities, engineering drawings and specifications and/or contractor shop drawings shall be submitted for review and approval by the Sanitation District, the Public Works Departments of affected cities, and the California Department of Transportation (Caltrans) (where applicable). The proposed project may impact local transportation facilities due to temporary street and/or lane closures, temporary transit stop relocations, haul truck circulation, and construction staging. These impacts, if any, will be identified in the engineering drawings and specifications and/or contractor shop drawings identified for individual projects. The following steps will be required to mitigate construction traffic impacts identified in the engineering drawings and specifications and/or contractor shop drawings: **Closures to Transportation Facilities** A. Traffic control, and associated Traffic Control Plans, for any lane closure, detour, or other disruption to traffic circulation, including bicycle and pedestrian trails. Bicycle and pedestrian trails shall remain open, to the greatest extent possible, during construction or re-routed to ensure continued connectivity. B. Engineering drawings and specifications shall meet the standards established in the current California Manual on Uniform Traffic Control Device.	Less-than-significant impact with mitigation incorporated

Table 1-1. Summary of Facilities Master Plan Impacts

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance
		C. Bus stop access impacts shall be coordinated with, and approved by, the Orange County Transportation Authority. D. Consistent with applicable City and/or Caltrans requirements, and at least three (3) business days before any construction activities that would affect travel on nearby roadways, the construction contractor shall notify the affected City Public Works Department and/or Caltrans of construction activities that could impede movement (such as lane closures) along roadways to allow for uninterrupted emergency access. Surrounding property owners shall also be notified of construction activities through the Sanitation District Public Outreach Process. **Truck Haul Routes and Circulation** E. As required by the applicable agency, construction vehicle haul routes for the delivery of construction materials (e.g., lumber, tiles, piping, windows) to the site, necessary traffic controls and detours, and a construction phasing plan for the construction activities shall be identified. F. The hours during which transport activities can occur and methods to mitigate construction-related impacts to adjacent streets shall be specified. Examples of these methods include: 1) transport of materials and heavy equipment to the site(s) shall be avoided during the AM and PM peak commute hours; 2) haul trucks shall utilize designated truck routes to the extent feasible; 3) advance warning signage and/or detour routes shall be provided along streets where construction activities would occur; and, 4) scheduling of construction activities and workers at each individual site so that less than 110 daily trips would occur. G. The contractor shall be required to keep all haul routes clean and free of debris, including gravel and dirt resulting from its operations. The contractor shall clean adjacent streets, as directed by the Sanitation District, of any	

Table 1-1. Summary of Facilities Master Plan Impacts

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance
		material that may have been spilled, tracked, or blown onto adjacent streets and areas. H. As required by the applicable agency, hauling and transport of oversize loads outside of their standard working hours will require approvals. I. Use of local streets shall be prohibited, except what is required to provide direct access to a construction site. J. Haul trucks entering or exiting public streets shall yield to public traffic at all times. K. If hauling operations cause any damage to existing pavement, streets, curbs, and/or gutters along the haul route, the contractor shall be fully responsible for repairs. The repairs shall restore the damaged property to its original condition. **Construction Staging** L. Any off-site construction staging or material storage sites shall be identified to the extent feasible. M. All project-related staging of vehicles shall be kept out of the adjacent public roadways and shall occur on site or within other off-street areas.	
Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?	No impact	No mitigation would be required.	No impact
Would the project have a cumulative effect on hazards or hazardous materials?	Potentially significant impact	**MM-HAZ-1** **MM-HAZ-2** **MM-HAZ-3** **MM-HAZ-4** **MM-HAZ-5** **MM-HAZ-6**	Less-than-significant impact with mitigation incorporated

Table 1-1. Summary of Facilities Master Plan Impacts

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance
Hydrology and Water Quality			
Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	Less than significant impact	No mitigation would be required.	Less-than-significant impact
Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	No impact	No mitigation would be required.	No impact
Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:			
a. result in substantial erosion or siltation on or off site;	No impact	No mitigation would be required.	No impact
b. substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or off site;	No impact	No mitigation would be required.	No impact
c. create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	No impact	No mitigation would be required.	No impact
d. impede or redirect flood flows?	Less-than-significant impact	No mitigation would be required.	Less-than-significant impact

Table 1-1. Summary of Facilities Master Plan Impacts

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance
In flood hazard, tsunami, or seiche zones, would the project risk release of pollutants due to project inundation?	Less-than-significant impact	No mitigation would be required.	Less-than-significant impact
Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	Less-than-significant impact	No mitigation would be required.	Less-than-significant impact
Would the project have a cumulative effect on hydrology or water quality resources?	Less-than-significant impact	No mitigation would be required.	Less-than-significant impact
Land Use and Planning			
Would the project physically divide an established community?	No impact	No mitigation would be required.	No impact
Would the project cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	Less-than-significant impact	No mitigation would be required.	Less-than-significant impact
Would the project have a cumulative effect on land use resources?	Less-than-significant impact	No mitigation would be required.	Less-than-significant impact
Mineral Resources			
Would the project 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?	No impact	No mitigation would be required.	No impact
Would the project 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?	No impact	No mitigation would be required.	No impact
Would the project have a cumulative effect on mineral resources?	No impact	No mitigation would be required.	No impact

Table 1-1. Summary of Facilities Master Plan Impacts

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance
Noise			
Would the project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	Potentially significant impact	**PDF-NOI-1:** To address construction noise impacts, the Orange County Sanitation District has a process in place as follows: A. Public outreach is conducted in communities that could be impacted by construction activities so that the public is aware of the work that must be conducted, where the work will occur, and the timing of the proposed work. B. At least five (5) days prior to the start of construction activities, the Sanitation District will notify the surrounding residents and businesses by mail or other means of distribution. For projects located outside of Plant 1 or Plant 2, the construction contractor will post signs in the project vicinity that identify the Orange County Sanitation District as the project owner and a general contract phone number. Sign location(s) will be identified with local jurisdiction approval. C. Once work begins, the contractor has the responsibility to address noise and vibration-related complaints. **MM-NOI-1:** For Facilities Master Plan (FMP) projects located within 500 feet of noise-sensitive receivers (residences, hotels and motels, educational institutions, libraries, hospitals, and clinics), the following measures shall be implemented: A. All mobile or fixed noise-producing equipment used on an FMP project that is regulated for noise output by a local, state, or federal agency shall comply with such regulation while in the course of program activity. B. Construction equipment shall be properly outfitted and maintained with manufacturer-recommended noise-reduction devices to minimize construction-generated noise. C. Electrically powered equipment shall be used instead of pneumatic or internal-combustion-powered equipment, where feasible.	Less-than-significant impact with mitigation incorporated

Table 1-1. Summary of Facilities Master Plan Impacts

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance
		D. Stationary noise sources such as generators or pumps shall be located at least 100 feet from noise-sensitive land uses as feasible. E. Material stockpiles and mobile equipment staging, parking, and maintenance areas shall be located as far as practicable from noise-sensitive receptors. F. Construction site and haul-road speed limits shall be established and enforced during the construction period. G. As feasible, the hours of construction, including noise-generating activities and all spoils and material transport, shall be restricted to the time periods and days permitted by the local noise or other applicable ordinances. As necessary, the Sanitation District shall coordinate with the applicable local jurisdiction regarding activities that are not consistent with local ordinances to avoid/minimize impacts. H. The use of noise-producing signals, including horns, whistles, alarms, and bells, shall be for safety warning purposes only. Additionally, pursuant to Occupational Safety and Health Act Sections 1926.601(b)(4) and 1926.602(a)(9), a device that uses broadband "white noise" instead of a single-tone alarm may be used if it is shown to be effective. I. The Orange County Sanitation District or its designees shall coordinate with local jurisdictions and sensitive receptors regarding the proposed FMP to address any potential project-specific noise-related issues prior to commencement of construction activities. J. Noise-reduction measures such as sound blankets or temporary sound walls shall be used to reduce noise from noise-generating equipment and activities during construction.	

Table 1-1. Summary of Facilities Master Plan Impacts

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance
Would the project result in generation of excessive groundborne vibration or groundborne noise levels?	Potentially significant impact	MM-NOI-1	Less-than-significant impact with mitigation incorporated
For a project located within the vicinity of a private airstrip or 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?	Less-than-significant impact	No mitigation would be required.	Less-than-significant impact
Would the project have a cumulative effect on noise resources?	Potentially significant impact	MM-NOI-1	Less-than-significant impact with mitigation incorporated
Population and Housing			
Would the project induce substantial unplanned 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)?	Less-than-significant impact	No mitigation would be required.	Less-than-significant impact
Would the project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	No impact	No mitigation would be required.	No impact
Would the project have a cumulative effect on housing and/or population resources?	Less-than-significant impact	No mitigation would be required.	Less-than-significant impact

Table 1-1. Summary of Facilities Master Plan Impacts

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance
Public Services			
Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:			
Fire protection?	Potentially significant impact	MM-TRA-1	Less-than-significant impact with mitigation incorporated
Police protection?	Potentially significant impact	MM-TRA-1	Less-than-significant impact with mitigation incorporated
Schools?	No impact	No mitigation would be required.	No impact
Parks?	No impact	No mitigation would be required.	No impact
Other public facilities?	No impact	No mitigation would be required.	No impact
Would the project have a cumulative effect on public services resources?	Potentially significant impact	MM-TRA-1	Less-than-significant impact with mitigation incorporated
Recreation			
Would the project 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?	No impact	No mitigation would be required.	No impact
Does the project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?	No impact	No mitigation would be required.	No impact
Would the project have a cumulative effect on recreation resources?	No impact	No mitigation would be required.	No impact

Table 1-1. Summary of Facilities Master Plan Impacts

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance
Transportation			
Would the project conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?	Less-than-significant impact	No mitigation would be required.	Less-than-significant impact
Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	Significant and unavoidable impact	No mitigation would be required.	Significant and unavoidable impact
Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	Potentially significant impact	**MM-TRA-1**	Less-than-significant impact with mitigation incorporated
Would the project result in inadequate emergency access?	Potentially significant impact	**MM-TRA-1**	Less-than-significant impact with mitigation incorporated
Would the project have a cumulative effect on transportation resources?	Potentially significant impact	**MM-TRA-1**	Less-than-significant impact with mitigation incorporated

Table 1-1. Summary of Facilities Master Plan Impacts

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance
Tribal Cultural Resources			
Would the project 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:			
a. 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)?	Potentially significant impact	**MM-CUL-3**	Less-than-significant impact with mitigation incorporated
b. 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 Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?	Potentially significant impact	**MM-CUL-3**	Less-than-significant impact with mitigation incorporated
Would the project have a cumulative effect on tribal cultural resources?	Potentially significant impact	**MM-CUL-3**	Less-than-significant impact with mitigation incorporated

Table 1-1. Summary of Facilities Master Plan Impacts

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance
Utilities and Service Systems			
Would the project require or result in the relocation or construction of new or expanded water, wastewater treatment, or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	Less-than-significant impact	No mitigation would be required.	Less-than-significant impact
Would the project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?	Less-than-significant impact	No mitigation would be required.	Less-than-significant impact
Would the project 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?	Less-than-significant impact	No mitigation would be required.	Less-than-significant impact
Would the project generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	Less-than-significant impact	No mitigation would be required.	Less-than-significant impact
Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	Less-than-significant impact	No mitigation would be required.	Less-than-significant impact
Would the project have a cumulative effect on utilities and/or service systems resources?	Less-than-significant impact	No mitigation would be required.	Less-than-significant impact

Table 1-1. Summary of Facilities Master Plan Impacts

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance
Wildfire			
Would the project substantially impair an adopted emergency response plan or emergency evacuation plan?	No impact	No mitigation would be required.	No impact
Due to slope, prevailing winds, and other factors, would the project exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	No impact	No mitigation would be required.	No impact
Would the project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	No impact	No mitigation would be required.	No impact
Would the project expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	No impact	No mitigation would be required.	No impact
Would the project have a cumulative effect on wildfire?	No impact	No mitigation would be required.	No impact

1.7 Alternatives to the Proposed Project

Section 15126.6(a) of the CEQA Guidelines states that an EIR shall describe "a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project," as well as provide an evaluation of "the comparative merits of the alternatives." Under CEQA Guidelines Section 15126.6(a), an EIR does not need to consider alternatives that are not feasible, nor need it address every conceivable alternative to the project. The range of alternatives "is governed by the 'rule of reason' that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice" (14 CCR 15126.6[f]).

Alternatives Considered but Rejected

The activities in the proposed FMP are small projects at specific locations with limited options for methods of construction. For this reason, identification of feasible alternatives for the proposed FMP was limited. As described in detail in Chapter 6, alternatives considered but rejected include the location and deferred maintenance alternatives.

Alternative Location

Only locations that would avoid or substantially lessen the significant effects of the project need be considered for inclusion in the EIR (14 CCR 15126.6[f][2][A]). The proposed FMP involves the maintenance, repair, and upkeep of an existing wastewater treatment and conveyance system, as well as projects to rehabilitate and replace facilities and infrastructure as needed during the 20-year planning period. The proposed FMP area in Orange County comprises the Sanitation District's treatment plants, pump stations, and collection system pipelines and appurtenant structures. Rehabilitation, replacement, and maintenance needs have been identified at specific locations associated with the existing wastewater treatment and conveyance system; thus, it would not be feasible to move the maintenance activities to another location. Therefore, relocating activities to other sites would not meet the proposed FMP's objectives. As a result, alternative locations were rejected and are not analyzed in detail in this PEIR.

Deferred Maintenance Alterative

A second alternative that was considered was a Deferred Maintenance Alternative, which would defer maintenance to future years. It would also focus on rehabilitation of facilities and equipment instead of replacement. While this may reduce environmental impacts in the short-term, it has great potential to increase them in the long-term. Deferred maintenance can increase the risk of pipeline rupture and leakage, resulting in impacts on downstream biological resources, geology and soils (erosion), and hydrology and water quality. Rehabilitation of equipment that really needs to be replaced also can cause increased impacts (air quality, noise, transportation) if greater numbers of trips are necessary to patch equipment when a replacement would have been more appropriate and cost effective.

Furthermore, the impacts in the above resource categories where significant impacts have been identified would not necessarily be avoided or substantially lessened by implementation of the Deferred Maintenance Alternative. The proposed FMP activities would still be implemented, and the resulting construction-related impacts would still occur. Therefore, the Deferred Maintenance Alternative does not meet the criteria for an alternative to avoid or substantially lessen any of the significant effects of the proposed FMP.

No Project Alternative

CEQA Guidelines Section 15126.6(e) requires that an EIR evaluate and analyze the impacts of the "No Project" Alternative, which reflects the "circumstances under which the Project does not proceed." The No Project Alternative in this case assumes that the existing wastewater treatment and conveyance system in Orange County would continue to operate without the implementation of the proposed FMP.

As discussed in Chapter 6, the No Project Alternative would have greater impacts in 12 resource areas: aesthetics, air quality, biological resources, cultural resources, energy, geology and soils, greenhouse gas (GHG) emissions, hazardous and hazardous materials, hydrology and water quality, noise, transportation, and tribal cultural resources. The No Project Alternative would have similar impacts in 3 resource areas: land use and planning, public services, and utilities and service systems. The adoption of the No Project Alternative would meet some of the FMP objectives identified by the Sanitation District for ongoing maintenance activities and meeting ever-evolving wastewater regulations, but it would not meet the objective to efficiently use the existing Sanitation District property, rights-of-way, and existing facilities. In addition, because the No Project Alternative would potentially result in increased impacts to aesthetics, air quality, biological resources, cultural resources, energy, geology and soils, GHG emissions, hazardous and hazardous materials, hydrology and water quality, noise, transportation, and tribal cultural resources, this alternative is environmentally inferior to the proposed FMP.

Reduced Project Alternative

The Reduced Project Alternative would have fewer impacts in 11 resource areas: air quality, biological resources, cultural resources, geology and soils, GHG emissions, hazardous and hazardous materials, hydrology and water quality, noise, public services, transportation, and tribal cultural resources. Additionally, the Reduced Project Alternative would have similar impacts in 4 resource areas: aesthetics, energy, land use and planning, and utilities and service systems. However, the Reduced Project Alternative would only partially meet all the objectives set by the Sanitation District. By not implementing the projects identified in Table 6.1 (Strategic Initiative Projects That Would Be Removed under the Reduced Project Alternative), the Reduced Project Alternative would remove the opportunity to install more energy-efficient structures and reduce construction timing efficiency, and would not optimally meet the goals set by the Sanitation District. Therefore, because the Reduced Project Alternative would only partially meet all of the FMP objectives identified by the Sanitation District, it is environmentally inferior to the proposed FMP.

Environmentally Superior Alternative

If an alternative is considered clearly superior to the proposed project relative to identified impacts, CEQA Guidelines Section 15126.6 requires that alternative to be identified as the environmentally superior alternative. By statute, if the environmentally superior alternative is the No Project Alternative, an EIR must also identify an environmentally superior alternative among the other alternatives. Two alternatives to the proposed project, other than the No Project Alternative and the Reduced Project Alternative, were considered; however, these alternatives were not further considered and analyzed for the reasons stated in Chapter 6 of this PEIR.

As previously discussed, the No Project Alternative would have greater impacts in 12 resource areas: aesthetics, air quality, biological resources, cultural resources, energy, geology and soils, GHG emissions, hazardous and hazardous materials, hydrology and water quality, noise, transportation, and tribal cultural resources, compared to the proposed project. The No Project Alternative would have similar impacts with regard to 3 resource areas: land use and planning, public services, and utilities and service systems. The Reduced Project Alternative would have

fewer impacts in 11 resource areas: air quality, biological resources, cultural resources, geology and soils, GHG emissions, hazardous and hazardous materials, hydrology and water quality, noise, public services, transportation, and tribal cultural resources, compared to the proposed project. Additionally, the Reduced Project Alternative would have similar impacts in 4 resource areas: aesthetics, energy, land use and planning, and utilities and service systems. Additionally, the Reduced Project Alternative would allow for maintenance of the existing wastewater treatment and conveyance system and associated infrastructure in a streamlined manner as compared to the No Project Alternative, which would implement projects only on an as-needed basis. However, the Reduced Project Alternative would only partially meet all the FMP objectives set by the Sanitation District. As previously discussed, by not implementing the Strategic Initiative Projects, the Reduced Project Alternative would remove the opportunity to install more energy-efficient structures, would reduce construction timing efficiency, and would not optimally meet the goals set by the Sanitation District. However, despite the Reduced Project Alternative only partially meeting the objectives set by the Sanitation District, the Reduced Project Alternative would remain environmentally superior compared to the No Project Alternative. Therefore, the Reduced Project Alternative is considered to be the environmentally superior alternative.

1.8 References

14 CCR 15000–15387 and Appendices A–N. Guidelines for Implementation of the California Environmental Quality Act, as amended.

Sanitation District (Orange County Sanitation District). 2017. *Orange County Sanitation District Wastewater Collection and Treatment Facilities Master Plan*.

2 Introduction

This program environmental impact report (PEIR) has been prepared by the Orange County Sanitation District (Sanitation District) in accordance with the California Environmental Quality Act (CEQA) and CEQA Guidelines (CEQA Guidelines) (California Public Resources Code, Sections 21000 et seq.; 14 CCR Sections 15000 et seq.) to examine and disclose the environmental impacts of implementing the Sanitation District's proposed 2017 Facilities Master Plan (FMP), as updated in 2019 by Sanitation District engineering staff. The proposed FMP is a Capital Improvement Program that establishes a framework for implementing a series of individual projects (FMP projects, or projects) to rehabilitate, replace, or improve existing infrastructure throughout the Sanitation District's service area. This chapter provides background on the Sanitation District and its existing collection and treatment system, as well as pertinent information relative to the Sanitation District's CEQA compliance process for implementing the FMP.

2.1 Sanitation District Background

2.1.1 Sanitation District History and Governance

The Sanitation District is a regional wastewater agency responsible for collecting, treating, disposing, and recycling wastewater from residential, commercial, and industrial sources within an approximately 479-square-mile service area in central and northwest Orange County that has more than 2.6 million residents and a 1.8-million-person employment population. The Sanitation District was formed in 1946 under the County Sanitation District Act, with the governance structure established by the California State Legislature. In 1954, County Sanitation District of Orange County began official operations and took over the Joint Outfall Sewer. In 1998, the County Sanitation District of Orange County became a consolidated agency, changing its name to Orange County Sanitation District to streamline its governance structure. The Board of Directors is currently composed of 25 members, including one representative from each of the 20 cities entirely or partially located within the service area, one from each of four special districts within the service area, and one from the Orange County Board of Supervisors. The following 20 cities are located within the Sanitation District's service area (see Figure 2-1, Project Location):

- Anaheim
- Brea
- Buena Park
- Cypress
- Fountain Valley
- Fullerton
- Garden Grove
- Huntington Beach
- Irvine
- La Habra
- La Palma
- Los Alamitos
- Newport Beach
- Orange
- Placentia
- Santa Ana
- Seal Beach
- Stanton
- Tustin
- Villa Park

The following Member Agency special districts are located within the Sanitation District's service area[1]:

- Costa Mesa Sanitary District
- Irvine Ranch Water District
- Midway City Sanitary District
- Yorba Linda Water District

[1] These special districts provide wastewater services in the Cities of Costa Mesa, Irvine, and Westminster.

2.1.2 Sanitation District System Overview

The Sanitation District operates and maintains a regional system of wastewater facilities that conveys sewage from local collection systems in its service area, which is composed of 20 cities, unincorporated areas, and 4 special districts, and divided into 11 sewer sheds. Sewage is conveyed from local collection systems operated by these cities and special districts through a Sanitation District trunk network featuring 389 miles of pipe, which carry effluent to two regional wastewater treatment plants: Reclamation Plant No. 1 (Plant 1) in Fountain Valley and Treatment Plant No. 2 (Plant 2) in Huntington Beach, which are 109 acres and 111 acres, respectively. The two treatment plants receive wastewater from 11 major trunk sewers supported by 15 sewage-pumping facilities. Figure 2-1 shows an overview of the Sanitation District's collection and treatment facilities.

In 2018, approximately 188 million gallons per day of influent was processed and treated at the Sanitation District's treatment plants. Once treated, effluent is either discharged through an ocean outfall system or routed to the Orange County Water District (OCWD) Groundwater Replenishment System (GWRS) facility, located adjacent to Plant 1, for groundwater replenishment. The Sanitation District's partnership with OCWD currently allows for the production of 100 million gallons of reclaimed water per day by the GWRS facility, which is the GWRS's current maximum capacity. In 2016, the Sanitation District and OCWD Board of Directors approved the final expansion of the GWRS, which will bring the total production of reclaimed water to 130 million gallons per day.[2] By supporting the GWRS Final Expansion, the Sanitation District will be able to recycle most of the wastewater generated in its service area, in lieu of discharging treated effluent through its ocean outfall system. Implementation of the projects identified in the FMP is necessary to ensure that existing Sanitation District infrastructure can continue to support its existing wastewater collection and treatment processes and accommodate the expanded GWRS operations that were approved in 2016.

2.1.3 Sanitation District Facilities Operations and Maintenance

The Sanitation District has a dedicated Operation and Maintenance Department with 284 full-time staff (Sanitation District 2019a) , whose mission it is to protect public health and the environment by providing reliable power, electrical and instrument maintenance, civil facilities and grounds maintenance, and mechanical maintenance to the treatment plants and associated pump stations. The Operation and Maintenance staff use best practices and technology to provide Collections, Plant Operations, and Sanitation District staff with electrical power, control systems, and environmental controls that are safe and online, and mechanical and facilities support to ensure reliability. Ongoing activities related to operation and maintenance of Sanitation District facilities include routine maintenance at the treatment plants, collection system and pump stations, cleaning of sewer lines and manholes, visual inspections of all facilities, closed-circuit television and camera inspection, flow monitoring, as-needed repairs, and chemical dosing for odor and corrosion control. Frequency of maintenance varies by facility and is based on information obtained from ongoing monitoring activities. Operation and maintenance activities generally require confined-space entry and can be completed with minimal disruption to surrounding areas.

Corrective maintenance includes repair or replacement of failed pumps; replacement of manhole covers; root cutting; and root foaming with herbicide. Additionally, chemicals such as magnesium hydroxide, hydrogen peroxide, sodium hydroxide, and ferrous chloride might be added directly to trunk sewers and at various facilities within Plant 1 and Plant 2, as needed to control odor and corrosion.

[2] OCWD, as lead agency pursuant to CEQA, prepared The GWRS Final Expansion Project Final Environmental Impact Report (EIR)/Environmental Impact Statement (EIS) in 1999. In the years since certification of the Final EIR/EIS, OCWD has prepared six addenda to the Final EIR, with the most recent being Addendum No. 6, prepared in August 2016.

2.2 Facilities Master Plan Background

In December 2017, the Sanitation District completed an FMP. The FMP is a Capital Improvement Program with an intended 20-year planning horizon and establishes a framework for implementing a series of individual projects throughout the Sanitation District's system to ensure the Sanitation District can sustain its infrastructure, meet future requirements, and continue to provide a reliable service to the public. The FMP does not increase capacity of the system related to population growth. Prior to the FMP's development, population growth is accounted for in the Sanitation District's planning process for capital improvements, which uses population projections from the Center for Demographic Research at California State University, Fullerton. "The early years for the Sanitation District were characterized mostly by capacity expansion to meet the challenges of increased flows as the county grew. The late 1970's to the 2000's were more defined by improved levels of treatment. The last ten years have been focused on increasing the level of resource reuse" (Sanitation District 2019b). The 2017 FMP identified 83 total projects necessary to upgrade, replace, and rehabilitate aging facilities across the Sanitation District's system, including facilities at Plant 1, Plant 2, the collection system, and improvements at various pump stations. In 2019, the Sanitation District identified additional projects to supplement the FMP, and other projects dropped out because they were cancelled or already assessed in other documents, bringing the total number of planned Capital Improvement Program projects to 75. In addition to identifying supplemental projects, the 2019 update extended the FMP planning horizon from 2037, as originally stated in the FMP, to 2040. The Sanitation District will soon begin implementing individual FMP projects, and has prepared this PEIR to analyze the program's impacts in compliance with CEQA.

FMP projects addressed in this PEIR would be implemented in the following three areas of the Sanitation District's system:

1. Facility improvements at Plant 1 in Fountain Valley
2. Facility improvements at Plant 2 in Huntington Beach (including the ocean outfalls and their support facilities)
3. Collection system improvements (i.e., pipeline, pump station, interplant, and lift station projects)

Sanitation District staff included projects in the FMP and 2019 update based on consideration of several factors, including the age and condition of existing facilities, projected wastewater flows, and established regulatory requirements. The projects are listed and described in Chapter 3, Project Description. Information about phasing and construction timing is provided in this PEIR as based on the Sanitation District's current planning schedule, but is likely to change based on subsequent planning and coordination with local agencies.

2.3 CEQA Introduction and Background Information

2.3.1 Purpose of the PEIR

CEQA requires examination and public disclosure of potential impacts on the environment for projects undertaken in the State of California involving a discretionary action of a public decision-making body, so that those decision makers can consider the impacts prior to approving or denying the project. Pursuant to CEQA Guidelines Section 15168, a PEIR is a type of EIR that examines and discloses impacts of a series of projects that can be characterized and evaluated as one large project or program because they are related to each other in any of the following ways:

- Geographically
- As logical parts in the chain of contemplated actions

- In connection with issuance of rules, regulations, plans, or other general criteria to govern the conduct of a continuing program
- As individual activities carried out under the same authorizing statutory or regulatory authority and having generally similar environmental effects that can be mitigated in similar ways

CEQA Guidelines Section 15168 identifies the following advantages to preparing a PEIR:

- 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
- Facilitate a reduction in paperwork

When preparing to implement an individual project or activity under the program covered in the FMP, the lead agency must consider whether the project falls within the scope of the PEIR, including confirmation that the project would not result in any new significant environmental impacts or require new mitigation measures beyond those identified in the PEIR. If the individual project or activity is deemed within the scope of the PEIR, the lead agency can proceed without preparing a subsequent CEQA document. If a later activity conducted under the program would have effects that were not examined in the PEIR, a new Initial Study would need to be prepared, leading to either a subsequent EIR, EIR addendum, or a negative declaration, which may tier from the PEIR to focus solely on the new environmental impacts and/or mitigation measures not captured in the PEIR (California Public Resources Code Section 21166; CEQA Guidelines Sections 15162 and 15168).

2.3.2 Scope of the PEIR

This PEIR has been prepared by Sanitation District staff to provide objective information to the Sanitation District Board of Directors and to the general public regarding potential environmental effects of implementing the overall FMP and individual projects composing the FMP. The Sanitation District deemed it appropriate to prepare a PEIR for implementation of the FMP because of the geographic relationship between the individual projects within the Sanitation District's service area, and because of the similarity of many projects' impacts, enabling programmatic analysis and identification of master mitigation measures that can be applied to many individual projects within the program.

For purposes of organizing the PEIR's disclosure and impact analysis of the FMP improvements program, this document addresses two broad categories of projects as they relate to CEQA compliance: (1) those that are analyzed for environmental impacts at the project level, and (2) those that are analyzed at the programmatic level. These distinctions are discussed below.

Project-level analysis is provided in this PEIR for near-term projects in the FMP that have progressed along the Sanitation District's planning process such that sufficient detail is available to analyze these projects at a project level with a more detailed impact analysis. The intent of the project-level analysis is to provide a sufficient level of CEQA review and disclosure to cover the projects as they arise for implementation, with no additional analysis and documentation needed unless there is a significant change in the project. Of the 75 FMP projects addressed in this PEIR, 30 are subject to project-level analysis.

Program-level analysis is incorporated for projects that are further out on the Sanitation District's implementation schedule and thus have not yet been subject to the same level of detailed planning as those identified for project-level analysis. Of the 75 FMP projects addressed in this PEIR, 45 are subject to program-level analysis. For these projects, the PEIR indicates the types of environmental impacts that may be involved based on such variables as location (e.g., existing road versus undeveloped area) and type of disturbance (e.g., trenching versus jack-and-bore). When these projects progress toward implementation and more details are available, Sanitation District staff would review them against the programmatic analysis presented in the PEIR to confirm appropriate coverage. December 2018 updates to CEQA Guidelines Section 15168 emphasize the utility of programmatic analysis in a PEIR, stating "whether a later project is within the scope of a PEIR is a factual question that the lead agency determines based on substantial evidence in the record." It is the Sanitation District's intent in preparing this PEIR to maximize CEQA coverage for later activities implemented pursuant to the FMP. However, if the Sanitation District deems it necessary, these later projects may require additional CEQA documentation, such as an EIR addendum pursuant to CEQA Guidelines Section 15164, or a subsequent EIR or mitigated negative declaration that tiers from this PEIR pursuant to CEQA Guidelines Section 15162.

Table 2-1 presents a breakdown of the number of FMP projects in the project-level and program-level categories, organized by those proposed for Plant 1, Plant 2, joint plant projects, and the Sanitation District's collection system.

Table 2-1. CEQA Analysis Categories

Project Area	Project-Level Analysis	Programmatic Analysis	Totals
Reclamation Plant No. 1 Projects	6	10	**16**
Treatment Plant No. 2 Projects	6	10	**16**
Joint Plant Projects[1]	8	—	**8**
Collection System	10	25	**35**
Totals	**30**	**45**	**75**

Notes: CEQA = California Environmental Quality Act.

[1] Joint plant projects propose improvements that involve facilities and/or operations occurring at both plants, and infrastructure that supports both plants.

Environmental impacts discussed in the PEIR are measured against the baseline physical conditions established at the time the Notice of Preparation (NOP) was released in July 2019, pursuant to CEQA Guidelines Section 15125(a). The NOP is discussed in Section 2.3.4, Notice of Preparation and Project Scoping.

At various times in the future, the Sanitation District may combine projects. If projects have been combined and renamed, this is noted in Chapter 3, Project Description.

2.3.3 Projects Covered Under Other CEQA Documents

As a regional planning program, the FMP has a broad reach, but it is not comprehensive of all future Sanitation District efforts; accordingly, this PEIR does not incorporate environmental impact analysis of all pending Sanitation District projects or filed Notices of Exemption. Several upcoming projects, such as the Sanitation District Headquarters Complex, Site and Security, and Entrance Realignment Program (Project No. 1-128) and several projects in the Sanitation District's collection and treatment system were covered by recent CEQA documents. They have been considered in the cumulative impact analysis in this PEIR, but they are not subject to reanalysis at the project or program level herein. These projects with prior CEQA coverage are listed below in Table 2-2, along with the details of their respective CEQA documents.

Table 2-2. Sanitation District Projects with Prior CEQA Coverage

Project Number	CEQA Document Title	Document	Certification/Adoption Date
5-67	Bay Bridge Pump Station	EIR	In progress
P1-128	Headquarter Complex	Addendum	April 2020
P1-105	Sanitation District Headworks Rehabilitation at Plant No. 1	MND	July 2019
PS15-01	Biosolids Master Plan	PEIR	June 2018
3-64	Rehabilitation of Western Regional Sewers	EIR	March 2017

Notes: CEQA = California Environmental Quality Act; EIR = environmental impact report; MND = mitigated negative declaration; PEIR = program environmental impact report.

2.3.4 Notice of Preparation and Project Scoping

In July 2019, the Sanitation District conducted a preliminary environmental review of the proposed FMP and prepared an Initial Study to document that review, in accordance with the requirements of CEQA Guidelines Section 15365. Based on the findings of the Initial Study, the Sanitation District determined that some environmental resource topics should be carried forward for analysis in an EIR. Pursuant to CEQA Guidelines Section 15082, the Sanitation District prepared an NOP, dated July 25, 2019, and circulated the NOP with the Initial Study to interested agencies, organizations, and individuals for a 30-day review period. The NOP offered interested parties an opportunity to review the FMP and Initial Study and respond with specific comments and/or questions regarding the scope and content of the PEIR, and provided notice of two public hearings held by the Sanitation District, one on August 12, 2019, and the other on August 15, 2019. The Initial Study and NOP were also sent to the State Clearinghouse at the California Governor's Office of Planning and Research. The State Clearinghouse number assigned to this PEIR is SCH No. 2019070998. The Initial Study and NOP are included as Appendix A of this PEIR.

The 30-day review period for the Initial Study and NOP began July 25, 2019, and ended August 23, 2019. During the review period, the Sanitation District received seven comment letters, including three from state agencies and four from local agencies, as listed below:

- California Department of Fish and Wildlife
- California Department of Transportation
- Native American Heritage Commission
- City of Fountain Valley
- City of Irvine
- Orange County Public Works Department
- South Coast Air Quality Management District

The Sanitation District considered all comments received related to the scope of the proposed FMP as this PEIR was prepared. All letters received during the public review period are included in Appendix B of this PEIR.

The Sanitation District held two public scoping meetings during the NOP review period, as referenced above. The meeting on August 12, 2019, was held in the Plant 1 Board Room in Fountain Valley, and the meeting on August 15, 2019, was held at the Plant 2 Conference Room No. 1 in Huntington Beach. Both meetings were open to Web-based participation through GoToWebinars established by the Sanitation District. During the scoping meetings, the Sanitation District did not receive any substantive comments on the scope of the PEIR.

2.3.5 Public Review of Draft PEIR and Final PEIR Preparation

This Draft PEIR will be made available to interested individuals, organizations, government representatives, and agencies for a 45-day review period, commencing September 2, 2020, and ending October 16, 2020. The Sanitation District provided notice of availability of the Draft PEIR with a Notice of Completion sent to the California Governor's Office of Planning and Research State Clearinghouse, by publication of an advertisement in the *Orange County Register* on September 2, 2020, and by direct notice to the parties included in the NOP distribution list. During the public review period, the Draft PEIR will be available for review electronically on the Sanitation District's website and a hard copy at the Sanitation District's Administration Building at 10844 Ellis Avenue in Fountain Valley by appointment.

Following the public review period, the Sanitation District will prepare a Final PEIR that will incorporate and respond to comments received during public review of the Draft PEIR. The Final PEIR will be made available to parties commenting on the Draft PEIR, and then will be sent to the Sanitation District Board of Directors for certification.

2.3.6 Uses of the PEIR

The Sanitation District, its member agencies, and other state and local agencies will rely on the environmental impact analysis presented in this PEIR when issuing discretionary approvals associated with implementing projects under this FMP. In addition to Sanitation District approvals to initiate FMP projects, approvals of other agencies that may be required for various projects in the program include the following:

- South Coast Air Quality Management District – Permit to Construct and Permit to Operate, Compliance with Rule 1403, handling of Asbestos Containing Materials
- County of Orange and U.S. Army Corp of Engineers – Permits to construct on properties owned by these agencies
- California Department of Public Health – Use Permit
- Regional Water Quality Control Board – Stormwater Pollution Prevention Plans (SWPPP) and General Construction Permit
- City of Huntington Beach and Newport Beach – Coastal Development Permit
- Local construction/encroachment permits for work outside Sanitation District rights-of-way in the following jurisdictions:
    - City of Fountain Valley
    - City of Huntington Beach
    - City of Seal Beach
    - City of Newport Beach
    - City of Costa Mesa
    - County of Orange
    - City of Fullerton
    - City of La Habra
    - City of Anaheim
    - City of Orange
    - City of Westminster
    - California Department of Transportation
    - City of Santa Ana
    - City of Tustin
    - City of Los Alamitos
    - City of Irvine
    - City of Buena Park
    - Orange County Transportation Authority

Because of their potential need to issue permits or approvals on individual FMP projects, the agencies and land use jurisdictions listed above are considered responsible agencies in this PEIR, pursuant to Section 21069 of the CEQA statute.

2.3.7 Areas of Known Controversy

Pursuant to CEQA Guidelines Section 15123(b)(2), a lead agency is required to identify known areas of controversy associated with the project covered in an EIR, including those raised by agencies and the public during the scoping process. The Sanitation District is unaware of any controversy related to the environmental impacts of program implementation, based on the NOP scoping period.

2.4 Consultation and Coordination

Member Agencies

The Sanitation District held a meeting with the City of Fountain Valley on September 25, 2019, pertaining to the city's NOP comment letter. The meeting was an opportunity to discuss the comments in more detail, which mostly pertained to projects not included in the FMP PEIR.

Other Organizations

Three Native American tribes were notified about the proposed FMP pursuant to California Assembly Bill 52. These include the Gabrieleño Band of Mission Indians, the San Gabriel Band of Mission Indians, and the Juaneño Band of Mission Indians/Acjachemen Nation. None of the tribes requested consultation on the proposed FMP.

2.5 Contents and Organization of the EIR

The PEIR is organized as shown in the paragraphs below. Note that a list of documents consulted during preparation of the PEIR is presented in a "References" section at the end of each chapter and at the ends of Sections 4.1 through 4.15.

Chapter 1, **Executive Summary**, presents a brief summary of the proposed FMP background and objectives, as well as a description of the proposed FMP activities. The chapter also includes a table summarizing (1) the level of significance for each potential impact in each resource category analyzed in the PEIR; (2) the proposed standard operating procedures to be implemented as part of the proposed FMP and mitigation measures proposed to reduce or avoid significant impacts; and (3) the level of impact significance following mitigation.

Chapter 2, **Introduction**, provides an overview of the proposed FMP, a brief summary of CEQA and the PEIR process, and a discussion of the preparation and distribution of the Initial Study and NOP. This chapter also presents the contents and organization of the PEIR.

Chapter 3, **Project Description**, provides a thorough description of the proposed FMP activities addressed in the PEIR.

Chapter 4, **Environmental Analysis (Introduction)**, includes a summary of the overall approach to the analysis of each resource category and the identification of potentially significant impacts, as well as an overview of the organization of each of the resource sections.

Sections 4.1 through 4.15 provide analysis of the potentially significant environmental impacts identified for the proposed FMP, as well as proposed standard operations procedures and/or mitigation measures to reduce or avoid any potentially significant impacts for each of the resource categories discussed. Each resource category section in Chapter 4 includes a discussion of the context for the proposed FMP, regulatory framework, thresholds of significance and the impact thresholds identified in the Initial Study to be carried forward for analysis in the PEIR, existing conditions, and standard operating procedures for that particular resource, all of which precede analysis of potential impacts from the proposed FMP and any mitigation measures necessary to reduce potentially significant impacts.

The following resource categories are discussed in Chapter 4 of this PEIR:

- Section 4.1, Aesthetics
- Section 4.2, Air Quality
- Section 4.3, Biological Resources
- Section 4.4, Cultural Resources
- Section 4.5, Energy
- Section 4.6, Geology and Soils
- Section 4.7, Greenhouse Gas Emissions
- Section 4.8, Hazards and Hazardous Materials
- Section 4.9, Hydrology and Water Quality
- Section 4.10, Land Use and Planning
- Section 4.11, Noise
- Section 4.12, Public Services
- Section 4.13, Transportation
- Section 4.14, Tribal Cultural Resources
- Section 4.15, Utilities and Service Systems

Based on the results of the Initial Study, impacts for all significance thresholds were determined to be less than significant for the resource categories of agriculture and forestry resources, mineral resources, and population and housing. The impact analysis for these resources is included in the 2019 Initial Study (provided in Appendix A) and these topics are not further addressed in this PEIR.

Chapter 5, **Other CEQA Considerations**, includes a discussion of significant environmental impacts that cannot be avoided and significant irreversible environmental changes that would result from implementation of the proposed FMP. The impacts found not to be significant, as well as growth-inducing impacts associated with the proposed FMP, are also discussed in Chapter 5.

Chapter 6, **Alternatives**, includes a description of a No Program/Existing Maintenance Approach Alternative (the "No Project" Alternative) and a Reduced Project Alternative. The chapter provides a brief analysis of impacts associated with each alternative compared to the proposed FMP, as well as a determination of the environmentally superior alternative.

Chapter 7, **List of Preparers**, lists the personnel and organizations involved in preparation of the PEIR.

Appendices include various technical studies and other related documents prepared for the proposed FMP, as listed below:Appendix A – NOP/Initial StudyAppendix B – NOP Comment Letters

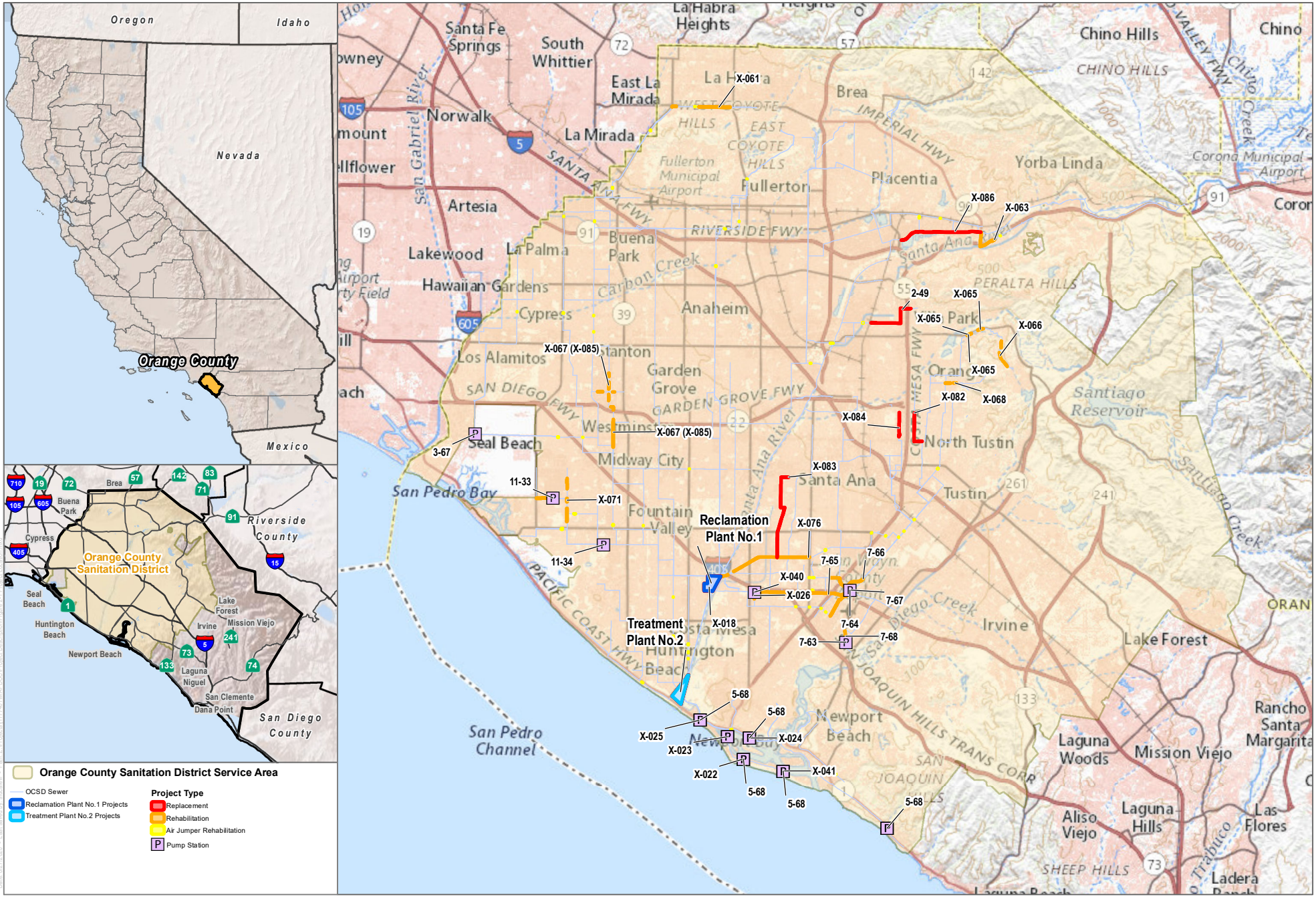
- Appendix C – Projects by Member Agency
- Appendix D – Air Quality, GHG, and Energy Emission Calculations
- Appendix E – Biological Resources Data
- Appendix F – Cultural Resources Records Searches
- Appendix G – Hazardous Materials Memorandums

- Appendix H – Paleontological Resources Records Search Results
- Appendix I – Transportation
- Appendix J – Noise
- Appendix K – Glossary
- Appendix L – Hydrology and Water Quality

2.6 References

Sanitation District (Orange County Sanitation District). 2019a. *Budget Update Fiscal Year 2019–20.* Adopted June 26, 2019.

Sanitation District. 2019b. *Orange County Sanitation District Strategic Plan.* November 2019. Accessed June 23, 2020. https://www.ocsd.com/services/strategic-planning.



SOURCE: USGS National Map 2020

DUDEK

0 2.5 5 Miles

FIGURE 2-1

Project Location

Sanitation District Facilities Master Plan PEIR

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3 Project Description

3.1 Introduction

This chapter of the program environmental impact report (PEIR) provides a complete description of the Orange County Sanitation District (Sanitation District) Facilities Master Plan (FMP) (proposed FMP) and its constituent elements, as required by Section 15124 of the California Environmental Quality Act (CEQA) Guidelines[1] (CEQA Guidelines). Details are provided regarding likely construction activities associated with various elements of the FMP, along with information on the Sanitation District's anticipated implementation phasing schedule.

3.2 Facilities Master Plan Objectives

Section 15124 of the CEQA Guidelines requires an environmental impact report's (EIR's) project description to include a statement of the project's objectives. The objectives noted below will help the Sanitation District evaluate the proposed FMP and its environmental impacts, and aid in its consideration of potential alternatives, as described in Chapter 6. The objectives of the FMP are as follows:

1. Maintain the Sanitation District's wastewater conveyance and treatment system in optimal condition for full functionality.
2. Safely extend the service life of existing Sanitation District facilities.
3. Meet existing and projected demands for wastewater conveyance and treatment in the Sanitation District's service area.
4. Ensure the Sanitation District can accommodate the expanded Groundwater Replenishment System operations approved in 2016.
5. Maximize efficient use of existing Sanitation District property, right-of-way, and existing facilities.
6. Provide operational redundancy where needed to prevent service outages.
7. Minimize disruption in service as projects are implemented.
8. Comply with existing regulations governing wastewater treatment and disposal.

3.3 Project Location

3.3.1 Sanitation District Service Area

The FMP projects addressed in this PEIR would be located at various sites throughout the Sanitation District's service area, which covers an approximately 479-square-mile area within the northwestern and central portions of Orange County. The boundaries of the Sanitation District's service area relative to the county boundaries are shown in Figure 2-1, Project Location. The service area includes the entirety or portions of municipal boundaries for 20 cities, as well as unincorporated land and 4 special districts (see Section 2.1.1, Sanitation District History and Governance). Project components are located at the sites of existing Sanitation District facilities, and work primarily would be limited to existing Sanitation District easements. Some construction activity and staging would occur outside Sanitation District easements, in the land use jurisdiction of the various municipalities listed in

[1] The CEQA Guidelines are set forth in Title 14, California Code of Regulations, Sections 15000 et sq.,

Section 2.1.1 and on unincorporated land within Orange County. Each chapter of the EIR contains a regulatory section entitled "Relevant Plans, Policies and Ordinances." The policies of the Cities of Fountain Valley, Huntington Beach, and Newport Beach are discussed in detail as this is where Reclamation Plant No. 1 (Plant 1). Treatment Plant No. 2 (Plant 2), and a number of pump stations are located, respectively. If other jurisdictions have special ordinances that bear mentioning—for example, if there is a Climate Action Plan or viewshed policy that pertains to the analysis—those are called out as applicable.

3.3.2 Reclamation Plant No. 1

The proposed FMP includes 16 projects that would be implemented within the boundaries of the existing Plant 1, including 8 joint plant projects located at both Plant 1 and Plant 2. Plant 1, whose site plan is shown on Figure 3-1, Reclamation Plant No. 1, is located on an approximately 109-acre property owned by the Sanitation District at 10844 Ellis Avenue, in the southeastern portion of the City of Fountain Valley, just south of Interstate (I) 405. The Plant 1 site is bounded by Ellis Avenue on the north, the Santa Ana River channel on the southeast, Garfield Avenue on the south, and Ward Street and Orange County Water District facilities on the west, including the Groundwater Replenishment System. The Plant 1 site is flat and is fully developed with existing facilities related to various aspects of the wastewater treatment process, Sanitation District offices, and internal access roads. The site is surrounded by commercial/industrial development to the north, residential development to the east across the Santa Ana River channel, and additional residential development farther west of the Orange County Water District facilities. Plant 1 is located 4 miles upstream from Plant 2, and receives flow from the eastern, some western, and inland parts of the Sanitation District's service area. The City of Fountain Valley General Plan identifies Plant 1 as being in the Sanitation District Specific Plan, and the zoning designation is SP for Specific Plan (City of Fountain Valley 1995).

3.3.3 Treatment Plant No. 2

The proposed FMP includes 17 projects that would be implemented within the boundaries of the existing Plant 2, including the 8 joint plant projects located at both Plant 1 and Plant 2. Plant 2, whose site plan is shown on Figure 3-2, Treatment Plant No. 2, is located on an approximately 111-acre property owned by the Sanitation District at 22212 Brookhurst Street, in the southernmost part of the City of Huntington Beach, and adjacent to Huntington State Beach. The triangular Plant 2 site is bounded by Brookhurst Street on the west, the Santa Ana River channel on the east, and a lagoon on the south where Talbert Channel discharges into the Pacific Ocean. The Plant 2 site is flat and is fully developed with existing facilities related to various aspects of the wastewater treatment and disposal process, Sanitation District offices, and internal access roads. Residential development is located west and north of the site across Brookhurst Street. Talbert Regional Park and Banning Ranch are located east of the site across the Santa Ana River channel. The City of Huntington Beach General Plan designates Plant 2 as Public (P) land use and zoned for Industrial Limited (IL) and Residential Agriculture with an Oil Overlay (RA-O) (City of Huntington Beach 2015). The site is also located within the City of Huntington Beach's Coastal Zone and is subject to the City's Local Coastal Program.

3.3.4 Collection System

The remaining 40 FMP projects are located throughout the Sanitation District's collection system (e.g., pipelines, pump stations, and lift stations), the components of which are dispersed throughout the Sanitation District's service area. Because of the disparate nature of the Sanitation District's service area, the FMP projects are situated within a diversity of settings that reflect the range of land uses occurring in Orange County. Most facilities are located in existing roads and Sanitation District rights-of-way traversing developed areas, including residential, commercial, and industrial uses. Certain facilities also sit adjacent to public uses such as schools and parks, and some are near small areas of open space.

3.3.5 Glossary

A glossary of terms can be found in Appendix K.

3.4 Project Components

3.4.1 Program Overview

As discussed in Section 2.2, Program Background, the 2017 FMP (Sanitation District 2017) and 2019 update present a series of approximately 83 Capital Improvement Program projects proposed to be implemented by the Sanitation District through 2040 to rehabilitate, replace, and optimize their existing facilities in continued service to residents and businesses within their service area. The content in this PEIR project description is based on review of the 2017 FMP and additional information and clarification provided in communication with Sanitation District representatives (Hadden, pers. comm. 2019; Nazaroff, pers. comm. 2019). Some projects were cancelled and others were already included in other CEQA documents. FMP projects addressed in this PEIR would be implemented in the following areas of the Sanitation District system:

1. Facility improvements at Plant 1 in Fountain Valley (16 projects)
2. Facility improvements at Plant 2 in Huntington Beach (16 projects)
3. Joint plant improvements at Plant 1 and Plant 2 (8 projects)
4. Collection system improvements (i.e., pipeline, pump station, interplant, and lift station projects) (35 projects)

The FMP projects are listed and described in the following subsections and organized into the four above-listed categories. Within these categories, projects are further organized by the two (2) categories pertaining to their CEQA coverage in this PEIR, as described in Section 2.3.2, Scope of the PEIR, meaning whether it is addressed at the project or program level.

Projects are also identified in these sections as falling into one of the following three categories, indicating the type of work being performed relative to existing Sanitation District infrastructure:

- **Replacement projects** are those for which the primary purpose is to replace an existing facility, meaning all existing components and infrastructure in the subject facility would be replaced with new components and infrastructure. Examples of this would be trench-based replacement of an existing pipeline segment, replacement of an existing pump station, or replacement of an existing facility at one of the plants.
- **Rehabilitation projects** are those for which the primary purpose is to improve existing facilities without complete replacement. Examples of this would include extending the service life of an existing pipeline by the cured-in-place pipe (CIPP) method, which entails installing material to line the interior of the pipe without the need for trench-based replacement, or refurbishing aging equipment at a pump station or treatment plant.
- **Miscellaneous projects** are other projects that are not easily defined as replacement or rehabilitation projects. Examples include installation of new infrastructure at existing facilities, abandonment of existing facilities, electrical upgrades, and projects that combine different categories of work.

Each of the following subsections begins with a summary table listing all the FMP projects proposed under the respective main category. The table lists the alphanumeric Sanitation District project identifier; the project name; whether the project is a replacement, rehabilitation, or miscellaneous project; and the projected construction schedule. Each project is organized according to its category of CEQA coverage in this PEIR (project-level analysis or program-level analysis). The tables also present information on estimated construction timing based on the Sanitation District's current planning schedule. Construction dates shown in the tables are the best information available to Sanitation District staff at the time the PEIR was prepared, and are likely to change as time goes on. Following the introduction and summary table in each subsection are descriptions of each project organized by the project categories of replacement, rehabilitation, and miscellaneous projects.

Because the projects addressed in this FMP are dispersed across the wide range of the Sanitation District's service area, the Sanitation District staff acknowledges that representatives of the agency's constituent jurisdictions and members of the public alike may be interested in focusing on projects within a particular area. Appendix C provides a table specific to each jurisdiction, listing only those projects contained within the respective jurisdictions' boundaries.

As a result of a resiliency study conducted by the Sanitation District, all critical facilities at Plants 1 and 2 will be elevated above the Federal Emergency Management Agency 100-year flood projection levels for 2050 and 2070.

3.4.2 Plant 1 Improvements

Table 3-1 lists the FMP projects proposed at Plant 1, not including the joint plant projects, which are presented in Section 3.4.4, Joint Plant Improvements.

Table 3-1. Plant 1 Project Summary

Project Number	Project Name	Project Type	Construction Start (Month Year)	Construction End (Month Year)
Project-Level Analysis				
P1-126	Primary Clarifiers Replacements and Improvements	Replace	Jun 2024	Mar 2029
X-093	Administrative Facilities and Power Building 3A Demolition	Misc. (Demo)	Nov 2025	Dec 2026
X-092	Standby Generator Feeders for Plant 1 Secondary Systems	Misc.	Aug 2026	Feb 2028
X-048	Activated Sludge (AS)-1 Aeration Basin and Blower Rehabilitation	Rehab	Apr 2027	Mar 2031
P1-135	Digester Ferric Piping Replacement	Replace	Apr 2023	Apr 2025
X-077	Switchgear Replacement at Central Generation	Replace	Apr 2025	Dec 2026
X-090	Network, Telecommunications, and Service Relocation at Plant 1	Misc.	2024	2025
Program-Level Analysis				
X-017	Primary Clarifiers 6–37	Rehab	Mar 2029	Mar-2033
X-038	City Water Pump Station Rehabilitation	Rehab	Oct 2031	Dec 2032
P1-127	Central Generation Rehabilitation	Rehab	Nov 2031	Dec 2034
X-049	Activated Sludge (AS)-1 Clarifier and RAS Pump Station Rehabilitation	Rehab	Oct 2032	Dec 2035
X-015	Trickling Filters Rehabilitation	Rehab	Apr 2034	Jun 2037
X-006	Waste Side-Stream Pump Station 1 Upgrade	Rehab	Nov 2035	Nov 2037

Table 3-1. Plant 1 Project Summary

Project Number	Project Name	Project Type	Construction Start (Month Year)	Construction End (Month Year)
X-079	Primary Scrubber Rehabilitation	Rehab	May 2036	May 2039
X-039	Plant Water Pump Station Rehabilitation	Rehab	Oct 2036	Dec 2037
X-018	Activated Sludge (AS) 2 Rehabilitation	Rehab	Apr 2037	Dec 2040
X-043	DAFT Demolition	Misc. (Demo)	Apr 2032	Dec 2032

Notes: RAS = return activated sludge; DAFT = dissolved air flotation thickeners.

Projects Subject to Project-Level Analysis

Primary Clarifiers 1 through 5 Replacements and Improvements (P1-126)

Plant 1 features a series of 31 primary clarifiers (PCs), which are large tanks used for removing suspended solids in the primary wastewater treatment process, after grit removal is performed in preliminary treatment. PCs 1 through 5 are located east of PCs 6 through 31, in the northern portion of Plant 1. PCs 1 and 2 (installed in 1986) are housed in a single rectangular structure, while PCs 3 through 5 (installed in 1956 and 1963) are a series of individual circular tanks. Site inspection identified varying levels of deterioration due to corrosion and wear, and the PCs have reached the end of their useful life.

Project P1-126 would demolish PCs 1 and 2 and rehabilitate or replace PCs 3 through 5 to extend the operational life of this aged component of Plant 1's primary treatment. PCs 3 through 5 are still needed during peak storm events due to capacity needs, but PCs 1 and 2 would be taken out of service and demolished. Rehabilitation/replacement would be performed on all primary influent and effluent pipelines, distribution boxes, junction boxes, and all structural, mechanical, instrumentation and controls, and electrical systems. In addition, replacing PCs 3 through 5 at a higher elevation would allow gravity flow to secondary treatment, eliminating the need for pumping through the Primary Effluent Pump Station (PEPS), as performed under the current configuration.

Administrative Facilities and Power Building 3A Demolition (X-093)

Project X-093 would construct a small building to house the Sanitation District's communications and data server, which is currently contained in the Administration Building. It would also demolish the 42,000-square-foot Administration Building, the 4,238-square-foot Human Resources Building, the 5,929-square-foot Power Building 3A, and associated utilities. The Administration Building and Human Resources Building are located near Plant 1's northern boundary, off Ellis Avenue, and Power Building 3A is located southeast of the two other buildings.

Standby Generator Feeders (X-092)

Project X-092 would tie into the headworks standby power system, four 2,500-kilowatt diesel standby generators along with associated electrical distribution equipment to support the headworks, and life safety and critical equipment at the secondary process areas to support Activated Sludge (AS)-1, AS-2, and Truck Loading Facility critical life safety equipment, and Plant Water Pump Station.

Project X-092 would demolish the existing diesel standby generators, diesel fuel storage tanks, associated cables, conduits, bus ducts, conductors, piping, generator switchgear, and other equipment at Blower Building 1 and Power Building 2. The project would provide new feeders and transformers to refeed standby power loads at Blower Building 1 and Power Building 2.

Blower Building 1

- Demolish the two existing 800-kilowatt diesel generators and diesel fuel storage tank, along with all associated cables, conduits, piping, and other related equipment at Blower Building 1.
- Existing switchgear "TG" would remain in place.
- Provide new transformers from the new Headworks Standby Power Distribution System to refeed Blower Building 1 standby loads.

Power Building 2

- Demolish existing 1,000-kilowatt diesel generator, generator switchgear, above-grade diesel fuel storage tank, bus duct, and all associated cables, conduits, piping, and other related equipment at Power Building 2.
- Provide new transformers from the new Headworks Standby Power Distribution System to refeed Power Building 2 standby loads.

Activated Sludge-1 Aeration Basin and Blower Rehabilitation (X-048)

The AS-1 at Plant 1 was originally constructed in 1973 under project P1-16, and a major rehabilitation completed under project P1-82 in 2005. Multiple components of AS-1 will reach the end of useful life and will require replacement or rehabilitation. Project X-048 would extend service life of AS-1 and remove the PEPS. Addition of Mixed Liquor Return pumps and associated piping would be added in order to convert AS-1 from a partial denitrification process to a full denitrification process. The project would involve the following:

Major Demolition

- Demolish all associated mechanical and electrical equipment of PEPS.
- Demolish turbine (backup generator), switchgear, and associated equipment.

Major Component Rehabilitation

- Blower Building: Replace all blowers and air handling unit. Replacement of associated variable frequency drives (VFDs), programmable logic controllers (PLCs), motor control centers (MCCs), transformers, and switchgears in power building.
- Aeration Basins: Rehabilitation of aeration basins, air piping, mixers, diffusers, and drains. Replacement of manual gates with automated gates. Structural rehabilitation of basins, precast covers, and roof deck. Addition of more controls to allow for dissolved oxygen control and ammonia level control. Rehabilitation of return activated sludge splitter box.
- Piping: Major rehabilitation of all mechanical piping through aeration basins. This project will demolish piping from PEPS to the aeration basin splitter box.

Digester Ferric Piping Replacement (P1-135)

Project P1-135 would replace existing digester ferric chloride piping and associated valves and appurtenances in order to increase operating reliability between the Headworks Rehabilitation at Plant 1 Project boundary, located in the northeastern portion of Plant 1, to its point of connection with the Plant 1 digesters on the east side of the plant. Lead paint is present and pipes and appurtenances would need to be properly handled and disposed of. Existing 0.5-inch pipes would be replaced with 1-inch pipes for all digesters (one digester at a time). The 1.5-inch Supply Lines A and B would be replaced in kind. The 0.5-inch ball valves would be replaced with 1-inch ball valves during digester cleanups, or as part of the project if the digester is being cleaned. Both ferric chloride facilities, digester, and chemically enhanced primary treatment facilities would be relocated within the boundary of the headworks area under the Headworks Rehabilitation Project at Plant 1. This project would be closely coordinated with the Headworks Rehabilitation Project.

Switchgear Replacement at Central Generation (X-077)

Project X-077 would replace the existing switchgear at Plant 1 Central Power Generation (Cen Gen) facility, which is described as part of project P1-127.

Network, Telecommunications, and Server Relocation at Plant 1 (X-090)

This project would involve building a 200-square-foot utility building to house Sanitation District network, telecommunications, and servers. This new building would be in the vicinity of the Administrative Building location. The project is anticipated to start in 2024.

Projects Subject to Programmatic Analysis

Primary Clarifiers 6 through 31 (X-017)

This project will rehabilitate Plant 1 PCs 6 through 31, mechanical equipment, process piping, associated electrical, associated instrumentation and controls, and components to maintain reliable serviceability and extend useful life. PCs 6 through 31 are rectangular tanks located in a single enclosed rectangular structure of approximately 292,500 square feet, located in the northwestern portion of Plant 1. PCs 6 through 15 were installed in 1992, and PCs 16 through 31 were installed in 2007. The project would involve the following:

- Major Mechanical Rehabilitation of PCs 6 through 15: Would include all gates, primary effluent valves, sludge pumps and piping, scum pumps and piping, channel air blowers, all utilities, sump pumps, and structural rehabilitation.
- Partial Mechanical Rehabilitation of PCs 16 through 31 Eastside: Would include scum pumps and piping, all utilities, sump pumps, and structural rehabilitation.
- Partial Mechanical Rehabilitation of PCs 16 through 31 Westside: Would include sludge pumps and piping, scum pumps and piping, all utilities, sump pumps, and structural rehabilitation.
- Rehabilitate Polymer Facilities (nearby the rectangular basins): Would include pumps, mechanical, electrical, instrumentation, tanks, and concrete containment.

City Water Pump Station Rehabilitation (X-038)

The City Water Pump Station is located in the northeastern corner of Plant 1, adjacent to the Santa Ana River channel. The facility was built in 1992 to pump potable water from the City of Fountain Valley distribution system into Plant 1. By 2032, the pump station will be 40 years old and will need a complete mechanical rehabilitation to extend its useful life and meet fire department water-flow demands. A capacity-testing study would be conducted to identify all needs, but the project is anticipated to entail replacement of all existing pumps (two 125-horsepower [hp], three 30 hp, and two 10 hp pumps). Rehabilitation or replacement would be performed for air break tanks, the hydropneumatic tank, and surge arrestor. All valves, piping, controls, and electrical components would be replaced. Concrete repair and structural upgrades would also be performed as part of this project.

Central Generation Rehabilitation (P1-127)

The Plant 1 Cen Gen facility is located in the plant's northern area, southeast of PCs 1 through 5. It is one of three power supply sources providing electricity for process equipment and other uses throughout the plant. Plant 1 has dedicated engine generators that operate on digester gas/natural gas. Digester gas produced in Plant 1 digesters is compressed, dried, and used as fuel in engine generators at the Cen Gen facility to produce electric power. Digester gas is compressed and dried by running chilled water from the absorption chillers through a digester gas-to-chilled-water heat exchanger. A refrigerant dryer is available for backup.

Project P1-127 would rehabilitate the Cen Gen facility equipment that has approached the end of its useful life and improve any components in the facility that are necessary to operate as designed and continue being a reliable power source for Plant 1. Rehabilitation work would be performed on the lube oil system; the engine jacket water loop; steam loop; hot water loop; waste/supplement heat system; chilled water loop; cooling water loop; heating, ventilating, and air conditioning system; starting air and instrumentation air systems; exhaust gas monitoring system; miscellaneous building improvements; associated equipment; and allowance for electrical and instrumentation and control improvements. Concrete repair and structural upgrades would also be performed as part of this project.

Activated Sludge-1 Clarifier and Return Activated Sludge Pump Station Rehabilitation (X-049)

The AS-1 secondary clarifiers are located south of the AS-1 aeration basins discussed as part of project X-048. The return activated sludge pump station, which moves effluent between the AS-1 aeration basins and the secondary clarifiers, is located adjacent to the clarifiers on the north.

This project would extend the service life of the AS-1 secondary clarifiers and return activated sludge pump station. The project would involve the following:

- Secondary Clarifier Structural: Concrete repairs to internal walls of secondary clarifiers for spalling and cracking.
- Secondary Clarifier Mechanical: Replacement of clarifier collector mechanisms, inlet gates, and waste activated sludge pumps. Replacement of plant water spray system.
- Electrical replacement, including demolition and replacement of existing transformer, replacement of low-voltage switchgear and MCCs, instrumentation and controls replacement, and upgrade of general lighting.
- Return Activated Sludge Pump Station: Replacement of existing return activated sludge pumps, valves, piping for suction and discharge, and all existing return activated sludge pump station electrical, instrumentation, and control. Structure would be replaced/rehabilitated.

Trickling Filters Rehabilitation (X-015)

Plant 1 has a series of two trickling filters located north of the AS-1 basins. The trickling filters are large, uncovered cylindrical tanks that remove organic matter during secondary treatment. They were constructed in 2006 and are anticipated to require rehabilitation by 2037 to extend their useful life and to address some existing unanticipated operational deficiencies.

This project would rehabilitate the trickling filter and secondary clarifiers to extend their useful life. This would involve the following:

- Structural rehabilitation of trickling filters, secondary clarifiers, Trickling Filter Pump Station, and Sludge Pump Station to repair leaks and cracks.
- Major mechanical rehabilitation: Replace distributor drives on trickling filter with new drives that include speed control and have better accessibility to lip seals. Replacement of trickling filter media that is used in the treatment process. Replacement of entire ventilation and associated odor control system. Replacement of collector system on clarifiers. Replacement of Trickling Filter Pump Station pumps. Replacement of sludge pumps in the Sludge Pump Station. Replacement of valves/gates on all major junction boxes.
- Civil Piping: Rehabilitation of all piping from trickling filters through secondary clarifiers.
- Electrical and Instrumentation and Control: Rehabilitation/replacement of all associated utilities, generator, and switchgears. Upgrade of process area and emergency lighting.

Waste Side-stream Pump Station 1 Upgrade (X-006)

Various waste streams, including process flows, building drains, process basin drains, and stormwater runoff are collected at Plant 1 Waste Side-stream Pump Station 1, located north of PCs 6 through 31 and pumped back into the on-site treatment system. This project would rehabilitate the Waste Side-stream Pump Station 1. This would include repairing the roof deck, adding spray-applied epoxy coating to wet well, and addressing other concrete repairs that will include structural upgrades. Aged equipment to be replaced/rehabilitated under this project includes: pumps, motors, knife gate valves, wet well discharge gate, 24-inch discharge header, overflow bypass pipeline, isolation valves, MCC, associated electrical, associated instrumentation and controls, and VFDs. This project would increase capacity and redundancy at Waste Side-stream Pump Station 1, replace existing feeders, and provide a redundant feed.

Primary Scrubber Rehabilitation (X-079)

This project would replace PC odor-control facilities with new technology, and rehabilitate foul air ducts from PCs 6 through 31 to the new odor control facility. The existing scrubber facility, located west of PCs 1 through 5, would be demolished and replaced by a new facility directly to the west or nearby. This project may be added to project P1-126 (Primary Clarifier Replacement and Improvement at Plant 1) or project X-015 (Trickling Filters Rehabilitation at Plant 1).

Plant Water Pump Station Rehabilitation (X-039)

This project would entail full mechanical rehabilitation of all four pumps (the three that were installed under project P1-34-2 and one that was installed as part of project J-109) at the Plant Water Pump Station, which pumps reclaimed water from secondary treatment for process use elsewhere in the plant. The existing facility is located at the southeastern edge of Plant 1, immediately east of the AS-1 secondary clarifiers. The project would also include the replacement of all valves, piping, and controls associated with the Plant Water Pump Station. It would replace

all electrical and control equipment and instrumentation due to obsolescence/standard compliance. Concrete repair and structural upgrades would also be performed as part of this project.

Activated Sludge 2 Rehabilitation (X-018)

The AS-2 facility is located on the western side of Plant 1, west of AS-1. The facility includes six rectangular aeration basins and six circular open-air secondary clarifiers. The facility was constructed in 2012, and its major process areas should be rehabilitated every 25 years to extend the expected life and increase reliability. The project would replace and/or repair the mechanical and electrical equipment within the AS-2 facility. Concrete repair and structural upgrades would also be performed as part of this project.

Dissolved Air Flotation Thickener Demolition (X-043)

Project X-043 would demolish the existing six dissolved air flotation thickener units, which are located on the eastern edge of Plant 1, immediately east of the AS-1 secondary clarifiers. The electrical room and the lab situated between the dissolved air flotation thickener units are intended to be left in place.

3.4.3 Plant 2 Improvements

Table 3-2 lists the FMP projects proposed at Plant 2, not including the joint plant projects, which are presented in Section 3.4.4.

Table 3-2. Plant 2 Project Summary

Project Number	Project Name	Project Type	Construction Start (Month Year)	Construction End (Month Year)
Project-Level Analysis				
P2-126	Substation and Warehouse Replacement at Plant 2	Misc.	Dec 2023	Nov 2027
P2-138	Operations and Maintenance Complex at Plant 2	Replace	2021	2022
X-050	Activated Sludge (AS) Aeration Basin	Rehab	Oct 2024	Dec 2027
X-032	Truck Loading Facility Rehabilitation	Rehab	Oct 2026	Dec 2028
X-054	Waste Side-Stream Pump Station C Rehabilitation	Rehab	Oct 2026	Dec 2027
X-034	Sodium Bisulfite Station Replacement and Bleach Station Demolition	Replace	May 2027	Jan 2028
Program-Level Analysis				
X-007	Waste Side-stream Pump Station 2A Upgrade	Rehab	May 2031	Nov 2032
P2-119	Central Generation Rehabilitation	Rehab	Nov 2031	Nov 2034
X-036	City Water Pump Station Rehabilitation	Rehab	Nov 2031	Jul 2032
X-037	Plant Water Pump Station and 12 kV Distribution Center A Demolition	Misc. (Demo)	Oct 2032	Jun 2033
X-052	Activated Sludge (AS) RAS/WAS/PEPS/Vaporizers Rehabilitation	Rehab	Apr 2036	Dec 2038
X-030	Headworks Rehabilitation	Rehab	Jun 2036	Jun 2040
X-031	Trickling Filter Solids-Contact Rehabilitation	Rehab	Apr 2037	Dec 2040
X-014	Trickling Filter Solids-Contact Odor Control	Misc.	Jan 2036	Dec 2036

Notes: kV = kilovolt; RAS = return activated sludge; WAS = waste activated sludge; PEPS = Primary Effluent Pump Station.

Projects Subject to Project-Level Analysis

Substation and Warehouse Replacement at Plant 2 (P2-126)

In early 2020, the Sanitation District combined P2-134 with P2-126, Plant 2 Warehouse Relocation, which entails moving the existing 21,000-square-foot, above-grade warehouse north of the existing facility. The existing facility would be demolished and reconstructed in the new location. The new warehouse will be located in a close proximity to the new substation, at the north side of the Plant 2 and will have a similar overall footprint as the existing warehouse, including the storage yard. The exact dimension will be determined during design; however, the warehouse relocation site was assessed in the Biosolids Master Plan EIR in 2018. In addition, this project would add a second Southern California Edison power supply, 66 kV incoming distribution line to Sanitation District Plant 2 and construct a new 66 kV to 12.47 kV substation. The new substation would include two incoming 66 kV lines and two 66 kV to 12.47 kV transformers. The Sanitation District's existing substation at Plant 2 currently relies on a single incoming 66 kV line and a single 66 kV to 12.47 kV transformer. A failure in the existing incoming 66 kV line or in the transformer could result in an extended outage to utility power. The existing substation will be demolished once the new substation is in service; the replacement substation will be similar in size and configuration. Southern California Edison would construct, operate, and maintain the substation.

This project would also construct a new 2,787-square-foot Electric Service Center Building in place of the old one (constructed in 1990), which would include physical separation of various electrical distribution components (e.g., 12 kV switchgear, 480-volt panel board, and direct current battery system) to reduce the risk of a single point of failure when shutting down power to critical process areas. The existing main electrical service equipment at Plant 2 are in the same room, which could result in loss of electrical power to critical process areas during a fire or other catastrophic event. To improve electrical system reliability and resiliency, this project would construct a new Electric Service Building with two separate and dedicated fire-rated electrical rooms. It will provide power to the new warehouse building. The Electrical Service Center would be located in the vicinity of the new substation and new warehouse and the exact location will be determined during project development. The existing Electric Service Center will be demolished once new the Electrical Service Center is in service. The replacement Electric Service Center will be similar in size and configuration as the old one. Existing Southern California Edison power line easements go across Plant 2 parallel with Banning Avenue and Brookhurst Street. The power lines parallel to Brookhurst Street may shift slightly in location to accommodate connection to the new substation, but this would not be substantially different in location or height from the exisiting power poles.

Operations and Maintenance Complex at Plant 2 (P2-138)

The existing Plant 2 Operations/Control Center Building, Engineering Construction trailer complex, and guard shack are located on the western side of the plant, near the main entrance off Brookhurst Street. The Operations/Control Center Building does not have a City of Huntington Beach building permit and does not meet the State of California's building code. The Engineering Construction trailer is a temporary facility. The guard shack roof is splitting apart due to differential settling of the foundation causing the shack to leak during rain events. Project P2-138 would replace the Operations/Control Center Building with a new building of 35,700 square feet just north of the existing facility, provide replacement facilities for the temporary Engineering Construction trailer complex, and demolish and replace the guard shack. The project would also include a two-story Maintenance Building just south of the new Operations/Control Center Building and outdoor parking spaces for personnel and a cart barn, replacing the cart barn at the existing Operations/Control Center Building. It would also include installation of regional uninterruptible power system (UPS) in the new Operation Center Control Building. This project is tied to the reconfiguration of the main entry into Plant 2, and is

anticipated to occur in 2021. The main entry would be moved farther north, and the existing main gate and the existing banning gate would be closed. Pavement and hardscape in this part of the plant would be demolished and replaced. When a specific site plan is determined, subsequent CEQA review may be required.

Activated Sludge Aeration Basin (X-050)

The Plant 2 Activated Sludge reactors are located in an approximately 75,000-square-foot rectangular facility in the southernmost area of the plant. They were installed in 1983 and subject to a major mechanical and structural rehabilitation in 2006. The concrete in the reactor deck exhibits pervasive cracks and spalling and has caused rebar exposure and corrosion, such that the Sanitation District has implemented maximum weight load restrictions on the deck, which makes it difficult to service equipment, such as aerators. The concrete in the interior walls has also been compromised. This project would involve the structural rehabilitation of the reactor deck, including coating the interior of reactor tanks to mitigate exposed concrete aggregate. It would include replacement of all mechanical equipment, yard piping components, and piping, including all gates, valves, and appurtenances. It would also include upgrades to associated electrical, associated instrumentation and controls, and general lighting. Concrete repair and structural upgrades would also be performed as part of this project.

Project X-050 proposes major structural rehabilitation to extend this facility's service life. In addition, by 2027, the reactors will be 44 years old and in need of major rehabilitation of structural and mechanical components in order to maintain reliable serviceability and extend their useful life.

Truck Loading Facility Rehabilitation (X-032)

This project entails major rehabilitation of structural and mechanical equipment and components at the Plant 2 Truck Loading Facility, to extend this facility's service life. The facility is located on the west side of the site, north of the digesters and east of the PCs.

Waste Side-stream Pump Station C Rehabilitation (X-054)

The Plant 2 Waste Side-stream Pump Station C, located in the southern-central portion of the plant, receives continuous and intermittent blowdown, overflow, and drainage from the area and floor drains of the South Scrubber Complex (at south wet well) and PCs D, E, F, G, and H (at north wet well). Fluctuations in pH levels of the incoming water corrodes the pumps, causing frequent service outages. Under this project, pumps, motors, piping, valves and associated electrical, instrumentation, and controls in Waste Side-stream Pump Station C would be replaced. Concrete repair and structural upgrades would also be performed as part of this project. Project P2-98 would demolish the South Scrubber Facility in this area and perform major civil upgrades in close proximity. This project could be incorporated into project P2-98. In addition to the pump station improvements, approximately 730 feet of 14-inch-diameter force main connecting the Waste Side-stream Pump Station C to the Plant 2 headworks would be relined using the CIPP method.

Sodium Bisulfite Station Replacement and Bleach Station Demolition (X-034)

This project would incorporate its functionality into a replacement of the existing sodium bisulfite station,

As opposed to replacement, the existing sodium bisulfite facility may remain in its current location, and would be rehabilitated to replace storage tanks and pumps, conduct miscellaneous concrete repair, and upgrade other equipment based on the revised needs of the chemical dosing program.

Projects Subject to Programmatic Analysis

Waste Side-stream Pump Station 2A Upgrade (X-007)

The Plant 2 Waste Side-stream Pump Station 2A, located in the central portion of the plant's southwestern quadrant, receives continuous flow from the surrounding area and floor drains for the Plant 2 dissolved air flotation thickeners and discharges the water back into the treatment system. Intermittent flows are conveyed from the aeration basins, secondary clarifiers, and dissolved air flotation thickeners when these units are drained. Project X-007 would rehabilitate the Waste Side-stream Pump Station 2A and evaluate capacity and redundancy needs to ensure reliable conveyance of peak flows. As part of this project, aged equipment would be replaced including pumps, motors, the Coast Trunk overflow line valve, wet well discharge gate, piping, valves, and the MCC breaker. This project would replace the existing pumps, and also address concrete repairs and structural upgrades to the pump station building and wet well. There would also be an allowance for electrical and instrumentation replacement and improvements. Additionally, the pumps and motors for the Waste Side-stream Pump Station 2A are located in a recessed area within Tremblay Tunnel, which is subject to flooding. The Storm Water Master Plan would entail a detailed assessment of all waste side-stream flows and frequencies to determine an appropriate pumping capacity.

Central Generation Rehabilitation (P2-119)

Plant 2 Cen Gen is located in the east-central portion of the plant. The facility was originally constructed in 1995, and certain engines have periodically been rebuilt as part of routine maintenance cycles. However, major support systems will reach the end of their useful lives and need to be replaced or refurbished. Project P2-119 would rehabilitate Plant 2 Cen Gen equipment to extend the facility's useful life and improve any components needed for continued operation as Plant 2's reliable power source. Equipment rehabilitation would include the lube oil system; the engine jacket water loop; steam loop; hot water loop; cooling water loop; heating, ventilating, and air conditioning system; starting air and instrument air systems; exhaust gas monitoring system; miscellaneous building improvements; steam turbine and electrical; and instrumentation and control equipment. The continuous emission monitoring system would be replaced with the latest available technology. Existing platforms and elevators would be rehabilitated, and elevator equipment would be relocated outside the flood zone.

City Water Pump Station Rehabilitation (X-036)

The City Water Pump Station is located along Plant 2's western edge, just south of the main entrance off Brookhurst Street. The existing pump station was built in 1995, and has yet to be rehabilitated. By the year 2030, the facility will be 35 years old and all pumps will have reached their expected useful operational life. Project X-036 would replace all pumps and rehabilitate all mechanical components, valves, piping, and controls to extend the facility's life for 20 years with normal ongoing maintenance and repairs.

Below is a list of all pumps and mechanical components that would be replaced and rehabilitated as part of this project:

- Replace two 125 hp, three 30 hp, and two 15 hp pumps
- Rehabilitate or replace air break tanks and surge arrestor
- Replace all valves, piping, and controls
- Replace all electrical components
- Repair concrete and perform structural upgrades

Plant Water Pump Station and 12 KV Distribution Center A Demolition (X-037)

The Plant 2 Plant Water Pump Station and adjacent 12 kV Electrical Distribution Center are located on the east side of Plant 2. The Plant Water Pump Station will become obsolete once a new Plant Water Pump Station is constructed as part of the scope of project J-117, which is not a part of the FMP. Adjacent to the Plant Water Pump Station and sharing a common wall is the 12 kV Distribution Center A, which currently feeds facilities that will be demolished or otherwise made obsolete by other projects not a part of the FMP. Project X-037 would demolish these two adjacent buildings, and relocate the tunnel access after the completion of projects J-117, P2-92, P2-98, and other non-FMP projects. The project would also include site utilities and grading.

Activated Sludge Return Activated Sludge/Waste Activated Sludge/PEPS/Vaporizers Rehabilitation (X-052)

Most components of the Plant 2 activated sludge system, such as return activated sludge, waste activated sludge, PEPS, and vaporizers, were constructed in the 1980s and will soon reach the end of their useful life and need structural, mechanical, and electrical rehabilitation. These facilities are located in the vicinity of the activated sludge basins, in the southern part of Plant 2. Project X-052 would include the following:

- **Major Structural Rehabilitation**: East and west side return activated sludge/waste activated sludge pump station roof decks and wall crack repair. PEPS building roof deck and structural rehabilitation.
- **Major Mechanical Rehabilitation for Oxygen Delivery System**: Replace vaporizers and rehabilitate oxygen storage tanks. Repair 12-inch oxygen piping from vaporizers all the way through aeration basins.
- **Major Rehabilitation for PEPS**: Replace/rehabilitate major primary effluent pumps, ventilation, all utilities and associated electrical, instrumentation and controls, switchgear at return activated sludge, switchboard MCCs, VFDs, and PLCs.
- **Major Rehabilitation for Return Activated Sludge/Waste Activated Sludge**: Replace/rehabilitate return activated sludge pumps, waste activated sludge pumps, all utilities, all ventilation, drains and blowers, and all associated electrical switchgears, MCCs, VFDs, and PLCs.

Headworks Rehabilitation (X-030)

The existing Plant 2 headworks, located in the center of the site, was built in 2014. By the year 2037, the headworks will be 23 years old and multiple components of the headworks facility will have reached the end of their useful life and require replacement or rehabilitation. This project would involve the rehabilitation of the headworks facility. It would include rehabilitation of bar screens; main sewage pumps; odor control bio towers; odor control chemical scrubbers; heating, ventilating, and air conditioning equipment; concrete repair; structural upgrades; and plastic liner repair. The project would involve replacement of major process equipment.

Trickling Filter Solids-Contact Rehabilitation (X-031)

The Trickling Filters Solids Contact Facility is a multicomponent part of the secondary treatment process located on the north side of Plant 1. The facility was installed in 2007 and is anticipated to require major structural and mechanical rehabilitation by the year 2037 to maintain operation and serviceability and extend useful life. Project X-031 would implement a multi-year program to perform various structural and mechanical rehabilitation of the trickling filters; contact and aeration basins; secondary clarifiers; trickling filter solids contact Pump Station, Primary Effluent Diversion Structure, waste sludge Pump Room, Sludge Aeration Blower Room, Chemical Storage Facilities, Return Secondary Sludge Pump Station, Meter Vault, and Power Building J.

The project would include mechanical rehabilitation or replacement of gates; pumps, valves, distributor drives, channels, diffusers, and chemical storage tanks; and heating ventilating, and air conditioning systems. The project would rehabilitate all major civil and mechanical piping as necessary.

It would replace VFDs and rehabilitate medium- and low-voltage MCCs; upgrade general and emergency lighting; and replace associated electrical, instrumentation, and controls.

Trickling Filter Solids-Contact Odor Control (X-014)

The purpose of the project is to provide odor control to Plant 2 Trickling Filter Solids Contact basins. It would involve covering the reactor basins and treating odor with new chemical scrubbers to minimize odor issues. If needed, this project would install covers over the Trickling Filters Solids Contact Reactors. This project could be combined with project X-031 in the future since they are planned for the same construction period.

3.4.4 Joint Plant Improvements

Table 3-3 lists the FMP projects proposed for implementation at both Plant 1 and Plant 2.

Table 3-3. Joint Plant Project Summary

Project Number	Project Name	Project Type	Construction Start (Month Year)	Construction End (Month Year)
Project-Level Analysis				
J-98	Plantwide Miscellaneous Electrical Power Distribution System Improvements	Replace	Mar 2021	Dec 2037
J-120	Plantwide Miscellaneous Process Control Systems Upgrades	Replace	Oct 2024	Oct 2029
J-133	Laboratory Rehabilitation or Replacement at Plant 1	Rehab	Oct 2024	Apr 2026
X-057	Plantwide Miscellaneous Yard Structures Rehabilitation or Replacement	Misc.	May 2025	Dec 2039
X-058	Plantwide Miscellaneous Yard Piping Replacement	Replace	May 2025	Dec 2039
X-059	Plantwide Miscellaneous Tunnels Rehabilitation	Rehab	May 2025	Dec 2039
J-121	UPS System Upgrades	Replace	Feb 2027	Aug 2028
X-044	Steve Anderson Lift Station Rehabilitation	Rehab	Jun 2035	Dec 2036

Note: UPS = uninterruptible power system.

Plantwide Miscellaneous Electrical Power Distribution System Improvements (J-98)

This project would provide various electrical distribution system improvements at Plants 1 and 2, which are needed based on equipment condition and age, insufficient equipment ratings, grounding safety, noncompliance with the National Electrical Code requirements, and electrical configuration reliability. This project includes replacing electrical equipment that is at the end of its useful life, modifying the electrical system configurations to improve reliability and support maintenance, replacing electrical cables and equipment that are not properly sized, and adding surge protection to protect equipment

Plantwide Miscellaneous Process Control Systems Upgrades (J-120)

This project would upgrade the existing Supervisory Control and Data Acquisition Systems for the treatment plants and pump stations, which includes hardware and software, Supervisory Control and Data Acquisition servers, and various control equipment located throughout the plant facilities. The project also includes the replacement of the existing fiber-optic system at Plant 1 and modifications to the existing fiber-optic system at Plant 2. The scope and technical details of this project would be defined by an upcoming process control systems upgrades study, which may affect the scope of this project.

Laboratory Rehabilitation or Replacement at Plant 1 (J-133)

This project would rehabilitate or replace the 40,000-square-foot Plant 1 Laboratory Building to be in compliance with current building codes and allow the building to be permitted by the City of Fountain Valley. The rehabilitation would also include modifications to improve lab testing abilities, operation functionality, supporting utility replacement, seismic upgrades, and roof replacement.

Plantwide Miscellaneous Yard Structures Rehabilitation or Replacement (X-057)

This project would rehabilitate or replace various yard structures at both plants, as necessary to ensure continued efficiency in on-site operations and maintenance work by Sanitation District staff. Miscellaneous yard structures are items such as utility tunnels, junction structures, utility piping, meter vaults, splitter boxes, inlet channels, conduit, and wet wells.

Plantwide Miscellaneous Yard Piping Replacement (X-058)

This project would entail as-needed replacement of yard piping throughout the FMP implementation period as sections reach the end of their useful life. Pipes that are set to be older than 75 years old by the year 2037 would be replaced in place, via trench installation, while pipes between 30 and 75 years old by the year 2037 would be rehabilitated by the CIPP lining method.

Plantwide Miscellaneous Tunnels Rehabilitation (X-059)

The plantwide miscellaneous tunnels are used for piping and utilities that support plant processes. Project X-059 would rehabilitate various existing tunnels at both plants, including repair and resurfacing of spalling/cracked concrete, replacement of pipes within the tunnels that have reached end of useful life, addition/replacement of tunnel stormwater runoff systems, and replacement of tunnel structures that have reached end of useful life.

UPS System Upgrades (J-121)

This project would provide a regional UPS in the northern portion of Plant 2, the specific locations to be determined, and provide UPS power distribution and power distribution units to feed UPS loads from this new UPS and existing regional UPSs at Plant 2. The regional UPSs would be industrial grade with lead acid batteries and would replace the smaller UPS units.

Steve Anderson Lift Station Rehabilitation (X-044)

The Steve Anderson Lift Station is located in the northern portion of Plant 1, east of the Administration Building and north of the headworks facility. The Steve Anderson Lift Station was installed in 2009. Project X-044 would entail the rehabilitation of the structural components, including the wet well and pump room. The existing

pumps, associated pump equipment, ventilation system, electrical equipment, programmable logic controller, and switchgear would be replaced.

3.4.5 Collection System Improvements

The Sanitation District's trunk sewer system consists of pipelines, inverted siphons, manholes, and flow diversion structures, which are organized into eight collection service areas feeding into the two plants. The trunk sewers vary in diameter from 4 inches to 108 inches, with 24 inches being the most prevalent. About half of the sewer pipelines are greater than 30 inches in diameter. Table 2-2 of the FMP lists the miles of pipelines based on their diameter. Materials of the trunk sewer pipelines are mainly vitrified clay pipe (VCP) and reinforced concrete pipe (RCP). More than 60% are VCP, and more than 30% are RCP, with additional pipes in the system made of metal (cast iron, ductile iron, and steel), plastic (PVC, high-density polyethylene, and fiberglass-reinforced plastic), and CIPP. In addition to these materials, many of the pipelines have been internally lined. The active sewer pipelines were constructed from 1936 to 2015, with most built between 1950 and 1979. Table 2-1 of the FMP shows the construction and age of the trunk system by decade. In addition to the pipelines, the trunk sewer system includes more than 4,500 manholes, which are constructed of concrete or fiberglass walls with interior liners that include polyurethane, PVC, and coal-tar epoxy. The trunk system also contains more than 100 diversion structures, which provide the ability to divert downstream flows.

Table 3-4 lists the FMP projects proposed for the collection system, including pipeline projects, pump station projects, and miscellaneous improvements planned throughout the system. The table lists the project number, name, and type; construction start and end dates; and the city or cities in which the respective FMP project is located. Figures 3-3A through 3-3D show the collection system and pump station projects.

Table 3-4. Collection System Project Summary

Project Number	Project Name	Project Type	City	Construction Start (Month Year)	Construction End (Month Year)
Project-Level Analysis					
5-68	Newport Beach Pump Station Odor Control Improvements	Misc.	Newport Beach	Aug. 2022	Aug. 2023
X-076	Santa Ana Trunk Sewer Rehabilitation Phase II	Rehab	Santa Ana Costa Mesa Fountain Valley	Oct. 2023	Apr. 2026
X-082	North Trunk Improvement Project	Replace	Tustin, County of Orange	May 2024	Nov. 2025
X-060	Newhope Placentia Chemical Dosing Station	Misc.	Fullerton	July 2024	Dec. 2024
11-33	Edinger Pumping Station Replacement	Replace	Huntington Beach	Nov. 2026	Nov. 2028
X-063	South Santa Ana River Interceptor Connector Rehabilitation	Rehab	Anaheim	Jun. 2029	Dec. 2031
2-73	Yorba Linda Pump Station Abandonment	Misc.	Fullerton	Aug. 2024	May 2025
3-67	Seal Beach Pump Station Replacement	Replace	Seal Beach	Feb. 2023	July 2026

Table 3-4. Collection System Project Summary

Project Number	Project Name	Project Type	City	Construction Start (Month Year)	Construction End (Month Year)
2-49	Taft Branch Sewer Improvements	Replace	City of Orange	Feb. 2028	Sept. 2029
X-083	Greenville–Sullivan Sewer Relief Project	Replace	Santa Ana	May 2025	May 2027
Programmatic Analysis					
7-66	Sunflower and Red Hill Interceptor Rehab/Repair	Rehab	Santa Ana, Costa Mesa, Irvine	Mar. 2021	May 2022
7-65	Gisler-Red Hill Interceptor Rehabilitation	Rehab	Costa Mesa, Irvine, County of Orange	Sept. 2022	Dec. 2024
7-68	MacArthur Dual Force Main Improvements	Rehab	Newport Beach	Dec. 2022	Jan. 2024
X-078	Air Jumper Additions and Rehabilitation	Rehab	County-wide	May 2023	Nov. 2032
X-026	College Avenue Force Main Rehabilitation	Rehab	Costa Mesa	Nov. 2027	Jan. 2028
X-071	Edinger / Springdale Trunk Sewer Rehabilitation	Rehab	Huntington Beach	Oct. 2030	June 2032
X-065	Tustin-Orange Interceptor Sewer at Reach 17 Rehabilitation	Rehab	City of Orange	Dec. 2031	Dec. 2032
3-68	Los Alamitos Sub-Trunk Extension	Misc.	Seal Beach	Mar. 2034	Feb. 2036
X-067 (X-085)	Hoover-Western Sub-Trunks Sewer Rehabilitation	Rehab	Westminster	May 2034	Nov. 2035
X-066	Tustin-Orange Interceptor Sewer at Reach 18 Rehabilitation	Rehab	City of Orange	July 2034	Dec. 2036
X-061	Imperial Highway Relief Interceptor Rehabilitation	Rehab	La Habra	Dec. 2036	Dec. 2038
X-068	North Trunk Rehabilitation	Rehab	City of Orange	June 2037	Dec. 2037
7-67	Main Street Pump Station Replacement and Force Main Rehabilitation	Rehab	Costa Mesa	Aug. 2022	July 2024
X-023	Lido Pump Station Rehabilitation	Rehab	Newport Beach	June 2031	Dec. 2032
X-084	Tustin Avenue Sewer Relief	Replace	Santa Ana	May 2033	May 2034
X-086	Santa Ana River Sewer Relief	Replace	Anaheim	Sep. 2034	Aug. 2037
X-022	15th Street Pump Station Rehabilitation	Rehab	Newport Beach	Oct. 2036	Dec. 2037
X-040	College Avenue Pump Station Replacement	Replace	Costa Mesa	Oct. 2036	Dec. 2037
11-34	Slater Avenue Pump Station Rehabilitation	Rehab	Huntington Beach	May 2031	June 2033
7-64	Main Street Pump Station Rehabilitation	Rehab	Irvine	Sep. 2031	Sep. 2033
7-63	MacArthur Pump Station Rehabilitation	Rehab	Newport Beach	Nov. 2031	May 2033
X-024	Rocky Point Pump Station Rehabilitation	Rehab	Newport Beach	Oct. 2036	Dec. 2037

Table 3-4. Collection System Project Summary

Project Number	Project Name	Project Type	City	Construction Start (Month Year)	Construction End (Month Year)
X-041	A Street Pump Station Rehabilitation	Rehab	Newport Beach	Oct. 2036	Dec. 2037
5-66	Crystal Cove Pumping Station Upgrade and Rehabilitation	Rehab	Newport Beach	Jan. 2037	Feb. 2038
X-025	Bitter Point Pump Station Rehabilitation	Rehab	Newport Beach	Feb. 2037	Apr. 2038

Projects Subject to Project-Level Analysis: Pump Station Rehabilitation/Replacement

Pump stations, also referred to as lift stations, are small facilities located throughout the Sanitation District collection system that house a series of pumps to help convey collected sewage toward the treatment destination. The FMP proposes to replace or rehabilitate several pump stations, as listed below.

Edinger Pumping Station Replacement (11-33)

The Edinger Pump Station is located near the intersection of Edinger Avenue and Graham Street in the City of Huntington Beach. The existing pump station is beyond its useful life and there are safety and electrical code issues that cannot be satisfied via a rehabilitation project. Project 11-33 would build a new, below-grade pump station nearby at the southwest corner of the intersection of Edinger Avenue and Graham Street on County Flood Control right-of-way while the existing pump station is still in operation. The new pump station would include above-grade electrical components and a storage shed. After the new pump station is operating, flow would be routed to the new pump station and the old pump station would be removed or abandoned in place. Approximately 300 feet of 18-inch gravity and force main pipe in the vicinity of the pump station would be replaced via trench installation.

Seal Beach Pump Station Replacement (3-67)

The Seal Beach Pump Station is located at 13900 Seal Beach Boulevard, north of Westminster Boulevard. Project 3-67 would construct a replacement pump station adjacent on the existing facility and demolish the old facility once the new one is put into service. The replacement pump station would have a deeper wet well to allow gravity flow from the future extension of the Los Alamitos Sub-Trunk from the West Side Pump Station to the Seal Beach Pump Station (project 3-68), thus allowing the West Side Pump Station to be abandoned. The project would also include odor control improvements of vapor-phase and liquid-phase treatment at the pump station to minimize both upstream and downstream odors and corrosion.

Newhope-Placentia Chemical Dosing Station (X-060)

After completion of the Newhope-Placentia trunk replacement (currently under construction), there will no longer be a need for the Yorba Linda Pump Station, as flows would be conveyed by gravity through the newly upsized Newhope-Placentia Trunk Sewer located in State College Boulevard. Thus, the existing pump station is to be abandoned under project 2-73. This project would add a chemical dosing station at the site of the abandoned Yorba Linda Pump Station. This project may be combined with project 2-73.

Projects Subject to Project-Level Analysis: Sewer Rehabilitation/Replacement

The projects listed below involve rehabilitation/replacement of existing sewer pipeline that are subject to project-level analysis in this PEIR. This includes trench-based pipeline replacement, trenchless CIPP pipeline rehabilitation, and rehabilitation/replacement of existing manholes along the subject alignment. Certain projects in this category are included in the project-level analysis because they entail minor upsizing of existing pipes, which is needed to accommodate increases in stormwater flow. The category also includes larger CIPP projects that warrant project-level review because they represent larger efforts than shorter CIPP projects.

Where details are available, information is provided on items such as numbers of manholes identified for replacement or rehabilitation, as well as material of the pipe.

Santa Ana Trunk Sewer Rehabilitation (X-076)

Project X-076, alternatively referred to as the Alton Avenue Trunk Sewer Rehabilitation, consists of rehabilitation of approximately 15,041 feet of existing trunk sewer main along Alton Avenue from Bristol Street in the east to Plant 1 in the west. The project spans a developed area in the Cities of Santa Ana, Costa Mesa, and Fountain Valley, and crosses beneath I-405 and the Santa Ana River channel. Pipe diameters within the project area vary between 15 and 60 inches. The project would also entail rehabilitation or replacement of 37 manholes, all 36 inches in diameter.

North Trunk Improvement Project (X-082)

Project X-082 would replace and upsize in place approximately 7,000 linear feet of pipe within the Sanitation District's North Trunk pipeline. Pipe replacement would be implemented via trench installation within existing streets. The project-related segment of existing pipe is beneath 17th Street from Prospect Avenue to Yorba Street, in Tustin, and in Yorba Street from 17th Street north to Fairhaven Avenue, in unincorporated land, running through a combination of commercial development along 17th Street and residential development along Yorba Street. The purpose of this project is to increase the capacity of the North Trunk regional sewer, which is necessary to handle existing and projected increases in stormwater flow.

South Santa Ana River Interceptor Connector Rehabilitation (X-063)

Project X-063, referred to as the Imperial Highway/91 Freeway Trunk Sewer Rehabilitation in the FMP, would replace one segment of existing trunk main and rehabilitate another adjacent segment of trunk main using CIPP relining in a developed area of eastern Anaheim. The rehabilitation is proposed on 3,000 feet of 33-inch VCP in a north–south segment along Imperial Highway (also known as State Highway 90), crossing the Santa Ana River Flood Control Channel and under the Riverside Freeway overhead structure. The replacement, proposed on 3,000 feet of 27-inch-diameter VCP, begins when the pipe turns east and crosses under Imperial Highway. The replacement alignment continues behind residential properties and turns south along a Sanitation District easement before turning east on Camino Manzano. Rehabilitation of the pipes at one time is recommended to minimize future rework in this area due to factors such as permitting and coordination with the California Department of Transportation. The project would also replace 10 manholes and rehabilitate another 6 manholes within the replacement and rehabilitation area. No upsizing is proposed on the replacement segment.

Taft Branch Sewer Improvements (2-49)

Project 2-49 would replace in place a portion of the Taft Branch regional sewer located in a developed area of the City of Orange. Approximately 10,000 feet of 12- to 18-inch-diameter pipe would be replaced. The project begins at the

intersection of Meats Avenue and N. Breckenridge Street, where an east–west segment is located in a utility easement just south of Taft Avenue. The pipe crosses beneath State Route 55, and then turns south on N. Tustin Street for approximately 2,500 feet before turning west on Taft Avenue. The project is located in Taft Avenue for approximately 5,000 feet, and terminates just east of the intersection with Glassell Street. The project would increase the capacity of a portion of the Taft Branch regional sewer to meet existing and anticipated demand, and 72 manholes are scheduled to be replaced along the pipeline replacement segment.

Greenville–Sullivan Sewer Relief Project (X-083)

Project X-083 involves replacement of approximately 16,000 linear feet of 24- to 27-inch-diameter pipe with a large-diameter pipe along the Greenville–Sullivan regional sewer, located in a developed area of the City of Santa Ana. The project begins in the south at the intersection of S. Greenville Street and W. Alton Avenue and heads north within S. Greenville Street, crossing W. Warner Avenue, and continuing to the intersection of W. Edinger Avenue. The pipe turns west within W. Edinger Avenue and then north in S. Sullivan Street until Duchess Lane, then heads east on Duchess Lane to the location of a flood control easement between residential streets, approximately 1,000 feet east of S. Sullivan Street. Associated manholes would be replaced as part of the project.

Projects Subject to Project-Level: Other Sewer Rehabilitation

Yorba Linda Pump Station Abandonment (2-73)

This project would abandon the Yorba Linda Pump Station and downstream force main. Existing infrastructure would be left in place and used for housing an odor control system, which would be developed at a later date as part of a separate project. Gravity sewers located in Yorba Linda Boulevard would also be reconfigured to improve access to the facilities for maintenance. Flows that are currently being pumped by the Yorba Linda Pump Station east would be conveyed by gravity through the newly upsized Newhope-Placentia Trunk located in State College Boulevard to the west.

Projects Subject to Project-Level Analysis: Miscellaneous

Newport Beach Pump Stations Odor Control Improvements (5-68)

Sanitation District pump stations in Newport Beach have exhibited problems that originate from high odors and/or pressure surges within the wet wells. This project would address the ventilation issues that cause odorants to migrate to unwanted areas at selected pump stations and gravity lines within the Newport Beach collections system. Because the Sanitation District is still evaluating odor control strategies, the exact improvements to be implemented under this project are not yet known. However, it is anticipated that the project would involve the installation of various types of odor-control equipment, such as carbon scrubbers, chemical dosing systems, and pressure relief dampers at all pump stations in Newport Beach.

Projects Subject to Programmatic Analysis: Pump Station Rehabilitation/Replacement

Lido Pump Station Rehabilitation (X-023)

The Lido Pump Station is located in an alley west of Newport Boulevard and south of Short Street in the City of Newport Beach. The pump station was completed in 2001, and all pumps were replaced in 2009. The interior of the structure is showing signs of concrete corrosion, and the pump station floor is not draining properly. The pump equipment is also showing signs of minor corrosion. Some of the electrical equipment is reaching the end of its useful life and will require replacement. The pump station currently has no standby generator, but does have a portable emergency generator hook-up.

Project X-023 would rehabilitate the structural components, including the wet well and pump room. The existing pumps, associated pump equipment, ventilation system, electrical equipment, PLC, and switchgear would be replaced. Approximately 500 feet of 16-inch ductile iron force main in the vicinity of the pump station would be rehabilitated by CIPP installation. Site work would be conducted to maintain and/or enhance screenings, landscaping, and general curb appeal.

15th Street Pump Station Rehabilitation (X-022)

The 15th Street Pump Station is located on the north side of Balboa Boulevard and west of 15th Street in the City of Newport Beach. The facility's pumps were replaced in 2007. Project X-022 would rehabilitate the wet well and pump room to address leaks reported at concrete joints. The ventilation and odor-control system would be assessed and replaced. The pumps, pump equipment, and electrical equipment would also be replaced as part of this project. This project would rehabilitate the dual force mains into the pump station. Site work would be conducted to maintain and/or enhance screenings, landscaping, and general curb appeal.

College Ave Pump Station Replacement (X-040)

The College Avenue Pump Station is located southeast of the intersection of Gisler Avenue and College Avenue in Costa Mesa. It was originally constructed in 1969 and had its last major rehabilitation in 2009, making 2034 approximately 25 years since the last rehabilitation project. A rehabilitation project should be completed every 25 years for pump stations to extend their expected life and increase reliability. Thus, project X-040 would rehabilitate the pump station to extend its expected life and increase reliability. Possible activities include demolition, structural repair, equipment replacement, and manhole reconstruction. Site work would be conducted to maintain and/or enhance screenings, landscaping, and general curb appeal. Structural and corrosion investigations may reveal the pump station requires replacement as opposed to the preferred rehabilitation described above. Under a replacement project, a new pump station would be constructed nearby (the Sanitation District would purchase an adjacent parcel) and the existing pump station would be abandoned and/or demolished.

Projects Subject to Programmatic Analysis: Sewer Rehabilitation/Replacement

Tustin Avenue Sewer Relief (X-084)

The purpose of this project is to increase the capacity of the West Trunk regional sewer located in the City of Santa Ana to meet existing and anticipated demand. Project X-084 would replace and upsize approximately 2,000 linear feet of pipe in a developed area of the City of Santa Ana featuring a mixture of commercial and residential development. Associated manholes would also be replaced. The project limits begin approximately 1,000 feet south of the intersection of Old Tustin Avenue and North Tustin Avenue, continue north approximately 300 feet, and continue east to the intersection of E. Lenita Avenue and a collector street. From there the project limits continue north along N. Tustin Avenue to approximately 1,000 feet south of the intersection of E. Santa Clara Avenue and N. Tustin Avenue.

Santa Ana River Sewer Relief (X-086)

The purpose of this project is to increase the capacity of the Santa Ana River Interceptor in the City of Anaheim to meet existing and anticipated demand. Project X-086 would replace approximately 15,000 linear feet of pipe located in an industrial area of eastern Anaheim. Associated manholes would also be replaced. The project limits begin approximately at the intersection of E. La Palma Avenue and N. Tustin Avenue and continue east along E. La Palma Avenue to the intersection with S. Imperial Highway.

Projects Subject to Programmatic Analysis: CIPP Rehabilitation

Many of the projects proposed for programmatic analysis are limited to pipeline rehabilitation by CIPP relining, with manhole rehabilitation.The descriptions of these projects are below.

Gisler-Red Hill Interceptor Rehabilitation (7-65)

This project would rehabilitate the Gisler-Redhill Interceptor from a diversion manhole near the Main Street Pump Station to the College Avenue Pump Station. The project is expected to repair or replace 38 manholes and rehabilitate approximately 15,000 feet of clay pipe sewer ranging from 24 inches to 60 inches in diameter in the City of Costa Mesa.

Tustin-Orange Interceptor Sewer at Reach 17 Rehabilitation (X-065)

This project consists of replacing 2,000 feet of 18-inch-diameter trunk sewer main and associated manholes, due to sags, along Villa Park Road and Santiago Canyon Road in the City of Orange. The project limits are bound by the intersection of Santiago Boulevard and Santiago Canyon Road and 130 feet west of the Nicky Way and Santiago Canyon Road intersection.

Hoover-Western Sub-Trunks Sewer Rehabilitation (X-067 [X-085])

This project consists of a combination of replacement/rehabilitation using CIPP or similar technology, and spot repairs of trunk sewer main along Western Avenue, Hoover Street, and Lampson Avenue in the City of Westminster. The replacement of 4,143 feet would take place at four locations: Lampson Avenue east of Western Avenue, Western Avenue south of Lampson Avenue, the corner of Garden Grove Boulevard and Hoover Street, and along Hoover Street. The rehabilitating of 3,000 feet would occur along Hoover Street, directly north of the pipes being replaced. The project also includes spot repairs in three separate locations: two along Western Avenue north of Lampson Avenue, and a third along Lampson Avenue east of Western Avenue. The pipes in this area were installed in 1959, and most of the defects stem from infiltration and sags. Associated manholes would be rehabilitated or replaced.

Tustin-Orange Interceptor Sewer at Reach 18 Rehabilitation (X-066)

This project involves the replacement of 4,000 feet of trunk sewer main and associated manholes, due to sags, along Mead Street then turning south along a utility easement parallel to Ridgeline Country Club Golf course and turning west on Amapola Avenue. The alignment then turns south along a utility easement and terminates in Chapman Avenue located in the City of Orange.

Imperial Highway Relief Interceptor Rehabilitation (X-061)

This project consists of replacing 3,000 feet of sewer pipe, due to sags, and rehabilitating of 4,000 feet of trunk sewer main along Imperial Highway in the City of La Habra.

North Trunk Rehabilitation (X-068)

This project consists of replacing of 1,000 feet of trunk sewer along Chapman Avenue located in the City of Orange. The project limits are bound by the intersection of Esplanade Street and Chapman Avenue to the west and the intersection of Hamlin Street and Chapman Avenue to the east. The project also includes spot repairs of two additional mains along Chapman Avenue. Associated manholes would be rehabilitated or replaced as part of the project.

Projects Subject to Programmatic Analysis: Other Sewer Rehabilitation

Air Jumper Additions and Rehabilitation Project (X-078)

Air jumpers are short segments of pipelines constructed parallel to and at a higher elevation than their paired sewer segments, for the purpose of ventilating air from sewer sections that are lower to avoid an obstacle such as a creek (also known as a siphon). Siphons are typically located at stormwater or river channel crossings and where existing utilities could not be avoided during original construction. Without air jumpers, air must be released upstream of the siphon, which can cause upstream odor emissions and potential increase in sewer pipe deterioration. Project X-078 would involve the rehabilitation of air jumpers at multiple locations throughout the Sanitation District's service area. Air jumpers are typically installed underground, and construction would be much like pipeline installation although at a shallower depth, as discussed in further detail below.Air jumpers in this project are all in streets or hanging from bridges. Thus, there would be no new ground disturbance as equipment would be placed through existing manholes or on the sides of bridges.

Sunflower and Red Hill Interceptor Rehab/Repair (7-66)

This project would repair plastic liner failures within a 6,000-foot section of the Sunflower and Red Hill interceptors, located north of the John Wayne Airport in the Cities of Irvine and Santa Ana. This work would require live entry and temporary diversions and bypass pumping. Also, hydraulic adjustments would be made to artificially keep the low flows above the area of exposed concrete at the lower section of the pipe.

MacArthur Dual Force Main Improvements (7-68)

The MacArthur Pump Station is located west of MacArthur Boulevard and north of Jamboree Road in the northern portion of the City of Newport Beach, south of John Wayne Airport. The existing force main was constructed in 1960 and is nearing the end of its useful life. Project 7-68 would rehabilitate approximately 2,000 feet of the existing force main upstream/north of the pump station and construct approximately 2,100 feet of additional force main parallel to the existing force main, to increase pumping capacity. Access and inspection vaults would be added to the force mains. The construction of a parallel force main would increase reliability and lessen the impact on the surrounding community during routine maintenance and assessment efforts.

College Avenue Force Main Rehabilitation (X-026)

There are two buried, on-site ductile iron force mains located at the College Avenue Pump Station. Per a recent assessment, the existing corrosion protection provisions along the force mains are not functioning as intended. This project would rehabilitate the existing cathodic protection equipment inside approximately 1,000 feet of the two force mains upstream/south of the College Avenue Pump Station in Costa Mesa. The project involves the installation or upgrade of corrosion protection provisions along the two buried, 18-inch ductile iron force mains located at the College Avenue Pump Station.

Edinger/Springdale Trunk Sewer Rehabilitation (X-071)

This project would replace over 1,300 feet of sewer, rehabilitate over 6,500 feet of sewer, and rehabilitate or replace 25 manholes in Huntington Beach around Springdale Street and Edinger Avenue. The project limits are on

Edinger Avenue from Bolsa Chica Street to east of Graham Street, and on Springdale Street from Machine Drive to north of Doyle Drive. The project elements are as follows:

- Replacement of 1,300 feet of 27-inch pipe on Springdale Street south of Heil Avenue
- Rehabilitation of approximately 5,750 feet of pipe ranging in size from 10 inches to 42 inches
- Construction of 3 new manholes and rehabilitation of 22 existing manholes
- One spot repair within Springdale Street immediately south of the intersection of Edinger Avenue and Springdale Street.

Los Alamitos Sub-Trunk Extension (3-68)

This project would install approximately 5,000 feet of new pipeline in Seal Beach Boulevard, and north beneath the I-405 freeway. The project would extend the Los Alamitos Sub-trunk by gravity from the Westside Pump Station to the new, deeper Seal Beach Pump Station, which would be constructed under project 3-67. Project 3-68 would also abandon the existing Westside Pump Station, involving demolition and removal of the structure and all equipment. The existing trunk that the new pipeline would parallel (from the Westside Pump Station to the Seal Beach Pump Station) would remain in service or be abandoned in place. Because the project would cross the I-405 freeway and due to its depth, the pipe would primarily be installed using tunneling machines (microtunneling).

Main Street Pump Station Replacement and Force Main Rehabilitation (7-67)

The Main Street Pump Station is located on Main Street north of the John Wayne Airport, in the City of Irvine. The flow from the pumps on the west side of the pump station is conveyed through approximately 800 feet of 30-inch clay pipe force main that was constructed in 1985. The flow from the pumps on the east side of the pump station is conveyed through dual 42-inch force mains that are approximately 6,000 feet in length, running along Airway Avenue and Air Loop Drive, crossing beneath the I-405 freeway, and then along the west side of the Main Street Parking facility. Project 7-67 would rehabilitate the dual 42-inch force mains and supporting structures, and replace the five original pumps and supporting piping inside the pump station. Access and inspection vaults would also be added to the force mains.

Slater Avenue Pump Station Rehabilitation (11-34)

This project would rehabilitate the existing Slater Avenue Pump Station, located on the south side of Slater Avenue between Goldenwest Street and Gothard Street in Huntington Beach. The rehabilitation is intended to meet current building, electrical, and safety codes; Sanitation District design standards; and to extend the useful life of the pump station. In addition to the improvements to the pump station, both force mains currently serving this pump station would be rehabilitated.

Main Street Pump Station Rehabilitation (7-64)

The Main Street Pump Station is located on Main Street north of the John Wayne Airport, in the City of Irvine. This project includes the rehabilitation of the existing civil structures, such as the flow diversion box, east and west wet well, and the aboveground electrical room and below-grade pump room. Replacement of the mechanical equipment (e.g., pumps, valves, piping) and electrical and instrumentation equipment would also be included under this project.

MacArthur Pump Station Rehabilitation (7-63)

The MacArthur Pump Station is located west of MacArthur Boulevard and north of Jamboree Road in the City of Newport Beach. This project includes rehabilitation of the existing civil structures, such as the wet well and underground electrical room and pump room. Replacement of mechanical equipment (e.g., pumps, valves, piping) and electrical and instrumentation equipment would also be included under this project.

Rocky Point Pump Station Rehabilitation (X-024)

This project would perform routine rehabilitation of the mechanical and electrical equipment at the Rocky Point Pump Station, located along the Pacific Coast Highway (also known as Highway 1) in Newport Beach.

A Street Pump Station Rehabilitation (X-041)

The A Street Pump Station is located on the north side of Balboa Boulevard and west of A Street in the City of Newport Beach. This project would include rehabilitation of the structural components, including the wet well and pump room. The existing pumps, associated pump equipment, ventilation system, electrical equipment, PLC, and switchgear would be replaced as part of this project. This project would also include a condition assessment of the two 8-inch force mains, and rehabilitation as required.

Crystal Cove Pumping Station Upgrade and Rehabilitation (5-66)

This project would rehabilitate the existing Crystal Cove Pump Station, located along Pacific Coast Highway in southern Newport Beach, to maintain compliance with electrical and safety codes, and to restore the condition of the aging facility. The project also consists of rehabilitating the two 8-inch ductile iron force mains. The existing gravity system in the vicinity of the pump station would also be assessed and rehabilitated as needed.

Bitter Point Pump Station Rehabilitation (X-025)

This project would perform routine rehabilitation of the mechanical and electrical equipment at the Bitter Point Pump Station, located along the Pacific Coast Highway in Newport Beach.

3.5 Project Construction

3.5.1 Multi-Year Program Implementation and Construction Phasing

The FMP program is a multi-year planning program intended to plan, design, and implement systemwide Sanitation District projects through 2040. Many of the constituent projects addressed in this PEIR, particularly at Plant 1 and Plant 2, are themselves multi-year programs addressing complex facilities and systems that would require internal phasing and prioritization when implemented. Anticipated construction timing for individual elements of the FMP are identified throughout Section 3.4, Project Components, as based on Sanitation District staff's estimate of when the work would occur. This is typically a function of the respective facilities' age and Sanitation District staff's knowledge of when the facility would be coming up for its regular maintenance cycle. Sanitation District staff has provided information on phasing and schedule to the best of their current knowledge, but they acknowledge that schedules are likely to change as condition assessments are performed to identify more detailed recommendations at the facilities covered in this PEIR.

3.5.2 Construction Activities

Implementation of the FMP projects addressed in this PEIR would involve a variety of construction methods reflecting the wide variety of activities proposed by the Sanitation District. Typical categories of construction work associated with the subject project types are described below. Where information was unknown, a reasonable worst-case approach was used for the air quality modeling that included conservative assumptions with regard to equipment type, hours of operation, and potential overlap of construction phases. This approach was used for evaluation purposes to avoid the need to revise this PEIR analysis as a result of small project changes over time that may occur in the future. However, the Sanitation District will need to evaluate any project changes going forward against what was assumed in the analysis for this PEIR to determine if project changes warrant preparation of a subsequent CEQA document.

Plant Improvements and Pump Station Improvements

Implementation of the FMP at Plant 1 and Plant 2 entails a wide range of projects that may include structural demolition and new concrete work, replacement of mechanical and electrical components and instrumentation, trench excavation for installation or replacement of pipes and conduit, interior pipeline lining, seismic upgrades, hardscape and pavement demolition and replacement, and grading. Similar activities would be performed at pump stations. Much of this work would be performed using a combination of heavy equipment and a specialized workforce including welders and electricians. Removal and replacement of large plant equipment would be performed using cranes. In certain areas, ornamental landscaping would be removed and replaced at new locations.

Pipeline Improvements

Construction methods for collection system improvement projects generally include lining, manhole repair, open-trench excavation for new sewer installations, shoring, dewatering, pipe removal, manhole removal with associated demolition, and potential jack-and-bore methods for installation at sensitive crossings (e.g., busy intersections, railroad spurs, or flood control channels).[2]

Trench Replacement

Trench-based pipeline replacement entails linear excavation using heavy earthwork equipment. Many of the pipeline replacements addressed in this PEIR are located in paved streets and parking lots, which would require demolishing the overlying asphalt and concrete prior to excavation, and then repaving after pipe installation is complete.

The following trench generalized widths and depths are typically required for replacement of pipes with the following diameters:

- 12- to 24-inch diameter: 4 feet wide and 14 feet deep
- 24- to 48-inch diameter: 5 feet wide and 14 feet deep
- 48- to 60-inch diameter: 9 feet wide and 20 feet deep
- 72- to 96-inch diameter: 14 feet wide and 22 feet deep

The active work area along the open trench generally would extend about 5 to 10 feet to one side of the trench and 20 to 30 feet to the other side, allowing for access by trucks and loaders. Trenches can either be vertically shored

[2] Certain project description construction information throughout this section is based on the project description for similar improvements appearing in the Sanitation District's 2007 Program Environmental Impact Report for the Collection System Improvement Plan, prepared for the Sanitation District by IPMC.

or sloped, if space permits; because the FMP trench projects are located in urban areas, space is limited and most trenches would be braced using a trench box or speed shoring. Dewatering and well monitoring would be required for excavation in lower elevations.

The minimum construction corridor needed for trench-based work would be 25 feet; the maximum would be 50 feet wide. On narrower residential streets, road closures and parking restrictions might be imposed during construction periods to facilitate traffic flow around construction areas. Construction work in intersections might necessitate closures when the construction precludes safe traffic or work conditions. Major sewer connections could require several days of uninterruptible round-the-clock activity. Staging areas would be necessary along the construction routes. Construction equipment and materials would be held in parking lots, vacant lots, or segments of street lanes that are temporarily closed. Staging areas would be selected to minimize hauling distances and long-term disruption.

Removed pavement and excavated soil and pipes would be hauled off site and would be disposed in accordance with applicable state and local regulations. Imported backfill would be delivered to stockpiles near the open trench. Once the new pipeline is in place, backfill would be placed in the trench, and the streets would be compacted and paved in accordance with state and local building codes.

Trenchless Installation

Installation and repair of pipelines can be accomplished using trenchless methods such as tunneling or horizontal directional drilling. Trenchless methods typically are used to go under a busy roadway or a stream, or to avoid a sensitive environmental area. Trenchless methods also may be considered when sewer lines are at deep elevations in densely developed areas and open-trench excavation would create hazardous conditions.

Microtunneling is one trenchless method that may be used on FMP installation projects. Microtunneling features a small boring machine that is controlled remotely from the surface. Pipe is installed immediately behind the boring machine. When using the microtunneling method, no workers generally are in the tunnel, although workers might need to enter to repair equipment. Microtunneling can be used below the water table in certain soil types.

Horizontal-directional drilling uses a drilling rig on the surface to install a drill pipe in a shallow underground arc. The drilling rig bores a pilot hole that is filled with fluid, then a swiveling reamer is used to enlarge the hole to the size of the sewer pipe and the sewer pipe pulled through. Directional drilling often requires a large staging area to line up the pipe.

The jack-and-bore method involves the use of a horizontal boring machine or auger to drill a hole and a hydraulic jack to push a casing through the hole. As the boring proceeds, a steel casing pipe is jacked into the hole; the pipeline then is installed in the casing. The casing is jacked using a large hydraulic jack in a pit located at one end of the crossing. The jacking pit is typically approximately 50 feet deep by 20 feet wide—temporary pits typically will be excavated to a depth of 50 feet. In pits below the water table, the use of sheet-piling, special bulkheads, and dewatering pumps and wellfields would be required. Water from dewatering would be disposed of in accordance with applicable state and local requirements.

CIPP Rehabilitation

Sewer lining is a method of rehabilitation that uses the existing pipe as a host for a new liner and may include slip lining, CIPP, and modified cross-section liner. Lining materials include felt or fabric tubes with thermosetting resins, PVC, and high-density polyethylene. Installing a lining requires less disturbance and restoration than replacing the pipe. In some instances, sewer lining can be installed through existing manholes, with no excavation. In some situations, insertion pits must be dug to install the lining.

The Sanitation District anticipates using the CIPP method on the pipeline rehabilitation projects addressed in this PEIR. This method first entails establishing a temporary aboveground sewage bypass line between upstream and downstream manholes and placing diesel powered self-priming pumps at the upstream location. Where possible, based on the segment location, the aboveground bypass line follows the sewer line and is laid in street gutters on the road shoulder within the street right-of-way. However, certain segments of bypass line may need to diverge from the sewer line. Where necessary, the temporary bypass line is protected from vehicular traffic and other potential damage by placing it between two concrete traffic barriers (K-rails) or between one K-rail and an adjacent street gutter. Although aboveground alignments are preferred for the temporary bypass pipelines, certain segments must be buried in shallow trenches within the existing roadways to avoid traffic conflicts. These trenches are typically 18 inches deep, not to exceed the depth of the existing road base, and they would be covered with metal plates to allow continued vehicle access of the affected area.

Once the bypass is functional, the pipeline interior is cleaned using a high pressure water cleaner, and then a felt liner saturated with thermal-curing styrenated resin is inverted into the pipe, which is then filled with hot water or steam to seal the liner against the interior of the pipe while simultaneously curing the resin, creating a sealed structural liner within the pipe. The felt liner is specially manufactured with a plastic barrier to contain the resin with no leakage. The resin-saturating process of the felt is performed by one of two methods, typically depending on the length of the liner segment or the thickness and strength of the resin. The "factory wet-out" method entails saturating the liner with resin at an off-site facility and then delivering the liner to the site in an air-conditioned truck. In the "on-site wet-out" method, resin is delivered to the job site in a tanker truck and inserted into the dry felt liner with specially designed portable equipment and rollers, usually in a fully enclosed air-conditioned tent set up near the manhole site. The project may employ both wet-out methods at various segments of the project alignment, to be selected by the contractor.

Manhole Rehabilitation

Manhole rehabilitation, typically included in collection system improvement projects, can involve replacement of the entire manhole, replacement of part of the manhole (e.g., frame and cover), lining, and sealing. Manhole rehabilitation can be conducted in a construction area approximately 15 feet wide and 30 feet long that extends around the manhole and can accommodate two utility trucks. Traffic would be detoured around the construction area and, although some disruption to traffic could occur during the construction activities, the need for road closures would be infrequent. On narrower residential streets, parking restrictions and/or closures might be imposed during the construction period to ensure public safety and to facilitate traffic flow around the construction area.

3.5.3 Staging Areas

Staging would be required on all FMP construction projects for such uses as equipment and material laydown, temporary construction offices, and worker parking. Staging yards have not been identified for any of the projects addressed in this PEIR. The Sanitation District would identify staging yards during final design of individual projects. Staging for plant projects would occur at locations inside the respective plant, and it is unlikely additional area outside the plant would be needed. For linear projects, the Sanitation District would look for optimal locations within the affected roadway itself identify, or where larger areas are needed, would focus on vacant lots or other developed/disturbed areas along the pipeline alignment.

3.6 Operations and Maintenance

The FMP projects would rehabilitate, replace, or abandon existing facilities that are currently subject to ongoing operations and maintenance activity. Accordingly, the projects addressed in this PEIR do not propose additions of or appreciable changes to regular operations and maintenance activity by Sanitation District personnel.

3.7 Cumulative Projects List

The table below includes the cumulative projects from each jurisdiction in which Sanitation District FMP projects are located plus Sanitation District projects.

Table 3-5. Cumulative Projects

Project Name/#	Proposed Land Uses/ Description	Location	Status/Operational Start Date
City of Anaheim			
Link OC	To demolish 26,000 square feet of office space and remove approximately 310,000 square feet of surface parking lots and 100,000 square feet of landscaping, - and to construct 406 apartment units and 5,000 square feet of new commercial space.	1011-1091 N. Tustin Avenue	Approved
La Palma Senior Assisted Living	A conceptual development review for a new senior assisted living facility with 230 beds. Five stories high.	5710 E. La Palma Avenue	Approved
Caliber Motors	To amend a conditional use permit to allow the expansion of an existing automobile dealership to include an automobile service facility. The proposal includes an expansion of the existing automobile showroom and sales building and the construction of a new four-level, 42-foot-high, 115,493-square-foot automobile service and vehicle storage building.	200 N. Via Cortez	Approved
City of Fountain Valley			
Fountain Valley Crossings	Proposed 162-acre mixed-use community located in the City of Fountain Valley. The proposed project has an approved zoning change. The project site was originally zoned as Specific Plan (SP). The proposed Sanitation District Headquarters Building would be within the SP area.	North of Ellis Avenue, south of Talbert Avenue, west of the Santa Ana River and east of Ward Street.	Approved
Fountain Valley Square Remodel	The project includes the demolition of 26,331 square feet of the shopping center and the construction of a new 18,225-square-foot anchor building in its place to house a Grocery Outlet.	18880-18974 Brookhurst Street	Approved

Table 3-5. Cumulative Projects

Project Name/#	Proposed Land Uses/ Description	Location	Status/Operational Start Date
Welbrook Assisted Living Facility (Parkview Estates)	The proposed project will include the construction of a 1–2 story 110,000-square-foot building for assisted living, including specialized memory care units.	11360 Warner Avenue	Under Construction
10830 Warner	The project is the construction of a 9,998-square-foot commercial building.	10830 Warner Avenue	Under Construction
City of Huntington Beach			
OC Water District Groundwater Replenishment System	To permit the expansion of a groundwater replenishment system that includes a 25-foot-high, 4,700-square-foot pump station; two 33-foot-high flow equalization tanks; and pipeline rehabilitation on a vacant portion of the Sanitation Districtfacility.	22212 Brookhurst Street	2023 Approved
Huntington Gateway Business Park Project	The project involves three new industrial buildings on a 30-acre, three-parcel project site. Each proposed building contains office and mezzanine storage area to accommodate future tenants, anticipating corporate headquarters and light manufacturing uses within flexible office, industrial and warehouse space. Building 1 – 259,078 gross sq. ft. Building 2 – 166,841 gross sq. ft. Building 3 – 184,354 gross sq. ft.	14900 Bolsa Chica Street	Approved
City of Newport Beach			
Lido Village Water Main Replacement	This replaces older cast iron water mains identified in the Water Master Plan in and around Lido Village.	East of Newport Boulevard, west of Via Oporto	Under Construction
Newport Village Mixed-Use Project	The project involves a mixed-use development encompassing approximately 11.05 acres. The project includes 175 residential units; 240,650 square feet of office, retail, and restaurant uses; and a new 75-boat marina.	North and south sides of West Coast Highway in the Mariner's Mile corridor.	Waiting for Approval
Plaza Corona Del Mar	The applicant is proposing to construct a horizontal mixed-use development that includes six detached dwelling units above a common subterranean parking structure, a 2,160-square-foot office addition above an existing 535-square-foot delicatessen (Gallo's Deli), and a 10-space shared, ground-level parking lot.	E Coast Highway and Hazel Drive	Waiting for Approval
Newport Crossing Mixed Use Project	The project consists of the development of a multistory building that would house 350 apartment units, 2,000 square feet of "casual-dining" restaurant space, and 5,500 square feet of retail space.	1701 Corinthian Way; 1660 Dove Street; 4251, 4253, 4255 Martingale Way; and 4200,	Waiting for Approval

Table 3-5. Cumulative Projects

Project Name/#	Proposed Land Uses/ Description	Location	Status/Operational Start Date
	Centrally located within the multi-story building is a six-level, five-story parking structure (one semi-subterranean level).	4220, and 4250 Scott Drive	
The Knoll Center Residences	The proposed project is a mixed-use infill development that includes 260 residential condominiums; 3,000 square feet of ground-floor retail uses, a 1.17-acre public park; a freestanding parking structure; lighting, landscaping, and pedestrian improvements; utility improvements; and the reconfiguration of existing surface parking.	4400 Von Karman Avenue	Waiting for Approval
Uptown Newport Project	The proposed Uptown Newport project is a mixed-use development with up to 1,244 residential units, 11,500 square feet of neighborhood-serving retail space, and two acres of park space.	4311-4321 Jamboree Road	Under Construction. To be completed in 2021.
CDM Fire Station 5/Library	This project replaces and reconstructs Fire Station No. 5 and the Branch Library on Marigold Avenue in Corona del Mar. Two buildings will be replaced with a new facility with a shared lobby, improved on-site parking, and increased landscaping.	Southeast corner of Marigold Avenue and 2nd Avenue	Under Construction
City of Santa Ana			
Christ Our Savior Catholic Parish Expansion	The project consists of the construction of a permanent campus with four buildings for Christ Our Savior Catholic Parish.	2000 W. Alton Avenue	Under Construction Expected completion 2022
Legacy Sunflower	The applicant, Legacy Partners, has submitted an application to construct a 226-unit apartment building.	651 West Sunflower Avenue	Entitlements Approved
Legado at the Met	Legado at the Met proposes to construct a 278-unit, six-story (with lofts) multifamily residential development on a currently vacant property on the northeast corner of MacArthur Boulevard and MacArthur Place. The development will consist of studio, one-, two- and three-bedroom units ranging in size from approximately 612 to 1,783 square feet. The project will contain a four-level (one-level above ground and three levels of subterranean) garage with 617 parking spaces.	200 E. First American Way	Expected completion Dec. 2021
Central Pointe Mixed-Use Development	The project would construct a mixed-use project consisting of 650 multifamily residential units and 8,800 square feet of commercial space on an approximately 8-acre site. The project is comprised of two 5-story buildings wrapped around a 7-level parking structure. The project is	1801 E. Fourth Street	Development Project Review Expected completion 2022

Table 3-5. Cumulative Projects

Project Name/#	Proposed Land Uses/ Description	Location	Status/Operational Start Date
	located within the Metro East Mixed-Use Overlay District and requires Planning Commission Site Plan Review.		
Haphan Residential Development	Haphan Residential is applying to construct an 18-unit multifamily residential project on two existing parcels, 1.22 acres in size. The property is in the Two-Family Residence (R-2) zoning district with a Low-Density Residential (LR-7) General Plan land use designation.	3025 West Edinger Avenue	Entitlements Approved
Tiny Tim Plaza Residential Development	The project would construct a 51-unit, 51,300-square-foot affordable rental residential community on a site already developed with a commercial center that is proposed to remain but be refurbished.	2223 W. 5th Street	Under Construction Expected completion Oct. 2020
The Heritage	The Heritage is a proposed 1,221-unit mixed-use development on an 18.84-acre site that is currently occupied by a vacant 366,000-square-foot industrial building. The proposed project consists of multifamily apartments within three buildings with adjacent parking structures on property that is currently zoned Light Industrial (M-1). The development is planned to surround a 1-acre central park with public access. Approximately 12,900 square feet of retail space, 5,500 square feet of restaurant space, and 56,000 square feet of office are also proposed within the project site.	2001 E. Dyer Road	Under Construction Phase 1 complete. Phase 2 under construction. Phase 2 expected completion June 2020. Phase 3 expected completion March 2021.
Meta Housing Santa Ana Arts Collecive Adaptive Re-Use	Meta Housing is proposing an adaptive reuse project to convert an existing five-story office building to residential units and ground-floor commercial and community space. The project also consists of three new buildings, a courtyard, and new landscaping. A total of 58 residential units and 114 parking spaces are proposed.	1666 N. Main Street	Under Construction
Bridging the Aqua	The applicant, Community Development Partners, is proposing to demolish an existing motel that contains two, 2-story buildings with 35 motel rooms total on 0.98 acres (40,800 square feet) at 317 East 17th Street in order to facilitate construction of 56 permanent supportive housing units for homeless individuals, including 12 studio units and 45 one-bedroom units.	317 E. 17th Street	Under Construction

Table 3-5. Cumulative Projects

Project Name/#	Proposed Land Uses/ Description	Location	Status/Operational Start Date
City of La Habra			
La Quinta Inn and Suites	The project will consist of a four-story, 50,744-square-foot building with 91 guest rooms. Amenities include a meeting room, a fitness center, a great room, a 3,400-square-foot outdoor swimming pool area, and a bar.	701 E. Imperial Highway	Winter 2020
Skylark Housing Project	The project involves construction of residential units on 2.16 acres along La Habra Boulevard and Idaho Street.	1220-1240 W. La Habra Boulevard	Winter 2020
GEC Urban Partners LLC	The 2.5-acre project will include a total of seven, two-story family residences, each measuring 2,990 square feet and a 437-square-foot attached two-car garage.	1101 N. Harbor Boulevard	Winter 2020
City of Brea			
No projects in close proximity to the FMP area.			
City of Orange			
Santiago Hills II	The Modified Project consists of low density residential, low-medium density residential, medium density residential, two neighborhood parks, and open space. The approval allows for a 1,180-unit residential subdivision in the Santiago Hills II planned community.	The project is located at the eastern edge of the City on a roughly triangular site bordered by the State Routes 241 and 261 toll roads (SR-241/261) on the east, Jamboree Road on the west, and Irvine Regional Park on the north. Peters Canyon Regional Park borders the southern part of the project site to the west. Santiago Canyon Road bisects the site between Jamboree Road and SR-241/261.	Approved

Table 3-5. Cumulative Projects

Project Name/#	Proposed Land Uses/ Description	Location	Status/Operational Start Date
Trails at Santiago Creek	The project involves the transformation of a rock and concrete materials recycling and backfilling operation to an environmentally enhanced, ecologically friendly open space environment embracing a well-planned and attractive single-family detached residential neighborhood.	6118 East Santiago Canyon Road	Approved
Terrace Apartments	The proposed project involves the redevelopment of 3.3 acres of the existing 16.9-acre multifamily apartment community. The project proposes to construct an additional three multifamily apartment buildings as part of the existing Terrace Apartments.	200 City Boulevard West, Orange, California 92868	Construction to start in 2021 Approved
Branch West Apartments	The project involves redevelopment of an existing light-industrial complex with a 94-unit apartment development with structured parking and related residential amenities on a 1.10-acre site.	1725 W. Katella Avenue, Orange, California	Under Construction
City of Fullerton			
Beckman Business Center	Industrial re-use of site, including 900,000 +/- square feet of industrial and office buildings, including reuse of historic Beckman instruments building.	4250-4300 N Harbor Boulevard	Under Construction
Richman Park Jamboree Housing	Construction of affordable apartments, as part of a larger housing project.	524 S. Ford Avenue; 312 W. Valencia Avenue; 324 W. Valencia Avenue; 400 W. Valencia Avenue	Under Construction
Mixed-Use Development	Construction of a 290-unit development with commercial ground floor facing onto Commonwealth Avenue and residential upper floors on a site formerly used for auto repair.	600 W. Commonwealth Avenue	Under Construction
Shopping Center Remodel	Redevelopment of a shopping center on N. Harbor Boulevard.	4100 N. Harbor Boulevard	Approved
City of Tustin			
SchoolsFirst Federal Credit Union Headquarter Campus	New headquarters campus for SchoolsFirst Federal Credit Union including 180,000 square feet of office space, a 5,000-square-foot credit union branch, four-level parking structure, and site improvements.	15332 Newport Avenue; 15444 Newport Avenue; 15222 Del Amo Avenue; 1200 Edinger Avenue	Under Construction
Levity at Tustin Legacy	New residential condominium project with 218 units, including single-family detached, townhomes and flats, and	Northeast corner of Tustin Ranch Road and Victory Road	Under Construction

Table 3-5. Cumulative Projects

Project Name/#	Proposed Land Uses/ Description	Location	Status/Operational Start Date
	community amenities on an approximately 14-acre site within a portion of Planning Area 15 of the Tustin Legacy Specific Plan Area (SP-1).		
Brookfield Residential	New residential project with 400 units including 117 two- and three-story detached homes, 129 three-story attached townhomes, 154 three-story stacked flats and townhomes, and community amenities in Planning Areas 8, 13, and 14 of the Tustin Legacy Specific Plan Area (SP-1).	South of Warner Avenue between Armstrong Avenue and Tustin Ranch Road	Approved
City of Irvine			
17822 Gillette	The project involves the construction of 137 condominiums on 6 acres of land.	17822 Gillette Avenue	Under Construction
Staybridge Hotel	The project involves the construction of a 208-room business hotel.	South of Barranca Parkway, east of Red Hill Avenue, west of Aston Street	Under Construction
2152-2182 Alton	The project involves the construction of 357 apartment units on 10.2 acres of land.	South of Alton Parkway, west of Von Karman Avenue	Under Construction
Irvine Gateway	The project involves the construction of 434 condominiums on 8 acres of land.	East of Von Karman Avenue, north of McGaw Avenue, south of Alton Parkway	Under Construction
City of Buena Park			
Hotel Stanford	The project involves the construction of a ten-story, 195-room hotel.	7869 Beach Boulevard	Approved
Los Coyotes Country Club Development Plan	The Los Coyotes Country Club Development Plan Project includes development of 125 luxury golf course-oriented dwelling units, 2 lighted tennis courts, landscape and hardscape improvements to the Los Coyotes Country Club entry including improvements/upgrades to the entry guard house, and minor grading to correct the existing variation in the topography and make the practice area in the southeast area of the golf course more level.	8888 Los Coyotes Drive	Approved
City of Cypress			
No projects are currently proposed in the City.			

Table 3-5. Cumulative Projects

Project Name/#	Proposed Land Uses/ Description	Location	Status/Operational Start Date
City of Garden Grove			
The Centre	The project involves the construction of a 16-unit project with two work-live units facing Garden Grove Boulevard and 14 residential units along a central drive aisle.	11222 Garden Grove Boulevard	Under Construction
Garden Brook Senior Village	The project is redevelopment of an existing 8-story steel structure into a 394-unit affordable senior housing project with 12,938 square feet of commercial retail space.	9860 Larson Avenue	Under Construction
Brookhurst Triangle	The project involves the construction of a mixed-use retail promenade.	North of Garden Grove Boulevard, west of Brookhurst Street	Approved
BN Group	The project involves the construction of a hotel in Garden Grove with 124 rooms, 100 parking spaces, and a 5-story building.	1365 Harbor Boulevard	Under Construction
City of La Palma			
No projects are currently proposed in the City.			
City of Los Alamitos			
No projects in close proximity to FMP area.			
City of Placentia			
Ajax Lakeview Development	To permit the development of two industrial buildings measuring 54,921 square feet (Building 1) and 39,456 square feet (Building 2) on two separate lots located within the C-M Zoning District.	718 and 719 S Lakeview Avenue	Approved
HQT Homes	To permit the development of four, three-story, multifamily buildings consisting of 16 residential townhomes located on a 1.24-acre unimproved vacant lot.	Southwest corner of Orchard Drive and Highland Avenue	Approved
Mercy Housing	This project involves the development of a 50-unit multifamily apartment structure for homeless and/or disabled Veterans.	1945 E. Veterans Way	Under Construction
City of Stanton			
Sewer Condition Improvement Project	This project involves spot repairs on sewer lines on various residential and arterial streets.	Various residential and arterial streets	Under Construction
Citywide Concrete Rehabilitation Project	This project will serve to remove and replace various concrete sections within the City that are in need of repair.	Various areas within City of Stanton	Under Construction
Street Rehabilitation Project	This project will include asphalt improvements on selected roads throughout the City.	Throughout City of Stanton	2020-2021

Table 3-5. Cumulative Projects

Project Name/#	Proposed Land Uses/ Description	Location	Status/Operational Start Date
Cerritos Street Widening Project	This project will include pavement improvements on Cerritos Avenue west of Beach Boulevard.	Cerritos Avenue west of Beach Boulevard	Summer 2020
City of Villa Park			
No projects are currently proposed in the City.			
City of Seal Beach			
No projects are currently proposed in the City.			
Irvine Ranch Water District (IRWD)			
Turtle Ridge DW, RW Pipeline Rehabilitation	The project would rehabilitate, replace, or install cathodic protection to the 16-inch domestic and 10-inch ductile iron recycled water pipelines in Turtle Ridge Drive.	Irvine	Construction Award: Winter 2020
Culver and University Intersection DW Pipeline Relocation	This project involves the relocation of a drinking water pipeline at the southeast corner of Culver Drive and University Drive. It will be done in conjunction with the City of Irvine's Culver Drive widening project.	Irvine	Construction Award: Winter 2020
San Joaquin Reservoir Filtration Facility	Project details are not known.		Construction Award: Summer 2020
HATS Diversion Structure Relining	Project details are not known.		Design Start: Winter 2020
Sewer Rehabilitation in Pelican Hill Golf Club	IRWD will be rehabilitating sewer lines that run through the Pelican Hill Golf Course.	Newport Beach	Project timing unknown.
Bonita Canyon Drive Zone D to B PRV Supply Line Replacement	IRWD will abandon an existing recycled water pipeline and install replacement pipeline along 135 linear feet in front of the Bonita Canyon Pump Station.	Irvine	Project timing unknown.
Ladd Canyon Road DW Pipeline Replacement	This project involves the replacement of an existing 6-inch domestic pipeline in Ladd Canyon Road with a 10-inch pipeline. Approxiamtely 2,100 linear feet of 20-inch pipeline in Ladd Canyon Road would be connected to an existing mainline, located in Silverado Canyon Road. In addition, new valves, a fire hydrant, service connections, and meters would be installed.	Santiago Canyon	Project timing unknown.
Lake Forest Woods Sewer Improvements	Project details are not known.		Construction Award: Spring 2020
Santiago Canyon Pump Station Improvements	Project details are not known.		Construction Award: Winter 2020
Sewer Syphon Improvements	Project details are not known.		Construction Award: Winter 2020

Table 3-5. Cumulative Projects

Project Name/#	Proposed Land Uses/ Description	Location	Status/Operational Start Date
Wells 5, 14, and 16 Rehabilitation	Project details are not known.		Project timing unknown.
DATS Miscellaneous Repairs	Project details are not known.		Design Start: Winter 2020 Construction Award: Spring 2020
Bake Parkway Zone 5-4 PRV and Pipeline	The project would construct approximately 1,000 linear feet of 8-inch-diameter domestic water pipeline and a pressure reducing valve (PRV) station on Bake Parkway, near North Pointe Drive. The PRV station would be located underground in a vault and include aboveground appurtenances .	Lake Forest	Project timing unknown.
Lake Forest Zone C Pipeline	Project details are not known.		Construction Award: Summer 2020
Serrano Creek Outlet Structure Improvements	Project details are not known.		Construction Award: Summer 2020
ILP North Conversion - Reservoir	Project details are not known.		Project timing unknown.
Santiago Creek Dam Spillway Replacement	Project details are not known.		Design Start: Winter 2020
Sewage Treatment Plant Master Plan	Project details are not known.		Design Start: Fall 2020
MWRP Biosolids and Energy Recovery Facilities	Project details are not known.		Project timing unknown.
Syphon Reservoir Improvements	The Syphon Reservoir Improvement Project will increase the capacity of an existing recycled water reservoir from 578 to 5,000 acre-feet or 188.3 million to 1.6 billion gallons.	Within IRWD service area at the site of existing Syphon Reservoir, which is located on the northeast side of Portola Parkway between Bee Canyon Access Road and State Route 133.	Design Start: Summer 2020
MWRP Unit Substation T-1 Replacement	Project details are not known.		Construction Award: Winter 2020
Alton Interceptor Sewer	Project details are not known.		Project timing unknown.
Criticality Based Pump Station Capital Improvement Program	Project details are not known.		Project timing unknown.

Table 3-5. Cumulative Projects

Project Name/#	Proposed Land Uses/ Description	Location	Status/Operational Start Date
Criticality Based Linear Assessment Capital Improvement Program	Project details are not known.		Project timing unknown.
Yorba Linda Water District			
No projects in close proximity to FMP area.			
Costa Mesa Sanitary District			
No major or approved projects in close proximity to FMP area.			
Midway City Sanitation District			
No projects are currently proposed.			
Orange County Sanitation District			
5-67: Bay Bridge Pump Station	The Bay Bridge Pump Station and Force Mains Rehabilitation Project (project) involves an upgrade of the existing Bay Bridge Pump Station and associated force mains located within the southern portion of Newport Beach, along East Pacific Coast Highway near the Newport Bay Channel.	Newport Beach, along East Pacific Coast Highway near the Newport Bay Channel	In Progress
P1-128: Headquarter Complex	The proposed project is a plan to replace aging and outdated administrative and laboratory buildings, to address needed security and site improvements in both the north and south areas of the plant, and to accommodate Caltrans/Orange County Transportation Authority plans for the new southbound I-405 on-ramp at Ellis Avenue.	Fountain Valley	In Progress
P1-105: Sanitation District Headworks Rehabilitation at Plant No. 1	Implementation of the proposed project would consist of a combination of construction activities that include the rehabilitation of existing facilities, construction of new facilities, and demolition of existing facilities, as well as operating and maintaining facilities once construction and rehabilitation is complete.	Fountain Valley	Project adopted July 2019
PS15-01: Biosolids Master Plan	The proposed program consists of nine different projects that are necessary to upgrade Plant 2 solid handling facilities in order to align with the Sanitation District's goals and objectives.	Huntington Beach	Construction
3-64: Rehabilitation of Western Regional Sewers	The proposed project would replace the wet well of the Westside Pump Station , either in place or on the other side of the pump station.	Huntington Beach	Project adopted March 2017

Table 3-5. Cumulative Projects

Project Name/#	Proposed Land Uses/ Description	Location	Status/Operational Start Date
P2-125: Southwest perimeter screening at Plant 2. (Part of Biosolids Master Plan)	The proposed project 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 550 feet in length along Brookhurst Street and up to approximately 1,030 feet along Talbert Marsh.	Huntington Beach	Construction start date: April 2020 Construction finish date: April 2022
P2-127: Collections and yard relocation at Plant 2 (Part of Biosolids Master Plan)	The existing 38,000-square-foot collections yard (parking lot) would be relocated, potentially to Plant 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 1 or Plant 2, similar to the existing footprint.	Huntington Beach	Construction start date: November 2021 Construction finish date: November 2023
P2-128: TPAD Digester Facility at Plant 2 (Part of Biosolids Master Plan)	This project would construct six 110-foot-diameter, 40-foot-tall (aboveground) 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.	Huntington Beach	Construction start date: June 2025 Construction finish date: November 2030
P2-129: Digester P, Q, R, and S Replacement at Plant 2 (Part of Biosolids Master Plan)	This project 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. Additionally, the project 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.	Huntington Beach	Construction start date: July 2030 Construction finish date: December 2035
XP2-132: Digester demolition at Plant 2 (Part of Biosolids Master Plan)	The project would demolish the six remaining digesters, Digesters C, D, E, F, G, and H, to free up site footprint for future treatment process facilities.	Huntington Beach	Construction start date: November 2037 Construction finish date: October 2042
P2-507: Replace Digesters I, J, K (Relocate Digester Holders)	The project 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	Huntington Beach	Construction start date: 2033 Construction finish date: 2038

Table 3-5. Cumulative Projects

Project Name/#	Proposed Land Uses/ Description	Location	Status/Operational Start Date
(Part of Biosolids Master Plan)	height of 37 feet (above ground). 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 would be 40 feet by 50 feet and up to 40 feet in height above ground.		
3-60: Beach Trunk/Knott interceptor sewer relief	This project would increase the capacity of the Beach Relief Trunk and Knott Interceptor sewer and Miller Holder Trunk sewer to provide future flows. The project consists of replacing 20,977 feet of trunk sewer main with larger diameter pipe and relining of 9,825 feet of trunk sewer main with CIPP.	Buena Park	Construction start date: January 2027 Construction finish date: February 2029
11-25: Edinger Bolsa Chica Trunk improvements			Construction start date: July 2028 Construction finish date: July 2030
X-062: Miller Holder Trunk Sewer Rehabilitation			Construction start date: December 2026 Construction finish date: December 2028
X-075: Fairview Trunk Sewer Rehabilitation	The project consists of relining 2,615 feet of trunk sewer main using CIPP, along Fairview Road. Two separate sections are in need of relining: 593 feet north of Adams Avenue and 2,023 feet in front of Orange Coast College. This pipe terminates at a diversion structure. The project also consists of one spot repair.	Costa Mesa	Construction start date: June 2026 Construction finish date: December 2027

3.8 References

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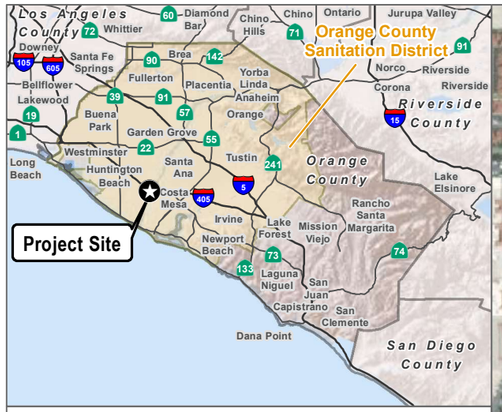

OCSD Sewer

Reclamation Plant No.1 Projects

- Plant Boundary
- Project Areas
- Plantwide Projects Area*

J-120 - Plantwide Miscellaneous Process Control Systems Upgrades
J-133 - Laboratory Rehabilitation or Replacement at Plant 1
J-98 - Plantwide Miscellaneous Electrical Power Distribution System Improvements
P1-126 - Primary Clarifiers Replacements and Improvements at Plant 1
P1-127 - Central Generation Rehabilitation at Plant 1
P1-135 - Digester Ferric Piping Replacement
X-006 - Waste Side stream Pump Station 1 Upgrade at Plant 1
X-015 - Trickling Filters Rehabilitation at Plant 1
X-017 - Plant 1 Primary Clarifiers 6-37
X-018 - Activated Sludge 2 Rehabilitation at Plant 1
X-038 - City Water Pump Station Rehabilitation at Plant 1
X-039 - Plant Water Pump Station Rehabilitation at Plant 1
X-043 - Dissolved Air Floatation Thickener Demolition at Plant 1
X-048 - Activated Sludge-1 Aeration Basin and Blower Rehabilitation at Plant 1
X-049 - Activated Sludge-1 Clarifier and RAS Pump Station Rehabilitation at Plant 1
X-057 - Plantwide Miscellaneous Yard Structures Rehabilitation or Replacement
X-058 - Plantwide Miscellaneous Yard Piping Replacement
X-059 - Plantwide Miscellaneous Tunnels Rehabilitation
X-077 - Switchgear Replacement at Central Generation at Plant 1
X-079 - Primary Scrubber Rehabilitation
X-090 - Network, Telecommunications, and Service Relocation at Plant 1
X-092 - Standby Generator Feeders for Plant
X-093 - Administrative Facilities and Power Building 3A Demolition

**Plantwide projects are projects that generally involve modifications to minor and/or auxiliary facilities, such as Project No. X-057, Plantwide Miscellaneous Yard Structures Rehabilitation or Replacement, which involves the replacement or rehabilitation of various yard structures throughout Plants 1 and 2, such as meter vaults, conduit, wet wells, etc. Please refer to Chapter 3 for additional detail.*

SOURCE: Maxar 2019

DUDEK

0 360 720 Feet

FIGURE 3-1

Reclamation Plant No.1

Sanitation District Facilities Master Plan PEIR

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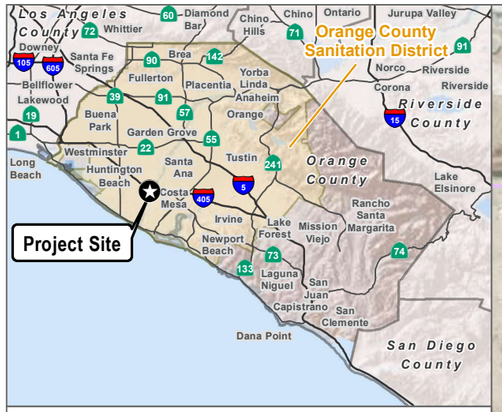

- OCSD Sewer

Treatment Plant No.2 Projects

- Plant Boundary
- Project Areas
- Plantwide Projects Area*

P2-119 - Central Generation Rehabilitation at Plant 2
P2-126 - Substation and Warehouse Replacement at Plant 2 (P2-126)
P2-138 - Operations Center Replacement at Plant 2 (P2-138)
X-007 - Waste Side-stream Pump Station 2A Upgrade at Plant 2
X-014 - Trickling Filter Solids-Contact Odor Control
X-030 - Headworks Rehabilitation at Plant 2
X-031 - Trickling Filter Solids-Contact Rehabilitation at Plant 2
X-032 - Truck Loading Facility Rehabilitation at Plant 2
X-034 - Sodium Bisulfite Station Replacement and Bleach Station Demolition at Plant 2
X-036 - City Water Pump Station Rehabilitation at Plant 2
X-037 - Plant Water Pump Station and 12 kV Distribution Center A Demolition at Plant 2
X-050 - Activated Sludge Aeration Basin at Plant 2
X-052 - Activated Sludge RAS/WAS/PEPS/Vaporizers Rehabilitation at Plant 2
X-054 - Waste Side-stream Pump Station C Rehabilitation at Plant 2

**Plantwide projects are projects that generally involve modifications to minor and/or auxiliary facilities, such as Project No. X-057, Plantwide Miscellaneous Yard Structures Rehabilitation or Replacement, which involves the replacement or rehabilitation of various yard structures throughout Plants 1 and 2, such as meter vaults, conduit, wet wells, etc. Please refer to Chapter 3 for additional detail.*

SOURCE: Maxar 2019

DUDEK

0 360 720 Feet

FIGURE 3-2

Treatment Plant No.2

Sanitation District Facilities Master Plan PEIR

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OCSD Sewer

Collection System Projects

- Replacement
- Rehabilitation
- Air Jumper Rehabilitation
- Pump Station

Outside of District

Outside of District

3-67

X-067 (X-085)

X-071

X-071

11-33

11-34

X-083

X-076

X-067 (X-085)

MOODY ST
BALL RD
KNOTT AV
CERRITOS AV
CERRITOS
LOS ALAMITOS BLVD
VALLEY VIEW ST
WESTERN AVE
CHAPMAN
KNOTT ST
LAMPSON AV
MAGNOLIA
LINCOLN
BALL
BROOKHURST
EUCLID
LA PALMA
HARBOR
ANAHEIM
CERRITOS AV
HARBOR BLVD
CHAPMAN AV
GARDEN GROVE
WESTMINSTER BLVD
HOOVER ST
SEAL BEACH BLVD
1ST
PACIFIC COAST HWY
GOLDEN WEST ST
BOLSA AV
BOLSA
1ST ST
FIRST
FAIRVIEW ST
DUCHESS LN
S SULLIVAN ST
EDINGER AV
EDINGER
MAGNOLIA ST
BOLSA CHICA
FAIRVIEW
GREENVILLE ST
WARNER
WARNER AV
SPRINGDALE ST
TALBERT AV
TALBERT
MAC ARTHUR BLVD
19
605
405
39
91
5
22
1
17

SOURCE: DigitalGlobe 2018; USGS 2020

DUDEK

0 3,100 6,200 Feet

FIGURE 3-3A

Collections System and Pump Stations

Sanitation District Facilities Master Plan PEIR

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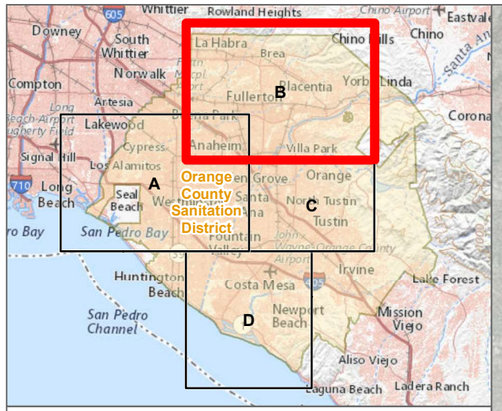

OCSD Sewer

Collection System Projects

- Replacement
- Rehabilitation
- Air Jumper Rehabilitation
- P Pump Station

Outside of District

X-061

X-061

X-086

X-063

2-49

X-065

X-065

X-066

Outside of District

Outside of District

SOURCE: DigitalGlobe 2018; USGS 2020

DUDEK

0 3,100 6,200 Feet

FIGURE 3-3B

Collections System and Pump Stations

Sanitation District Facilities Master Plan PEIR

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OCSD Sewer

Collection System Projects

- Replacement
- Rehabilitation
- Air Jumper Rehabilitation

SOURCE: DigitalGlobe 2018; USGS 2020

DUDEK

0 2,050 4,100 Feet

FIGURE 3-3C

Collections System and Pump Stations

Sanitation District Facilities Master Plan PEIR

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- OCSD Sewer
- Reclamation Plant 1 Projects
- Treatment Plant 2 Projects

Collection System Projects

- Replacement
- Rehabilitation
- Air Jumper Rehabilitation
- P Pump Station

Reclamation Plant No.1

Treatment Plant No.2

X-040

X-026

X-025

X-023

X-024

X-022

X-041

7-63

7-64

7-65

7-66

7-67

7-68

5-66

5-68

Outside of District

SOURCE: DigitalGlobe 2018; USGS 2020

DUDEK

0 3,050 6,100 Feet

FIGURE 3-3D

Collections System and Pump Stations

Sanitation District Facilities Master Plan PEIR

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4 Environmental Analysis

The following environmental analyses provide information relative to 15 environmental topics as they pertain to the Orange County Sanitation District's 2017 Facilities Master Plan (FMP). Each section of this chapter describes existing environmental and regulatory conditions, presents the criteria used to determine whether an impact would be significant, analyzes significant impacts, identifies mitigation measures for each significant impact, discusses the significance of impacts after mitigation is applied, and discusses cumulative impacts.

This chapter includes a separate section for each of the following issue areas:

- Section 4.1, Aesthetics
- Section 4.2, Air Quality
- Section 4.3, Biological Resources
- Section 4.4, Cultural Resources
- Section 4.5, Energy
- Section 4.6, Geology and Soils
- Section 4.7, Greenhouse Gas Emissions
- Section 4.8, Hazards and Hazardous Materials
- Section 4.9, Hydrology and Water Quality
- Section 4.10, Land Use and Planning
- Section 4.11, Noise
- Section 4.12, Public Services
- Section 4.13, Transportation
- Section 4.14, Tribal Cultural Resources
- Section 4.15, Utilities and Service Systems

The following issue areas were found not to be significant through the Initial Study process, and are therefore not discussed in this program environmental impact report (PEIR): agricultural and forestry resources, mineral resources, and recreation. These environmental topics are discussed in Chapter 5 of this PEIR, Other CEQA Considerations, and are not discussed in further detail pursuant to the California Environmental Quality Act (CEQA) Guidelines, Section 15128 (14 CCR 15000 et seq.). Chapter 6 analyzes alternatives, and Chapter 7 provides the list of preparers.

Analysis Format

This PEIR assesses whether the proposed FMP would potentially result in significant impacts in the issue areas listed above. Each environmental issue addressed in this PEIR is presented in terms of the following subsections:

Introduction. Discusses the resource area to be evaluated and describes the methodology used for the analysis, including any surveys and documentation reviewed to conduct the analysis of existing conditions and potential impacts.

Existing Conditions. Describes the existing conditions on or surrounding the FMP project sites that existed when the Notice of Preparation was sent to responsible agencies and the State Clearinghouse.

Relevant Plans, Policies, and Ordinances. Describes relevant federal, state, and local policies and regulations pertaining to a particular issue area.

Thresholds of Significance. Provides criteria for determining the significance of FMP project impacts for each environmental issue.

Impacts Analysis. Provides a discussion of the FMP's activities that may have an impact on the environment, includes a discussion of methodology as applicable, analyzes the nature and extent to which the proposed FMP may potentially change the existing environment, and indicates whether the FMP's impacts meet or exceed the levels of applicable significance thresholds.

Mitigation Measures. Identifies mitigation measures to reduce significant impacts, if any, to the extent feasible.

Level of Significance after Mitigation. Provides a discussion of significant environmental impacts that cannot be feasibly mitigated or avoided, significant environmental impacts that can be feasibly mitigated or avoided, and environmental impacts that are not significant, if any.

Cumulative Impacts. Provides a discussion of the past, present, and reasonably foreseeable projects relevant to each resource analysis, and documents cumulatively considerable environmental impacts that cannot be feasibly mitigated or avoided, cumulatively considerable environmental impacts that can be feasibly mitigated or avoided, and environmental impacts that are not cumulatively considerable. Mitigation measures to reduce cumulative impacts are included where necessary and as feasible.

References. Lists the sources cited during preparation of the PEIR.

Cumulative Projects Analysis

Section 15130(b)(1)(A) of the CEQA Guidelines (14 CCR 15000 et seq.) allows for the preparation of a list of past, present, and reasonably anticipated future projects as a viable method of determining cumulative impacts. Table 3-5, Cumulative Projects, in Chapter 3, Project Description, presents the cumulative projects analyzed in this PEIR.

4.1 Aesthetics

This section describes the existing visual conditions of the project site and vicinity, identifies associated regulatory requirements, evaluates potential impacts, and identifies mitigation measures related to implementation of the proposed Facilities Master Plan (FMP).

4.1.1 Existing Conditions

Regional Setting

Visual resources generally consist of natural landscapes and scenic views, including landforms, vegetation, and water features, as well as unique elements of the built environment. The proposed project is located in Orange County, which encompasses approximately 798 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, Orange 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 of Orange (County) consists of 34 incorporated cities, nine County beaches, six state beaches, three harbors, and 40 miles of coastline.

Orange County is predominantly an alluvial plain, generally less than 300 feet in elevation in the west and central areas. Orange 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 Santa Ana River (SAR) traverses from the northeast to the southwest through the middle of Orange County (County of Orange 2005). Orange County, including most of the service area for the Orange County Sanitation District (Sanitation District), is highly urbanized and is generally built out in the central to northwest portions. The eastern and southern areas contain more natural and open space, including numerous regional and wilderness parks.

Local Setting

Reclamation Plant No. 1 – Fountain Valley

The proposed FMP includes projects that would be implemented within the boundaries of the existing Reclamation Plant No. 1 (Plant 1), including joint plant projects located at both Plant 1 and Treatment Plant No. 2 (Plant 2). Plant 1 is located within the City of 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 2020a). The City of Fountain Valley is heavily urbanized with a mix of residential, commercial, and industrial uses, and is largely characterized by one- or two-story structures. The City of Fountain Valley is predominantly flat. The City's General Plan does not designate any scenic views or vistas within Fountain Valley (City of Fountain Valley 1995); however, visual elements considered to contribute positively to the City of Fountain Valley include open areas used for recreational activities, such as Mile Square Park (City of Fountain Valley 2020a).

Plant 1 is a 112-acre wastewater treatment plant located approximately 4 miles north of the Pacific Ocean. Plant 1 is characterized as a developed industrial site containing numerous structures that vary in height, mass, and function. Plant 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. 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.

Plant 1 is visible from public and private locations, including a commercial area north of Ellis Avenue; residential communities located to the west across Ward Street; and the SAR Trail. Views of Plant 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 1 from Ellis Avenue are partially screened by trees and a screening block wall located adjacent to the south side of Ellis Avenue.

Treatment Plant 2 – Huntington Beach

The proposed FMP includes projects that would be implemented within the boundaries of the existing Plant 2, including the joint plant projects located at both Plant 1 and Plant 2. Plant 2 is located in the City of Huntington Beach. The City of Huntington Beach is located in the northwestern portion of Orange County along the Pacific Ocean. The City of Huntington Beach is bordered 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 Beach and Costa Mesa to the east.

The City of Huntington Beach contains a mix of coastal resources; protected open spaces; and 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 of Huntington Beach. The visual character of the City of Huntington Beach is defined by Specific Plan areas, with established aesthetic themes and design guidelines for development (City of Huntington Beach 2017b). The City of Huntington Beach is within the California Coastal Zone and is part of a Local Coastal Program. The Local Coastal Program is divided into two components; a Coastal Element and Implementation Program (City of Huntington Beach 2020a). The Coastal Element identifies the stretch of Pacific Coast Highway (PCH) within the vicinity of Plant 2 as a Major Urban Scenic Corridor and Landscape Corridor. Coastal visual resources within the FMP area include Huntington State Beach, the Pacific Ocean, Talbert Marsh, and the SAR (City of Huntington Beach 2020a).

Plant 2 is bordered 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. Talbert Marsh is a 24-acre, 500-foot-wide marsh between Plant 2 and PCH.

Plant 2 is a 120-acre industrial facility located approximately 1,500 feet from the Pacific Ocean. Plant 2 is characterized as a developed industrial site containing numerous structures that vary in height, mass, and function. The tallest structure located at Plant 2 is Surge Tower 2, which stands at 86 feet, located on the southeast portion of Plant 2, adjacent to the SAR Trail. The existing 18 digesters and 13 primary clarifiers are located in the southeastern portion of Plant 2 and range 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.

Plant 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 2 are located in the cities of Huntington Beach to the northwest and Newport Beach to the southeast. Long distance views of Plant 2 can also be seen from the east in the City of Costa Mesa.

Collection System

The remaining FMP projects would be located throughout the Sanitation District's collection system (e.g., pipelines and pump station rehabilitation and replacement projects), the components of which are dispersed throughout the

Sanitation District's service area. Because of the disparate nature of the Sanitation District's service area, the FMP projects are situated within a diversity of settings that reflect the range of land uses occurring in Orange County. Most facilities are located in existing roads and Sanitation District rights-of-way traversing developed areas, including residential, commercial, and industrial uses. Certain facilities also sit adjacent to public uses such as schools and parks, and some are near small areas of open space. Because the majority of collection system facilities are located underground, they are not visible, with the exception of manholes within roadways. Facilities such as pump stations are visible to public and private viewers, but are often screened by security fencing and landscaping, and often contain architectural treatments so that the pump stations match the architectural character of their surrounding communities and environments. In some rare cases, air jumpers (which are small-diameter pipelines usually installed underground) are sometimes visible when attached to the sides of bridges or when crossing obstacles such as creeks or stormwater channel crossings.

Scenic Highways

Major roadway corridors within Orange County include Interstate 5, Interstate 405, Beach Boulevard (State Route [SR] 39), Costa Mesa Freeway (SR-55), Riverside Freeway (SR-91), and PCH (SR-1) to the south. According to the California Department of Transportation List of Scenic Highways, the only highway in Orange County that is an officially designated state scenic highway is a 4.2-mile-long portion of SR-91 from SR-55 to the eastern city limit of Anaheim (California Streets and Highways Code, Section 263). This portion of SR-91 was officially designated as a state scenic highway in 1971, when the areas surrounding the highway contained prominent views of mountain ridgelines, rolling hills, canyons, and intermittent riparian and chaparral vegetation. In the years since its designation, these views have since given way to views of commercial, residential, and industrial development as the surrounding area has urbanized. Notwithstanding, views of these scenic features are still available on an intermittent basis throughout the highway corridor. FMP projects within the vicinity of SR-91 include X-086, X-063, and X-078, which are underground pipeline projects that are located within streets beneath and adjacent to SR-91.

Additionally, a 17-mile portion SR-1 from Jamboree Road in Newport Beach to the northern city limit of Seal Beach is an eligible state scenic highway, but has not been officially designated (Caltrans 2019). This portion of SR-1 provides prominent views of the Pacific Ocean in the south, and occasional views of marshland and wetlands in the north, when not interrupted by the urban development within the cities of Huntington Beach and Seal Beach. Plant 2 is located approximately 500 feet north of PCH.

Light and Glare

There are two primary sources of light in the FMP area: 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). Bright light can be a nuisance to adjacent residential areas; can 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.

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. Daytime glare generation in urban areas is typically associated with buildings with exterior facades largely or entirely composed 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, and 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.

4.1.2 Relevant Plans, Policies, and Ordinances

Federal

There are no federal plans, policies, or ordinances that apply to aesthetics within the FMP area.

State

State Scenic Highway Program

The California Department of Transportation administers the state Scenic Highway Program to preserve and protect scenic highway corridors from change that would diminish the aesthetic value of lands adjacent to highways (California Streets and Highways Code, Section 260 et seq.). The state Scenic Highway Program includes a list of highways that are either eligible for designation as scenic highways or have been so designated. These highways are identified in the California Streets and Highways Code, Section 263. The program entails the regulation of land use and density of development; attention to the design of sites and structures; attention to and control of signage, landscaping, and grading; and other restrictions. The local jurisdiction is responsible for adopting and implementing such regulations. If a highway is listed as eligible for official designation, it is also part of the Scenic Highway Program, and care must be taken to preserve its eligibility status.

California Coastal Act

The California Coastal Act of 1976 (Public Resources Code Section 30200 et seq.) is administered by the California Coastal Commission (CCC) and implemented locally by Local Coastal Programs (LCPs). Section 30251 of the California Coastal Act specifically discusses the protection of the visual quality of coastal areas (Public Resources Code Section 30251):

> The scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural land forms, to be visually compatible with the character of surrounding areas, and, where feasible, to restore and enhance visual quality in visually degraded areas.

The CCC has jurisdiction throughout California, and uses the LCPs of other jurisdictions to meet and enforce its mission. In addition to development guidelines and requirements included in the local agency's LCP, the CCC can require additional provisions from applicants through its Coastal Development Permit approval process.

Local

Because a number of the Sanitation District's permanent visible facilities (i.e., Plant 1, Plant 2, and pump stations) are located in the cities of Fountain Valley, Huntington Beach, and Newport Beach, applicable policies in these jurisdictions are discussed in detail.

City of Fountain Valley General Plan

The City of Fountain Valley's General Plan was last comprehensively updated in 1995. The City's General Plan briefly discusses visual resources and identifies specific areas (namely open space areas) that contribute to the visual resources and image of the city. More specifically, the Land Use Element contains several policies related to community design; those that would be applicable to FMP projects are listed below (City of Fountain Valley 1995):

Goal

2.5 Protect and enhance the City's existing positive visual attributes.

Policy

2.5.1 Protect and enhance existing well maintained neighborhood areas.

2.5.2 Protect and enhance existing parks and open space areas.

Goal

2.6 Improve architectural quality of development within Fountain Valley

Policy

2.6.1 Promote residential, commercial and industrial development which achieves harmony without monotony in the built environment.

2.6.2 Encourage planning and design which is people oriented, sensitive to the needs of visitors and residents and functionally efficient for its purpose.

Goal

2.8 Well-designed commercial and industrial development.

2.9 Attractive streetscapes throughout the City.

Policy

2.9.1 Encourage landscaping to enhance streetscapes.

2.9.3 Fencing treatment shall be designed to be aesthetically pleasing

2.9.4 Buildings shall present fully finished facades on all sides visible from freeways or streets.

City of Fountain Valley Municipal Code

The City of Fountain Valley Zoning Code (Title 21 of the Fountain Valley Municipal Code) includes regulations for permitted uses, project design and development standards, parking requirements, regulations for Specific Plans, and other information regarding land use and development in the City (City of Fountain Valley 2020b). Together with the Zoning Map, these documents serve as tools that allow the City to regulate the location and development

of land uses in a more precise manner than through the overarching vision of the General Plan, and are adopted to protect and promote the health, safety, and general welfare of the City residents and to preserve and enhance the visual character and aesthetic quality of the City. In addition, the Zoning Code identifies and defines zoning districts and development standards, and regulates such issues as uses, setbacks, building heights, building additions, population densities, parking requirements, landscaping, and land use compatibility.

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. Lighting standards include the following (City of Fountain Valley 2020b):

- **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.
- **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.
- **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.
- **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.
- **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.

City of Huntington Beach General Plan

The City of Huntington Beach's General Plan was last comprehensively updated on October 2, 2017, and provides the framework for management and utilization of the Huntington Beach's physical, economic, and human resources. One element in the General Plan is the Coastal Element. The Coastal Element is part of Huntington Beach's LCP and outlines Huntington Beach's roles, responsibilities, and strategies to provide coastal access and protect coastal resources within the coastal zone consistent with the California Coastal Act (City of Huntington Beach 2017c).

The Coastal Element in the City of Huntington Beach General Plan (City of Huntington Beach 2011) was adopted by the City Council in 1999 and certified by the CCC in 2001. It has since been amended (October 2011). The purpose of the Coastal Element is to meet the requirements of the California Coastal Act and guide civic decisions regarding growth, development, enhancement, and preservation of Huntington Beach's Coastal Zone and its resources. The Huntington Beach's Coastal Zone includes visual resources, facilities, and assets that contribute to the positive and negative aesthetic character of the Coastal Zone. Assets that define the coastal visual resources within the FMP project vicinity include Huntington State Beach, the Pacific Ocean, the Santa Ana River,

and Talbert Marsh. The Coastal Element describes Talbert Marsh as providing open space and visual relief along the adjacent portion of PCH.

The Coastal Element also identifies the stretch of PCH located within the City of Huntington Beach and south of the FMP project site as a major urban scenic corridor. A scenic vista looking north toward Talbert Marsh from this portion of PCH is also identified in the Coastal Element. In addition to identifying scenic vistas and scenic corridors, the Coastal Element contains goals, objectives, and policies relating to the preservation of the scenic resources in the FMP area (City of Huntington Beach 2011). Several goals, objectives, and policies are relevant to the FMP and are listed below (City of Huntington Beach 2011):

Goal

C 4 Preserve and, where feasible, enhance and restore the aesthetic resources of the City's coastal zone, including natural areas, beaches, harbors, bluffs and significant public views.

Objective

C 4.1 Provide opportunities within the Coastal Zone for open space as a visual and aesthetic resource.

C 4.1.1 The scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect public views to and along the ocean and scenic coastal areas.

Policy

C 4.1.4 Preserve skyward, night time views through minimization of lighting levels along the shoreline.

Objective

C 4.3 Promote designated coastal roadways as scenic corridors.

C 4.7 Improve the appearance of visually degraded areas within the Coastal Zone.

Policy

C 4.7.2 Continue to locate new and relocated utilities underground when possible. All others shall be placed and screened to minimize public viewing.

C 4.7.8 Require landscape and architectural buffers and screens around oil production facilities and other utilities visible from public rights-of-way.

City of Huntington Beach Municipal Code

The 1997 Zoning and Subdivision Ordinance established development standards in the planning area. These standards address permitted uses, minimum parcel sizes, building heights, densities, setbacks, parking, landscape, and other requirements. (City of Huntington Beach 2020b).

Lighting Ordinance

Title 23 of the City of Huntington Beach Zoning Code includes various lighting standards for the City (City of Huntington Beach 2020b). The applicable lighting standard is as follows:

- **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.

City of Huntington Beach Design Guidelines – Huntington Beach Urban Design Guidelines Manual

The City of Huntington Beach adopted its Urban Design Guidelines Manual in 2000. The Urban Design Guidelines includes a comprehensive list of urban design issues that must be considered and addressed by new development to improve the City's image and strengthen the public and private realm. The Urban Design Guidelines Manual is generally organized to cover major land use categories including residential, commercial and industrial uses. Separate chapters are dedicated to Main Street, Streetscape Components, Special Consideration Commercial, Sign and Public Art, and District-Specific Guidelines. The District-Specific Guidelines chapter provides design direction that reinforces the unique character of each of the 16 Huntington Beach districts. District 14 (Edison and Sanitation District) and District 16 (Northwest Industrial) contain FMP projects that would result in permanent visual changes after completion, and thus, are discussed below.

Plant 2 is located within District 14 (Edison and Sanitation District), which covers the southeast corner of the City of Huntington Beach and includes the AES power plant (formerly owned by Southern California Edison) and Plant 2. District 14 is characterized by large industrial plant facilities, perimeter fencing, entry gates with employee-only access, and visually prominent storage tanks, stacks, power lines, and machinery. The Urban Design Guidelines provides the following guidelines for District 14:

- Intensified landscaping should be provided to screen industrial facilities.
- Entry gates should be landscaped.
- Use of natural stone such as river rock is encouraged in perimeter wall design.

The Edinger Pump Station is located within District 16 (Northwest Industrial), which covers the northwest corner of the City of Huntington Beach. The district is characterized by a well-defined concentration of light manufacturing, industrial, office, and commercial uses within a campus setting. Other characteristic features include landscaped business parks, inconsistent placement of street trees and site landscaping, and research and development industries. The Urban Design Guidelines provides the following guidelines for District 14:

- Entry monuments and gateways should be incorporated into larger industrial developments.
- Pedestrian linkages through industrial districts are encouraged.
- High quality architecture is encouraged.
- Intensified landscaping along project perimeter areas is recommended.

Applicability and Exemptions

The Urban Design Guidelines state that the guidelines provided are not mandatory development standards and may be interpreted with some flexibility.

When in compliance with all other City ordinances, the following projects are exempt from all provisions of the Design Guidelines Manual: projects that involve the development of three or less single-family units and are not subject to any other discretionary review or approval; underground construction, which will not leave any significant, permanent marks on the surface after completion (utility boxes, piping and appurtenances, are considered "significant permanent marks"); maintenance work on buildings, landscaping, or grounds (including parking lots) which does not significantly alter the appearance or function of the building, landscaping, or grounds; interior remodeling work; and temporary uses and structures as defined by the City of Huntington Beach Municipal Code.

City of Newport Beach General Plan

The Natural Resources Element of the City of Newport Beach's General Plan (City of Newport Beach 2006) discusses visual resources and identifies specific areas that contribute to the visual resources of Newport Beach. More specifically, Newport Beach's habitat areas, coastal canyons, and gullies in the eastern portion of the city are identified as locations offering significant views of Newport Beach. The Natural Resources Element contains several policies related to visual resources. Those that would be applicable to the proposed project are listed below (City of Newport Beach 2006):

Policy

NR 21.1 Signs and Utility Siting and Design: Design and site signs, utilities, and antennas to minimize visual impacts.

NR 23.7 New Development Design and Siting. Design and site new development to minimize the removal of native vegetation, preserve rock outcroppings, and protect coastal resources.

City of Newport Beach Municipal Code

Title 20 (Planning and Zoning) of the City of Newport Beach Municipal Code (also known as the Zoning Code) identifies land use categories, development standards, and other provisions that ensure consistency between the Newport Beach's General Plan and proposed development and redevelopment projects. The purpose of Newport Beach's Zoning Code is to promote growth in Newport Beach in an orderly manner while promoting public health, safety, peace, comfort, and the general welfare. Provisions from Newport Beach's Zoning Code help minimize aesthetic and light and glare impacts associated with new development projects and are relevant to the proposed project. Adherence to these provisions improves and maintains the visual quality of the community. More specifically, Chapter 20.30, Property Development Standards, of Newport Beach's Municipal Code contains regulations pertaining to buffering and screening; fences, hedges, and retaining walls; height limits; outdoor lighting; and public view protection. The purpose of the chapter is, in part, to produce an environment that is harmonious with existing and future development, and to protect the use and enjoyment of neighboring properties. Section 20.30.100, Public View Protection, contains provisions applicable to discretionary applications where a project has the potential to obstruct public views from public viewpoints and corridors identified in the General Plan (City of Newport Beach 2006).

In addition, Newport Beach received certification of its LCP by the CCC with an effective date of January 30, 2017. After certification, the majority of Coastal Development Permit applications are being processed by the City of Newport Beach, instead of the CCC South Coast District Office in Long Beach, which covers all of Orange County and parts of Los Angeles County. The majority of the City of Newport Beach's LCP is taken from Newport Beach's Zoning Code (City of Newport Beach 2019). Therefore, the land use, setbacks, height limits, floor area limits, off-street parking, and other development regulations in the inland portions of Newport Beach are largely the same as those for the coastal areas.

City of Newport Beach Design Guidelines – Lido Village Design Guidelines

The City of Newport Beach adopted the Lido Village Design Guidelines in December 2011, which applies to an area in the northwest corner of the Balboa Peninsula. The Lido Village Design Guidelines were adopted with the intent of creating a vibrant gateway Village in the heart of historic Newport Beach's Balboa Peninsula. The Lido Village Design Guidelines contain guidelines for five distinctive Design Areas: Lido Marina Village, Via Lido Plaza, City Hall, Lido Triangle, and Newport Boulevard Shops. The Newport Boulevard Shops Design Area contains a FMP project that would result in permanent visual changes after completion, and thus, is discussed below.

The Lido Pump Station is located within the Newport Boulevard Shops Design Area, which covers the area along the western side of Newport Boulevard within the Lido Village area. This area within Lido Village includes a variety of storefronts facing Newport Boulevard on the west. A mix of retail shops and restaurants with offices on the second floor make up this area. Included within this strip of commercial uses is the only gas station on the Balboa Peninsula. The southernmost property in this design area backs onto the Rivo Alto Canal. Because of the intensity of Newport Boulevard traffic, pedestrian safety and retail identity need to be considered. Storefront architecture and signage improvements combined with landscape design, enhanced pedestrian crossings, fixtures, and furnishings have the ability to transform this row of shops into a more vibrant corridor, framing the gateway to the Balboa Peninsula. The Lido Village Design Guidelines provide the following goals for the Newport Boulevard Shops Design Area:

- Complement Via Lido Plaza and City Hall Design Areas.
- Improve pedestrian experience and safety.
- Incorporate quality tenant mix that complements other Newport Boulevard parcels.
- Design building massing and storefront improvements to be more horizontal in form, reinforcing the pedestrian interface.
- Seek opportunities to incorporate view corridor access to the Rio Alto Canal into future design efforts when appropriate.

4.1.3 Thresholds of Significance

The significance criteria used to evaluate FMP project impacts to aesthetics are based on Appendix G of the California Environmental Quality Act (CEQA) Guidelines. According to Appendix G of the CEQA Guidelines, a significant impact related to aesthetics would occur if the project would:

1. Have a substantial adverse effect on a scenic vista.
2. Substantially damage scenic resources including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway.
3. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

As stated in the July 2019 Initial Study (Appendix A to this program environmental impact report [PEIR]), potential impacts associated with regulations governing scenic quality (Appendix G, Aesthetics Threshold 3) were deemed to be less than significant for implementation of the FMP due to the maintenance, replacement, and rehabilitation nature of the proposed improvements. Therefore, the following topic is not further analyzed in this PEIR:

- In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings. (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, conflict with applicable zoning and other regulations governing scenic quality.

4.1.4 Impacts Analysis

General Discussion of Aesthetic-Related Project Impacts

As discussed in Chapter 3, Project Description, of this PEIR, the proposed FMP would involve implementation of capital improvement program projects through 2040 to rehabilitate, replace, and maintain the existing wastewater conveyance and treatment system. Projects addressed by the FMP would be generally implemented across three areas of the Sanitation District's system: at Plant 1 at Plant 2 (for Plant 1, Plant 2, and Joint Plant Projects), and throughout the collection system (i.e., underground within public rights-of-way [for pipelines] and at pump stations). Chapter 3 also identifies projects as falling into one of the following three categories, indicating the type of work being performed relative to existing Sanitation District infrastructure:

- **Replacement projects** are those for which the primary purpose is to replace an existing facility, meaning all existing components and infrastructure in the subject facility would be replaced with new components and infrastructure. Examples of this would be trench-based replacement of an existing pipeline segment, replacement of an existing pump station, or replacement of an existing facility at one of the plants.
- **Rehabilitation projects** are those for which the primary purpose is to improve existing facilities without complete replacement. Examples of this would include extending the service life of an existing pipeline by the cured-in-place pipe method, which entails installing material to line the interior of the pipe without the need for trench-based replacement, or refurbishing aging equipment at a pump station or treatment plant.
- **Miscellaneous projects** are other projects that are not easily defined as replacement or rehabilitation projects. Examples include installation of new infrastructure at existing facilities (such as the installation of a carbon scrubber at a pump station[1]), abandonment of existing facilities, electrical upgrades, and projects that combine different categories of work.

As such, given the nature of the FMP projects (i.e., rehabilitation and replacement), impacts related to aesthetics are inherently limited because future conditions after the FMP project is completed would be similar to existing conditions. Proposed FMP projects would not involve new construction of facilities that are not currently a part of the Sanitation District's existing wastewater conveyance and treatment system. Any projects of this nature, such as the Sanitation District Headquarters Complex, Site and Security, and Entrance Realignment Program (Project 1-128), are covered by separate CEQA documents. These cumulative projects have been considered in the cumulative impact analysis in this PEIR, but they are not subject to reanalysis at the project or program level herein. Consequently, for the majority of FMP projects, aesthetic-related impacts are limited to those that would occur during construction, with the exception of projects that would result in changes to the natural or built environment as a result of changes in facility design made during facility rehabilitation or replacement.

[1] Project 5-68, Newport Beach Pump Station Odor Control Improvements, is listed as a miscellaneous project. Under this project, odor control equipment, such as carbon scrubbers (which are located within small enclosures) would be installed within the footprint of selected existing pump stations throughout Newport Beach.

1. Would the project have a substantial adverse effect on a scenic vista?

Visual Changes during Construction

Plant 1

No Impact. As discussed in Section 4.1.1, Existing Conditions, the City of Fountain Valley does not have any designated scenic views or vistas in the vicinity of Plant 1. For this reason, FMP construction projects occurring at Plant 1, including the FMP projects analyzed at the project level (i.e., P1-126, X-093, X-092, X-048, P1-135, X-077, X-090, J-98, J-120, J-133, X-057, X-058, X-059, J-121, and X-044) and those analyzed at the program level, would result in no impact to scenic vistas.

Plant 2

Less-than-Significant Impact with Mitigation Incorporated. Within the City of Huntington Beach, the Pacific Ocean, Huntington State Beach, Talbert Marsh, and the SAR are considered to be prominent visual resources that provide scenic vistas in the proximity of Plant 2. Accordingly, the Coastal Element identifies the stretch of PCH within the vicinity of Plant 2 as a Major Urban Scenic Corridor and Landscape Corridor.

Under existing conditions, Plant 2 is generally screened by fencing and landscaping, including trees, partially blocking views into Plant 2 from the surrounding areas. In addition, the Sanitation District is in the process of constructing the Southwest Perimeter Fence at Plant 2 (Project P2-501). As part of the perimeter fence project, the Sanitation District will improve or replace the perimeter screening along the entire length of Plant 2 along Brookhurst Street (approximately 4,325 feet) and up to approximately 1,030 feet along Talbert Marsh to provide a visual buffer along Brookhurst Street, Talbert Marsh, and PCH. As a result of these visual barriers and the relatively flat topography of the landscape surrounding Plant 2, the majority of the facilities within Plant 2 are not publicly visible, beyond those facilities that are located along the Plant's frontages or that are multiple stories tall.

Construction activities for FMP projects would occur intermittently throughout Plant 2. Construction equipment, including backhoes, loaders, cranes, dump trucks, graders, and pavers, would be located at both plant locations. The construction equipment would move from one project to another over the construction period. Plant 2 is located approximately 500 feet north of PCH. Additionally, the SAR Trail is located along Plant 2's eastern border. FMP projects at Plant 2 that are analyzed at the project level and that would potentially be visible from PCH or the SAR Trail would include Projects P2-126, P2-138, X-050, and X-054 due to their locations along the frontages of Plant 2.

Construction of the FMP projects would require temporary ground-disturbance and construction, requiring the use of construction equipment, which would be visible in these areas. Under existing conditions, there are varying levels of landscaping, natural vegetation, and fencing that screens structures and activities at Plant 2 from view; however, not all structures and activities are currently completely screened. However, the Sanitation District is in the planning and construction phases of its approved Biosolids Master Plan, which calls for, among other things, construction of the Southwest Perimeter Fence at Plant 2 (Project P2-501).

As part of the perimeter fence project, the Sanitation District will improve or replace the perimeter screening along the entire length of Plant 2 along Brookhurst Street (approximately 4,325 feet) and up to approximately 1,030 feet along Talbert Marsh to provide a visual buffer along Brookhurst Street, Talbert

Marsh, and PCH. Construction of the Southwest Perimeter Screening project is already underway and anticipated to be complete in 2021, and would effectively obscure the majority of views from PCH of FMP construction activities planned for Plant 2. While some FMP construction activities at Plant 2 would still be visible above the Southwest Perimeter Screening project from PCH (e.g., when cranes are used and if two-story structures are constructed), FMP construction activities would not result in any physical modifications to Talbert Marsh, which is visible in northbound peripheral views available to travelers along PCH.

Any FMP construction activity that may be visible above the Southwest Perimeter Screening project from PCH would be a temporary component of middle-background views of Plant 2, which in the overall viewing context, is an existing industrial complex. While scenic views of Talbert Marsh are visible in the foreground, the temporary addition of partially visible construction equipment located within background views would not result in a significant adverse effect to the integrity of existing scenic foreground views of Talbert Marsh, especially considering that the background views are primarily those of an industrial wastewater treatment complex. This effect would largely be the same for views of FMP construction activity at Plant 2 from the SAR Trail.

While there would not be any substantial new screening erected along Plant 2's eastern boundary, there is already varying amounts of landscaping along Plant 2's eastern border, which would partially obscure views of construction activity within Plant 2. Additionally, no physical modifications would occur to the SAR, and FMP construction projects at Plant 2 would be fully located within the existing boundaries of the Plant. As such, while scenic views of the SAR would be visible in the foreground to recreational users of the SAR Trail, the temporary addition of partially visible construction equipment located within background views would not result in a significant adverse effect to the integrity of existing scenic foreground views of the SAR, especially considering that the background views are primarily those of an industrial wastewater treatment complex.

For construction that would occur within a Plant's interior (FMP projects analyzed at the project level include X-032, X-054, X-034, J-98, J-120, J-133, X-057, X-058, X-059, J-121, and X-044), construction activities would largely, if not entirely, be screened from public views by fencing (which will be expanded by the Southwest Perimeter Screening project), landscaping, and/or the presence of intervening facilities along the periphery of Plant 2. In addition, per **Mitigation Measure (MM) AES-1** (see Section 4.1.5, Mitigation Measures), construction staging areas would be sited to minimize visual impacts to adjacent uses, and where construction activities would be visible (e.g., if there are gaps in fencing that provide viewing windows), activities would be screened from public view. With implementation of **MM-AES-1**, short-term visual impacts with respect to scenic vistas at Plant 2 would be reduced to less than significant.

Collection System Projects

Less-than-Significant Impact with Mitigation Incorporated. Under existing conditions, most collection system facilities are located in existing roads and Sanitation District rights-of-way traversing developed areas, including residential, commercial, and industrial uses. Certain facilities are adjacent to public uses such as schools and parks, and some are near small areas of open space. Because the majority of collection system facilities are located underground, they are not visible with the exception of manholes within roadways. Facilities such as pump stations are visible to public and private viewers, but are often screened by security fencing and landscaping.

Construction methods for collection system improvement projects generally include lining, manhole repair, open-trench excavation for new sewer installations, shoring, dewatering, pipe removal, manhole removal with associated demolition, and potential jack-and-bore methods for installation at sensitive crossings (e.g., busy intersections, railroad spurs, or flood control channels). Construction activities associated with implementation of the collection system projects would require the presence of construction workers, equipment, and vehicles within existing rights-of-way.[2] Although construction activities would result in visual changes, these potential visual impacts would be short term and would cease upon completion of construction. In addition, construction staging areas would be sited to minimize visual impacts to adjacent uses, and the staging perimeters would be screened. Upon completion of an FMP project, the site would be restored to conditions similar to existing conditions. Therefore, short-term impacts for FMP projects analyzed at the project level (i.e., 5-68, X-076, X-082, X-060, 11-33, X-063, 2-73, 3-67, 2-49, and X-083) and those analyzed at the program level would be reduced to less than significant.

Visual Changes during Operation

Plant 1

No Impact. As discussed in Section 4.1.1, the City of Fountain Valley does not have any designated scenic views or vistas in the vicinity of Plant 1. For this reason, FMP construction projects occurring at Plant 1, including the FMP projects analyzed at the project level (i.e., P1-126, X-093, X-092, X-048, P1-135, X-077, X-090, J-98, J-120, J-133, X-057, X-058, X-059, J-121, and X-044) and those analyzed at the program level, would result in no impact to scenic vistas.

Plant 2

Less-than-Significant Impact. Within the City of Huntington Beach, the Pacific Ocean, Huntington State Beach, Talbert Marsh, and the SAR are considered to be prominent visual resources that provide scenic vistas in the proximity of Plant 2. Accordingly, the Coastal Element identifies the stretch of PCH within the vicinity of Plant 2 as a Major Urban Scenic Corridor and Landscape Corridor.

Given the nature of the proposed FMP projects, upon completion of construction, visual impacts would be inherently limited, because the projects would result in the repair, rehabilitation, and/or replacement of existing facilities. For projects that involve rehabilitation or for projects that are located underground, visual impacts would be minimal, if there are any visual changes at all. FMP projects at Plant 2 that are analyzed at the project level for which this would be true include projects X-050, X-032, X-054, J-133, X-057, X-058, X-059, and X-044, and impacts for these projects and those analyzed at the program level would be less than significant.

For replacement projects, although replacement facilities would not always be an exact in-kind replacement or in the exact same building footprint, visual changes would be minimal, since new facilities would be designed consistent with the overall aesthetic of the existing Plant such that the built environment would largely resemble that of the conditions before construction. In addition, under existing conditions, opportunities to perceive changes within Plant 2 are limited. As discussed above, Plant 2 is generally well-screened by existing fencing and landscaping, and views of the internal facilities at Plant 2 are generally limited to those facilities located along the peripheries the Plant. Additionally, the Southwest Perimeter Screening at Plant 2, which will improve or replace the perimeter screening along the entire length of Plant

[2] For a detailed description of construction activities, please refer to Section 3.5, Project Construction.

2 along Brookhurst Street (approximately 4,325 feet) and up to approximately 1,030 feet along PCH is currently under construction and anticipated to be completed in 2021, further blocking the majority of views of future FMP projects at Plant 2. Therefore, replacement facilities would only be visible when not screened by existing visual barriers, resulting in the majority of FMP projects not being visible. Additionally, there is little variation in the color and form of facilities and infrastructure within each Plant. As a result, even if future facilities are visible and feature designs that differ from the designs of their existing facilities, there would be little noticeable change in the overall visual character of Plant 1 or Plant 2 because when viewed from afar, the buildings, facilities, and infrastructure combine to form a uniform industrial backdrop and it would be difficult to perceive the addition, subtraction, or modification of a singular building within the context of a generally uniform industrial setting. FMP projects that are analyzed at the project level that would either be entirely screened by existing or planned visual barriers, or would result in nominally perceptible changes include projects X-034, J-98, J-120, and J-121, and impacts for these projects and those analyzed at the program level would be less than significant.

FMP projects at Plant 2 that are analyzed at the project level that may remain visible from vantage points outside of Plant 2 because they would not be sufficiently screened by existing visual barriers include P2-126 and P2-138. As stated previously, the Pacific Ocean, Huntington State Beach, Talbert Marsh, and the SAR are considered to be prominent visual resources that provide scenic vistas in the proximity of Plant 2. Accordingly, the Coastal Element identifies the stretch of PCH within the vicinity of Plant 2 as a Major Urban Scenic Corridor and Landscape Corridor. A significant impact could potentially occur with respect to scenic vistas if these FMP projects were to directly modify the identified visual resources that compose scenic vistas within the vicinity of Plant 2; block or obscure these visual resources from the view of publicly accessible vantage points; or result in the placement of new, particularly noticeable, and discordant (e.g., due to color, massing, or other visual characteristics) features in close proximity to these resources such that the overall integrity of the scenic vista is degraded.

P2-138, Operations and Maintenance Complex at Plant 2, would be visible from Brookhurst Street which is designated as a Major Urban Scenic Corridor. Project P2-138 would replace the Operations/Control Center Building, which is located on the western side of Plant 2 near the main entrance off Brookhurst Street, with a new building just north of the existing facility; provide replacement facilities for the temporary Engineering Construction trailer complex; and demolish and replace the guard shack. The project would also involve reconfiguring the main entry into Plant 2, moving the main entrance farther north and closing the existing main gate and Banning Gate. Pavement and hardscape in this part of Plant 2 would be demolished and replaced.

P2-138 would not directly modify any visual resources (such as the Pacific Ocean, Talbert Marsh, or SAR) and would not block or obscure any visual resources from the view of publicly accessible vantage points because the project components would be located within Plant 2 and away from these resources. With regard the project's potential to result in the placement of particularly noticeable and discordant features within a scenic vista, given that this project would be immediately visible from Brookhurst Street, there would be a high degree of visual change. While the project has not yet been designed (as this project is still only in the planning phase), the ultimate architectural features and appearance of the physical improvements would be consistent with the existing visual character of the Plant's frontage. The future gate and visible buildings would feature appropriately scaled exterior facades and would feature high-quality landscaping and hardscaping to soften views from Brookhurst Street. Furthermore, the improvements would be designed consistent with the Urban Design Guidelines for District 14 (Edison and Sanitation District). As a result, the ultimate appearance of the project would be harmonious with the existing built

environment, such that no adverse effects would occur to the visual integrity of Brookhurst Street, a Major Urban Scenic Corridor. Therefore, visual impacts associated with P2-138 would be less than significant.

P2-126, Substation and Warehouse Replacement at Plant 2, would be located within the northern portion of Plant 2. The project would entail demolition of an existing 21,000-square-foot warehouse in the southern portion of the plant and its reconstruction approximately 1,600 feet to the north. The project would also involve the demolition and reconstruction of an approximately 2,800-square-foot Electric Service Center Building, which would include various electrical distribution components (e.g., 12 kV switchgear, 480-volt panel board, and direct current battery system). The Electrical Service Center would be located in one of two locations, either along Brookhurst Street in its current location or north of the warehouse, along the SAR Trail. In addition, P2-126 would involve the construction of a new 66 kV to 12.47 kV substation, which would involve the installation of a second Southern California Edison 66 kV incoming distribution line, in addition to the existing 66 kV line that is currently located within a Southern California Edison easement that runs parallel to Brookhurst Street north of Plant 2. Installation of this new incoming distribution line may result in the replacement of existing pole structures to accommodate the second line, and may result in slight shifts in location of the existing line to accommodate connection to the new substation, but this would not be substantially different in location or height of the existing power poles.

P2-126 would result in visual changes to the environment; however, the project would not directly modify any identified scenic resources, such as the Pacific Ocean, Talbert Marsh, or SAR. P2-126 would not result in blockage or obscuration of these visual resources from publicly accessible vantage points (i.e., Brookhurst Street or the SAR Trail). Project components, such as steel beams and poles, electrical wires, electrical enclosures, and buildings, may be visible from these publicly accessible viewpoints, however, most project components would be screened by existing or planned walls and vegetation, and given the generally uniform industrial setting of Plant 2, the addition of several industrial facilities would be nominally perceptible to viewers, and would not result in adverse effects to existing views from publicly accessible vantage points. One component of the project, the incoming distribution line, would be located outside Plant 2. However, this project component would result in the installation of a new 66 kV incoming line within an existing utility corridor, and would therefore not result in new levels of blockage of views of the SAR (the Pacific Ocean and Talbert Marsh are not visible in vicinity of the northern portion of Plant 2). Given the nature of power lines, views of the SAR would still be available beyond this project component. Additionally, installation of a second utility line would result in a minimal degree of visual change. Given the existing conditions, its installation would not be highly noticeable and would be consistent with the existing utility line that runs into Plant 2. For these reasons, implementation of P2-126 would result in less than significant impacts to scenic vistas.

In summary, for FMP projects occurring at Plants 1, because there are no scenic views or vistas in the vicinity of Plant. 1, no impacts to scenic vistas would occur. For the majority of FMP projects occurring at Plant 2, there would be little (and in some cases, no) perceptible visual change, resulting in less-than-significant impacts for those projects. For FMP projects that would result in a greater degree of visual change that would be immediately visible from surrounding areas, implementation of MM-AES-2 would ensure that visual impacts are less than significant.

Collection System Projects

Less-than-Significant Impact with Mitigation Incorporated. For collection system projects, all pipelines would be installed below-ground, and upon completion of construction, all areas would be restored to their pre-project conditions. As such, pipeline projects would have no visual impact on the built or natural environment. FMP projects within the Collection System that are analyzed at the project level for which this would be true include projects X-076, X-082, X-063, 2-49, and X-083, as well as the pipeline projects analyzed at the program level.

For pump station projects, opportunities for visual changes in the environment are limited due to the number of projects proposed and the nature of the pump station projects. Out of all FMP projects, 13 projects would involve pump stations. Of these projects, the majority would involve the repair, replacement, and/or rehabilitation of internal or underground equipment, and would not result in any perceptible visual change. For example, Project X-024, Rocky Point Pump Station Rehabilitation, would involve the routine rehabilitation of the mechanical and electrical equipment at the Rocky Point Pump Station, located along PCH (SR-1) in Newport Beach. Upon completion of construction, no changes to the pump station would be visible.

In some cases, projects would involve minor modifications to pump station exteriors; however, these modifications are proposed to improve the existing character of the pump stations. For example, Project X-022, 15th Street Pump Station Rehabilitation, and Project X-023, Lido Pump Station Rehabilitation, would involve the rehabilitation of internal structural and electrical components and site work to maintain and/or enhance screenings, landscaping, and general curb appeal. In some other cases, projects would involve the demolition of a pump station and/or the reconstruction of the pump station in the immediate vicinity. While the exact designs of future architectural details have not yet been decided for these FMP projects, architectural work generally would involve the use of architectural detailing, integration of color schemes and building styles with the surrounding buildings, and installation of drought-tolerant landscaping to create an appealing façade. Additionally, future improvements would be designed consistent with any applicable design guidelines to ensure that improvements are compatible and harmonious with the surrounding environment. For example, any future improvements for Project X-023, Lido Pump Station Rehabilitation, would be consistent with the design guidelines provided for the Newport Boulevard Shops Design Area in the Lido Village Design Guidelines. Similarly, any future improvements for Project 11-33, Edinger Pump Station would be consistent with the design guidelines provided for District 16 (Northwest Industrial) in the Huntington Beach Urban Design Guidelines Manual. Because FMP projects would generally result in high-quality improvements to existing facades that would improve the appearances of existing facilities, impacts would be less than significant. FMP projects within the Collection System that are analyzed at the project level for which this would be true include projects X-060, 11-33, 2-73, and 3-67, as well as the pump station projects analyzed at the program level.[3]

In summary, if FMP projects present the potential to result in substantial visual changes, **MM-AES-1** would ensure that visual impacts are reduced to less-than-significant levels. Consequently, **MM-AES-1** would ensure that any visual impacts, including those that would occur in or near areas that contain scenic vistas, are reduced to less than significant.

[3] Note that several upcoming projects in the Sanitation District's collection and treatment system (including 5-67, Bay Bridge Pump Station) were covered by recent CEQA documents. They have been considered in the cumulative impact analysis in this PEIR, but they are not subject to reanalysis at the project or program level herein. For further detail, refer to Section 2.3.3.

2. Would the project substantially damage scenic resources, including, but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway?

Plant 1, Plant 2, and Collection System

Less-than-Significant Impact. As discussed previously in Section 4.1.1, the only highway in Orange County that is an officially designated state scenic highway is a 4.2-mile-long portion of SR-91 from SR-55 to the eastern city limit of Anaheim (California Streets and Highways Code, Section 263). This portion of SR-91 was officially designated as a state scenic highway in 1971, when the areas surrounding the highway contained prominent views of mountain ridgelines, rolling hills, canyons, and intermittent riparian and chaparral vegetation. In the years since its designation, these views have since given way to views of commercial, residential, and industrial development as the surrounding area has urbanized. Notwithstanding, views of these scenic features are still available on an intermittent basis throughout the highway corridor. FMP projects within the vicinity of SR-91 include X-086, X-063, and X-078, which are underground pipeline projects that are located within streets beneath and adjacent to SR-91. Although these FMP projects would be located near SR-91, which is an officially designated state scenic highway, these projects would be located entirely underground and within developed and paved public rights of way. These projects would not require the removal of any trees or rock outcroppings, or affect any historic buildings since none are located within future disturbance footprints.

Additionally, a 17-mile portion SR-1 from Jamboree Road in Newport Beach to the northern city limit of Seal Beach is an eligible state scenic highway, but has not been officially designated (Caltrans 2019). This portion of SR-1 provides prominent views of the Pacific Ocean in the south, and occasional views of marshland and wetlands in the north, when not interrupted by the urban development within the cities of Huntington Beach and Seal Beach. Plant 2 is located approximately 500 feet north of PCH. FMP projects that would potentially be visible from PCH would be Projects X-007, X-050, and X-052. However, as discussed above, views of FMP projects from PCH would be obstructed by the Southwest Perimeter Screening, and the proposed project would not result in adverse effects on a scenic vista as experienced from PCH. Accordingly, the FMP projects would be located entirely underground and within developed and paved public rights of way and would not result in removal of any trees or rock outcroppings, or affect any historic buildings, within PCH, since none are located within future disturbance footprints. As such, impacts would be less than significant.

In summary, because the FMP activities would not result in removal of any trees or rock outcroppings, or affect any historic buildings within a state scenic highway, impacts to state scenic highways would be less than significant. FMP projects that are analyzed at the project level for which this would be true include projects P1-126, X-093, X-092, X-048, P1-135, X-077, X-090, P2-126, P2-138, X-050, X-032, X-054, X-034, J-98, J-120, J-133, X-057, X-058, X-059, J-121, and X-044, 5-68, X-076, X-082, X-060, 11-33, X-063, 2-73, 3-67, 2-49, and X-083, and impacts for these projects and those analyzed at the program level would be less than significant

3. Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

Construction Impacts

Less-than-Significant Impact with Mitigation Incorporated. Construction activities associated with the proposed FMP projects, including those projects at Plant 1, Plant 2, and throughout the Collection System, would occur during the daytime hours approved by each corresponding jurisdiction as part of the planning and encroachment permit process. In the event that work is required outside the standard construction hours (to reduce traffic or other impacts, or as system testing requires), adjacent property owners would be notified of nighttime work in advance, and the Sanitation District would coordinate with the applicable jurisdiction, as required. All nighttime work would require prior approval by the affected jurisdiction.

Construction lighting impacts could result in temporarily significant impacts due to the potential for light to spill over and disturb sensitive receptors, such as residences or biologically sensitive areas. As such, **MM-AES-2** will be required. **MM-AES-2** would be required where nighttime construction is necessary in residential areas or near other sensitive receptors to reduce impacts to less than significant. FMP projects that are analyzed at the project level for which this would be true include all projects P1-126, X-093, X-092, X-048, P1-135, X-077, X-090, P2-126, P2-138, X-050, X-032, X-054, X-034, J-98, J-120, J-133, X-057, X-058, X-059, J-121, and X-044, 5-68, X-076, X-082, X-060, 11-33, X-063, 2-73, 3-67, 2-49, and X-083, and impacts for these projects and those analyzed at the program level would be less than significant with mitigation incorporated.

For all FMP projects (FMP projects at Plant 1, Plant 2, and throughout the Collection System), the introduction of construction vehicles and equipment at project sites and at staging areas would not generate substantial new sources of glare that would affect park users, nearby residents, or motorists. As sunlight reflects off of metallic and glass construction equipment, momentary instances of glare could affect nearby receptors; however, any reflected glare would not be concentrated (e.g., such as what might occur near a solar field) and would cease as park users, nearby residents, motorists, and construction equipment move around project sites. When construction equipment is not in use, construction equipment would be stored in designated staging areas away from public view. Therefore, impacts associated with new sources of lighting or glare during construction would be less than significant. FMP projects that are analyzed at the project level for which this would be true include projects P1-126, X-093, X-092, X-048, P1-135, X-077, X-090, P2-126, P2-138, X-050, X-032, X-054, X-034, J-98, J-120, J-133, X-057, X-058, X-059, J-121, and X-044, 5-68, X-076, X-082, X-060, 11-33, X-063, 2-73, 3-67, 2-49, and X-083, and impacts for these projects and those analyzed at the program level would be less than significant.

Operational Impacts

For FMP projects that would be constructed below grade (i.e., collection system pipeline projects), upon completion of construction activities, all areas disturbed during construction would be restored to their preconstruction conditions. Because these pipeline projects would be installed underground and do not require any sources of lighting, no impacts would occur.

For project facilities that would be constructed above-grade (i.e., facilities at Plant 1 and Plant 2 and pump stations within the collection system), lighting would be installed in a manner similar to the existing conditions (i.e., for safety and security purposes). Although not anticipated, the new lighting at these

facilities could result in spillover lighting onto neighboring residential, commercial uses, or biologically sensitive areas, resulting in a potentially significant lighting impact. As such, **MM-AES-3** will be required. **MM-AES-3** would require that project facilities be reconstructed in a manner consistent with the existing lighting ordinances of the applicable jurisdiction, and requires that that permanent exterior lighting be shielded and directed downward to avoid any light intrusion to surrounding uses. Implementation of **MM-AES-3** would ensure that potential lighting impacts be reduced to less than significant.

The proposed facilities would not have highly reflective surfaces, and would not include large areas of glass on structures/buildings; therefore, the proposed project would result in a less-than-significant impact regarding glare.

4.1.5 Mitigation Measures

MM-AES-1 **Construction Screening at Plant 1 and Plant 2.** For Facilities Master Plan projects located within Reclamation Plant No. 1 or Treatment Plant No. 2, prior to commencement of construction, the Sanitation District shall screen views of ground level construction activities from public view with fencing, vegetation, or buildings. If there are gaps in these existing barriers that allow construction activities to be viewed from public viewpoints, the Orange County Sanitation District shall install temporary visual screening barriers within these viewing windows to minimize the visual impacts of construction activities.

MM-AES-2 **Construction Lighting.** Should nighttime construction be required, a construction safety lighting plan shall be submitted to the Orange County Sanitation District Director of Engineering for review and approval prior to any nighttime construction activities. The Construction Safety Lighting Plan shall require that all construction-related lighting fixtures (including portable fixtures) shall be oriented downward and away from adjacent sensitive areas (including residential and biologically sensitive areas) and that all lighting shall consist of the minimal wattage necessary to provide safety at the construction site.

MM-AES-3 **Operational Lighting.** All new permanent exterior lighting associated with Facilities Master Plan project facilities shall be shielded and directed downward to minimize any light intrusion to surrounding uses. Development of the FMP facilities shall comply with existing and future lighting ordinances of each applicable jurisdiction. Per these requirements, all outdoor lighting fixtures shall be designed, shielded, aimed, located, and maintained to minimize impacts to adjacent sites and to not produce glare onto adjacent sites or roadways.

4.1.6 Level of Significance After Mitigation

With implementation of **MM-AES-1** through **MM-AES-3**, impacts related to aesthetics would be reduced to less than significant.

4.1.7 Cumulative Impacts

A significant adverse cumulative aesthetic impact would occur where the development of the cumulative projects would degrade the visual quality of an area or where projects would combine to block important views. As described throughout this section, the proposed project would have less-than-significant impacts to aesthetics with mitigation

incorporated, given the nature of the FMP projects as primarily involving the rehabilitation and replacement of existing facilities. Following construction activities, project sites would either be restored to their existing conditions or would largely resemble pre-project conditions. Additionally, cumulative projects would be required to complete environmental review as they are proposed, and would be required to mitigate for aesthetic impacts as applicable. Cumulative projects would also be required to comply with all applicable ordinances and plans that govern visual quality, such as lighting ordinances and architectural standards. Compliance with these regulations would reduce cumulative impacts related to aesthetics **to less than significant.**

4.1.8 Impact Summary

Table 4.1-1 summarizes the impacts for the FMP projects assessed at the project level at Plant 1, Plant 2, joint plant projects, and collection system projects under each threshold analyzed in this PEIR.

Table 4.1-1. Summary of FMP Project Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
Would the project have a substantial adverse effect on a scenic vista?					
Plant 1					
P1-126	Primary Clarifiers Replacements and Improvements	Replace	No Impact	—	No Impact
X-093	Administrative Facilities and Power Building 3A Demolition	Misc. (Demo)	No Impact	—	No Impact
X-092	Standby Generator Feeders for Plant 1 Secondary Systems	Misc.	No Impact	—	No Impact
X-048	Activated Sludge (AS)-1 Aeration Basin and Blower Rehabilitation	Rehab	No Impact	—	No Impact
P1-135	Digester Ferric Piping Replacement	Replace	No Impact	—	No Impact
X-077	Switchgear Replacement at Central Generation	Replace	No Impact	—	No Impact
X-090	Network, Telecommunications, and Service Relocation at Plant 1	Misc.	No Impact	—	No Impact
Plant 2					
P2-126	Substation and Warehouse Replacement at Plant 2	Misc.	Significant	MM-AES-1	Less than Significant
P2-138	Operations and Maintenance Complex at Plant 2	Replace	Significant	MM-AES-1	Less than Significant
X-050	Activated Sludge (AS) Aeration Basin	Rehab	Significant	MM-AES-1	Less than Significant
X-032	Truck Loading Facility Rehabilitation	Rehab	Significant	MM-AES-1	Less than Significant
X-054	Waste Side-Stream Pump Station C Rehabilitation	Rehab	Significant	MM-AES-1	Less than Significant
X-034	Sodium Bisulfite Station Replacement and Bleach Station Demolition	Replace	Significant	MM-AES-1	Less than Significant

Table 4.1-1. Summary of FMP Project Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
Joint Plant Projects					
J-98	Plantwide Miscellaneous Electrical Power Distribution System Improvements	Replace	Less than Significant	—	Less than Significant
J-120	Plantwide Miscellaneous Process Control Systems Upgrades	Replace	Less than Significant	—	Less than Significant
J-133	Laboratory Rehabilitation or Replacement at Plant 1	Rehab	Less than Significant	—	Less than Significant
X-057	Plantwide Miscellaneous Yard Structures Rehabilitation or Replacement	Misc.	Less than Significant	—	Less than Significant
X-058	Plantwide Miscellaneous Yard Piping Replacement	Replace	Less than Significant	—	Less than Significant
X-059	Plantwide Miscellaneous Tunnels Rehabilitation	Rehab	Less than Significant	—	Less than Significant
J-121	UPS System Upgrades	Replace	Less than Significant	—	Less than Significant
X-044	Steve Anderson Lift Station Rehabilitation	Rehab	Less than Significant	—	Less than Significant
Collection System Projects					
5-68	Newport Beach Pump Station Odor Control Improvements	Misc.	Less than Significant	—	Less than Significant
X-076	Santa Ana Trunk Sewer Rehabilitation Phase II	Rehab	Less than Significant	—	Less than Significant
X-082	North Trunk Improvement Project	Replace	Less than Significant	—	Less than Significant
X-060	Newhope Placentia Chemical Dosing Station	Misc.	Less than Significant	—	Less than Significant
11-33	Edinger Pumping Station Replacement	Replace	Less than Significant	—	Less than Significant
X-063	South Santa Ana River Interceptor Connector Rehabilitation	Rehab	Less than Significant	—	Less than Significant
2-73	Yorba Linda Pump Station Abandonment	Misc.	Less than Significant	—	Less than Significant
3-67	Seal Beach Pump Station Replacement	Replace	Less than Significant	—	Less than Significant
2-49	Taft Branch Sewer Improvements	Replace	Less than Significant	—	Less than Significant
X-083	Greenville–Sullivan Sewer Relief Project	Replace	Less than Significant	—	Less than Significant

Table 4.1-1. Summary of FMP Project Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
Would the project substantially damage scenic resources including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?					
Plant 1					
P1-126	Primary Clarifiers Replacements and Improvements	Replace	Less than Significant	—	Less than Significant
X-093	Administrative Facilities and Power Building 3A Demolition	Misc. (Demo)	Less than Significant	—	Less than Significant
X-092	Standby Generator Feeders for Plant 1 Secondary Systems	Misc.	Less than Significant	—	Less than Significant
X-048	Activated Sludge (AS)-1 Aeration Basin and Blower Rehabilitation	Rehab	Less than Significant	—	Less than Significant
P1-135	Digester Ferric Piping Replacement	Replace	Less than Significant	—	Less than Significant
X-077	Switchgear Replacement at Central Generation	Replace	Less than Significant	—	Less than Significant
X-090	Network, Telecommunications, and Service Relocation at Plant 1	Misc.	Less than Significant	—	Less than Significant
Plant 2					
P2-126	Substation and Warehouse Replacement at Plant 2	Misc	Less than Significant	—	Less than Significant
P2-138	Operations and Maintenance Complex at Plant 2	Replace	Less than Significant	—	Less than Significant
X-050	Activated Sludge (AS) Aeration Basin	Rehab	Less than Significant	—	Less than Significant
X-032	Truck Loading Facility Rehabilitation	Rehab	Less than Significant	—	Less than Significant
X-054	Waste Side-Stream Pump Station C Rehabilitation	Rehab	Less than Significant	—	Less than Significant
X-034	Sodium Bisulfite Station Replacement and Bleach Station Demolition	Replace	Less than Significant	—	Less than Significant
Joint Plant Projects					
J-98	Plantwide Miscellaneous Electrical Power Distribution System Improvements	Replace	Less than Significant	—	Less than Significant
J-120	Plantwide Miscellaneous Process Control Systems Upgrades	Replace	Less than Significant	—	Less than Significant
J-133	Laboratory Rehabilitation or Replacement at Plant 1	Rehab	Less than Significant	—	Less than Significant
X-057	Plantwide Miscellaneous Yard Structures Rehabilitation or Replacement	Misc.	Less than Significant	—	Less than Significant

Table 4.1-1. Summary of FMP Project Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
X-058	Plantwide Miscellaneous Yard Piping Replacement	Replace	Less than Significant	—	Less than Significant
X-059	Plantwide Miscellaneous Tunnels Rehabilitation	Rehab	Less than Significant	—	Less than Significant
J-121	UPS System Upgrades	Replace	Less than Significant	—	Less than Significant
X-044	Steve Anderson Lift Station Rehabilitation	Rehab	Less than Significant	—	Less than Significant
Collection System Projects					
5-68	Newport Beach Pump Station Odor Control Improvements	Misc.	Less than Significant	—	Less than Significant
X-076	Santa Ana Trunk Sewer Rehabilitation Phase II	Rehab	Less than Significant	—	Less than Significant
X-082	North Trunk Improvement Project	Replace	Less than Significant	—	Less than Significant
X-060	Newhope Placentia Chemical Dosing Station	Misc.	Less than Significant	—	Less than Significant
11-33	Edinger Pumping Station Replacement	Replace	Less than Significant	—	Less than Significant
X-063	South Santa Ana River Interceptor Connector Rehabilitation	Rehab	Less than Significant	—	Less than Significant
2-73	Yorba Linda Pump Station Abandonment	Misc.	Less than Significant	—	Less than Significant
3-67	Seal Beach Pump Station Replacement	Replace	Less than Significant	—	Less than Significant
2-49	Taft Branch Sewer Improvements	Replace	Less than Significant	—	Less than Significant
X-083	Greenville–Sullivan Sewer Relief Project	Replace	Less than Significant	—	Less than Significant
Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?					
Plant 1					
P1-126	Primary Clarifiers Replacements and Improvements	Replace	Significant	MM-AES-2 MM-AES-3	Less than Significant
X-093	Administrative Facilities and Power Building 3A Demolition	Misc. (Demo)	Significant	MM-AES-2 MM-AES-3	Less than Significant
X-092	Standby Generator Feeders for Plant 1 Secondary Systems	Misc.	Significant	MM-AES-2 MM-AES-3	Less than Significant
X-048	Activated Sludge (AS)-1 Aeration Basin and Blower Rehabilitation	Rehab	Significant	MM-AES-2 MM-AES-3	Less than Significant
P1-135	Digester Ferric Piping Replacement	Replace	Significant	MM-AES-2 MM-AES-3	Less than Significant

Table 4.1-1. Summary of FMP Project Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
X-077	Switchgear Replacement at Central Generation	Replace	Significant	MM-AES-2 MM-AES-3	Less than Significant
X-090	Network, Telecommunications, and Service Relocation at Plant 1	Misc.	Significant	MM-AES-2 MM-AES-3	Less than Significant
Plant 2					
P2-126	Substation and Warehouse Replacement at Plant 2	Misc.	Significant	MM-AES-2 MM-AES-3	Less than Significant
P2-138	Operations and Maintenance Complex at Plant 2	Replace	Significant	MM-AES-2 MM-AES-3	Less than Significant
X-050	Activated Sludge (AS) Aeration Basin	Rehab	Significant	MM-AES-2 MM-AES-3	Less than Significant
X-032	Truck Loading Facility Rehabilitation	Rehab	Significant	MM-AES-2 MM-AES-3	Less than Significant
X-054	Waste Side-Stream Pump Station C Rehabilitation	Rehab	Significant	MM-AES-2 MM-AES-3	Less than Significant
X-034	Sodium Bisulfite Station Replacement and Bleach Station Demolition	Replace	Significant	MM-AES-2 MM-AES-3	Less than Significant
Joint Plant Projects					
J-98	Plantwide Miscellaneous Electrical Power Distribution System Improvements	Replace	Significant	MM-AES-2 MM-AES-3	Less than Significant
J-120	Plantwide Miscellaneous Process Control Systems Upgrades	Replace	Significant	MM-AES-2 MM-AES-3	Less than Significant
J-133	Laboratory Rehabilitation or Replacement at Plant 1	Rehab	Significant	MM-AES-2 MM-AES-3	Less than Significant
X-057	Plantwide Miscellaneous Yard Structures Rehabilitation or Replacement	Misc.	Significant	MM-AES-2 MM-AES-3	Less than Significant
X-058	Plantwide Miscellaneous Yard Piping Replacement	Replace	Significant	MM-AES-2 MM-AES-3	Less than Significant
X-059	Plantwide Miscellaneous Tunnels Rehabilitation	Rehab	Significant	MM-AES-2 MM-AES-3	Less than Significant
J-121	UPS System Upgrades	Replace	Significant	MM-AES-2 MM-AES-3	Less than Significant
X-044	Steve Anderson Lift Station Rehabilitation	Rehab	Significant	MM-AES-2 MM-AES-3	Less than Significant
Collection System Projects					
5-68	Newport Beach Pump Station Odor Control Improvements	Misc.	Less than Significant	—	Less than Significant
X-076	Santa Ana Trunk Sewer Rehabilitation Phase II	Rehab	Less than Significant	—	Less than Significant
X-082	North Trunk Improvement Project	Replace	Less than Significant	—	Less than Significant

Table 4.1-1. Summary of FMP Project Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
X-060	Newhope Placentia Chemical Dosing Station	Misc.	Less than Significant	—	Less than Significant
11-33	Edinger Pumping Station Replacement	Replace	Less than Significant	—	Less than Significant
X-063	South Santa Ana River Interceptor Connector Rehabilitation	Rehab	Less than Significant	—	Less than Significant
2-73	Yorba Linda Pump Station Abandonment	Misc.	Less than Significant	—	Less than Significant
3-67	Seal Beach Pump Station Replacement	Replace	Less than Significant	—	Less than Significant
2-49	Taft Branch Sewer Improvements	Replace	Less than Significant	—	Less than Significant
X-083	Greenville–Sullivan Sewer Relief Project	Replace	Less than Significant	—	Less than Significant

Note: UPS = uninterruptible power system.

4.1.9 References

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4.2 Air Quality

This section describes the existing regional and local air quality conditions, identifies associated regulatory requirements, evaluates potential impacts, and identifies mitigation measures as needed related to implementation of the proposed Facilities Master Plan (FMP).

4.2.1 Existing Conditions

Climate and Topography

The project site is located within the South Coast Air Basin (SCAB). The SCAB is a 6,745-square-mile area bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east. The SCAB's air pollution problems are a consequence of the combination of emissions from the nation's second-largest urban area, meteorological conditions that hinder dispersion of those emissions, and mountainous terrain surrounding the SCAB that traps pollutants as they are pushed inland with the sea breeze (SCAQMD 2017). Meteorological and topographical factors that affect air quality in the SCAB are described below.[1]

Climate

The SCAB is characterized as having a Mediterranean climate (typified as semiarid with mild winters, warm summers, and moderate rainfall). The general region lies in the semi-permanent high-pressure zone of the eastern Pacific; as a result, the climate is mild and tempered by cool sea breezes. The usually mild climatological pattern is interrupted infrequently by periods of extremely hot weather, winter storms, or Santa Ana winds.

Moderate temperatures, comfortable humidity, and limited precipitation characterize the climate in the SCAB. The average annual temperature varies little throughout the SCAB, averaging 75°F. However, with a less-pronounced oceanic influence, the eastern inland portions of the SCAB show greater variability in annual minimum and maximum temperatures. All portions of the SCAB have recorded temperatures over 100°F in recent years. Although the SCAB has a semiarid climate, the air near the surface is moist because of the presence of a shallow marine layer. Except for infrequent periods when dry air is brought into the SCAB by offshore winds, the ocean effect is dominant. Periods with heavy fog are frequent, and low stratus clouds, occasionally referred to as "high fog," are a characteristic climate feature. Annual average relative humidity is 70% at the coast and 57% in the eastern part of the SCAB. Precipitation in the SCAB is typically 9 to 14 inches annually and is rarely in the form of snow or hail because of typically warm weather. Most of the rainfall in Southern California occurs between late fall and early spring, with most rain typically occurring in the months of January and February.

Orange County's climate is characterized by relatively low rainfall, with warm summers and mild winters. Average temperatures range from a high of 87°F in August to a low of 47°F in December (WRCC 2018).[2] Annual precipitation averages about 14 inches, falling mostly from October through April (WRCC 2018).

[1] The discussion of meteorological and topographical conditions of the SCAB is based on information provided in the Final 2016 Air Quality Management Plan (SCAQMD 2017).

[2] Local climate data for Orange County is based on the most-representative station measured by the Western Regional Climate Center, which is the Anaheim climatological station.

Sunlight

The presence and intensity of sunlight are necessary prerequisites for the formation of photochemical smog. Under the influence of the ultraviolet radiation of sunlight, certain primary pollutants (mainly reactive hydrocarbons and oxides of nitrogen [NO_X][3]) react to form secondary pollutants (primarily oxidants). Since this process is time dependent, secondary pollutants can be formed many miles downwind of the emission sources. Southern California also has abundant sunshine, which drives the photochemical reactions that form pollutants such as ozone (O_3) and a substantial portion of fine particulate matter ($PM_{2.5}$; particulate matter 2.5 microns or less in diameter). In the SCAB, high concentrations of O_3 are normally recorded during the late spring, summer, and early autumn months, when more intense sunlight drives enhanced photochemical reactions. Because of the prevailing daytime winds and time-delayed nature of photochemical smog, oxidant concentrations are highest in the inland areas of Southern California.

Temperature Inversions

Under ideal meteorological conditions and irrespective of topography, pollutants emitted into the air mix and disperse into the upper atmosphere. However, the Southern California region frequently experiences temperature inversions in which pollutants are trapped and accumulate close to the ground. The inversion, a layer of warm, dry air overlaying cool, moist marine air, is a normal condition in coastal Southern California. The cool, damp, and hazy sea air capped by coastal clouds is heavier than the warm, clear air, which acts as a lid through which the cooler marine layer cannot rise. The height of the inversion is important in determining pollutant concentration. When the inversion is approximately 2,500 feet above mean sea level (amsl), the sea breezes carry the pollutants inland to escape over the mountain slopes or through the passes. At a height of 1,200 feet amsl, the terrain prevents the pollutants from entering the upper atmosphere, resulting in the pollutants settling in the foothill communities. Below 1,200 feet amsl, the inversion puts a tight lid on pollutants, concentrating them in a shallow layer over the entire coastal basin. Usually, inversions are lower before sunrise than during the daylight hours.

Mixing heights for inversions are lower in the summer and inversions are more persistent, being partly responsible for the high levels of O_3 observed during summer months in the SCAB. Smog in Southern California is generally the result of these temperature inversions combining with coastal day winds and local mountains to contain the pollutants for long periods, allowing them to form secondary pollutants by reacting in the presence of sunlight. The SCAB has a limited ability to disperse these pollutants due to typically low wind speeds and the surrounding mountain ranges.

As with other regions within the SCAB, Orange County is susceptible to air inversions, which trap a layer of stagnant air near the ground where pollutants are further concentrated. These inversions produce haziness, which is caused by moisture, suspended dust, and a variety of chemical aerosols emitted by trucks, automobiles, furnaces, and other sources. Elevated concentrations of coarse particulate matter (PM_{10}; particulate matter 10 microns or less in diameter) and $PM_{2.5}$ can occur in the SCAB throughout the year, but they occur most frequently in fall and winter. Although there are some changes in emissions by day of the week and by season, the observed variations in pollutant concentrations are primarily the result of seasonal differences in weather conditions.

[3] NO_X is a general term pertaining to compounds of nitric oxide (NO), nitrogen dioxide (NO_2), and other oxides of nitrogen.

Pollutants and Effects

Criteria Air Pollutants

Criteria air pollutants are defined as pollutants for which the federal and state governments have established ambient air quality standards, or criteria, for outdoor concentrations to protect public health. The national and California standards have been set, with an adequate margin of safety, at levels above which concentrations could be harmful to human health and welfare. These standards are designed to protect the most sensitive persons from illness or discomfort. Pollutants of concern include O_3, nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), PM_{10}, $PM_{2.5}$, and lead. In California, sulfates, vinyl chloride, hydrogen sulfide, and visibility-reducing particles are also regulated as criteria air pollutants. These pollutants, as well as toxic air contaminants (TACs), are discussed in the following paragraphs.[4]

Ozone. O_3 is a strong-smelling, pale blue, reactive, toxic chemical gas consisting of three oxygen atoms. It is a secondary pollutant formed in the atmosphere by a photochemical process involving the sun's energy and O_3 precursors. These precursors are mainly NO_x and volatile organic compounds (VOCs). The maximum effects of precursor emissions on O_3 concentrations usually occur several hours after they are emitted and many miles from the source. Meteorology and terrain play major roles in O_3 formation, and ideal conditions occur during summer and early autumn on days with low wind speeds or stagnant air, warm temperatures, and cloudless skies. O_3 exists in the upper atmosphere O_3 layer (stratospheric O_3) and at the Earth's surface in the troposphere (ground-level O_3).[5] The O_3 that the U.S. Environmental Protection Agency (EPA) and the California Air Resources Board (CARB) regulate as a criteria air pollutant is produced close to the ground level, where people live, exercise, and breathe. Ground-level O_3 is a harmful air pollutant that causes numerous adverse health effects and is thus considered "bad" O_3. Stratospheric, or "good," O_3 occurs naturally in the upper atmosphere, where it reduces the amount of ultraviolet light (i.e., solar radiation) entering the Earth's atmosphere. Without the protection of the beneficial stratospheric O_3 layer, plant and animal life would be seriously harmed.

O_3 in the troposphere causes numerous adverse health effects; short-term exposures (lasting for a few hours) to O_3 at levels typically observed in Southern California can result in breathing pattern changes, reduction of breathing capacity, increased susceptibility to infections, inflammation of the lung tissue, and some immunological changes (EPA 2013).

Inhalation of O_3 causes inflammation and irritation of the tissues lining human airways, causing and worsening a variety of symptoms. Exposure to O_3 can reduce the volume of air that the lungs breathe in, thereby causing shortness of breath. O_3 in sufficient doses increases the permeability of lung cells, rendering them more susceptible to toxins and microorganisms. The occurrence and severity of health effects from O_3 exposure vary widely among individuals, even when the dose and the duration of exposure are the same. Research shows adults and children who spend more time outdoors participating in vigorous physical activities are at greater risk from the harmful health effects of O_3 exposure. While there are relatively few studies on the effects of O_3 on children, the available studies show that children are no more or less likely to suffer harmful effects than adults. However, there are a number of reasons why children may be more susceptible to O_3 and other pollutants. Children and teens spend nearly twice as much time outdoors and engaged in vigorous activities as adults. Children breathe more rapidly than adults and inhale more

[4] The descriptions of the criteria air pollutants and associated health effects are based on the U.S. Environmental Protection Agency's "Criteria Air Pollutants" (EPA 2018a), as well as the California Air Resources Board's "Glossary" (CARB 2019a) and "Fact Sheet: Air Pollution Sources, Effects and Control" (CARB 2009).

[5] The troposphere is the layer of the Earth's atmosphere nearest to the surface of the Earth. The troposphere extends outward about 5 miles at the poles and about 10 miles at the equator.

pollution per pound of their body weight than adults. Also, children are less likely than adults to notice their own symptoms and avoid harmful exposures. Further research may be able to better distinguish between health effects in children and adults. Children, adolescents and adults who exercise or work outdoors, where O_3 concentrations are the highest, are at the greatest risk of harm from this pollutant (CARB 2019b).

Nitrogen Dioxide. NO_2 is a brownish, highly reactive gas that is present in all urban atmospheres. The major mechanism for the formation of NO_2 in the atmosphere is the oxidation of the primary air pollutant nitric oxide (NO), which is a colorless, odorless gas. NO_x plays a major role, together with VOCs, in the atmospheric reactions that produce O_3. NO_x is formed from fuel combustion under high temperature or pressure. In addition, NO_x is an important precursor to acid rain and may affect both terrestrial and aquatic ecosystems. The two major emissions sources are transportation and stationary fuel combustion sources such as electric utility and industrial boilers.

A large body of health science literature indicates that exposure to NO_2 can induce adverse health effects. The strongest health evidence, and the health basis for the ambient air quality standards for NO_2, results from controlled human exposure studies that show that NO_2 exposure can intensify responses to allergens in allergic asthmatics. In addition, a number of epidemiological studies have demonstrated associations between NO_2 exposure and premature death, cardiopulmonary effects, decreased lung function growth in children, respiratory symptoms, emergency room visits for asthma, and intensified allergic responses. Infants and children are particularly at risk because they have disproportionately higher exposure to NO_2 than adults due to their greater breathing rate for their body weight and their typically greater outdoor exposure duration. Several studies have shown that long-term NO_2 exposure during childhood, the period of rapid lung growth, can lead to smaller lungs at maturity in children with higher levels of exposure compared to children with lower exposure levels. In addition, children with asthma have a greater degree of airway responsiveness compared with adult asthmatics. In adults, the greatest risk is to people who have chronic respiratory diseases, such as asthma and chronic obstructive pulmonary disease (CARB 2019c).

Carbon Monoxide. CO is a colorless, odorless gas formed by the incomplete combustion of hydrocarbon, or fossil fuels. CO is emitted almost exclusively from motor vehicles, power plants, refineries, industrial boilers, ships, aircraft, and trains. In urban areas, such as the project location, automobile exhaust accounts for the majority of CO emissions. CO is a nonreactive air pollutant that dissipates relatively quickly; therefore, ambient CO concentrations generally follow the spatial and temporal distributions of vehicular traffic. CO concentrations are influenced by local meteorological conditions—primarily wind speed, topography, and atmospheric stability. CO from motor vehicle exhaust can become locally concentrated when surface-based temperature inversions are combined with calm atmospheric conditions, which is a typical situation at dusk in urban areas from November to February. The highest levels of CO typically occur during the colder months of the year, when inversion conditions are more frequent.

CO is harmful because it binds to hemoglobin in the blood, reducing the ability of blood to carry oxygen. This interferes with oxygen delivery to the body's organs. The most common effects of CO exposure are fatigue, headaches, confusion and reduced mental alertness, light-headedness, and dizziness due to inadequate oxygen delivery to the brain. For people with cardiovascular disease, short-term CO exposure can further reduce their body's already compromised ability to respond to the increased oxygen demands of exercise, exertion, or stress. Inadequate oxygen delivery to the heart muscle leads to chest pain and decreased exercise tolerance. Unborn babies whose mothers experience high levels of CO exposure during pregnancy are at risk of adverse developmental effects. Unborn babies, infants, elderly people, and people with anemia or with a history of heart or respiratory disease are most likely to experience health effects with exposure to elevated levels of CO (CARB 2019d).

Sulfur Dioxide. SO_2 is a colorless, pungent gas formed primarily from incomplete combustion of sulfur-containing fossil fuels. The main sources of SO_2 are coal and oil used in power plants and industries; as such, the highest levels of SO_2 are generally found near large industrial complexes. In recent years, SO_2 concentrations have been reduced by the increasingly stringent controls placed on stationary source emissions of SO_2 and limits on the sulfur content of fuels.

Controlled human exposure and epidemiological studies show that children and adults with asthma are more likely to experience adverse responses with SO_2 exposure, compared with the non-asthmatic population. Effects at levels near the 1-hour standard are those of asthma exacerbation, including bronchoconstriction accompanied by symptoms of respiratory irritation such as wheezing, shortness of breath, and chest tightness, especially during exercise or physical activity. Also, exposure at elevated levels of SO_2 (above 1 parts per million [ppm]) results in increased incidence of pulmonary symptoms and disease, decreased pulmonary function, and increased risk of mortality. Older people and people with cardiovascular disease or chronic lung disease (such as bronchitis or emphysema) are most likely to experience these adverse effects (CARB 2019e).

SO_2 is of concern both because it is a direct respiratory irritant and because it contributes to the formation of sulfate and sulfuric acid in particulate matter (NRC 2005). People with asthma are of particular concern, both because they have increased baseline airflow resistance and because their SO_2-induced increase in airflow resistance is greater than in healthy people, and it increases with the severity of their asthma (NRC 2005). SO_2 is thought to induce airway constriction via neural reflexes involving irritant receptors in the airways (NRC 2005).

Particulate Matter. Particulate matter pollution consists of very small liquid and solid particles floating in the air, which can include smoke, soot, dust, salts, acids, and metals. Particulate matter can form when gases emitted from industries and motor vehicles undergo chemical reactions in the atmosphere. $PM_{2.5}$ and PM_{10} represent fractions of particulate matter. Coarse particulate matter (PM_{10}) consists of particulate matter that is 10 microns or less in diameter, which is about 1/7 the thickness of a human hair. Major sources of PM_{10} include crushing or grinding operations; dust stirred up by vehicles traveling on roads; wood-burning stoves and fireplaces; dust from construction, landfills, and agriculture; wildfires and brush/waste burning; industrial sources; windblown dust from open lands; and atmospheric chemical and photochemical reactions. Fine particulate matter ($PM_{2.5}$) consists of particulate matter that is 2.5 microns or less in diameter, which is roughly 1/28 the diameter of a human hair. $PM_{2.5}$ results from fuel combustion (e.g., from motor vehicles and power generation and industrial facilities), residential fireplaces, and woodstoves. In addition, $PM_{2.5}$ can be formed in the atmosphere from gases such as sulfur oxides (SO_x), NO_x, and VOCs.

$PM_{2.5}$ and PM_{10} pose a greater health risk than larger-size particles. When inhaled, these tiny particles can penetrate the human respiratory system's natural defenses and damage the respiratory tract. $PM_{2.5}$ and PM_{10} can increase the number and severity of asthma attacks, cause or aggravate bronchitis and other lung diseases, and reduce the body's ability to fight infections. Very small particles of substances such as lead, sulfates, and nitrates can cause lung damage directly or be absorbed into the bloodstream, causing damage elsewhere in the body. Additionally, these substances can transport adsorbed gases such as chlorides or ammonium into the lungs, also causing injury. Whereas PM_{10} tends to collect in the upper portion of the respiratory system, $PM_{2.5}$ is so tiny that it can penetrate deeper into the lungs and damage lung tissue. Suspended particulates also damage and discolor surfaces on which they settle and produce haze and reduce regional visibility.

A number of adverse health effects have been associated with exposure to both $PM_{2.5}$ and PM_{10}. For $PM_{2.5}$, short-term exposures (up to 24-hour duration) have been associated with premature mortality, increased hospital admissions for heart or lung causes, acute and chronic bronchitis, asthma attacks, emergency room visits, respiratory symptoms, and restricted activity days. These adverse health effects have been reported primarily in infants, children, and older adults with preexisting heart or lung diseases. In addition, of all of the common air pollutants, $PM_{2.5}$ is associated with the greatest proportion of adverse health effects related to air pollution, both in the United States and worldwide based on the World Health Organization's Global Burden of Disease Project. Short-term exposures to PM_{10} have been associated primarily with worsening of respiratory diseases, including asthma and chronic obstructive pulmonary disease, leading to hospitalization and emergency department visits (CARB 2017).

Long-term exposure (months to years) to $PM_{2.5}$ has been linked to premature death, particularly in people who have chronic heart or lung diseases, and reduced lung function growth in children. The effects of long-term exposure to PM_{10} are less clear, although several studies suggest a link between long-term PM_{10} exposure and respiratory mortality. The International Agency for Research on Cancer published a review in 2015 that concluded that particulate matter in outdoor air pollution causes lung cancer (CARB 2017).

Lead. Lead in the atmosphere occurs as particulate matter. Sources of lead include leaded gasoline; the manufacturing of batteries, paints, ink, ceramics, and ammunition; and secondary lead smelters. Prior to 1978, mobile emissions were the primary source of atmospheric lead. Between 1978 and 1987, the phaseout of leaded gasoline reduced the overall inventory of airborne lead by nearly 95%. With the phaseout of leaded gasoline, secondary lead smelters, battery recycling, and manufacturing facilities are becoming lead-emissions sources of greater concern.

Prolonged exposure to atmospheric lead poses a serious threat to human health. Health effects associated with exposure to lead include gastrointestinal disturbances, anemia, kidney disease, and in severe cases, neuromuscular and neurological dysfunction. Of particular concern are low-level lead exposures during infancy and childhood. Such exposures are associated with decrements in neurobehavioral performance, including intelligence quotient (IQ) performance, psychomotor performance, reaction time, and growth. Children are highly susceptible to the effects of lead.

Sulfates. Sulfates are the fully oxidized form of sulfur, which typically occur in combination with metals or hydrogen ions. Sulfates are produced from reactions of SO_2 in the atmosphere and can result in respiratory impairment, as well as reduced visibility.

Vinyl Chloride. Vinyl chloride is a colorless gas with a mild, sweet odor, which has been detected near landfills, sewage plants, and hazardous waste sites, due to the microbial breakdown of chlorinated solvents. Short-term exposure to high levels of vinyl chloride in air can cause nervous system effects, such as dizziness, drowsiness, and headaches. Long-term exposure through inhalation can cause liver damage, including liver cancer.

Hydrogen Sulfide. Hydrogen sulfide is a colorless and flammable gas that has a characteristic odor of rotten eggs. Sources of hydrogen sulfide include geothermal power plants, petroleum refineries, sewers, and sewage treatment plants. Exposure to hydrogen sulfide can result in nuisance odors, as well as headaches and breathing difficulties at higher concentrations.

Visibility-Reducing Particles. Visibility-reducing particles are any particles in the air that obstruct the range of visibility. Effects of reduced visibility can include obscuring the viewshed of natural scenery, reducing airport safety, and discouraging tourism. Sources of visibility-reducing particles are the same as for $PM_{2.5}$.

Volatile Organic Compounds. Hydrocarbons are organic gases that are formed from hydrogen and carbon and sometimes other elements. Hydrocarbons that contribute to formation of O_3 are referred to and regulated as VOCs (also referred to as reactive organic gases). Combustion engine exhaust, oil refineries, and fossil-fueled power plants are the sources of hydrocarbons. Other sources of hydrocarbons include evaporation from petroleum fuels, solvents, dry cleaning solutions, and paint.

The primary health effects of VOCs result from the formation of O_3 and its related health effects. High levels of VOCs in the atmosphere can interfere with oxygen intake by reducing the amount of available oxygen through displacement. Carcinogenic forms of hydrocarbons, such as benzene, are considered TACs. There are no separate ambient air quality standards for VOCs as a group.

Non-Criteria Air Pollutants

Toxic Air Contaminants. A substance is considered toxic if it has the potential to cause adverse health effects in humans, including increasing the risk of cancer upon exposure, or acute and/or chronic non-cancer health effects. A toxic substance released into the air is considered a TAC. TACs are identified by federal and state agencies based on a review of available scientific evidence. In the state of California, TACs are identified through a two-step process that was established in 1983 under the Toxic Air Contaminant Identification and Control Act. This two-step process of risk identification and risk management and reduction was designed to protect residents from the health effects of toxic substances in the air. In addition, the California Air Toxics "Hot Spots" Information and Assessment Act, Assembly Bill (AB) 2588, was enacted by the legislature in 1987 to address public concern over the release of TACs into the atmosphere. The law requires facilities emitting toxic substances to provide local air pollution control districts with information that will allow an assessment of the air toxics problem, identification of air toxics emissions sources, location of resulting hotspots, notification of the public exposed to significant risk, and development of effective strategies to reduce potential risks to the public over 5 years.

Examples include certain aromatic and chlorinated hydrocarbons, certain metals, and asbestos. TACs are generated by a number of sources, including stationary sources, such as dry cleaners, gas stations, combustion sources, and laboratories; mobile sources, such as automobiles; and area sources, such as landfills. Adverse health effects associated with exposure to TACs may include carcinogenic (i.e., cancer-causing) and non-carcinogenic effects. Non-carcinogenic effects typically affect one or more target organ systems and may be experienced on either short-term (acute) or long-term (chronic) exposure to a given TAC.

Diesel Particulate Matter. Diesel particulate matter (DPM) is part of a complex mixture that makes up diesel exhaust. Diesel exhaust is composed of two phases, gas and particle, both of which contribute to health risks. More than 90% of DPM is less than 1 micrometer in diameter (about 1/70 the diameter of a human hair), and thus is a subset of $PM_{2.5}$ (CARB 2019f). DPM is typically composed of carbon particles ("soot," also called black carbon) and numerous organic compounds, including over 40 known cancer-causing organic substances. Examples of these chemicals include polycyclic aromatic hydrocarbons, benzene, formaldehyde, acetaldehyde, acrolein, and 1,3-butadiene (CARB 2019f). The CARB classified "particulate emissions from diesel-fueled engines" (i.e., DPM) (17 CCR 93000) as a TAC in August 1998. DPM is emitted from a broad range of diesel engines: on-road diesel engines, including trucks, buses, and cars, and off-road diesel engines, including locomotives, marine vessels, and heavy-duty construction equipment, among others. Approximately 70% of all airborne cancer risk in California is

associated with DPM (CARB 2000). To reduce the cancer risk associated with DPM, CARB adopted a diesel risk reduction plan in 2000 (CARB 2000). Because it is part of $PM_{2.5}$, DPM also contributes to the same non-cancer health effects as $PM_{2.5}$ exposure. These effects include premature death; hospitalizations and emergency department visits for exacerbated chronic heart and lung disease, including asthma; increased respiratory symptoms; and decreased lung function in children. Several studies suggest that exposure to DPM may also facilitate development of new allergies (CARB 2019f). Those most vulnerable to non-cancer health effects are children, whose lungs are still developing, and older people, who often have chronic health problems.

Odorous Compounds. Odors are generally regarded as an annoyance rather than a health hazard. Manifestations of a person's reaction to odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache). The ability to detect odors varies considerably among the population and overall is quite subjective. People may have different reactions to the same odor. An odor that is offensive to one person may be perfectly acceptable to another (e.g., coffee roaster). An unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. In a phenomenon known as odor fatigue, a person can become desensitized to almost any odor, and recognition may only occur with an alteration in the intensity. The occurrence and severity of odor impacts depend on the nature, frequency, and intensity of the source; wind speed and direction; and the sensitivity of receptors.

Sensitive Receptors

Some land uses are considered more sensitive to changes in air quality than others, depending on the population groups and the activities involved. People most likely to be affected by air pollution include children, the elderly, athletes, and people with cardiovascular and chronic respiratory diseases. Facilities and structures where these air-pollution-sensitive people live or spend considerable amounts of time are known as sensitive receptors. Land uses where air-pollution-sensitive individuals are most likely to spend time include schools and schoolyards, parks and playgrounds, daycare centers, nursing homes, hospitals, and residential communities (sensitive sites or sensitive land uses) (CARB 2005). The South Coast Air Quality Management District (SCAQMD) identifies sensitive receptors as residences, schools, playgrounds, childcare centers, long-term healthcare facilities, rehabilitation centers, convalescent centers, and retirement homes (SCAQMD 1993).

Sensitive receptors near Reclamation Plant No. 1 (Plant 1) include residential receptors approximately 100 feet from the western boundary of the site and 400 feet from the eastern site boundary. Similarly, sensitive receptors near Treatment Plant No. 2 (Plant 2) include residential receptors approximately 100 feet from the western boundary of the site. The joint plant projects would occur on Plant 1 and/or Plant 2, so the closest sensitive receptors would be the same as the ones identified for the Plants 1 and 2. The collection system and pump stations (collection system) projects are located within the Orange County Sanitation District (Sanitation District) operating region that include developed lands which support residential, commercial, education, and industrial land uses, as well as local and regional parks, and a variety of sensitive receptors.

4.2.2 Relevant Plans, Policies, and Ordinances

Federal

Criteria Air Pollutants

The federal Clean Air Act, passed in 1970 and last amended in 1990, forms the basis for the national air pollution control effort. EPA is responsible for implementing most aspects of the Clean Air Act, including setting National

Ambient Air Quality Standards (NAAQS) for major air pollutants; setting hazardous air pollutant standards; approving state attainment plans; setting motor vehicle emissions standards; issuing stationary source emissions standards and permits; and establishing acid rain control measures, stratospheric O_3 protection measures, and enforcement provisions. NAAQS are established for criteria pollutants under the Clean Air Act, which are O_3, CO, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and lead.

The NAAQS describe acceptable air quality conditions designed to protect the health and welfare of the citizens of the nation. The NAAQS (other than for O_3, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and those based on annual averages or arithmetic mean) are not to be exceeded more than once per year. NAAQS for O_3, NO_2, SO_2, PM_{10}, and $PM_{2.5}$ are based on statistical calculations over 1- to 3-year periods, depending on the pollutant. The Clean Air Act requires EPA to reassess the NAAQS at least every 5 years to determine whether adopted standards are adequate to protect public health based on current scientific evidence. States with areas that exceed the NAAQS must prepare a State Implementation Plan that demonstrates how those areas will attain the NAAQS within mandated timeframes.

Hazardous Air Pollutants

The 1977 federal Clean Air Act amendments required the EPA to identify National Emission Standards for Hazardous Air Pollutants to protect public health and welfare. Hazardous air pollutants (HAPs) include certain VOCs, pesticides, herbicides, and radionuclides that present a tangible hazard, based on scientific studies of exposure to humans and other mammals. Under the 1990 federal Clean Air Act amendments, which expanded the control program for HAPs, 189 substances and chemical families were identified as HAPs.

State

Criteria Air Pollutants

The federal Clean Air Act delegates the regulation of air pollution control and the enforcement of the NAAQS to the states. In California, the task of air quality management and regulation has been legislatively granted to CARB, with subsidiary responsibilities assigned to air quality management districts and air pollution control districts at the regional and county levels. CARB, which became part of the California Environmental Protection Agency in 1991, is responsible for ensuring implementation of the California Clean Air Act of 1988, responding to the federal Clean Air Act, and regulating emissions from motor vehicles and consumer products.

CARB has established California Ambient Air Quality Standards (CAAQS), which are generally more restrictive than the NAAQS. As stated previously, an ambient air quality standard defines the maximum amount of a pollutant averaged over a specified period of time that can be present in outdoor air without harm to the public's health. For each pollutant, concentrations must be below the relevant CAAQS before a geographical area can attain the corresponding CAAQS. Air quality is considered “in attainment” if pollutant levels are continuously below the CAAQS and violate the standards no more than once each year. The CAAQS for O_3, CO, SO_2 (1-hour and 24-hour), NO_2, PM_{10}, and $PM_{2.5}$ and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded.

California air districts have based their thresholds of significance for California Environmental Quality Act (CEQA) purposes on the levels that scientific and factual data demonstrate that the air basin can accommodate without affecting the attainment date for the NAAQS or CAAQS. Since an ambient air quality standard is based on maximum pollutant levels in outdoor air that would not harm the public’s health, and air district thresholds pertain to attainment of the ambient air quality standard, this means that the thresholds established by air districts are also protective of human health.

The NAAQS and CAAQS are presented in Table 4.2-1.

Table 4.2-1. Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[a]	National Standards[b]	
		Concentration[c]	*Primary[c,d]*	*Secondary[c,e]*
Ozone (O_3)	1 hour	0.09 ppm (180 µg/m³)	—	Same as Primary Standard[f]
	8 hours	0.070 ppm (137 µg/m³)	0.070 ppm (137 µg/m³)f	
Nitrogen dioxide (NO_2)[g]	1 hour	0.18 ppm (339 µg/m³)	0.100 ppm (188 µg/m³)	Same as Primary Standard
	Annual Arithmetic Mean	0.030 ppm (57 µg/m³)	0.053 ppm (100 µg/m³)	
Carbon monoxide (CO)	1 hour	20 ppm (23 mg/m³)	35 ppm (40 mg/m³)	None
	8 hours	9.0 ppm (10 mg/m³)	9 ppm (10 mg/m³)	
Sulfur dioxide (SO_2)[h]	1 hour	0.25 ppm (655 µg/m³)	0.075 ppm (196 µg/m³)	—
	3 hours	—	—	0.5 ppm (1,300 µg/m³)
	24 hours	0.04 ppm (105 µg/m³)	0.14 ppm (for certain areas)[g]	—
	Annual	—	0.030 ppm (for certain areas)[g]	—
Course Particulate Matter (PM_{10})[i]	24 hours	50 µg/m³	150 µg/m³	Same as Primary Standard
	Annual Arithmetic Mean	20 µg/m³	—	
Fine Particulate Matter ($PM_{2.5}$)[i]	24 hours	—	35 µg/m³	Same as Primary Standard
	Annual Arithmetic Mean	12 µg/m³	12.0 µg/m³	15.0 µg/m³
Lead[j,k]	30-day Average	1.5 µg/m³	—	—
	Calendar Quarter	—	1.5 µg/m³ (for certain areas)[k]	Same as Primary Standard
	Rolling 3-Month Average	—	0.15 µg/m³	
Hydrogen sulfide	1 hour	0.03 ppm (42 µg/m³)	—	—
Vinyl chloride[j]	24 hours	0.01 ppm (26 µg/m³)	—	—
Sulfates	24 hours	25 µg/m³	—	—
Visibility-reducing particles	8 hour (10:00 a.m. to 6:00 p.m. PST)	Insufficient amount to produce an extinction coefficient of 0.23 per kilometer due to particles when the relative humidity is less than 70%	—	—

Source: CARB 2016.

Notes: ppm = parts per million by volume; µg/m³ = micrograms per cubic meter; mg/m³= milligrams per cubic meter; PST = Pacific Standard Time.

[a] California standards for O_3, CO, SO_2 (1-hour and 24-hour), NO_2, suspended particulate matter—PM_{10}, $PM_{2.5}$, and visibility-reducing particles—are values that are not to be exceeded. All others are not to be equaled or exceeded. California Ambient Air Quality Standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

[b] National standards (other than O_3, NO_2, SO_2, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The O_3 standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over 3 years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 μg/m³ is equal to or less than one. For $PM_{2.5}$, the 24-hour standard is attained when 98% of the daily concentrations, averaged over 3 years, are equal to or less than the standard.

[c] Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C) and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

[d] National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

[e] National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

[f] On October 1, 2015, the primary and secondary National Ambient Air Quality Standards for O_3 were lowered from 0.075 ppm to 0.070 ppm

[g] To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 parts per billion (ppb). Note that the national 1-hour standard is in units of ppb. California standards are in units of ppm. To directly compare the national 1-hour standard to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.

[h] On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until 1 year after an area is designated for the 2010 standard, except that in areas designated nonattainment of the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

[i] On December 14, 2012, the national annual $PM_{2.5}$ primary standard was lowered from 15 μg/m³ to 12.0 μg/m³. The existing national 24-hour $PM_{2.5}$ standards (primary and secondary) were retained at 35 μg/m³, as was the annual secondary standard of 15 μg/m³. The existing 24-hour PM_{10} standards (primary and secondary) of 150 μg/m³ also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.

[j] CARB has identified lead and vinyl chloride as TACs with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

[k] The national standard for lead was revised on October 15, 2008, to a rolling 3-month average. The 1978 lead standard (1.5 μg/m³ as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

Toxic Air Contaminants

The state Air Toxics Program was established in 1983 under AB 1807 (Tanner). The California TAC list identifies more than 700 pollutants, of which carcinogenic and non-carcinogenic toxicity criteria have been established for a subset of these pollutants pursuant to the California Health and Safety Code. In accordance with AB 2728, the state list includes the (federal) HAPs. In 1987, the Legislature enacted the Air Toxics "Hot Spots" Information and Assessment Act of 1987 (AB 2588) to address public concern over the release of TACs into the atmosphere. AB 2588 law requires facilities emitting toxic substances to provide local air pollution control districts with information that will allow an assessment of the air toxics problem, identification of air toxics emissions sources, location of resulting hotspots, notification of the public exposed to significant risk, and development of effective strategies to reduce potential risks to the public over 5 years. TAC emissions from individual facilities are quantified and prioritized. "High-priority" facilities are required to perform a health risk assessment, and if specific thresholds are exceeded, the facility operator is required to communicate the results to the public in the form of notices and public meetings.

In 2000, CARB approved a comprehensive Diesel Risk Reduction Plan to reduce diesel emissions from both new and existing diesel-fueled vehicles and engines (CARB 2000). The regulation is anticipated to result in an 80% decrease in statewide diesel health risk in 2020 compared with the diesel risk in 2000. Additional regulations apply to new trucks and diesel fuel, including the On-Road Heavy Duty Diesel Vehicle (In-Use) Regulation, the On-Road Heavy Duty (New) Vehicle Program, the In-Use Off-Road Diesel Vehicle Regulation, and the New Off-Road Compression-Ignition (Diesel) Engines and Equipment Program. These regulations and programs have timetables

by which manufacturers must comply and existing operators must upgrade their diesel-powered equipment. There are several airborne toxic control measures that reduce diesel emissions, including In-Use Off-Road Diesel-Fueled Fleets (13 CCR 2449 et seq.) and In-Use On-Road Diesel-Fueled Vehicles (13 CCR 2025).

California Health and Safety Code Section 41700

Section 41700 of the Health and Safety Code states that a person shall not discharge from any source whatsoever quantities of air contaminants or other material that cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public; or that endanger the comfort, repose, health, or safety of any of those persons or the public; or that cause, or have a natural tendency to cause, injury or damage to business or property. This section also applies to sources of objectionable odors.

Regional and Local

South Coast Air Quality Management District

While CARB is responsible for the regulation of mobile emissions sources within the state, local air quality management districts and air pollution control districts are responsible for enforcing standards and regulating stationary sources. SCAQMD is the regional agency responsible for the regulation and enforcement of federal, state, and local air pollution control regulations in the SCAB, where the project is located. SCAQMD operates monitoring stations in the SCAB, develops rules and regulations for stationary sources and equipment, prepares emissions inventory and air quality management planning documents, and conducts source testing and inspections. SCAQMD's Air Quality Management Plans (AQMPs) include control measures and strategies to be implemented to attain the CAAQS and NAAQS in the SCAB. SCAQMD then implements these control measures as regulations to control or reduce criteria pollutant emissions from stationary sources or equipment.

The most-recently adopted AQMP is the 2016 AQMP (SCAQMD 2017), which was adopted by the SCAQMD governing board on March 3, 2017. The 2016 AQMP is a regional blueprint for achieving air quality standards and healthful air. The 2016 AQMP addresses criteria air pollutant emissions from ocean-going vessels, which are considered federal sources, and includes emissions associated with marine vessels and engines in the baseline year and future forecasts. The 2016 AQMP's overall control strategy is an integral approach relying on fair-share emission reductions from federal, state, and local levels. The 2016 AQMP is composed of stationary and mobile source emission reductions from traditional regulatory control measures, incentive-based programs, co-benefits from climate programs, mobile source strategies, and reductions from federal sources (SCAQMD 2017). These control strategies are to be implemented in partnership with CARB and EPA.

The previous AQMP was the 2012 AQMP, which was adopted in February 2013 (SCAQMD 2013). The 2012 AQMP proposed policies and measures to achieve national and California standards for improved air quality in the SCAB and those portions of the Salton Sea Air Basin (formerly named the Southeast Desert Air Basin) that are under SCAQMD jurisdiction. The 2012 AQMP is designed to meet applicable federal and state requirements for O_3 and particulate matter. The 2012 AQMP documents that attainment of the federal 24-hour $PM_{2.5}$ standard is impracticable by 2015 and the SCAB should be classified as a "Serious" nonattainment area along with the appropriate federal requirements. The 2012 AQMP includes the planning requirements to meet the 1-hour O_3 standard. The 2012 AQMP demonstrates attainment of the federal 24-hour $PM_{2.5}$ standard by 2014 in the SCAB through adoption of all feasible measures. Finally, the 2012 AQMP updates the EPA-approved 8-hour O_3 control plan with new measures designed to reduce reliance on the Clean Air Act section 182(e)(5) long-term measures for NO_x and VOC reductions. The 2012 AQMP reduction and control measures, which are outlined to mitigate

emissions, are based on existing and projected land use and development. The EPA, with a final ruling on April 14, 2016, approved the Clean Air Act planning requirements for the 24-hour $PM_{2.5}$ standard portion and on September 3, 2014, approved the 1-hour O_3 Clean Air Act planning requirements.

Applicable Rules

Emissions that would result from project construction may be subject to SCAQMD rules and regulations, which may include the following:

Rule 401 – Visible Emissions. This rule establishes the limit for visible emissions from stationary sources for a period or periods aggregating more than three minutes in any hour. This rule prohibits visible emissions dark or darker than Ringelmann No. 1 for periods greater than three minutes in any hour or such opacity which could obscure an observer's view to a degree equal or greater than does smoke.

Rule 402 – Nuisance. This rule prohibits the discharge of air pollutants from a facility that cause injury, detriment, nuisance, or annoyance to the public or damage to business or property.

Rule 403 – Fugitive Dust. This rule requires fugitive dust sources to implement best available control measures for all sources and prohibits all forms of visible particulate matter from crossing any property line. SCAQMD Rule 403 is intended to reduce PM_{10} emissions from any transportation, handling, construction, or storage activity that has the potential to generate fugitive dust.

Rule 431.2 – Sulfur Content of Liquid Fuels. The purpose of this rule is to limit the sulfur content in diesel and other liquid fuels for the purpose both of reducing the formation of SO_x and particulates during combustion and of enabling the use of add-on control devices for diesel-fueled internal combustion engines. The rule applies to all refiners, importers, and other fuel suppliers such as distributors, marketers, and retailers, as well as to users of diesel, low-sulfur diesel, and other liquid fuels for stationary-source applications in the SCAQMD. The rule also affects diesel fuel supplied for mobile source applications.

Rule 1113 – Architectural Coatings. This rule requires manufacturers, distributors, and end users of architectural and industrial maintenance coatings to reduce VOC emissions from the use of these coatings, primarily by placing limits on the VOC content of various coating categories.

Regulation XIV – Rule 1403, Asbestos Emissions from Demolition/Renovation Activities. This rule states that an owner or operator of any demolition or renovation activity is required to have an asbestos study performed prior to demolition and to provide notification to SCAQMD prior to commencing demolition activities.

Southern California Association of Governments

The Southern California Association of Governments (SCAG) is the regional planning agency for Los Angeles, Orange, Ventura, Riverside, San Bernardino, and Imperial Counties and serves as a forum for regional issues relating to transportation, the economy, community development, and the environment. SCAG serves as the federally designated metropolitan planning organization for the Southern California region and is the largest metropolitan planning organization in the United States.

With respect to air quality planning and other regional issues, SCAG has prepared the 2008 Regional Comprehensive Plan: Helping Communities Achieve a Sustainable Future (2008 RCP) for the region (SCAG 2008). The 2008 RCP sets the policy context in which SCAG participates in and responds to the SCAQMD air quality plans

and builds off the SCAQMD AQMP processes that are designed to meet health-based criteria pollutant standards in several ways (SCAG 2008). First, it complements AQMPs by providing guidance and incentives for public agencies to consider best practices that support the technology-based control measures in AQMPs. Second, the 2008 RCP emphasizes the need for local initiatives that can reduce the region's greenhouse gas emissions that contribute to climate change, an issue that is largely outside the focus of local attainment plans. Third, the 2008 RCP emphasizes the need for better coordination of land use and transportation planning, which heavily influences the emissions inventory from the transportation sectors of the economy. This also minimizes land use conflicts, such as residential development near freeways, industrial areas, or other sources of air pollution.

On April 7, 2016, SCAG's Regional Council adopted the 2016–2040 Regional Transportation Plan/Sustainable Communities Strategy (2016 RTP/SCS). The 2016 RTP/SCS is a long-range visioning plan that balances future mobility and housing needs with economic, environmental, and public health goals. The 2016 RTP/SCS charts a course for closely integrating land use and transportation so that the region can grow smartly and sustainably. The 2016 RTP/SCS was prepared through a collaborative, continuous, and comprehensive process with input from local governments, county transportation commissions, tribal governments, nonprofit organizations, businesses, and local stakeholders within the counties of Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura. In June 2016, SCAG received its conformity determination from the Federal Highway Administration and the Federal Transit Administration indicating that all air quality conformity requirements for the 2016 RTP/SCS and associated 2015 Federal Transportation Improvement Program Consistency Amendment through Amendment 15-12 have been met (SCAG 2016). The SCAQMD 2016 AQMP applies the updated SCAG growth forecasts assumed in the 2016 RTP/SCS.

SCAG has developed Connect SoCal, the 2020–2045 RTP/SCS, which is a long-range visioning plan that balances future mobility and housing needs with economic, environmental, and public health goals. Connect SoCal charts a path toward a more mobile, sustainable, and prosperous region by making connections between transportation networks, planning strategies, and the people whose collaboration can improve the quality of life for Southern Californians. Connect SoCal embodies a collective vision for the region's future and is developed with input from local governments, county transportation commissions, tribal governments, non-profit organizations, businesses, and local stakeholders within the counties of Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura. On May 7, 2020, SCAG's Regional Council adopted Connect SoCal for federal transportation conformity purposes only. In light of the COVID-19 pandemic, the Regional Council will consider approval of Connect SoCal in its entirety and for all other purposes within 120 days from May 7, 2020.

Regional and Local Air Quality Conditions

SCAB Attainment Designation

Pursuant to the 1990 federal Clean Air Act amendments, EPA classifies air basins (or portions thereof) as "attainment" or "nonattainment" for each criteria air pollutant based on whether the NAAQS have been achieved. Generally, if the recorded concentrations of a pollutant are lower than the standard, the area is classified as "attainment" for that pollutant. If an area exceeds the standard, the area is classified as "nonattainment" for that pollutant. If there is not enough data available to determine whether the standard is exceeded in an area, the area is designated as "unclassified" or "unclassifiable." The designation of "unclassifiable/attainment" means that the area meets the standard or is expected to be meet the standard despite a lack of monitoring data. Areas that achieve the standards after a nonattainment designation are re-designated as maintenance areas and must have approved Maintenance Plans to ensure continued attainment of the standards. The California Clean Air Act, like its federal counterpart, called for the designation of areas as "attainment" or "nonattainment," but based on CAAQS rather than the NAAQS. Table 4.2-2 depicts the current attainment status of the SCAB with respect to the NAAQS and CAAQS.

Table 4.2-2. South Coast Air Basin Attainment Classification

Pollutant	Designation/Classification	
	National Standards	*California Standards*
Ozone (O_3), 1-hour	No national standard	**Nonattainment**
Ozone (O_3), 8-hour	**Extreme nonattainment**	**Nonattainment**
Nitrogen Dioxide (NO_2)	Unclassifiable/attainment	Attainment
Carbon Monoxide (CO)	Attainment/maintenance	Attainment
Sulfur Dioxide (SO_2)	Unclassifiable/attainment	Attainment
Coarse Particulate Matter (PM_{10})	Attainment/maintenance	**Nonattainment**
Fine Particulate Matter ($PM_{2.5}$)	**Serious nonattainment**	**Nonattainment**
Lead	Nonattainment	Attainment
Hydrogen Sulfide	No national standard	Unclassified
Sulfates	No national standard	Attainment
Visibility-Reducing Particles	No national standard	Unclassified
Vinyl Chloride	No national standard	No designation

Sources: EPA 2020a (national); CARB 2019g (California).
Notes: Bold text = not in attainment; attainment = meets the standards; attainment/maintenance = achieves the standards after a nonattainment designation; nonattainment = does not meet the standards; unclassified or unclassifiable = insufficient data to classify; unclassifiable/attainment = meets the standard or is expected to be meet the standard despite a lack of monitoring data.

In summary, the SCAB is designated as a nonattainment area for federal and state O_3 standards and federal and state $PM_{2.5}$ standards. The SCAB is designated as a nonattainment area for state PM_{10} standards; however, it is designated as an attainment area for federal PM_{10} standards. The SCAB is designated as an attainment area for federal and state CO standards, federal and state NO_2 standards, and federal and state SO_2 standards. While the SCAB has been designated as nonattainment for the federal rolling 3-month average lead standard, it is designated attainment for the state lead standard (EPA 2020a; CARB 2019g).

Despite the current nonattainment status, air quality in the SCAB has generally improved since the inception of air pollutant monitoring in 1976. This improvement is mainly a result of lower-polluting on-road motor vehicles, more stringent regulation of industrial sources, and the implementation of emission reduction strategies by SCAQMD. This trend toward cleaner air has occurred in spite of continued population growth. PM_{10} levels have declined almost 50% since 1990, and $PM_{2.5}$ levels have also declined 50% since measurements began in 1999 (SCAQMD 2013). Similar improvements are observed with O_3, although the rate of O_3 decline has slowed in recent years.

Local Ambient Air Quality

CARB, air districts, and other agencies monitor ambient air quality at approximately 250 air quality monitoring stations across the state. SCAQMD monitors local ambient air quality at the project site. Air quality monitoring stations usually measure pollutant concentrations 10 feet above ground level; therefore, air quality is often referred to in terms of ground-level concentrations. The most recent background ambient air quality data from 2016 to 2018 are presented in Table 4.2-3.

Four air quality monitoring stations are located throughout Orange County, including Anaheim (1630 West Pampas Lane), Anaheim (812 West Vermont Street), Costa Mesa (2850 Mesa Verde Drive), and La Habra (West Lambert Road). Given that individual projects associated with the project collection system are distributed throughout Orange County, data were examined for each of the four air quality monitoring sites and the maximum air pollutant average is presented in Table 4.2-3. The data collected at these stations are considered representative of the air

quality experienced in the project vicinity. The number of days exceeding the ambient air quality standards is also shown in Table 4.2-3.

Table 4.2-3. Local Ambient Air Quality Data

Monitoring Station	Unit	Averaging Time	Agency/ Method	Ambient Air Quality Standard	Measured Concentration by Year			Exceedances by Year		
					2016	*2017*	*2018*	*2016*	*2017*	*2018*
Ozone (O3)										
West Lambert Road	ppm	Maximum 1-hour concentration	California	0.09	0.103	0.113	0.111	3	5	3
	ppm	Maximum 8-hour concentration	California	0.070	0.079	0.087	0.078	7	12	4
			National	0.070	0.078	0.086	0.077	6	12	4
Nitrogen Dioxide (NO2)										
West Vermont Street	ppm	Maximum 1-hour concentration	California	0.18	0.075	0.086	0.061	0	0	0
			National	0.100	0.0752	0.0864	0.0617	0	0	0
	ppm	Annual concentration	California	0.030	0.023	0.022	0.020	—	—	—
			National	0.053	—	—	—	—	—	—
Carbon Monoxide (CO)										
West Vermont Street	ppm	Maximum 1-hour concentration	California	20	—	—	—	—	—	—
			National	35	3.7	3.3	2.7	0	0	0
	ppm	Maximum 8-hour concentration	California	9.0	—	—	—	—	—	—
			National	9	2.2	2.6	2.2	0	0	0
Sulfur Dioxide (SO2)										
Mesa Verde Drive	ppm	Maximum 1-hour concentration	National	0.075	0.033	0.019	—	0	0	0
	ppm	Maximum 24-hour concentration	National	0.14	0.007	0.005	—	0	0	0
	ppm	Annual concentration	National	0.030	0.0011	0.001[a]	—	0	0	0
Coarse Particulate Matter (PM10)b										
Pampas Lane	µg/m³	Maximum 24-hour concentration	California	50	74.0	95.7	94.6	18.4 (3)	32.8 (5)	12.0 (2)
			National	150	74.0	95.7	94.6	0.0 (0)	0.0 (0)	0.0 (0)
	µg/m³	Annual concentration	California	20	28.0	26.9	27.7	—	—	—

Table 4.2-3. Local Ambient Air Quality Data

Monitoring Station	Unit	Averaging Time	Agency/ Method	Ambient Air Quality Standard	Measured Concentration by Year			Exceedances by Year		
					2016	*2017*	*2018*	*2016*	*2017*	*2018*
Fine Particulate Matter (PM2.5)b										
Pampas Lane	μg/m³	Maximum 24-hour concentration	National	35	44.4	53.9	63.1	1.1 (1)	ND (7)	7.2 (7)
	μg/m³	Annual concentration	California	12	45.5	56.2	68.0	—	—	—
			National	12.0	9.4	ND	11.4	—	—	—

Sources: CARB 2020; EPA 2020b.

Notes: ppm = parts per million by volume; — = not available; μg/m³ = micrograms per cubic meter; ND = insufficient data available to determine the value.

Data taken from CARB iADAM (http://www.arb.ca.gov/adam) and EPA AirData (http://www.epa.gov/airdata/) represent the highest concentrations experienced over a given year.

Exceedances of national and California standards are only shown for O_3 and particulate matter. Daily exceedances for particulate matter are estimated days because PM_{10} and $PM_{2.5}$ are not monitored daily. All other criteria pollutants did not exceed national or California standards during the years shown. There is no national standard for 1-hour O_3, annual PM_{10}, or 24-hour SO_2, nor is there a California 24-hour standard for $PM_{2.5}$.

Anaheim – Pampas Lane Monitoring Station is located at 1630 W. Pampas Lane, Anaheim, California 92802.

Anaheim – Vermont Street Monitoring Station is located at 812 W. Vermont Street, Anaheim, California 92802.

Costa Mesa – Mesa Verde Drive Monitoring Station is located at 2850 E. Mesa Verde Drive, Costa Mesa, California 92626.

La Habra – Lambert Road Monitoring Station is located at 621 W. Lambert Road, La Habra, California 90631.

[a] Mean does not satisfy minimum data completeness criteria.

[b] Measurements of PM_{10} and $PM_{2.5}$ are usually collected every 6 days and every 1 to 3 days, respectively. Number of days exceeding the standards is a mathematical estimate of the number of days concentrations would have been greater than the level of the standard had each day been monitored. The numbers in parentheses are the measured number of samples that exceeded the standard.

4.2.3 Thresholds of Significance

4.2.3.1 Significance Criteria

The significance criteria used to evaluate the proposed FMP's impacts to air quality are based on Appendix G of the CEQA Guidelines. According to Appendix G, a significant impact related to air quality would occur if a project would:

1. Conflict with or obstruct implementation of the applicable air quality plan.
2. 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.
3. Expose sensitive receptors to substantial pollutant concentrations.
4. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.) indicates that, where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to determine whether a proposed project would have a significant impact on air quality.

SCAQMD has established Air Quality Significance Thresholds, as revised in April 2019, that set forth quantitative emission significance thresholds below which a project would not have a significant impact on ambient air quality

(SCAQMD 2019). The quantitative air quality analysis provided herein applies the SCAQMD thresholds identified in Table 4.2-4 to determine the potential for the project to result in a significant impact under CEQA.

Table 4.2-4. SCAQMD Air Quality Significance Thresholds

Criteria Pollutants Mass Daily Thresholds		
Pollutant	*Construction (pounds per day)*	*Operation (pounds per day)*
VOCs	75	55
NO_x	100	55
CO	550	550
SO_x	150	150
PM_{10}	150	150
$PM_{2.5}$	55	55
Lead[a]	3	3
TACs and Odor Thresholds		
TACs[b]	Maximum incremental cancer risk ≥10 in 1 million Cancer Burden > 0.5 excess cancer cases (in areas ≥1 in 1 million) Chronic and acute hazard index ≥1.0 (project increment)	
Odor	Project creates an odor nuisance pursuant to SCAQMD Rule 402	
Ambient Air Quality Standards for Criteria Pollutants[c]		
NO_2 1-hour average NO_2 annual arithmetic mean	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 0.18 ppm (state) 0.030 ppm (state) and 0.0534 ppm (federal)	
CO 1-hour average CO 8-hour average	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 20 ppm (state) and 35 ppm (federal) 9.0 ppm (state/federal)	
PM_{10} 24-hour average PM_{10} annual average	10.4 μg/m³ (construction)[d] 2.5 μg/m³ (operation) 1.0 μg/m³	
$PM_{2.5}$ 24-hour average	10.4 μg/m³ (construction)[d] 2.5 μg/m³ (operation)	

Source: SCAQMD 2019.

Notes: SCAQMD = South Coast Air Quality Management District; VOC = volatile organic compounds; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; TAC = toxic air contaminant; NO_2 = nitrogen dioxide; ppm = parts per million by volume; μg/m³ = micrograms per cubic meter.

greenhouse gas emissions thresholds for industrial projects, as added in the March 2015 revision to the SCAQMD Air Quality Significance Thresholds, were not include included in this table as they are addressed within the greenhouse gas emissions analysis and not the air quality analysis.

[a] The phaseout of leaded gasoline started in 1976. Since gasoline no longer contains lead, the project is not anticipated to result in impacts related to lead; therefore, it is not discussed in this analysis.

[b] TACs include carcinogens and noncarcinogens.

[c] Ambient air quality standards for criteria pollutants are based on SCAQMD Rule 1303, Table A-2, unless otherwise stated.

[d] Ambient air quality threshold are based on SCAQMD Rule 403.

The phasing out of leaded gasoline started in 1976. As gasoline no longer contains lead, the proposed project is not anticipated to result in impacts related to lead; therefore, it is not discussed in this analysis.

The evaluation of whether the project would conflict with or obstruct implementation of the applicable air quality plan (CEQA Guidelines, Appendix G, Threshold 1) is based on the SCAQMD CEQA Air Quality Handbook (SCAQMD 1993), Chapter 12, Sections 12.2 and 12.3. The first criterion assesses whether the project would result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay the timely attainment of air quality standards of the interim emissions reductions specified in the AQMP, which is addressed in detail under Section 4.2.4(b) in Section 4.2.4, Impacts Analysis. The second criterion is whether the project would exceed the assumptions in the AQMP or increments based on the year of project buildout and phase, as discussed further in Section 4.2.4(a).

To evaluate the potential for the proposed FMP to result in a cumulatively considerable net increase of any criteria pollutant for which the FMP region is nonattainment under an applicable federal or state ambient air quality standard (CEQA Guidelines, Appendix G, Threshold 2), this analysis applies SCAQMD's construction criteria pollutants mass daily thresholds, as shown in Table 4.2-4. Only those thresholds related to potentially significant construction impacts are applied herein because the FMP would not generate substantial criteria pollutant emissions or related impacts associated with operational activities. A project would potentially result in a cumulatively considerable net increase in O_3, which is a nonattainment pollutant, if the project's construction emissions would exceed the SCAQMD VOC or NO_x thresholds shown in Table 4.2-4. These emissions-based thresholds for O_3 precursors are intended to serve as a surrogate for an "ozone significance threshold" (i.e., the potential for adverse O_3 impacts to occur). This approach is used because O_3 is not emitted directly, and the effects of an individual project's emissions of O_3 precursors (VOC and NO_x) on O_3 levels in ambient air cannot be determined through air quality models or other quantitative methods.

The assessment of the FMP's potential to expose sensitive receptors to substantial pollutant concentrations (CEQA Guidelines, Appendix G, Threshold 3) includes a localized significance threshold (LST) analysis, as recommended by SCAQMD, to evaluate the potential of localized air quality impacts to sensitive receptors in the immediate vicinity of a proposed project from construction and operation. For project sites of 5 acres or less, the SCAQMD LST Methodology (SCAQMD 2009) includes lookup tables that can be used to determine the maximum allowable daily emissions that would satisfy the localized significance criteria (i.e., the emissions would not cause an exceedance of the applicable concentration limits for NO_2, CO, PM_{10}, and $PM_{2.5}$) without performing project-specific dispersion modeling.

The LST significance thresholds for NO_2 and CO represent the allowable increase in concentrations above background levels in the vicinity of a project that would not cause or contribute to an exceedance of the relevant ambient air quality standards, while the threshold for PM_{10} represents compliance with Rule 403 (Fugitive Dust). The LST significance threshold for $PM_{2.5}$ is intended to ensure that construction emissions do not contribute substantially to existing exceedances of the $PM_{2.5}$ ambient air quality standards. The allowable emission rates depend on the following parameters:

1. Source-Receptor Area (SRA) in which the project is located
2. Size of the project site
3. Distance between the project site and the nearest sensitive receptor (e.g., residences, schools, hospitals)

Plant 1, Plant 2, and the joint plant activities would be in SRA 18 (North Coastal Orange County). There are five SRAs in Orange County where the proposed collection system improvements would occur. These include SRA 16 (North Orange County), SRA 17 (Central Orange County), SRA 18 (North Coastal Orange County), SRA 19 (Saddleback Valley), and SRA 20 (Central Orange County Coastal). The most stringent LST for these five SRAs are applied to the collection system projects.

LST pollutant screening level concentration data is currently published for 1-, 2-, and 5-acre sites for varying distances (25, 50, 100, 200, and 500 meters [approximately 82, 160, 330, and 660 feet]). The projects under the proposed FMP would have minimal disturbance, so a 1-acre disturbance area was assumed for all projects. While some FMP projects may have a total disturbance footprint greater than 1 acre, it is not reasonably foreseeable that projects would disturb greater than 1 acre per day. Specifically, the Plants 1 and 2 projects are planned on sites that are already developed, thus intensive ground-disturbing activities are not called for as part of the FMP. Additionally, the "demolition" component of these projects call for equipment removal that would not require ground disturbance. The collection system projects are generally smaller projects that would not require large daily footprints. LSTs are more stringent for smaller areas (i.e., 1-acre LSTs are more stringent than 2-acre and 5-acre LSTs); therefore, this approach is conservative.

As discussed in Section 4.2.1, sensitive receptors near Plant 1 include residential receptors approximately 100 feet from the western boundary of the site and 400 feet from the eastern site boundary; sensitive receptors near Plant 2 include residential receptors approximately 100 feet from the western boundary of the site. Accordingly, LSTs reflecting a 25-meter distance (approximately 82 feet) and 1-acre disturbance area were applied to Plant 1, Plant 2, and joint plant projects, which would occur on Plant 1 and/or Plant 2. For the collection system projects, LSTs reflecting a 25-meter distance, which is the shortest distance provided by the SCAQMD lookup tables, and a 1-acre disturbance area were also applied, as sensitive receptors could be within 25 meters of anticipated construction activities.

LST values for Plant 1, Plant 2, and joint plant projects in SRA 18 and the LST values for the collection system throughout the Orange County SRAs, as well as the most stringent LST for the collection system projects, are presented in Table 4.2-5.

Table 4.2-5. Localized Significance Thresholds for Applicable Source-Receptor Areas

Pollutant	Thresholds (pounds per day) *1-Acre Project Site, 25 Meters (82 feet)*
Plant 1, Plant 2, and Joint Plant	
SRA 18 (North Coastal Orange County)	
NO_2	92
CO	647
PM_{10}	4
$PM_{2.5}$	3
Collection System	
SRA 16 (North Orange County)	
NO_2	103
CO	522
PM_{10}	4
$PM_{2.5}$	3
SRA 17 (Central Orange County)	
NO_2	81
CO	485
PM_{10}	4
$PM_{2.5}$	3

Table 4.2-5. Localized Significance Thresholds for Applicable Source-Receptor Areas

Pollutant	Thresholds (pounds per day)
	1-Acre Project Site, 25 Meters (82 feet)
SRA 18 (North Coastal Orange County)	
NO_2	92
CO	647
PM_{10}	4
$PM_{2.5}$	3
SRA 19 (Saddleback Valley)	
NO_2	91
CO	696
PM_{10}	4
$PM_{2.5}$	3
SRA 20 (Central Orange County Coastal)	
NO_2	92
CO	647
PM_{10}	4
$PM_{2.5}$	3
Most Stringent LST	
NO_2	81
CO	647
PM_{10}	4
$PM_{2.5}$	3

Source: SCAQMD 2009.
Notes: SRA = Source-Receptor Area; NO_2 = nitrogen dioxide; CO = carbon monoxide; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; LST = localized significance threshold.
LSTs are shown for 1-acre project sites corresponding to a distance to a sensitive receptor of 25 meters.

The assessment of the FMP's potential to expose sensitive receptors to substantial pollutant concentrations (CEQA Guidelines, Appendix G, Threshold 3) also includes a construction health risk assessment (HRA) for Plant 1 and Plant 2. A qualitative CO hotspot analysis is also included in Section 4.2.4(c), based on comparison to the SCAQMD 2003 AQMP CO hotspot analysis.

The potential for the FMP to result in other emissions, specifically an odor impact (CEQA Guidelines, Appendix G, Threshold 4), is based on the FMP's land-use types and anticipated construction activity, and the potential for the FMP to create an odor nuisance pursuant to SCAQMD Rule 402.

4.2.3.2 Approach and Methodology

Construction

The California Emissions Estimator Model (CalEEMod) Version 2016.3.2 was used to estimate emissions generated during construction of each project modeled. CalEEMod is a statewide computer model developed in cooperation with air districts throughout the state to quantify criteria air pollutant emissions associated with construction activities from a variety of land use projects, such as residential, commercial, and industrial facilities. For Plant 1, all project-level projects (7 projects) and all program-level projects (10 projects) were modeled, for a total of 17

model runs. For Plant 2, all project-level projects (5 projects) and all program-level projects (10 projects) were modeled, for a total of 15 model runs. For the joint plant projects, all project-level projects (8 projects) were modeled, resulting in a total of 6 model runs since projects X-057, X-058, and X-059 were modeled in one run because they are essentially one project; there are no program-level joint plant projects.

For the collection system, all project-level projects (10 projects) were modeled. For the program-level collection system projects, a representative project approach was applied to provide a conservative analysis of collection system projects without modeling each project. The program-level activities were grouped by type of activity (e.g., pipeline replacement and pump station rehabilitation), and representative projects were identified that would represent the greatest anticipated intensity of daily and annual construction (in other words, the worst case scenario). Construction specifications of each activity would vary depending on the subject site characteristics, improvement needs, and type of proposed rehabilitation or replacement; however, construction activities within the same category are not expected to differ substantially. Because several of the proposed activities address similar issues, the proposed solutions (such as rehabilitation or replacement) include similar procedures, many of which are techniques the Sanitation District has historically used to address similar issues, such as aging infrastructure. A total of 9 collection system representative projects were modeled that represent 25 program-level projects, resulting in a total of 19 collection system model runs. A summary of the representative projects modeled is as follows:

- **Air Jumpers**. Project X-078, Air Jumper Additions and Rehabilitation, was modeled as 1 air jumper addition project; however, there are 56 air jumper rehabilitation projects. Construction of a maximum of 2 air jumpers could occur in 1 day. The 56 air jumper projects are assumed to be completed over 10 years (from May 2023 to April 2033), ranging from 3 to 6 projects each year.
- **Pipeline Replacement – Open Trench (Cut and Cover) Method**. Project X-066, Tustin–Orange Interceptor Sewer at Reach 18 Rehabilitation, was selected to represent pipeline replacement activity using traditional open-trench construction techniques. The following pipeline replacement projects are represented by project X-066: project X-026, College Avenue Force Main Rehabilitation; project X-065, Tustin–Orange Interceptor Sewer at Reach 17 Rehabilitation; project X-068, North Trunk Rehabilitation; and project X-084, Tustin Avenue Sewer Relief. Project X-066 involves 3,819 linear feet of pipeline replacement, and all projects represented by it would require less linear feet in total (ranging from 615 linear feet to 1,742 linear feet) but are anticipated to require the same level of daily construction activity (i.e., approximately 100 feet per day).
- **Pipeline Replacement – Open Trench (Unique Project)**. Project X-086, Santa Ana River Sewer Relief, includes open-trench pipeline replacement similar to project X-066; however, it requires replacement of approximately 14,270 linear feet. While the daily activity (i.e., approximately 100 feet per day) is anticipated to be the same as the pipeline replacement representative projects, the longer duration of construction would result in greater total emissions; therefore, project X-086 was modeled separately.
- **Pipeline Replacement – Microtunneling**. One pipeline replacement project, project 3-68, Los Alamitos Sub-Trunk Extension, was identified as using the microtunneling construction technique rather than open trench. Accordingly, project 3-68 was modeled separately.
- **Pipeline Relining**. Pipeline relining involves less construction intensity (i.e., approximately 200 feet per day) than pipeline replacement and was therefore modeled separately. Project 7-65, Gisler–Red Hill Interceptor Rehabilitation, was selected to represent pipeline relining because it is the longest pipeline reline project (approximately 13,249 linear feet), which also represents project 7-66 Sunflower and Red Hill Interceptor Rehab/Repair.

- **Pipeline Replacement and Pipeline Relining**. Some pipeline rehabilitation projects include both pipeline replacement and pipeline relining per the needs of different segments in the pipelines. Project X-071, Edinger/Springdale Trunk Sewer Rehabilitation, was selected to represent pipeline replacement and relining activities because it involves the greatest length of pipeline replaced (approximately 5,264 linear feet) and pipeline relined (approximately 5,750 linear feet), which represents the following projects: project 7-68, MacArthur Dual Force Main Improvements; project X-067 (X-085), Hoover–Western Sub-Trunks Sewer Rehabilitation, and project X-061, Imperial Highway Relief Interceptor Rehabilitation.
- **Pump Station Rehabilitation**. Project X-040, College Avenue Pump Station Replacement, was identified to represent a typical pump station rehabilitation project, which represents project X-024, Rocky Point Pump Station Rehabilitation, and project X-025, Bitter Point Pump Station Rehabilitation. Projects X-040, X-024, and X-025 are all very similar; however, project X-040 was selected to represent pump station rehabilitation because it includes additional minor structural repair.
- **Pump Station Rehabilitation and Pipeline Replacement**. One pump station project, project 7-63, MacArthur Pump Station Rehabilitation, also included replacement of two adjacent force mains and was modeled separately.
- **Pump Station Rehabilitation and Pipeline Relining**. Seven projects were identified as pump station rehabilitation and relining of adjacent pipelines, and project 7-67, Main Street Pump Station Replacement and Force Main Rehabilitation, was selected to represent this combined activity because it involves the greatest length of pipeline relining (approximately 6,000 linear feet); the pump station rehabilitation component is anticipated to be relatively the same across projects. The following projects are represented by the project 7-67 model run: project X-023, Lido Pump Station Rehabilitation; project 11-34, Slater Avenue Pump Station Rehabilitation; project 7-64, Main Street Pump Station Rehabilitation; project X-022, 15th Street Pump Station Rehabilitation; project X-041, A Street Pump Station Rehabilitation; and project 5-66, Crystal Cove Pumping Station Upgrade and Rehabilitation.

A total of 57 model runs were conducted to represent 75 projects. However, note that project X-078, Air Jumper Additions and Rehabilitation, involves 56 separate additions or rehabilitations of air jumpers across the Sanitation District service area. A construction assumptions scenario was developed for each of the 57 projects modeled based on the best available project information at this time. Key construction assumptions include phase types, phase timing and duration, off-road equipment use (e.g., type, quantity, and hours of operation per day), number of vehicle trips (e.g., haul trucks, vendor trucks, and worker vehicles) and trip distance, ground disturbance acreage, amount of demolition debris, paving area, and square footage to be painted. See Appendix D for construction assumption details.

The selected phase type and duration were based on the best available information including the Sanitation District's 2017 Facilities Master Plan and/or project descriptions provided by the Sanitation District. Phase timing and sequencing was considered where two or more phases overlap; the maximum daily emissions was estimated and presented in this analysis.

Off-road equipment emissions were estimated in CalEEMod based on the type of equipment, the number of pieces of each equipment, and the hours of operation. CalEEMod default values for equipment horsepower and load factor were applied; in a few instances, the horsepower was modified to reflect the specific equipment anticipated to be used to more accurately estimate potential emissions.[6] For most project model runs, the equipment was assumed to be in operation for 8 hours per day, which is the anticipated maximum daily use; in reality, it is anticipated that

[6] For example, for project P2-138, the crushing/processing equipment was assumed to be 415 horsepower to reflect a larger crusher than CalEEMod default values assume (i.e., 85 horsepower).

equipment would be used for less than 8 hours a day when considering mandated worker breaks and that equipment would only be operated when needed; in addition, it is anticipated that the construction areas cannot allow every piece of equipment to be in operation at the same time. The estimation of off-road equipment emissions and total maximum daily project emissions is therefore conservative. Internal combustion engines used by construction equipment would result in emissions of VOCs, NO_x, CO, SO_x, PM_{10}, and $PM_{2.5}$.

Emissions from vehicle trips are estimated in CalEEMod based on the number of trips, the trip distance, and emission factors for the vehicle category. Regarding the vehicle categories, and consistent with CalEEMod default values, worker trips are assumed to be passenger vehicles and light-duty trucks, vendor truck trips are assumed to be a mix of medium- and heavy-heavy duty trucks, and haul truck trips are assumed to be heavy-heavy duty trucks. Haul truck trips were estimated based on the amount of material that needed to be exported off site to a disposal site. All haul trucks were assumed to have a capacity or 16 cubic yards or 20 tons. The CalEEMod default haul truck assumption for one-way trip length is 20 miles (CAPCOA 2017). While FMP projects occur at varying locations, the CalEEMod assumption is appropriate. Specifically, Plant 1 was used as a point of reference to estimate the distance between project activity and nearby disposal sites. Frank R. Bowerman Landfill (11002 Bee Canyon Access Road, Irvine, California 92602) is located approximately 18.5 miles from Plant 1 (10844 Ellis Avenue, Fountain Valley, California 92708), and Orange County Hazardous Waste (17121 Nichols Lane, Huntington Beach, California 92647) is located 5 miles from Plant 1. Therefore, the CalEEMod default haul truck one-way trip length assumption of 20 miles is appropriate (CAPCOA 2017). In general, the number of needed project workers was estimated based on the number of pieces of equipment and assuming that each piece of equipment would require 1.25 workers (CAPCOA 2017). Vendor trucks are anticipated to be minimal because the anticipated construction activities do not require large quantities of building material, if any; however, vendor truck trips were added to phases where material delivery is anticipated or water trucks may be needed. CalEEMod default values for worker trip length (14.7 miles) and vendor truck trip length (6.9 miles) were applied. Each worker, vendor, and haul truck was estimated to result in two one-way trips. As with equipment, internal combustion engines used by vehicles would result in emissions of VOCs, NO_x, CO, SO_x, PM_{10}, and $PM_{2.5}$.

Fugitive dust (PM_{10} and $PM_{2.5}$ emissions) is generated by entrained dust, which results from the exposure of earth surfaces to wind from the direct disturbance and movement of soil, which occurs during earth movement phases (site preparation and grading) and during the loading of material into haul trucks. Because the projects mostly occur in developed areas and many projects do not include earth movement phases, dust generation is anticipated to be minimal. The FMP projects would be required to comply with SCAQMD Rule 403 to control dust emissions during any dust-generating activities. SCAQMD Rule 403 requires implementation of various best available fugitive dust control measures for different sources for all construction activity sources within its jurisdictional boundaries. Dust control measures include, but are not limited to, maintaining stability of soil through pre-watering of site prior to clearing, grubbing, cut and fill, and earth-moving activities; stabilizing soil during and immediately after clearing, grubbing, cut and fill, and other earth-moving activities; stabilizing backfill during handling and at completion of activity; and pre-watering material prior to truck loading and ensuring that freeboard exceeds 6 inches. While SCAQMD Rule 403 requires fugitive dust control beyond watering control measures, compliance with Rule 403 is represented in CalEEMod by assuming twice daily watering of active sites. Fugitive dust can also be generated by on-road vehicles on paved roads; however, no unpaved roads were assumed, because project sites are developed.

VOC off-gassing emissions would occur during application of asphalt pavement during paving and the application of paint and other coatings during architectural coating. During paving, VOC off-gassing emissions are estimated in CalEEMod based on the area of asphalt pavement assumed and the default emission factor of 2.62 pounds per acre of VOCs. During architectural coating, VOC off-gassing emissions result from evaporation of solvents contained in surface coatings such as in paints and primers. VOC evaporative emissions from application of surface coatings

was estimated based on the VOC emission factor, the estimated building square footage, and the assumed fraction of surface area. The total square footage of new structures was conservatively assumed; however, the majority of the new surfaces are not anticipated to require coating. The VOC emission factor is based on the VOC content of the surface coatings, and SCAQMD's Rule 1113 (Architectural Coatings) governs the VOC content for interior and exterior coatings as well as transportation surface coatings.

For Plant 1, Plant 2, and the joint plant projects, one or more of the following phases are anticipated for each project, which are further described below: demolition, site preparation, structural rehabilitation, building construction, paving, architectural coating, electrical/instrumentation, and/or testing.

- **Demolition**. Demolition may include removal of structures or asphalt pavement, or removal of equipment for replacement. For each project, the amount of demolition debris was estimated based on best available information such as square footage of the demolition structure/area and type of material (e.g., concrete, asphalt, metal, plastic, and lumber) to ensure that associated emissions were captured. Emission sources associated with demolition include off-road equipment operation, vehicle trips including workers and haul trucks exporting demolition material, and dust generated by loading haul trucks with material.
- **Site Preparation**. Since these projects are within the plant boundaries, they are located on developed site conditions and typical site preparation activities such as clearing and grubbing of vegetation and grading are not anticipated. Instead, few projects included site preparation that would entail removing existing asphalt to build a new building where the existing asphalt is located, or adding new asphalt pavement and/or dirt (e.g., grading) over the location of a structure that was demolished during the project, and other activities needed to prepare the site. Emission sources associated with site preparation include off-road equipment operation, vehicle trips including workers and haul trucks exporting material, and dust generated by disturbing earth.
- **Structural Rehabilitation**. Structural rehabilitation would include concrete structural repair and/or plastic lining/coating needed to maintain or improve the structural integrity of the existing structure. Emission sources associated with structural rehabilitation include off-road equipment operation and vehicle trips including workers vendor trucks delivering material.
- **Building Construction**. In most cases, building construction would include physical construction of structures including foundation, structures, and buildings. In some cases, building construction would only include the installation of new equipment. Emission sources associated with building construction include off-road equipment operation and vehicle trips including workers and vendor trucks delivering material.
- **Paving**. Paving, which involves the laying of asphalt or concrete, would occur on projects that require replacing removed pavement or minor repaving activities. Emission sources associated with paving include off-road equipment operation, worker and vendor vehicle trips, and VOC off-gassing from the application of asphalt material.
- **Architectural Coating**. Architectural coating would occur on projects that include building or rehabilitation of structures that would need to be painted on the interior and/or exterior. Architectural coating may also occur on projects that included new asphalt that would need striping or other transportation signage coatings. Emission sources associated with architectural coating include off-road equipment operation, worker and vendor vehicle trips, and VOC off-gassing from the application of paints and other finishes.
- **Electrical/Instrumentation**. Electrical or instrumentation phases include install the electrical and instrumentation components associated with new equipment. Emission sources associated with electrical/instrumentation include off-road equipment operation and worker vehicle trips.
- **Testing**. Testing occurs on many projects and includes the testing of the repaired or replaced equipment or facility. Emission sources associated with testing include off-road equipment operation and worker vehicle trips.

For the collection system projects, one or more of the following phases are anticipated for each project, which are further described below: pipeline installation, pipeline lining, manhole rehabilitation, demolition, site preparation, structural rehabilitation, building construction, paving, architectural coating, and/or testing.

- **Pipeline Installation.** For replacement pipeline projects, pipeline installation is through open trench construction (except for microtunneling Project 3-68). Pipeline installation is assumed to include trenching, excavation of fill, removal and replacement of the pipeline, and backfill and compaction. The pipeline installation phases were modeled as a "grading" phase to capture dust generated during trenching and excavation. As stated above, it was assumed that 100 feet per day of pipeline would be installed based on previous pipeline replacement projects and because it represents a reasonable amount of pipeline that contractors can accomplish in a day. The area of disturbance was calculated based on the total length of the pipeline, the width of the largest pipeline, and additional area to both sides of the pipeline. Emission sources associated with pipeline installation include off-road equipment operation, vehicle trips including workers and haul trucks exporting material, and dust generated by disturbing earth.
- **Pipeline Lining**. Pipeline lining would happen when pipes do not need to be replaced, but internal deficiencies (e.g., corroded or cracked pipe) need to be repaired. It was assumed that 200 feet per day of pipeline would be lined based on previous pipeline lining projects. During pipeline lining, no aboveground disturbance would occur. Emission sources associated with pipeline lining include off-road equipment operation and vehicle trips including workers.
- **Manhole Rehabilitation.** Manhole rehabilitation would occur during some of the pipeline projects to repair or rehabilitate manholes along the pipeline.
- **Demolition.** Similar to the Plant 1, Plant 2, and the joint plant projects, demolition would occur when a structure would need to be removed and/or equipment would be replaced. The demolition phase was typically assumed to occur during the pump station rehabilitation projects. Demolition of existing structures could occur at the end after the new structure, such as a pump station, is built. Emission sources associated with demolition include off-road equipment operation, vehicle trips including workers and haul trucks exporting demolition material, and dust generated by loading haul trucks with material.
- **Site Preparation.** As with the Plant 1, Plant 2, and the joint plant projects, site preparation activities are anticipated to be minor since these improvements are planned to take place on previously developed sites. Emission sources associated with site preparation include off-road equipment operation, vehicle trips including workers and haul trucks exporting material, and dust generated by disturbing earth.
- **Structural Rehabilitation.** Pump station or air jumpers may need concrete repair and/or plastic lining/coating to maintain or improve the structural integrity of the existing structure. Emission sources associated with structural rehabilitation include off-road equipment operation and vehicle trips including workers vendor trucks delivering material.
- **Building Construction.** In some cases, building construction would include physical construction of structures (usually pump stations), which includes construction of the foundation, structures, and buildings. In other cases, building construction would only include the installation of new equipment (e.g., pumps). Emission sources associated with building construction include off-road equipment operation and vehicle trips including workers and vendor trucks delivering material.
- **Paving.** Paving would occur for every pipeline replacement project and was assumed to occur daily to re-pave the active areas each day to ensure no trench would be left open, as well as after pipeline installation is complete to provide a smooth, final pavement. For pipeline replacement projects, the number of acres to be paved was calculated based on the total length of the pipeline, the width of the largest pipeline, and additional area on both sides of the pipeline; therefore, as the width of the largest part of the pipeline was assumed, the asphalt

pavement estimate is conservative. Emission sources associated with paving include off-road equipment operation, worker and vendor vehicle trips, and VOC off-gassing from the application of asphalt material.

- **Architectural Coating.** For collection system projects, the majority of the architectural coating would include transportation striping and signage. Emission sources associated with architectural coating include off-road equipment operation, worker and vendor vehicle trips, and VOC off-gassing from the application of paints and other finishes.
- **Testing.** Testing includes the testing of the repaired or replaced equipment or facility. The testing phase is anticipated to be relatively standard and would include either a generator set or no equipment and a maximum of three workers (six worker trips). Emission sources associated with testing include off-road equipment operation and worker vehicle trips.

Typical equipment by construction phase is presented in Table 4.2-6. It is important to note that not all projects include all phases of construction and not each phase includes all of the equipment listed.

Table 4.2-6. Typical Construction Equipment

Construction Phase	Equipment
Plant 1 and Plant 2	
Demolition	Cranes Crushing/processing equipment Excavators Forklifts Generator sets Pumps Rubber-tired dozers Tractors/loaders/backhoes
Site preparation	Excavators Graders Rubber-tired dozers Tractors/loaders/backhoes
Structural rehabilitation	Aerial lifts Air compressors Cement and mortar mixers Generator sets Pumps
Building construction	Aerial lifts Cement and mortar mixers Cranes Forklifts Generator sets Pumps Tractors/loaders/backhoes Welders
Paving	Pavers Paving equipment Rollers
Architectural coating	Air compressors
Electrical/instrumentation	Generator sets
Testing	Generator sets

Table 4.2-6. Typical Construction Equipment

Construction Phase	Equipment
Joint Plant Projects	
Demolition	Cranes Excavators Pumps Tractors/loaders/backhoes
Site preparation	Graders Rubber-tired dozers Tractors/loaders/backhoes
Structural rehabilitation	Air compressors Cement and mortar mixers Generator sets Pumps
Building construction	Aerial lifts Cranes Cement and mortar mixers Forklifts Pumps Tractors/loaders/backhoes Welders
Paving	Pavers Paving equipment Rollers
Architectural coating	Air compressors
Electrical	Generator sets
Testing	Generator sets
Collection System Projects	
Pipeline installation	Concrete/industrial saws Excavators Forklifts Pumps Tractors/loaders/backhoes
Pipeline lining	Generator sets Pumps
Manhole rehabilitation	Air compressors Generator sets
Demolition	Aerial lifts Cranes Excavators Forklifts Pumps Rubber-tired dozers Tractors/loaders/backhoes
Site preparation	Cement and mortar mixers Generator sets Pumps Tractors/loaders/backhoes Rubber-tired dozers

Table 4.2-6. Typical Construction Equipment

Construction Phase	Equipment
Structural rehabilitation	Air compressors Cement and mortar mixers Generator sets Pumps
Building construction	Aerial lifts Air compressors Cement and mortar mixers Cranes Forklifts Generator sets Pumps Tractors/loaders/backhoes Welders
Paving	Pavers Paving equipment Rollers
Architectural coating	Air compressors
Testing	Generator sets

Operation

The FMP projects would rehabilitate, replace, or abandon existing facilities that are currently subject to ongoing operations and maintenance activity. Accordingly, the projects addressed in this program environmental impact report (PEIR) do not propose appreciable changes to regular operations and maintenance activity by Sanitation District personnel. Therefore, potential operational criteria air pollutant emissions are qualitatively evaluated.

Construction Health Risk Assessment

A construction HRA was performed to evaluate potential health risk associated with construction of the proposed project, specifically Plant 1, Plant 2, and joint plant projects. Collection system pipeline construction projects would occur in a linear fashion where emissions would not be concentrated in one location for a prolonged period of time. Other collection system projects, such as pump station rehabilitation projects, are not anticipated to require intensive construction activities or occur over a long period of time. Based on the anticipated duration of construction, the intensity of construction, and the location of nearby sensitive receptors, the Plant 1 and Plant 2, plus joint plant projects, represent the maximum condition for the construction HRA. The following discussion summarizes the dispersion modeling and HRA methodology; supporting construction HRA documentation, including detailed assumptions, is presented in Appendix D.

For risk assessment purposes, PM_{10} in diesel exhaust is considered DPM, originating mainly from off-road equipment operating at a defined location for a given length of time at a given distance from sensitive receptors. Less-intensive, more-dispersed emissions result from on-road vehicle exhaust (e.g., vendor trucks and heavy-duty diesel trucks). While truck travel is considered an off-site emission source, to conservatively include local truck travel in the construction HRA that evaluates on-site TAC emissions, a diesel truck one-way trip distance of 1,000 feet was assumed in CalEEMod. The 1,000-foot distance assumed for these purposes is derived from the industry-standard for evaluating a project's TAC emissions.

The air dispersion modeling methodology was based on generally accepted modeling practices of SCAQMD (SCAQMD 2020). Air dispersion modeling was performed using the EPA's American Meteorological Society/Environmental Protection Agency Regulatory Model (AERMOD) Version 19191 modeling system (computer software) with the Lakes Environmental Software implementation/user interface, AERMOD View Version 9.9.0. The HRA followed the Office of Environmental Health Hazard Assessment (OEHHA) 2015 guidelines (OEHHA 2015) and SCAQMD guidance to calculate the health risk impacts at all proximate receptors as further discussed below. The dispersion modeling included the use of standard regulatory default options. AERMOD parameters were selected consistent with the SCAQMD and EPA guidance and identified as representative of the project site and project activities. Principal parameters of AERMOD for proposed project construction included the following:

- **Dispersion Model:** The air dispersion model used was AERMOD, Version 19191, with the Lakes Environmental Software implementation/user interface, AERMOD View, Version 9.9.0. A unit emission rate (1 gram per second) was normalized over each unique source of emissions for the AERMOD run to obtain the "X/Q" values. X/Q is a dispersion factor that is the average effluent concentration normalized by source strength, and is used as a way to simplify the representation of emissions from many sources. The maximum concentrations were determined for the 1-hour and period-averaging periods. Table 4.2-7 provides detailed source parameters for modeling emissions with AERMOD. Source parameters were based on information provided by the project applicant and modeling guidance from SCAQMD and the Sacramento Metropolitan Air Quality Management District (SCAQMD 2020; SMAQMD 2013).[7]

Table 4.2-7. Emission Source Parameters

Source ID	Source Name	Source Type	Source Parameters
SLINE1	Plant 1 Construction	Line Volume	Plume Height: 25.00 m Plume Width: 25.00 m Release Height: 5.00 m Emission Rate[a]: 0.007 g/s Number of Volume Sources: 144 Variable Emissions Scenario: 8 hours per day, 5 days per week
SLINE2	Plant 2 Construction	Line Volume	Plume Height: 25.00 m Plume Width: 25.00 m Release Height: 5.00 m Emission Rate:[a] 0.01 g/s Number of Volume Sources: 89 Variable Emissions Scenario: 8 hours per day, 5 days per week

Source: SCAQMD 2020; SMAQMD 2013.
Notes: m = meters; g/s = grams per second.
[a] An emission rate of 1 g/s was divided equally between the number of volume sources within the construction sources modeled.

- **Meteorological Data:** The John Wayne Airport meteorological station was selected since it is the closest station and is the most representative of the project site. The latest 6-year meteorological data (2012–2016) for the John Wayne Airport were downloaded from SCAQMD, and then input to AERMOD. A wind rose is provided for this station in Appendix D.

[7] The Sacramento Metropolitan Air Quality Management District CEQA Guide was referenced as applicable because it provides specific guidance for modeling emissions from construction sources.

- **Urban and Rural Options:** Typically, urban areas have more surface roughness and structures and low-albedo surfaces that absorb more sunlight, and thus, more heat, relative to rural areas. The urban dispersion option was selected based on the predominant development within 2 kilometers of the project site. The population for Orange County (3,010,232) was used for the urban group.
- **Terrain Characteristics:** Digital elevation model files were imported into AERMOD so that complex terrain features were evaluated as appropriate. The National Elevation Dataset with resolution of 1/3 arc-second was used.
- **Sensitive Receptors:** The HRA evaluates the risk to existing sensitive (including residential) receptors located in proximity to the project site. A uniform Cartesian grid of 10,095 by 10,078 meters was centered over the project site to capture the maximum point of impact and extent of the plume isopleth. A finer Cartesian grid of 20-meter spacing was placed over residential receptors proximate to the project site.
- **Source Release Scenario:** Emissions during construction were assumed to operate up to 8 hours per day, 260 days per year.

The health risk calculations were performed using the Hotspots Analysis and Reporting Program Version 2 (HARP2) Air Dispersion and Risk Tool (dated 19121). AERMOD was run with all sources emitting unit emissions (1 gram per second) to obtain the necessary input values for HARP2. The line of volume sources was partitioned evenly based on the 1 gram per second emission rate. The ground-level concentration plot files were then used to estimate the long-term cancer health risk to an individual, and the non-cancerous chronic health indices. There is no reference exposure level for acute health impacts from DPM, and, thus, acute risk was not evaluated.

Cancer risk is defined as the increase in probability (chance) of an individual developing cancer due to exposure to a carcinogenic compound, typically expressed as the increased chances in 1 million. Maximum Individual Cancer Risk is the estimated probability of a maximally exposed individual potentially contracting cancer as a result of exposure to TACs over a period of 30 years for residential receptor locations. For the construction HRA, the TAC exposure period was assumed to start at the third trimester of pregnancy for all receptor locations. The total exposure duration was assumed to be 20 years (i.e., the assumed duration of project construction). The exposure pathway for DPM is inhalation only.

The SCAQMD has also established non-carcinogenic risk parameters for use in HRAs since some TACs increase non-cancerous health risk due to long-term (chronic) exposures and some TACs increase non-cancerous health risk due to short-term (acute) exposures. No short-term, acute relative exposure level has been established for DPM; therefore, acute impacts of DPM are not addressed in the HRA. Chronic exposure is evaluated in the construction HRA. Non-carcinogenic risks are quantified by calculating a hazard index, expressed as the ratio between the ambient pollutant concentration and its toxicity or reference exposure level, which is a concentration at or below which health effects are not likely to occur. The chronic hazard index is the sum of the individual substance chronic hazard indices for all TACs affecting the same target organ system. A hazard index less of than one (1.0) means that adverse health effects are not expected.

The risk assessment was performed in accordance with the SCAQMD Risk Assessment Procedures for Rules 1401, 1401.1, and 212 (SCAQMD 2017). The highest year emissions were applied to the entire exposure duration. For Plant 1, this analysis assumed year 2025 for the unmitigated and 2026 for the mitigated analysis and for Plant 2, year 2023 was assumed for the unmitigated and mitigated scenarios. This is an overly conservative scenario as actual modeled emissions over the entire construction period were much lower. Furthermore, the HRA began risk evaluation exposure within the third trimester of pregnancy for a 20 year

duration, consistent with the 2015 OEHHA Guidelines.[8] The following risk assessment options were applied to the HRA in accordance with the SCAQMD (2017) guidance:

- Deposition velocity of 0.02 meters per second
- A 'warm' climate was selected for dermal exposure
- The Risk Management Policy (Derived) Method was selected for residential cancer risk
- Pathways for residential risk include inhalation, soil ingestion, dermal absorption, homegrown produce, and mother's milk

4.2.4 Impacts Analysis

1. Would the project conflict with or obstruct implementation of the applicable air quality plan?

Less-than-Significant Impact with Mitigation Incorporated. As previously discussed, the FMP projects are located within the SCAB under the jurisdiction of the SCAQMD, which is the local agency responsible for administration and enforcement of air quality regulations for the area. The SCAQMD has established criteria for determining consistency with the AQMP, currently the 2016 AQMP, in Chapter 12, Sections 12.2 and 12.3, in the SCAQMD CEQA Air Quality Handbook (SCAQMD 1993). The criteria are as follows (SCAQMD 1993):

- **Consistency Criterion No. 1:** The project will not result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay the timely attainment of air quality standards of the interim emissions reductions specified in the AQMP.
- **Consistency Criterion No. 2:** The project will not exceed the assumptions in the AQMP or increments based on the year of project buildout and phase.

Consistency Criterion No. 1

Section 4.2.4(b), evaluates the proposed project's potential impacts with regards to State CEQA Guidelines Appendix G Threshold 2 (cumulatively considerable net increase of a nonattainment criteria pollutant). The SCAQMD mass daily construction thresholds are applied to evaluate the potential for a project to result in a cumulatively considerable net increase of a nonattainment criteria pollutant (Threshold 2), as well as the potential for the project to result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations (Consistency Criterion No. 1).

As discussed below, the proposed project would result in construction-generated NO_x emissions that would exceed the SCAQMD mass daily construction threshold. Thus, it would potentially conflict with Consistency Criterion No. 1 of the SCAQMD CEQA Air Quality Handbook.

Consistency Criterion No. 2

While striving to achieve the NAAQS for O_3 and $PM_{2.5}$ and the CAAQS for O_3, PM_{10}, and $PM_{2.5}$ through a variety of air quality control measures, the 2016 AQMP also accommodates planned growth in the SCAB.

[8] OEHHA describes cancer risk evaluations for 9-, 30-, and 70-year exposure durations in the 2015 OEHHA Guidelines, and identifies that the 9- and 30-year durations correspond to the average and high-end of residency time recommended by the EPA, with the 30-year exposure duration recommended for use as the basis for estimating cancer risk at the maximally exposed individual resident in all HRAs (OEHHA 2015).

Projects are considered consistent with, and would not conflict with or obstruct implementation of, the 2016 AQMP if the growth in socioeconomic factors (e.g., population, employment) is consistent with the underlying regional plans used to develop the AQMP (per Consistency Criterion No. 2 of the SCAQMD CEQA Air Quality Handbook).

The SCAQMD primarily uses demographic growth forecasts for various socioeconomic categories (e.g., population, housing, employment by industry) developed by the SCAG for its RTP/SCS (SCAG 2016), which is based on general plans for cities and counties in the SCAB, for the development of the AQMP emissions inventory (SCAQMD 2017).[9] The SCAG 2016 RTP/SCS, and associated Regional Growth Forecast, are generally consistent with the local plans; therefore, the 2016 AQMP is generally consistent with local government plans.

As discussed in Section 3, Project Description, the project would not proposed changes to the applicable General Plan land use designations or zoning at Plant 1, Plant 2, joint plant projects, or the collection system project sites. No housing is proposed and no additional employees for project operation would be required as part of the proposed project. While construction activities would require construction workers, construction workers are anticipated be served from the existing workforce and would not result in the need for additional workers or associated housing. Accordingly, the project is consistent with the SCAG RTP/SCS forecasts used in the SCAQMD AQMP development. Therefore, the project does not propose activities that would induce additional population in the FMP area or generate a net increase in vehicle trips. Accordingly, the project would be consistent with the SCAG RTP/SCS forecasts used in the SCAQMD AQMP development.

Based on these considerations, vehicle trip generation and planned development for the project sites are concluded to have been anticipated in the SCAG growth projections and implementation of the project would not result in a conflict with, or obstruct implementation of, the applicable air quality plan (i.e., SCAQMD 2016 AQMP). Accordingly, the project would meet Consistency Criterion No. 2 of the SCAQMD CEQA Air Quality Handbook.

Summary

As described previously, the proposed project would potentially result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations due to exceedance of the SCAQMD construction NO_x threshold, and would potentially conflict with Consistency Criterion No. 1. Implementation of the proposed project would not exceed the demographic growth forecasts in the SCAG 2016 RTP/SCS; therefore, the project would be consistent with the SCAQMD 2016 AQMP. Thus, the project would not conflict with Consistency Criterion No. 2. However, because the project would potentially conflict with Consistency Criterion No. 1, impacts related to the project's potential to conflict with or obstruct implementation of the applicable air quality plan is considered potentially significant and **Mitigation Measure (MM) AQ-1** (provided in Section 4.2.5, Mitigation Measures) is required.

[9] Information necessary to produce the emission inventory for the SCAB is obtained from the SCAQMD and other governmental agencies, including CARB, the California Department of Transportation, and SCAG. Each of these agencies is responsible for collecting data (e.g., industry growth factors, socioeconomic projections, travel activity levels, emission factors, emission speciation profile, and emissions) and developing methodologies (e.g., model and demographic forecast improvements) required to generate a comprehensive emissions inventory. SCAG incorporates these data into their Travel Demand Model for estimating/projecting vehicle miles traveled and driving speeds. SCAG's socioeconomic and transportation activities projections in their 2016 RTP/SCS are integrated in the 2016 AQMP (SCAQMD 2017).

Following implementation of **MM-AQ-1**, the FMP would not exceed the SCAQMD mass daily construction thresholds for any criteria air pollutant, including NO_x; therefore, the FMP would not conflict with Consistency Criterion No. 1 and impacts would be less than significant with mitigation.

2. Would the project 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?

Less-than-Significant Impact with Mitigation Incorporated. Past, present, and future development projects may contribute to the SCAB adverse air quality impacts on a cumulative basis. By its nature, air pollution is largely a cumulative impact. The nonattainment status of regional pollutants is a result of past and present development, and SCAQMD develops and implements plans for future attainment of ambient air quality standards. Based on these considerations, project-level thresholds of significance for criteria pollutants are used in the determination of whether a project's individual emissions would have a cumulatively considerable contribution on air quality. If a project's emissions would exceed the SCAQMD significance thresholds, it would have a cumulatively considerable contribution. Conversely, projects that do not exceed the project-specific thresholds are generally not considered to be cumulatively significant (SCAQMD 2003a).

Construction of the proposed project would result in emissions of criteria air pollutants, which may result in a cumulatively considerable net increase in emissions of criteria air pollutants for which the SCAB is designated as nonattainment under the NAAQS or CAAQS. The following discussion quantitatively evaluates potential short-term construction and qualitatively evaluates long-term operational impacts that would result from implementation of the proposed project.

Construction Emissions

Proposed construction activities associated with the various project components would result in the temporary addition of pollutants to the local airshed caused by on-site sources (i.e., off-road construction equipment and soil disturbance) and off-site sources (i.e., on-road haul trucks, delivery trucks, and worker vehicle trips). Construction emissions can vary substantially from day to day, depending on the level of activity; the specific type of operation; and, for dust, the prevailing weather conditions. Therefore, such emission levels can only be approximately estimated with a corresponding uncertainty in precise ambient air quality impacts.

CalEEMod was used to calculate the annual criteria air pollutant emissions based on the construction scenario described in Section 4.2.3.2, Approach and Methodology (Construction Emissions). Construction of the project is assumed to take place over 20 years. Tables 4.2-8, 4.2-9, 4.2-10, 4.2-11, and 4.2-12 present construction emissions for the proposed project from on-site and off-site emission sources for Plant 1, Plant 2, joint plant projects, collection system, and the entire project, respectively.

Because regional criteria air pollutant emissions are cumulative in nature, the potential impact of project implementation is evaluated on the whole rather than at the individual project-level. Emissions from each modeled project were estimated based on the best available information on construction start and end dates, as well as construction phasing. Recognizing that construction schedules may change slightly, this analysis conservatively assumes that the maximum daily emissions (i.e., worst-case day) from each project in each year would occur on the same day. The maximum daily emissions for the entire FMP in each year of construction are presented in Table 4.2-12, Combined Projects Estimated Maximum Daily Construction Emissions, and compared to the SCAQMD construction mass daily thresholds.

Table 4.2-8. Plant 1 Estimated Maximum Daily Construction Emissions

Project	VOC	NO_x	CO	SO_x	PM_{10}[a]	$PM_{2.5}$[a]
	Pounds per day					
2023						
P1-135 Digester Ferric Piping Replacement	2.63	23.18	29.20	0.06	1.92	1.33
Combined Maximum	*2.63*	*23.18*	*29.2*	*0.06*	*1.92*	*1.33*
2024						
P1-126 Primary Clarifiers Replacements and Improvements	3.16	26.80	37.78	0.07	2.17	1.33
X-090 Network, Telecommunications, and Service Relocation at Plant 1	0.65	6.13	7.69	0.01	1.13	0.69
Combined Maximum	*3.81*	*32.93*	*45.47*	*0.08*	*3.30*	*2.02*
2025						
P1-126 Primary Clarifiers Replacements and Improvements	2.39	19.84	26.62	0.05	1.13	0.85
X-093 Administrative Facilities and Power Building 3A Demolition	1.29	11.99	15.07	0.03	1.16	0.59
X-077 Switchgear Replacement at Central Generation	0.70	6.64	7.45	0.02	0.39	0.29
Combined Maximum	*4.38*	*38.47*	*49.14*	*0.10*	*2.68*	*1.73*
2026						
P1-126 Primary Clarifiers Replacements and Improvements	2.39	19.83	26.58	0.05	1.13	0.85
X-093 Administrative Facilities and Power Building 3A Demolition	4.88	11.98	15.05	0.03	1.12	0.59
X-092 Standby Generator Feeders for Plant 1 Secondary Systems	1.01	8.91	10.71	0.02	0.50	0.36
Combined Maximum	*8.28*	*40.72*	*52.34*	*0.10*	*2.75*	*1.80*
2027						
P1-126 Primary Clarifiers Replacements and Improvements	2.28	19.72	26.41	0.05	1.21	0.88
X-092 Standby Generator Feeders for Plant 1 Secondary Systems	1.01	8.91	10.70	0.02	0.50	0.36
X-048 Activated Sludge (AS)-1 Aeration Basin and Blower Rehabilitation	1.35	12.59	18.88	0.03	0.80	0.55
Combined Maximum	*4.64*	*41.22*	*55.99*	*0.10*	*2.51*	*1.79*

Table 4.2-8. Plant 1 Estimated Maximum Daily Construction Emissions

Project	VOC	NO_x	CO	SO_x	PM_{10}[a]	$PM_{2.5}$[a]
	Pounds per day					
2028						
P1-126 Primary Clarifiers Replacements and Improvements	1.03	7.99	12.42	0.02	0.48	0.37
X-048 Activated Sludge (AS)-1 Aeration Basin and Blower Rehabilitation	2.56	21.54	29.18	0.06	1.26	0.92
Combined Maximum	*4.64*	*41.22*	*55.99*	*0.10*	*2.51*	*1.79*
2029						
X-048 Activated Sludge (AS)-1 Aeration Basin and Blower Rehabilitation	0.68	5.66	8.16	0.02	0.34	0.25
X-017 Primary Clarifiers 6-37	0.68	6.39	8.15	0.02	0.43	0.28
Combined Maximum	*1.36*	*12.05*	*16.31*	*0.04*	*0.77*	*0.53*
2030						
X-048 Activated Sludge (AS)-1 Aeration Basin and Blower Rehabilitation	0.54	4.48	8.10	0.02	0.23	0.14
X-017 Primary Clarifiers 6-37	0.54	4.48	8.09	0.02	0.23	0.14
Combined Maximum	*1.08*	*8.96*	*16.19*	*0.04*	*0.46*	*0.28*
2031						
X-048 Activated Sludge (AS)-1 Aeration Basin and Blower Rehabilitation	0.01	0.01	0.10	0.00	0.07	0.02
P1-127 Central Generation Rehabilitation	0.68	2.48	7.39	0.02	0.16	0.10
X-017 Primary Clarifiers 6-37	1.82	13.33	25.44	0.05	0.61	0.35
X-038 City Water Pump Station Rehabilitation	0.69	3.81	6.65	0.02	0.20	0.11
Combined Maximum	*3.20*	*19.63*	*39.58*	*0.09*	*1.04*	*0.58*
2032						
P1-127 Central Generation Rehabilitation	1.74	12.80	24.16	0.05	0.56	0.34
X-017 Primary Clarifiers 6-37	1.82	13.33	25.42	0.05	0.61	0.35
X-038 City Water Pump Station Rehabilitation	0.69	3.81	6.65	0.02	0.20	0.11
X-049 Activated Sludge (AS)-1 Clarifier and RAS Pump Station Rehabilitation	0.84	4.77	9.87	0.02	0.22	0.14
X-043 DAFT Demolition	1.05	4.82	12.37	0.03	0.85	0.24
Combined Maximum	*6.14*	*39.53*	*78.47*	*0.17*	*2.44*	*1.18*
2033						
P1-127 Central Generation Rehabilitation	0.21	1.81	3.72	0.01	0.10	0.06
X-017 Primary Clarifiers 6-37	0.01	0.01	0.08	<0.01	0.07	0.02

Table 4.2-8. Plant 1 Estimated Maximum Daily Construction Emissions

Project	VOC	NO_x	CO	SO_x	PM_{10}[a]	$PM_{2.5}$[a]
	Pounds per day					
X-049 Activated Sludge (AS)-1 Clarifier and RAS Pump Station Rehabilitation	1.78	13.42	26.23	0.05	0.58	0.36
Combined Maximum	*2.00*	*15.24*	*30.03*	*0.06*	*0.75*	*0.44*
2034						
X-049 Activated Sludge (AS)-1 Clarifier and RAS Pump Station Rehabilitation	1.78	13.42	26.21	0.05	0.58	0.36
X-015 Trickling Filters Rehabilitation	1.31	6.87	17.13	0.04	0.46	0.22
Combined Maximum	*3.09*	*20.29*	*43.34*	*0.09*	*1.04*	*0.58*
2035						
X-015 Trickling Filters Rehabilitation	1.23	7.35	17.17	0.04	0.34	0.18
X-006 Waste Side-Stream Pump Station 1 Upgrade	1.41	11.40	25.14	0.05	0.45	0.23
Combined Maximum	*2.64*	*18.75*	*42.31*	*0.09*	*0.79*	*0.41*
2036						
X-015 Trickling Filters Rehabilitation	1.24	7.35	17.17	0.04	0.34	0.18
X-006 Waste Side-Stream Pump Station 1 Upgrade	1.17	8.10	17.65	0.04	0.31	0.16
X-039 Plant Water Pump Station Rehabilitation	0.63	3.29	6.61	0.02	0.17	0.08
X-079 Primary Scrubber Rehabilitation	1.49	9.41	22.03	0.05	0.45	0.23
Combined Maximum	*4.53*	*28.15*	*63.46*	*0.15*	*1.27*	*0.65*
2037						
X-039 Plant Water Pump Station Rehabilitation	0.18	1.60	3.71	0.01	0.08	0.04
X-079 Primary Scrubber Rehabilitation	1.31	7.81	18.33	0.04	0.36	0.19
X-018 Activated Sludge (AS) 2 Rehabilitation	0.97	6.11	13.59	0.03	0.31	0.15
Combined Maximum	*2.46*	*15.52*	*35.63*	*0.08*	*0.75*	*0.38*
2038						
X-018 Activated Sludge (AS) 2 Rehabilitation	0.94	6.11	12.96	0.02	0.37	0.15
Combined Maximum	*0.94*	*6.11*	*12.96*	*0.02*	*0.37*	*0.15*

Table 4.2-8. Plant 1 Estimated Maximum Daily Construction Emissions

Project	VOC	NO_x	CO	SO_x	PM_{10}[a]	$PM_{2.5}$[a]
	Pounds per day					
2039						
X-018 Activated Sludge (AS) 2 Rehabilitation	0.94	5.44	10.76	0.02	0.37	0.14
Combined Maximum	*0.94*	*5.44*	*10.76*	*0.02*	*0.37*	*0.14*
Maximum						
Maximum Daily Emissions	**8.28**	**41.22**	**78.47**	**0.17**	**3.30**	**2.02**

Notes: VOC = volatile organic compound; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; RAS = Return Activated Sludge; DAFT = dissolved air flotation thickeners.
See Appendix D for detailed results.

[a] These estimates reflect control of fugitive dust (watering two times daily) required by South Coast Air Quality Management District Rule 403.

Table 4.2-9. Plant 2 Estimated Maximum Daily Construction Emissions

Project	VOC	NO_x	CO	SO_x	PM_{10}[a]	$PM_{2.5}$[a]
	Pounds per day					
2021						
P2-138 Operations and Maintenance Complex at Plant 2	19.64	59.61	49.18	0.11	3.64	2.69
Combined Maximum	*19.64*	*59.61*	*49.18*	*0.11*	*3.64*	*2.69*
2022						
P2-138 Operations and Maintenance Complex at Plant 2	6.40	50.55	40.11	0.11	2.78	2.23
P2-126 Substation and Warehouse Replacement at Plant 2	4.71	42.75	44.57	0.08	5.30	3.56
Combined Maximum	*11.11*	*93.30*	*84.68*	*0.19*	*8.08*	*5.79*
2023						
P2-126 Substation and Warehouse Replacement at Plant 2	41.49	62.97	83.02	0.15	5.30	3.48
Combined Maximum	*41.49*	*62.97*	*83.02*	*0.15*	*5.30*	*3.48*
2024						
P2-126 Substation and Warehouse Replacement at Plant 2	6.96	59.18	82.66	0.15	3.61	2.68
X-050 Activated Sludge (AS) Aeration Basin	2.04	16.12	23.89	0.04	1.24	0.85
Combined Maximum	*9.00*	*75.30*	*106.55*	*0.19*	*4.85*	*3.53*
2025						
P2-126 Substation and Warehouse Replacement at Plant 2	3.81	32.94	47.84	0.09	1.99	1.42

Table 4.2-9. Plant 2 Estimated Maximum Daily Construction Emissions

Project	VOC	NO_x	CO	SO_x	PM_{10}[a]	$PM_{2.5}$[a]
	Pounds per day					
X-050 Activated Sludge (AS) Aeration Basin	1.93	15.22	23.83	0.04	1.14	0.75
Combined Maximum	*5.74*	*48.16*	*71.67*	*0.13*	*3.13*	*2.17*
2026						
X-050 Activated Sludge (AS) Aeration Basin	1.01	8.91	10.69	0.02	0.50	0.36
X-032 Truck Loading Facility Rehabilitation	1.46	11.94	15.72	0.03	0.75	0.51
P2-X-054 Waste Side-Stream Pump C Rehabilitation	1.40	11.89	19.01	0.03	0.71	0.52
Combined Maximum	*3.87*	*32.74*	*45.42*	*0.08*	*1.96*	*1.39*
2027						
X-050 Activated Sludge (AS) Aeration Basin	0.29	2.40	3.77	0.01	0.16	0.11
X-032 Truck Loading Facility Rehabilitation	1.46	11.93	15.69	0.03	0.75	0.51
P2-X-054 Waste Side-Stream Pump C Rehabilitation	1.40	11.89	18.99	0.03	0.71	0.52
X-034 Sodium Bisulfite Station Replacement and Bleach Station Demolition	1.10	9.48	15.30	0.03	0.59	0.41
Combined Maximum	*4.25*	*35.70*	*53.75*	*0.10*	*2.21*	*1.55*
2028						
X-034 Sodium Bisulfite Station Replacement and Bleach Station Demolition	0.28	2.40	3.78	0.01	0.16	0.11
Combined Maximum	*0.28*	*2.40*	*3.78*	*0.01*	*0.16*	*0.11*
2031						
P2-119 Central Generation Rehabilitation	0.98	4.52	11.28	0.03	0.52	0.19
X-036 City Water Pump Station Rehabilitation	0.69	2.66	7.47	0.02	0.21	0.11
X-007 Waste Side-Stream Pump Station 2A Upgrade	1.74	8.79	21.48	0.04	0.57	0.28
Combined Maximum	*3.41*	*15.97*	*40.23*	*0.09*	*1.30*	*0.58*
2032						
P2-119 Central Generation Rehabilitation	1.92	13.83	26.58	0.05	0.60	0.36
X-036 City Water Pump Station Rehabilitation	0.69	3.80	6.64	0.02	0.20	0.11
X-007 Waste Side-Stream Pump Station 2A Upgrade	1.19	7.42	14.02	0.03	0.43	0.31
X-037 Plant Water Pump Station and 12 kV Distribution Center A Demolition	1.86	9.64	17.77	0.04	0.63	0.34
Combined Maximum	*5.66*	*34.69*	*65.01*	*0.14*	*1.86*	*1.12*

Table 4.2-9. Plant 2 Estimated Maximum Daily Construction Emissions

Project	VOC	NO_x	CO	SO_x	PM_{10}[a]	$PM_{2.5}$[a]
	Pounds per day					
2033						
P2-119 Central Generation Rehabilitation	0.21	1.81	3.72	0.01	0.10	0.06
Combined Maximum	*0.21*	*1.81*	*3.72*	*0.01*	*0.10*	*0.06*
2036						
X-014 Trickling Filter Solids-Contact Odor Control	1.20	7.12	17.63	0.04	0.34	0.16
X-052 Activated Sludge (AS) RAS/WAS/PEPS/Vaporizers Rehabilitation	0.65	5.21	11.32	0.02	0.24	0.11
X-030 Headworks Rehabilitation	0.51	2.10	5.03	0.01	0.14	0.06
Combined Maximum	*2.36*	*14.43*	*33.98*	*0.07*	*0.72*	*0.33*
2037						
X-052 Activated Sludge (AS) RAS/WAS/PEPS/Vaporizers Rehabilitation	1.05	6.99	15.10	0.03	0.30	0.14
X-030 Headworks Rehabilitation	1.15	7.45	16.30	0.03	0.31	0.15
X-031 Trickling Filter Solids-Contact Rehabilitation	2.21	11.90	27.96	0.06	0.56	0.27
Combined Maximum	*4.41*	*26.34*	*59.36*	*0.12*	*1.17*	*0.56*
2038						
X-030 Headworks Rehabilitation	1.15	7.45	16.30	0.03	0.31	0.15
X-031 Trickling Filter Solids-Contact Rehabilitation	1.79	11.90	26.28	0.05	0.48	0.24
Combined Maximum	*2.94*	*19.35*	*42.58*	*0.08*	*0.79*	*0.39*
2039						
X-030 Headworks Rehabilitation	0.18	1.60	3.70	0.01	0.08	0.04
X-031 Trickling Filter Solids-Contact Rehabilitation	1.79	11.26	24.18	0.05	0.47	0.23
Combined Maximum	*1.97*	*12.86*	*27.88*	*0.06*	*0.55*	*0.27*
2040						
X-031 Trickling Filter Solids-Contact Rehabilitation	2.63	13.88	36.95	0.08	0.70	0.33
Combined Maximum	*2.63*	*13.88*	*36.95*	*0.08*	*0.70*	*0.33*
Maximum						
Maximum Daily Emissions	**41.49**	**93.30**	**106.55**	**0.19**	**8.08**	**5.79**

Notes: VOC = volatile organic compound; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; kV = kilovolt; RAS = Return Activated Sludge; PEPS = Primary Effluent Pump Station. See Appendix D for detailed results.

[a] These estimates reflect control of fugitive dust (watering two times daily) required by South Coast Air Quality Management District Rule 403.

Table 4.2-10. Joint Plant Projects Estimated Maximum Daily Construction Emissions

Project	VOC	NO_x	CO	SO_x	PM_{10}[a]	$PM_{2.5}$[a]
	Pounds per day					
2021						
J-98 Plantwide Miscellaneous Electrical Power Distribution System Improvements (Replacement)	1.48	13.07	15.21	0.03	0.83	0.72
Combined Maximum	*1.48*	*13.07*	*15.21*	*0.03*	*0.83*	*0.72*
2022						
J-98 Plantwide Miscellaneous Electrical Power Distribution System Improvements (Replacement)	1.37	12.09	15.14	0.03	0.75	0.63
Combined Maximum	*1.37*	*12.09*	*15.14*	*0.03*	*0.75*	*0.63*
2023						
J-98 Plantwide Miscellaneous Electrical Power Distribution System Improvements (Replacement)	1.27	11.15	15.09	0.03	0.67	0.56
Combined Maximum	*1.27*	*11.15*	*15.09*	*0.03*	*0.67*	*0.56*
2024						
J-98 Plantwide Miscellaneous Electrical Power Distribution System Improvements (Replacement)	1.18	10.46	15.04	0.03	0.60	0.49
J-120 Plantwide Miscellaneous Process Control Systems Upgrades	1.18	10.46	15.04	0.03	0.60	0.49
J-133 Laboratory Rehabilitation at Plant 1	1.23	13.02	9.05	0.02	3.36	2.00
Combined Maximum	*3.59*	*33.94*	*39.13*	*0.08*	*4.56*	*2.98*
2025						
J-98 Plantwide Miscellaneous Electrical Power Distribution System Improvements (Replacement)	1.11	9.86	15.00	0.03	0.54	0.43
J-120 Plantwide Miscellaneous Process Control Systems Upgrades	1.11	9.86	15.00	0.03	0.54	0.43
J-133 Laboratory Rehabilitation at Plant 1	40.19	14.91	19.10	0.04	1.51	0.67
X-057 (Yard Structures), X-058 (Yard Piping), X-059 (Tunnels) Plantwide Miscellaneous Rehabilitation and Replacement	3.82	31.46	48.32	0.09	1.98	1.46
Combined Maximum	*46.23*	*66.09*	*97.42*	*0.19*	*4.57*	*2.99*

Table 4.2-10. Joint Plant Projects Estimated Maximum Daily Construction Emissions

Project	VOC	NO_x	CO	SO_x	PM_{10}[a]	$PM_{2.5}$[a]
	Pounds per day					
2026						
J-98 Plantwide Miscellaneous Electrical Power Distribution System Improvements (Replacement)	1.11	9.86	14.99	0.03	0.54	0.43
J-120 Plantwide Miscellaneous Process Control Systems Upgrades	1.11	9.86	14.99	0.03	0.54	0.43
X-057 (Yard Structures), X-058 (Yard Piping), X-059 (Tunnels) Plantwide Miscellaneous Rehabilitation and Replacement	2.34	18.58	28.31	0.05	1.10	0.85
Combined Maximum	*4.56*	*38.30*	*58.29*	*0.11*	*2.18*	*1.71*
2027						
J-120 Plantwide Miscellaneous Process Control Systems Upgrades	1.10	9.85	14.97	0.03	0.54	0.43
X-057 (Yard Structures), X-058 (Yard Piping), X-059 (Tunnels) Plantwide Miscellaneous Rehabilitation and Replacement	2.33	18.58	28.28	0.05	1.10	0.85
J-121 Plantwide Miscellaneous Process Control Systems Upgrades	0.56	5.06	7.57	0.01	0.31	0.22
Combined Maximum	*3.99*	*33.49*	*50.82*	*0.09*	*1.95*	*1.50*
2028						
J-120 Plantwide Miscellaneous Process Control Systems Upgrades	1.10	9.85	14.96	0.03	0.54	0.43
X-057 (Yard Structures), X-058 (Yard Piping), X-059 (Tunnels) Plantwide Miscellaneous Rehabilitation and Replacement	2.33	18.57	28.25	0.05	1.10	0.85
J-121 Plantwide Miscellaneous Process Control System Upgrades	0.56	5.05	7.56	0.01	0.31	0.22
Combined Maximum	*3.99*	*33.47*	*50.77*	*0.09*	*1.95*	*1.50*
2029						
J-120 Plantwide Miscellaneous Process Control System Upgrades	1.10	9.84	14.94	0.03	0.54	0.43

Table 4.2-10. Joint Plant Projects Estimated Maximum Daily Construction Emissions

Project	VOC	NO_x	CO	SO_x	PM_{10}[a]	$PM_{2.5}$[a]
	Pounds per day					
X-057 (Yard Structures), X-058 (Yard Piping), X-059 (Tunnels) Plantwide Miscellaneous Rehabilitation and Replacement	2.33	18.57	28.22	0.05	1.10	0.85
Combined Maximum	*3.43*	*28.41*	*43.16*	*0.08*	*1.64*	*1.28*
2030						
X-057 (Yard Structures), X-058 (Yard Piping), X-059 (Tunnels) Plantwide Miscellaneous Rehabilitation and Replacement	1.77	14.19	28.02	0.05	0.66	0.41
Combined Maximum	*1.77*	*14.19*	*28.02*	*0.05*	*0.66*	*0.41*
2031						
X-057 (Yard Structures), X-058 (Yard Piping), X-059 (Tunnels) Plantwide Miscellaneous Rehabilitation and Replacement	1.77	14.19	27.99	0.05	0.66	0.41
Combined Maximum	*1.77*	*14.19*	*27.99*	*0.05*	*0.66*	*0.41*
2032						
X-057 (Yard Structures), X-058 (Yard Piping), X-059 (Tunnels) Plantwide Miscellaneous Rehabilitation and Replacement	0.41	3.61	7.40	0.01	0.16	0.10
Combined Maximum	*0.41*	*3.61*	*7.40*	*0.01*	*0.16*	*0.10*
2035						
X-044 Steve Anderson Lift Station Rehabilitation	0.83	5.02	10.42	0.02	0.27	0.12
Combined Maximum	*0.83*	*5.02*	*10.42*	*0.02*	*0.27*	*0.12*
2036						
X-044 Steve Anderson Lift Station Rehabilitation	0.83	5.02	10.42	0.02	0.27	0.12
Combined Maximum	*0.83*	*5.02*	*10.42*	*0.02*	*0.27*	*0.12*
Maximum						
Maximum Daily Emissions	**46.23**	**66.09**	**97.42**	**0.19**	**4.57**	**2.99**

Notes: VOC = volatile organic compound; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter.
See Appendix D for detailed results.
[a] These estimates reflect control of fugitive dust (watering two times daily) required by South Coast Air Quality Management District Rule 403.

Table 4.2-11. Collection System Projects Estimated Maximum Daily Construction Emissions

Project	VOC	NO_x	CO	SO_x	PM_{10}[a]	$PM_{2.5}$[a]
	Pounds per day					
2021						
7-66 Sunflower and Red Hill Interceptor Rehab/Repair	2.09	18.04	22.72	0.04	1.11	0.96
Combined Maximum	*2.09*	*18.04*	*22.72*	*0.04*	*1.11*	*0.96*
2022						
7-68 MacArthur Dual Force Main Improvements	1.95	10.92	25.45	0.05	1.46	0.84
5-68 Newport Beach Pump Station Odor Control Improvements	2.28	18.10	23.38	0.04	1.18	0.95
7-65 Gisler–Red Hill Interceptor Rehabilitation	2.10	18.04	22.69	0.04	1.11	0.96
7-67 Main Street P5 Force Main Rehabilitation	1.41	12.17	15.20	0.03	0.74	0.64
Combined Maximum	*7.74*	*59.23*	*86.72*	*0.16*	*4.49*	*3.39*
2023						
X-078 Air Jumper Additions and Rehabilitation (Two Air Jumpers Concurrently)	2.33	18.12	24.96	0.05	1.14	0.96
7-68 MacArthur Dual Force Main Improvements	1.95	10.92	25.45	0.05	1.46	0.84
5-68 Newport Beach Pump Station Odor Control Improvements	2.11	16.87	23.24	0.04	1.07	0.83
7-65 Gisler–Red Hill Interceptor Rehabilitation	0.33	2.73	3.83	0.01	0.20	0.15
7-67 Main Street P5 Force Main Rehabilitation	1.31	11.22	15.15	0.03	0.66	0.56
X-076 Santa Ana Trunk Sewer Rehabilitation Phase II	1.95	16.67	22.64	0.04	0.99	0.84
Combined Maximum	*9.98*	*76.53*	*115.27*	*0.22*	*5.52*	*4.18*
2024						
X-078 Air Jumper Additions and Rehabilitation (Two Air Jumpers Concurrently)	2.33	18.12	24.96	0.05	1.14	0.96
2-73 Yorba Linda Pump Station Abandonment	1.86	17.72	16.82	0.03	1.02	0.79
X-060 Newhope Placentia Chemical Dosing Station	3.39	27.80	37.36	0.07	1.63	1.29
X-076 Santa Ana Trunk Sewer Rehabilitation Phase II	1.82	15.63	22.58	0.04	0.88	0.73
X-082 North Trunk Improvement Project	1.95	15.92	24.73	0.04	1.13	0.81
Combined Maximum	*11.35*	*95.19*	*126.45*	*0.23*	*5.80*	*4.58*

Table 4.2-11. Collection System Projects Estimated Maximum Daily Construction Emissions

Project	VOC	NO_x	CO	SO_x	PM_{10}[a]	$PM_{2.5}$[a]
	Pounds per day					
2025						
X-078 Air Jumper Additions and Rehabilitation (Two Air Jumpers Concurrently)	2.33	18.12	24.96	0.05	1.14	0.96
2-73 Yorba Linda Pump Station Abandonment	1.74	16.32	16.60	0.03	0.94	0.71
X-076 Santa Ana Trunk Sewer Rehabilitation Phase II	0.29	2.40	3.80	0.01	0.16	0.11
X-082 North Trunk Improvement Project	0.29	2.41	3.80	0.01	0.16	0.11
X-083 Greenville–Sullivan (Santa Ana) Sewer Upsize from 24 to 27 inch (14,460 feet)	1.88	14.76	24.67	0.04	1.04	0.71
Combined Maximum	*6.53*	*54.01*	*73.83*	*0.14*	*3.44*	*2.60*
2026						
X-078 Air Jumper Additions and Rehabilitation (Two Air Jumpers Concurrently)	2.33	18.12	24.96	0.05	1.14	0.96
11-33 Edinger Pumping Station Replacement	1.00	9.23	11.39	0.02	0.56	0.41
X-083 Greenville–Sullivan (Santa Ana) Sewer Upsize from 24 to 27 inch (14,460 feet)	0.84	6.09	10.05	0.02	0.44	0.31
Combined Maximum	*4.17*	*33.44*	*46.40*	*0.09*	*2.14*	*1.68*
2027						
X-078 Air Jumper Additions and Rehabilitation (Two Air Jumpers Concurrently)	2.33	18.12	24.96	0.05	1.14	0.96
11-33 Edinger Pumping Station Replacement	2.01	16.78	25.93	0.05	0.97	0.74
X-026 College Avenue Force Main Rehabilitation	1.93	10.98	25.41	0.05	0.75	0.43
Combined Maximum	*6.27*	*45.88*	*76.30*	*0.15*	*2.86*	*2.13*
2028						
X-078 Air Jumper Additions and Rehabilitation (Two Air Jumpers Concurrently)	2.33	18.12	24.96	0.05	1.14	0.96
11-33 Edinger Pumping Station Replacement	2.00	16.78	25.90	0.05	0.97	0.74
X-026 College Avenue Force Main Rehabilitation	1.93	10.98	25.41	0.05	0.75	0.43
2-49 Taft Branch (City of Orange) Sewer Upsize	1.84	15.01	24.84	0.04	1.05	0.72
Combined Maximum	*8.10*	*60.89*	*101.11*	*0.19*	*3.91*	*2.85*

Table 4.2-11. Collection System Projects Estimated Maximum Daily Construction Emissions

Project	VOC	NO_x	CO	SO_x	PM_{10}[a]	$PM_{2.5}$[a]
	Pounds per day					
2029						
X-078 Air Jumper Additions and Rehabilitation (Two Air Jumpers Concurrently)	2.33	18.12	24.96	0.05	1.14	0.96
X-063 South Santa Ana River Interceptor Connector Rehabilitation	1.80	14.49	24.43	0.04	1.01	0.70
Combined Maximum	*4.13*	*32.61*	*49.39*	*0.09*	*2.15*	*1.66*
2030						
X-078 Air Jumper Additions and Rehabilitation (Two Air Jumpers Concurrently)	2.33	18.12	24.96	0.05	1.14	0.96
X-071 Edinger/Springdale Trunk Sewer Rehabilitation	1.96	7.42	25.43	0.05	1.04	0.61
Combined Maximum	*4.29*	*25.54*	*50.39*	*0.10*	*2.18*	*1.57*
2031						
X-078 Air Jumper Additions and Rehabilitation (Two Air Jumpers Concurrently)	2.33	18.12	24.96	0.05	1.14	0.96
X-071 Edinger/Springdale Trunk Sewer Rehabilitation	0.97	3.81	14.96	0.03	0.35	0.24
7-63 MacArthur Pump Station Rehabilitation	3.68	19.84	46.82	0.09	1.59	0.97
X-065 Tustin–Orange Interceptor Sewer at Reach 17 Rehabilitation	1.93	10.98	25.41	0.05	0.75	0.43
X-023 Lido Pump Station Rehabilitation	1.41	12.17	15.20	0.03	0.74	0.64
11-34 Slater Avenue Pump Station Rehabilitation	1.41	12.17	15.20	0.03	0.74	0.64
7-64 Main Street Pump Station Rehabilitation	1.41	12.17	15.20	0.03	0.74	0.64
Combined Maximum	*13.14*	*89.26*	*157.75*	*0.31*	*6.05*	*4.52*
2032						
X-078 Air Jumper Additions and Rehabilitation (Two Air Jumpers Concurrently)	2.33	18.12	24.96	0.05	1.14	0.96
7-63 MacArthur Pump Station Rehabilitation	3.67	19.83	46.79	0.09	1.56	0.96
X-065 Tustin–Orange Interceptor Sewer at Reach 17 Rehabilitation	1.93	10.98	25.41	0.05	0.75	0.43
X-023 Lido Pump Station Rehabilitation	1.41	12.17	15.20	0.03	0.74	0.64
11-34 Slater Avenue Pump Station Rehabilitation	1.41	12.17	15.20	0.03	0.74	0.64

Table 4.2-11. Collection System Projects Estimated Maximum Daily Construction Emissions

Project	VOC	NO_x	CO	SO_x	PM_{10}[a]	$PM_{2.5}$[a]
	Pounds per day					
7-64 Main Street Pump Station Rehabilitation	1.41	12.17	15.20	0.03	0.74	0.64
Combined Maximum	*12.16*	*85.44*	*142.76*	*0.28*	*5.67*	*4.27*
2033						
X-078 Air Jumper Additions and Rehabilitation (Two Air Jumpers Concurrently)	2.33	18.12	24.96	0.05	1.14	0.96
3-67 Seal Beach Pump Station Replacement	1.91	5.33	23.88	0.04	0.54	0.32
X-084 Tustin Avenue Sewer Relief	1.93	10.98	25.41	0.05	0.75	0.43
11-34 Slater Avenue Pump Station Rehabilitation	1.41	12.17	15.20	0.03	0.74	0.64
7-64 Main Street Pump Station Rehabilitation	1.41	12.17	15.20	0.03	0.74	0.64
3-68 Los Alamitos Sub-Trunk Extension	2.63	31.03	34.18	0.18	3.78	1.17
Combined Maximum	*11.62*	*89.80*	*138.83*	*0.38*	*7.69*	*4.16*
2034						
3-67 Seal Beach Pump Station Replacement	0.01	0.00	0.09	0.00	0.07	0.02
X-066 Tustin–Orange Interceptor Sewer at Reach 18 Rehabilitation	1.94	10.98	25.39	0.05	0.74	0.43
X-086 Santa Ana River Sewer Relief	2.06	11.18	25.53	0.05	0.77	0.44
X-067 (X-085) Hoover–Western Sub-Trunks Sewer Rehabilitation	1.95	10.92	25.45	0.05	1.46	0.84
Combined Maximum	*5.96*	*33.08*	*76.46*	*0.15*	*3.04*	*1.73*
2035						
X-086 Santa Ana River Sewer Relief	1.84	9.27	25.48	0.05	0.65	0.30
X-067 (X-085) Hoover–Western Sub-Trunks Sewer Rehabilitation	1.95	10.92	25.45	0.05	1.46	0.84
Combined Maximum	*3.79*	*20.19*	*50.93*	*0.10*	*2.11*	*1.14*
2036						
X-040 College Avenue Pump Station Replacement	0.78	6.32	13.88	0.03	0.25	0.13
X-061 Imperial Highway Relief Interceptor Rehabilitation	1.95	10.92	25.45	0.05	1.46	0.84
X-022 15th Street Pump Station Rehabilitation	1.41	12.17	15.20	0.03	0.74	0.64
X-041 A Street Pump Station Rehabilitation	1.41	12.17	15.20	0.03	0.74	0.64

Table 4.2-11. Collection System Projects Estimated Maximum Daily Construction Emissions

Project	VOC	NO_x	CO	SO_x	PM_{10}[a]	$PM_{2.5}$[a]
	Pounds per day					
X-024 Rocky Point Pump Station Rehabilitation	1.43	9.84	23.08	0.04	0.42	0.21
Combined Maximum	*6.98*	*51.42*	*92.81*	*0.18*	*3.61*	*2.46*
2037						
X-040 College Avenue Pump Station Replacement	1.43	9.84	23.08	0.04	0.42	0.21
X-061 Imperial Highway Relief Interceptor Rehabilitation	1.95	10.92	25.45	0.05	1.46	0.84
X-068 North Trunk Rehabilitation	1.93	10.98	25.41	0.05	0.75	0.43
X-022 15th Street Pump Station Rehabilitation	1.41	12.17	15.20	0.03	0.74	0.64
X-041 A Street Pump Station Rehabilitation	1.41	12.17	15.20	0.03	0.74	0.64
5-66 Crystal Cove Pumping Station Upgrade and Rehabilitation	1.41	12.17	15.20	0.03	0.74	0.64
X-024 Rocky Point Pump Station Rehabilitation	1.43	9.84	23.08	0.04	0.42	0.21
X-025 Bitter Point Pump Station Rehabilitation	1.43	9.84	23.08	0.04	0.42	0.21
Combined Maximum	*12.40*	*87.93*	*165.70*	*0.31*	*5.69*	*3.82*
2038						
5-66 Crystal Cove Pumping Station Upgrade and Rehabilitation	1.41	12.17	15.20	0.03	0.74	0.64
X-025 Bitter Point Pump Station Rehabilitation	1.43	9.84	23.08	0.04	0.42	0.21
Combined Maximum	*2.84*	*22.01*	*38.28*	*0.07*	*1.16*	*0.85*
Maximum						
Maximum Daily Emissions	**13.14**	**95.19**	**165.70**	**0.31**	**6.05**	**4.58**

Notes: VOC = volatile organic compound; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter.
See Appendix D for detailed results.
[a] These estimates reflect control of fugitive dust (watering two times daily) required by South Coast Air Quality Management District Rule 403.

Table 4.2-12. Annual Combined FMP Projects Estimated Maximum Daily Construction Emissions

Project	VOC	NO_x	CO	SO_x	PM_{10}[a]	$PM_{2.5}$[a]
	Pounds per day					
2021						
Plant 1	0.00	0.00	0.00	0.00	0.00	0.00
Plant 2	19.64	59.61	49.18	0.11	3.64	2.69
Joint Plant	1.48	13.07	15.21	0.03	0.83	0.72

Table 4.2-12. Annual Combined FMP Projects Estimated Maximum Daily Construction Emissions

Project	VOC	NO_x	CO	SO_x	PM_{10}[a]	$PM_{2.5}$[a]
	Pounds per day					
Collection System	2.09	18.04	22.72	0.04	1.11	0.96
Combined Maximum	*23.21*	*90.72*	*87.11*	*0.18*	*5.58*	*4.37*
2022						
Plant 1	0.00	0.00	0.00	0.00	0.00	0.00
Plant 2	11.11	93.30	84.68	0.19	8.08	5.79
Joint Plant	1.37	12.09	15.14	0.03	0.75	0.63
Collection System	7.74	59.23	86.72	0.16	4.49	3.39
Combined Maximum	*20.22*	*164.62*	*186.54*	*0.38*	*13.32*	*9.81*
2023						
Plant 1	2.63	23.18	29.20	0.06	1.92	1.33
Plant 2	41.49	62.97	83.02	0.15	5.30	3.48
Joint Plant	1.27	11.15	15.09	0.03	0.67	0.56
Collection System	9.98	76.53	115.27	0.22	5.52	4.18
Combined Maximum	*55.37*	*173.83*	*242.58*	*0.46*	*13.41*	*9.55*
2024						
Plant 1	3.81	32.93	45.47	0.08	3.30	2.02
Plant 2	9.00	75.30	106.55	0.19	4.85	3.53
Joint Plant	3.59	33.94	39.13	0.08	4.56	2.98
Collection System	11.35	95.19	126.45	0.23	5.80	4.58
Combined Maximum	*27.75*	*237.36*	*317.60*	*0.58*	*18.51*	*13.11*
2025						
Plant 1	4.38	38.47	49.14	0.10	2.68	1.73
Plant 2	5.74	48.16	71.67	0.13	3.13	2.17
Joint Plant	46.23	66.09	97.42	0.19	4.57	2.99
Collection System	6.53	54.01	73.83	0.14	3.44	2.60
Combined Maximum	*62.88*	*206.73*	*292.06*	*0.56*	*13.82*	*9.49*
2026						
Plant 1	8.28	40.72	52.34	0.10	2.75	1.80
Plant 2	3.87	32.74	45.42	0.08	1.96	1.39
Joint Plant	4.56	38.30	58.29	0.11	2.18	1.71
Collection System	4.17	33.44	46.40	0.09	2.14	1.68
Combined Maximum	*20.88*	*145.20*	*202.45*	*0.38*	*9.03*	*6.58*
2027						
Plant 1	4.64	41.22	55.99	0.10	2.51	1.79
Plant 2	4.25	35.70	53.75	0.10	2.21	1.55
Joint Plant	3.99	33.49	50.82	0.09	1.95	1.50
Collection System	6.27	45.88	76.30	0.15	2.86	2.13
Combined Maximum	*19.15*	*156.29*	*236.86*	*0.44*	*9.53*	*6.97*
2028						
Plant 1	3.59	29.53	41.60	0.08	1.74	1.29
Plant 2	0.28	2.40	3.78	0.01	0.16	0.11
Joint Plant	3.99	33.47	50.77	0.09	1.95	1.50
Collection System	8.10	60.89	101.11	0.19	3.91	2.85
Combined Maximum	*15.96*	*126.29*	*197.26*	*0.37*	*7.76*	*5.75*

Table 4.2-12. Annual Combined FMP Projects Estimated Maximum Daily Construction Emissions

Project	VOC	NO_x	CO	SO_x	PM_{10}[a]	$PM_{2.5}$[a]
	Pounds per day					
2029						
Plant 1	3.73	31.87	42.75	0.09	1.90	1.38
Plant 2	0.00	0.00	0.00	0.00	0.00	0.00
Joint Plant	3.43	28.41	43.16	0.08	1.64	1.28
Collection System	4.13	32.61	49.39	0.09	2.15	1.66
Combined Maximum	*11.29*	*92.89*	*135.30*	*0.26*	*5.69*	*4.32*
2030						
Plant 1	1.08	8.96	16.19	0.04	0.46	0.28
Plant 2	0.00	0.00	0.00	0.00	0.00	0.00
Joint Plant	1.77	14.19	28.02	0.05	0.66	0.41
Collection System	4.29	25.54	50.39	0.10	2.18	1.57
Combined Maximum	*7.14*	*48.69*	*94.60*	*0.19*	*3.30*	*2.26*
2031						
Plant 1	3.20	19.63	39.58	0.09	1.04	0.58
Plant 2	3.41	15.97	40.23	0.09	1.30	0.58
Joint Plant	1.77	14.19	27.99	0.05	0.66	0.41
Collection System	13.14	89.26	157.75	0.31	6.05	4.52
Combined Maximum	*21.52*	*139.05*	*265.55*	*0.54*	*9.05*	*6.09*
2032						
Plant 1	6.14	39.53	78.47	0.17	2.44	1.18
Plant 2	5.66	34.69	65.01	0.14	1.86	1.12
Joint Plant	0.41	3.61	7.4	0.01	0.16	0.1
Collection System	12.16	85.44	142.76	0.28	5.67	4.27
Combined Maximum	*24.37*	*163.27*	*293.64*	*0.60*	*10.13*	*6.67*
2033						
Plant 1	2.00	15.24	30.03	0.06	0.75	0.44
Plant 2	0.21	1.81	3.72	0.01	0.10	0.06
Joint Plant	0.00	0.00	0.00	0.00	0.00	0.00
Collection System	11.62	89.80	138.83	0.38	7.69	4.16
Combined Maximum	*13.83*	*106.85*	*172.58*	*0.45*	*8.54*	*4.66*
2034						
Plant 1	3.09	20.29	43.34	0.09	1.04	0.58
Plant 2	0.00	0.00	0.00	0.00	0.00	0.00
Joint Plant	0.00	0.00	0.00	0.00	0.00	0.00
Collection System	5.96	33.08	76.46	0.15	3.04	1.73
Combined Maximum	*9.05*	*53.37*	*119.80*	*0.24*	*4.08*	*2.31*
2035						
Plant 1	2.64	18.75	42.31	0.09	0.79	0.41
Plant 2	0.00	0.00	0.00	0.00	0.00	0.00
Joint Plant	0.83	5.02	10.42	0.02	0.27	0.12
Collection System	3.79	20.19	50.93	0.10	2.11	1.14
Combined Maximum	*7.26*	*43.96*	*103.66*	*0.21*	*3.17*	*1.67*

Table 4.2-12. Annual Combined FMP Projects Estimated Maximum Daily Construction Emissions

Project	VOC	NO_x	CO	SO_x	PM_{10}[a]	$PM_{2.5}$[a]
	Pounds per day					
2036						
Plant 1	4.53	28.15	63.46	0.15	1.27	0.65
Plant 2	2.36	14.43	33.98	0.07	0.72	0.33
Joint Plant	0.83	5.02	10.42	0.02	0.27	0.12
Collection System	6.98	51.42	92.81	0.18	3.61	2.46
Combined Maximum	*14.70*	*99.02*	*200.67*	*0.42*	*5.87*	*3.56*
2037						
Plant 1	2.46	15.52	35.63	0.08	0.75	0.38
Plant 2	4.41	26.34	59.36	0.12	1.17	0.56
Joint Plant	0.00	0.00	0.00	0.00	0.00	0.00
Collection System	12.40	87.93	165.70	0.31	5.69	3.82
Combined Maximum	*19.27*	*129.79*	*260.69*	*0.51*	*7.61*	*4.76*
2038						
Plant 1	0.94	6.11	12.96	0.02	0.37	0.15
Plant 2	2.94	19.35	42.58	0.08	0.79	0.39
Joint Plant	0.00	0.00	0.00	0.00	0.00	0.00
Collection System	2.84	22.01	38.28	0.07	1.16	0.85
Combined Maximum	*6.72*	*47.47*	*93.82*	*0.17*	*2.32*	*1.39*
2039						
Plant 1	0.94	5.44	10.76	0.02	0.37	0.14
Plant 2	1.97	12.86	27.88	0.06	0.55	0.27
Joint Plant	0.00	0.00	0.00	0.00	0.00	0.00
Collection System	0.00	0.00	0.00	0.00	0.00	0.00
Combined Maximum	*2.91*	*18.30*	*38.64*	*0.08*	*0.92*	*0.41*
2040						
Plant 1	0.00	0.00	0.00	0.00	0.00	0.00
Plant 2	2.63	13.88	36.95	0.08	0.70	0.33
Joint Plant	0.00	0.00	0.00	0.00	0.00	0.00
Collection System	0.00	0.00	0.00	0.00	0.00	0.00
Combined Maximum	*2.63*	*13.88*	*36.95*	*0.08*	*0.70*	*0.33*
Maximum						
Maximum Daily Emissions	**62.88**	**237.36**	**317.60**	**0.60**	**18.51**	**13.11**
SCAQMD Threshold	*75*	*100*	*550*	*150*	*150*	*55*
Threshold exceeded?	**No**	**Yes**	**No**	**No**	**No**	**No**

Notes: VOC = volatile organic compound; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter.
See Appendix D for detailed results.
[a] These estimates reflect control of fugitive dust (watering two times daily) required by South Coast Air Quality Management District Rule 403.

As shown in Table 4.2-12, the proposed project would exceed the SCAQMD construction NO_x threshold of 100 pounds per day in 11 of the 20 years of project construction; project-generated emissions of VOCs, CO, SO_x, PM_{10}, and $PM_{2.5}$ would not exceed the relevant SCAQMD construction thresholds in any year. Therefore, because the proposed project would exceed the SCAQMD construction NO_x thresholds,

associated air quality impacts would be potentially significant and **MM-AQ-1** is required. The evaluation of potential impacts after implementation of **MM-AQ-1** is addressed following the summary below.

Operation

For typical land use development projects, typical criteria air pollutant emissions that may be generated are associated with area sources (e.g., landscape maintenance equipment, consumer products, and reapplication of architectural coating), energy (e.g., natural gas), mobile sources (e.g., vehicles), and potentially stationary sources. The FMP projects would rehabilitate, replace, or abandon existing facilities that are currently subject to ongoing operations and maintenance activity. Accordingly, the projects addressed in this PEIR do not propose appreciable changes to regular operations and maintenance activity by Sanitation District personnel. Accordingly, operation of the FMP projects is not anticipated to generate an increase in criteria air pollutant emissions from area, energy, mobile, or potential stationary sources, as further described below.

Plant 1 includes various replacement and rehabilitation projects, with only one project (X-090) including construction of a structure. Project X-090, Network, Telecommunications, and Server Relocation at Plant 1, includes proposed construction of an approximately 200-square-foot utility building to house Sanitation District network, telecommunications, and servers, which would not result in typical building criteria air pollutant emissions, such as natural gas and area sources.

Similar to Plant 1, Plant 2 includes various replacement and rehabilitation projects, with only projects P2-126 and P2-138 including structural replacements. For project P2-126, Substation and Warehouse Replacement at Plant 2, the existing 21,000-square-foot warehouse would be demolished and constructed in a new location, which is anticipated to be larger (approximately 30,100 square feet) as some outdoor storage may be moved to indoor storage. While the new warehouse would be larger in size, it is not anticipated to generate substantially greater natural gas and area source emissions and is anticipated to have increased energy efficiency compared to the existing building. Project P2-126 also proposes replacement of a Southern California Edison substation and replacement of a service center (approximately 3,100 square feet), both of which are anticipated to be approximately the same size as the existing structures and would not result in a net increase in operational criteria air pollutant emissions at these structures because they will primarily house electrical systems and equipment. Project P2-138, Operations and Maintenance Complex at Plant 2, would demolish the existing building and guard shack (totaling 36,680 square feet) and construct a new building (35,700 square feet) and new guard shack (200 square feet). Overall, the new structures would be slightly less square footage than the existing structures, would have increased building energy efficiency compared to the existing buildings, and no measurable change in area source emissions are anticipated; therefore, this project would not result in an increase in criteria air pollutant emissions.

The joint plant projects primarily consist of improvements to plant-wide electrical and control systems; however, project J-133 would result in a new structure. For project J-133, Laboratory Rehabilitation or Replacement at Plant 1, the existing 40,000-square-foot laboratory building located at Plant 1 would be rehabilitated or replaced; however, for modeling purposes, it was assumed to be replaced by a new 40,000-square-foot laboratory building. The replacement project J-133 building would be the same size, but since it would be built consistent with current building codes, such as the 2019 Title 24 building energy efficiency standards, it is anticipated be more energy efficient than the existing building.

For the collection system projects, which primarily consist of replacement or rehabilitation of pipelines and pump stations, once the replacement or rehabilitation is complete, no routine operational activity or associated criteria air pollutant emissions would occur. Project X-060, Newhope Placentia Chemical Dosing Station, includes removal of an existing pump station and construction of a new chemical dosing station at the abandoned pump station site. The chemical dosing station is anticipated to be small (less than 100 square feet) and would not generate criteria air pollutant emissions typical of building operation since it will primarily house chemicals.

As previously mentioned, no projects under the FMP are anticipated to require additional Sanitation District personnel. To the extent feasible, replacement and rehabilitation projects would assist in improving energy efficiency, which would reduce energy-related (natural gas) criteria air pollutant emissions. Therefore, implementation of the proposed FMP is not anticipated to generate an increase in operational criteria air pollutant emissions compared to existing conditions and may result in reduced energy-related criteria air pollutant emissions.

Summary

As discussed under "Construction" and shown in Table 4.2-12, maximum daily project-generated construction emissions would exceed the SCAQMD construction NO_x threshold. The FMP would not result in a net increase in operational criteria air pollutant emissions. Therefore, criteria air pollutant emissions impacts would be potentially significant during construction and **MM-AQ-1** would be required.

MM-AQ-1 would be implemented to reduce maximum daily NO_x emissions generated during proposed project construction. Estimated mitigated mass daily construction emissions including implementation of **MM-AQ-1** are presented for Plant 1, Plant 2, joint plant projects, collection system projects, and the entire FMP in Tables 4.2-13, 4.2-14, 4.2-15, 4.2-16, and 4.2-17, respectively.[10]

Table 4.2-13. Plant 1 Estimated Maximum Daily Construction Emissions – Mitigated

Project	VOC	NO_x	CO	SO_x	PM_{10}[a]	$PM_{2.5}$[a]
	Pounds per day					
2023						
P1-135 Digester Ferric Piping Replacement	0.88	4.12	31.66	0.06	0.59	0.22
Combined Maximum	*0.88*	*4.12*	*31.66*	*0.06*	*0.59*	*0.22*
2024						
P1-126 Primary Clarifiers Replacements and Improvements	1.13	5.54	42.52	0.07	1.07	0.31
X-090 Network, Telecommunications, and Service Relocation at Plant 1	0.42	0.76	8.14	0.01	0.48	0.24
Combined Maximum	*1.55*	*6.30*	*50.66*	*0.08*	*1.55*	*0.55*

[10] Table 4.2-17, Combined Projects Estimated Maximum Daily Construction Emissions – Mitigated, provides the mitigated analysis (implementation of **MM-AQ-1** to reduce project-generated NO_x emissions during construction) to address the potential for the project to (a) conflict with or obstruct implementation of the applicable air quality plan, (b) result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard, and (c) expose sensitive receptors to substantial concentrations of pollutants (health effects of criteria air pollutants).

Table 4.2-13. Plant 1 Estimated Maximum Daily Construction Emissions – Mitigated

Project	VOC	NO_x	CO	SO_x	PM_{10}[a]	$PM_{2.5}$[a]
	Pounds per day					
2025						
P1-126 Primary Clarifiers Replacements and Improvements	1.09	5.46	29.32	0.05	0.52	0.26
X-093 Administrative Facilities and Power Building 3A Demolition	0.42	2.04	18.33	0.03	0.71	0.18
X-077 Switchgear Replacement at Central Generation	0.19	0.93	8.25	0.02	0.14	0.05
Combined Maximum	*1.70*	*8.43*	*55.90*	*0.10*	*1.37*	*0.49*
2026						
P1-126 Primary Clarifiers Replacements and Improvements	1.09	5.45	29.28	0.05	0.52	0.26
X-093 Administrative Facilities and Power Building 3A Demolition	4.69	2.02	18.32	0.03	0.67	0.17
X-092 Standby Generator Feeders for Plant 1 Secondary Systems	0.48	3.19	12.27	0.02	0.24	0.11
Combined Maximum	*6.26*	*10.66*	*59.87*	*0.10*	*1.43*	*0.54*
2027						
P1-126 Primary Clarifiers Replacements and Improvements	0.98	4.88	29.29	0.05	0.53	0.24
X-092 Standby Generator Feeders for Plant 1 Secondary Systems	0.48	3.19	12.25	0.02	0.24	0.11
X-048 Activated Sludge (AS)-1 Aeration Basin and Blower Rehabilitation	0.44	1.76	21.04	0.03	0.33	0.12
Combined Maximum	*1.90*	*9.83*	*62.58*	*0.10*	*1.10*	*0.47*
2028						
P1-126 Primary Clarifiers Replacements and Improvements	0.25	1.05	13.27	0.02	0.18	0.07
X-048 Activated Sludge (AS)-1 Aeration Basin and Blower Rehabilitation	1.07	6.76	31.79	0.06	0.58	0.26
Combined Maximum	*1.32*	*7.81*	*45.06*	*0.08*	*0.76*	*0.33*
2029						
X-048 Activated Sludge (AS)-1 Aeration Basin and Blower Rehabilitation	0.16	0.71	8.33	0.02	0.14	0.05
X-017 Primary Clarifiers 6-37	0.28	3.33	9.04	0.02	0.20	0.08
Combined Maximum	*0.44*	*4.04*	*17.37*	*0.04*	*0.34*	*0.13*

Table 4.2-13. Plant 1 Estimated Maximum Daily Construction Emissions – Mitigated

Project	VOC	NO_x	CO	SO_x	PM_{10}[a]	$PM_{2.5}$[a]
	Pounds per day					
2030						
X-048 Activated Sludge (AS)-1 Aeration Basin and Blower Rehabilitation	0.16	0.70	8.32	0.02	0.14	0.05
X-017 Primary Clarifiers 6-37	0.28	1.44	8.95	0.02	0.17	0.08
Combined Maximum	*0.44*	*2.14*	*17.27*	*0.04*	*0.31*	*0.13*
2031						
X-048 Activated Sludge (AS)-1 Aeration Basin and Blower Rehabilitation	0.01	0.01	0.09	0.00	0.07	0.02
X-017 Primary Clarifiers 6-37	0.90	6.98	28.71	0.05	0.44	0.18
P1-127 Central Generation Rehabilitation	0.00	0.00	9.25	0.02	0.08	0.01
X-038 City Water Pump Station Rehabilitation	0.34	2.74	8.02	0.02	0.16	0.07
Combined Maximum	*1.25*	*9.73*	*46.07*	*0.09*	*0.75*	*0.28*
2032						
X-017 Primary Clarifiers 6-37	0.90	6.98	28.69	0.05	0.44	0.18
P1-127 Central Generation Rehabilitation	0.91	8.48	26.06	0.05	0.47	0.25
X-038 City Water Pump Station Rehabilitation	0.34	2.74	8.02	0.02	0.16	0.07
X-049 Activated Sludge (AS)-1 Clarifier and RAS Pump Station Rehabilitation	0.34	2.74	11.75	0.02	0.16	0.07
X-043 DAFT Demolition	0.40	2.18	13.52	0.03	0.46	0.13
Combined Maximum	*2.89*	*23.12*	*88.04*	*0.17*	*1.69*	*0.70*
2033						
X-017 Primary Clarifiers 6-37	0.01	0.01	0.09	0.00	0.07	0.02
P1-127 Central Generation Rehabilitation	0.21	1.81	3.72	0.01	0.10	0.06
X-049 Activated Sludge (AS)-1 Clarifier and RAS Pump Station Rehabilitation	1.14	10.27	28.13	0.05	0.52	0.29
Combined Maximum	*1.36*	*12.09*	*31.94*	*0.06*	*0.69*	*0.37*
2034						
X-049 Activated Sludge (AS)-1 Clarifier and RAS Pump Station Rehabilitation	1.13	10.26	28.11	0.05	0.52	0.29
X-015 Trickling Filters Rehabilitation	0.82	6.87	18.97	0.04	0.35	0.21
Combined Maximum	*1.95*	*17.13*	*47.08*	*0.09*	*0.87*	*0.50*
2035						
X-015 Trickling Filters Rehabilitation	0.74	6.18	19.10	0.04	0.30	0.15

Table 4.2-13. Plant 1 Estimated Maximum Daily Construction Emissions – Mitigated

Project	VOC	NO_x	CO	SO_x	PM_{10}[a]	$PM_{2.5}$[a]
	Pounds per day					
X-006 Waste Side-Stream Pump Station 1 Upgrade	1.41	11.41	25.15	0.05	0.45	0.23
Combined Maximum	*2.15*	*17.59*	*44.25*	*0.09*	*0.75*	*0.38*
2036						
X-015 Trickling Filters Rehabilitation	0.65	4.88	19.10	0.04	0.30	0.15
X-006 Waste Side-Stream Pump Station 1 Upgrade	0.42	4.55	19.53	0.04	0.27	0.11
X-039 Plant Water Pump Station Rehabilitation	0.32	2.69	7.98	0.02	0.15	0.06
X-079 Primary Scrubber Rehabilitation	0.63	3.89	25.10	0.05	0.41	0.14
Combined Maximum	*2.02*	*16.01*	*71.71*	*0.15*	*1.13*	*0.46*
2037						
X-039 Plant Water Pump Station Rehabilitation	0.08	0.29	4.14	0.01	0.08	0.03
X-079 Primary Scrubber Rehabilitation	0.55	3.60	20.96	0.04	0.29	0.12
X-018 Activated Sludge (AS) 2 Rehabilitation	0.80	6.11	15.46	0.03	0.31	0.15
Combined Maximum	*1.43*	*10.00*	*40.56*	*0.08*	*0.68*	*0.30*
2038						
X-018 Activated Sludge (AS) 2 Rehabilitation	0.80	6.11	12.97	0.02	0.34	0.15
Combined Maximum	*0.80*	*6.11*	*12.97*	*0.02*	*0.34*	*0.15*
2039						
X-018 Activated Sludge (AS) 2 Rehabilitation	0.28	2.75	12.47	0.02	0.34	0.12
Combined Maximum	*0.28*	*2.75*	*12.47*	*0.02*	*0.34*	*0.12*
Maximum						
Maximum Daily Emissions	**6.26**	**23.12**	**88.04**	**0.17**	**1.69**	**0.70**

Notes: VOC = volatile organic compound; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; DAFT = dissolved air flotation thickeners; RAS = return activated sludge.
See Appendix D for detailed results.
Emissions shown represent the maximum emissions during summer or winter as estimated in CalEEMod.
Estimated emissions include Tier 4 Final equipment for all equipment over 50 horsepower (**MM-AQ-1**). When applying the engine tier mitigation in CalEEMod, CalEEMod assumes the diesel engine emission standards set for that selected tier and engine power class for CO, non-methane hydrocarbons (VOCs), NO_x and PM. The CO standard for Tier 4 Final is higher than what is typically observed when using non-tiered equipment, resulting in higher estimated mitigated CO emissions than unmitigated emissions in some years.

[a] These estimates reflect control of fugitive dust (watering two times daily) required by South Coast Air Quality Management District Rule 403.

Table 4.2-14. Plant 2 Estimated Maximum Daily Construction Emissions – Mitigated

Project	VOC	NO_x	CO	SO_x	PM_{10}[a]	$PM_{2.5}$[a]
	Pounds per day					
2021						
P2-138 Operations and Maintenance Complex at Plant 2	18.26	10.58	56.09	0.11	2.91	1.56
Combined Maximum	*18.26*	*10.58*	*56.09*	*0.11*	*2.91*	*1.56*
2022						
P2-138 Operations and Maintenance Complex at Plant 2	1.43	6.11	56.02	0.11	0.72	0.31
P2-126 Substation and Warehouse Replacement at Plant 2	1.11	8.48	48.75	0.08	3.43	1.77
Combined Maximum	*2.54*	*14.59*	*104.77*	*0.19*	*4.15*	*2.08*
2023						
P2-126 Substation and Warehouse Replacement at Plant 2	36.68	15.07	91.32	0.15	3.56	1.82
Combined Maximum	*36.68*	*15.07*	*91.32*	*0.15*	*3.56*	*1.82*
2024						
P2-126 Substation and Warehouse Replacement at Plant 2	3.64	15.04	91.17	0.15	1.38	0.52
X-050 Activated Sludge (AS) Aeration Basin	0.57	3.14	25.77	0.04	0.59	0.20
Combined Maximum	*4.21*	*18.18*	*116.94*	*0.19*	*1.97*	*0.72*
2025						
P2-126 Substation and Warehouse Replacement at Plant 2	1.20	8.19	53.81	0.09	0.83	0.31
X-050 Activated Sludge (AS) Aeration Basin	0.57	3.20	25.73	0.04	0.59	0.20
Combined Maximum	*1.77*	*11.39*	*79.54*	*0.13*	*1.42*	*0.51*
2026						
X-050 Activated Sludge (AS) Aeration Basin	0.48	3.19	12.27	0.02	0.24	0.11
X-032 Truck Loading Facility Rehabilitation	0.60	1.42	17.66	0.03	0.30	0.10
X-054 Waste Side-Stream Pump C Rehabilitation	0.61	3.68	20.92	0.03	0.32	0.15
Combined Maximum	*1.69*	*8.29*	*50.85*	*0.08*	*0.86*	*0.36*
2027						
X-050 Activated Sludge (AS) Aeration Basin	0.08	0.29	4.18	0.01	0.08	0.03
X-032 Truck Loading Facility Rehabilitation	0.60	4.80	17.63	0.03	0.30	0.21

Table 4.2-14. Plant 2 Estimated Maximum Daily Construction Emissions – Mitigated

Project	VOC	NO_x	CO	SO_x	PM_{10}[a]	$PM_{2.5}$[a]
	Pounds per day					
X-054 Waste Side-Stream Pump C Rehabilitation	0.61	3.67	20.92	0.03	0.32	0.15
X-034 Sodium Bisulfite Station Replacement and Bleach Station Demolition	0.54	3.38	16.80	0.03	0.29	0.13
Combined Maximum	*1.83*	*12.14*	*59.53*	*0.10*	*0.99*	*0.52*
2028						
X-034 Sodium Bisulfite Station Replacement and Bleach Station Demolition	0.08	0.29	4.17	0.01	0.08	0.03
Combined Maximum	*0.08*	*0.29*	*4.17*	*0.01*	*0.08*	*0.03*
2031						
P2-119 Central Generation Rehabilitation	0.28	1.53	12.84	0.03	0.46	0.12
X-036 City Water Pump Station Rehabilitation	0.32	2.21	9.32	0.02	0.16	0.08
X-007 Waste Side-stream Pump Station 2A Upgrade	0.58	3.47	23.56	0.05	1.26	0.29
Combined Maximum	*1.18*	*7.21*	*45.72*	*0.10*	*1.88*	*0.49*
2032						
P2-119 Central Generation Rehabilitation	0.89	6.20	29.74	0.05	0.42	0.18
X-036 City Water Pump Station Rehabilitation	0.21	1.81	8.51	0.02	0.12	0.06
X-007 Waste Side-stream Pump Station 2A Upgrade	0.74	3.46	16.97	0.03	0.25	0.13
X-037 Plant Water Pump Station and 12 kV Distribution Center A Demolition	0.40	2.72	21.61	0.04	0.39	0.11
Combined Maximum	*2.24*	*14.19*	*76.83*	*0.14*	*1.18*	*0.48*
2033						
P2-119 Central Generation Rehabilitation	0.08	0.29	4.15	0.01	0.08	0.03
Combined Maximum	*0.08*	*0.29*	*4.15*	*0.01*	*0.08*	*0.03*
2036						
X-014 Trickling Filter Solids-Contact Odor Control	0.54	3.78	20.21	0.04	0.29	0.12
X-052 Activated Sludge (AS) RAS/WAS/PEPS/Vaporizers Rehabilitation	0.56	4.30	11.73	0.02	0.23	0.11
X-030 Headworks Rehabilitation	0.15	0.68	6.26	0.01	0.12	0.04
Combined Maximum	*1.25*	*8.76*	*38.20*	*0.07*	*0.64*	*0.27*
2037						
X-052 Activated Sludge (AS) RAS/WAS/PEPS/Vaporizers Rehabilitation	0.62	4.52	16.18	0.03	0.27	0.12

Table 4.2-14. Plant 2 Estimated Maximum Daily Construction Emissions – Mitigated

Project	VOC	NO_x	CO	SO_x	PM_{10}[a]	$PM_{2.5}$[a]
	Pounds per day					
X-030 Headworks Rehabilitation	0.51	3.43	18.55	0.03	0.26	0.11
X-031 Trickling Filter Solids-Contact Rehabilitation	0.67	4.53	31.08	0.06	0.47	0.18
Combined Maximum	*1.80*	*12.48*	*65.81*	*0.12*	*1.00*	*0.41*
2038						
X-030 Headworks Rehabilitation	0.51	3.43	18.55	0.03	0.26	0.11
X-031 Trickling Filter Solids-Contact Rehabilitation	0.85	6.13	28.76	0.05	0.42	0.18
Combined Maximum	*1.36*	*9.56*	*47.31*	*0.08*	*0.68*	*0.29*
2039						
X-030 Headworks Rehabilitation	0.08	0.29	4.14	0.01	0.08	0.03
X-031 Trickling Filter Solids-Contact Rehabilitation	0.85	6.13	28.20	0.05	0.40	0.16
Combined Maximum	*0.93*	*6.42*	*32.34*	*0.06*	*0.48*	*0.19*
2040						
X-031 Trickling Filter Solids-Contact Rehabilitation	1.15	7.17	42.09	0.08	0.60	0.23
Combined Maximum	*1.15*	*7.17*	*42.09*	*0.08*	*0.60*	*0.23*
Maximum						
Maximum Daily Emissions	**36.68**	**18.18**	**116.94**	**0.19**	**4.15**	**2.08**

Notes: VOC = volatile organic compound; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; RAS = Return Activated Sludge; PEPS = Primary Effluent Pump Station.
See Appendix D for detailed results.
Emissions shown represent the maximum emissions during summer or winter as estimated in CalEEMod.
Estimated emissions include Tier 4 Final equipment for all equipment over 50 horsepower (MM-AQ-1). When applying the engine tier mitigation in CalEEMod, CalEEMod assumes the diesel engine emission standards set for that selected tier and engine power class for CO, non-methane hydrocarbons (VOCs), NO_x and PM. The CO standard for Tier 4 Final is higher than what is typically observed when using non-tiered equipment, resulting in higher estimated mitigated CO emissions than unmitigated emissions in some years.
[a] These estimates reflect control of fugitive dust (watering two times daily) required by South Coast Air Quality Management District Rule 403.

Table 4.2-15. Joint Plant Projects Estimated Maximum Daily Construction Emissions – Mitigated

Project	VOC	NO_x	CO	SO_x	PM_{10}[a]	$PM_{2.5}$[a]
	Pounds per day					
2021						
J-98 Plantwide Miscellaneous Electrical Power Distribution System Improvements (Replacement)	0.31	1.35	16.58	0.03	0.16	0.07
Combined Maximum	*0.31*	*1.35*	*16.58*	*0.03*	*0.16*	*0.07*

Table 4.2-15. Joint Plant Projects Estimated Maximum Daily Construction Emissions – Mitigated

Project	VOC	NO_x	CO	SO_x	PM_{10}[a]	$PM_{2.5}$[a]
	Pounds per day					
2022						
J-98 Plantwide Miscellaneous Electrical Power Distribution System Improvements (Replacement)	0.31	1.34	16.56	0.03	0.16	0.07
Combined Maximum	*0.31*	*1.34*	*16.56*	*0.03*	*0.16*	*0.07*
2023						
J-98 Plantwide Miscellaneous Electrical Power Distribution System Improvements (Replacement)	0.30	1.29	16.54	0.03	0.16	0.07
Combined Maximum	*0.30*	*1.29*	*16.54*	*0.03*	*0.16*	*0.07*
2024						
J-98 Plantwide Miscellaneous Electrical Power Distribution System Improvements (Replacement)	0.30	1.29	16.52	0.03	0.16	0.07
J-120 Plantwide Miscellaneous Process Control Systems Upgrades	0.30	1.29	16.52	0.03	0.16	0.07
J-133 Laboratory Rehabilitation at Plant 1	0.66	3.87	9.95	0.02	2.86	1.55
Combined Maximum	*1.26*	*6.45*	*42.99*	*0.08*	*3.18*	*1.69*
2025						
J-98 Plantwide Miscellaneous Electrical Power Distribution System Improvements (Replacement)	0.30	1.29	16.50	0.03	0.16	0.07
J-120 Plantwide Miscellaneous Process Control Systems Upgrades	0.30	1.29	16.50	0.03	0.16	0.07
J-133 Laboratory Rehabilitation at Plant 1	39.28	4.84	21.36	0.04	1.20	0.24
X-057 (Yard Structures), X-058 (Yard Piping), X-059 (Tunnels) Plantwide Miscellaneous Rehabilitation and Replacement	3.04	22.09	48.76	0.08	1.46	1.03
Combined Maximum	*42.92*	*29.51*	*103.12*	*0.18*	*2.98*	*1.41*
2026						
J-98 Plantwide Miscellaneous Electrical Power Distribution System Improvements (Replacement)	0.30	1.28	16.49	0.03	0.16	0.07
J-120 Plantwide Miscellaneous Process Control Systems Upgrades	0.30	1.28	16.49	0.03	0.16	0.07

Table 4.2-15. Joint Plant Projects Estimated Maximum Daily Construction Emissions – Mitigated

Project	VOC	NO_x	CO	SO_x	PM_{10}[a]	$PM_{2.5}$[a]
	Pounds per day					
X-057 (Yard Structures), X-058 (Yard Piping), X-059 (Tunnels) Plantwide Miscellaneous Rehabilitation and Replacement	2.34	18.45	28.23	0.05	1.07	0.84
Combined Maximum	*2.94*	*21.01*	*61.21*	*0.11*	*1.39*	*0.98*
2027						
J-120 Plantwide Miscellaneous Process Control Systems Upgrades	0.30	1.28	16.47	0.03	0.16	0.07
X-057 (Yard Structures), X-058 (Yard Piping), X-059 (Tunnels) Plantwide Miscellaneous Rehabilitation and Replacement	2.33	18.45	28.19	0.05	1.07	0.84
J-121 Plantwide Miscellaneous Process Control System Upgrades	0.16	0.83	8.36	0.01	0.13	0.05
Combined Maximum	*2.79*	*20.56*	*53.02*	*0.09*	*1.36*	*0.96*
2028						
J-120 Plantwide Miscellaneous Process Control System Upgrades	0.30	1.28	16.46	0.03	0.16	0.07
X-057 (Yard Structures), X-058 (Yard Piping), X-059 (Tunnels) Plantwide Miscellaneous Rehabilitation and Replacement	2.33	18.45	28.17	0.05	1.07	0.84
J-121 Plantwide Miscellaneous Process Control System Upgrades	0.16	0.83	8.35	0.01	0.13	0.05
Combined Maximum	*2.79*	*20.56*	*52.98*	*0.09*	*1.36*	*0.96*
2029						
J-120 Plantwide Miscellaneous Process Control System Upgrades	0.29	1.28	16.45	0.03	0.16	0.07
X-057 (Yard Structures), X-058 (Yard Piping), X-059 (Tunnels) Plantwide Miscellaneous Rehabilitation and Replacement	2.33	18.44	28.17	0.05	1.07	0.84
Combined Maximum	*2.62*	*19.72*	*44.62*	*0.08*	*1.23*	*0.91*
2030						
X-057 (Yard Structures), X-058 (Yard Piping), X-059 (Tunnels) Plantwide Miscellaneous Rehabilitation and Replacement	1.78	14.07	27.94	0.05	0.62	0.40
Combined Maximum	*1.78*	*14.07*	*27.94*	*0.05*	*0.62*	*0.40*

Table 4.2-15. Joint Plant Projects Estimated Maximum Daily Construction Emissions – Mitigated

Project	VOC	NO_x	CO	SO_x	PM_{10}[a]	$PM_{2.5}$[a]
	Pounds per day					
2031						
X-057 (Yard Structures), X-058 (Yard Piping), X-059 (Tunnels) Plantwide Miscellaneous Rehabilitation and Replacement	1.77	14.06	27.92	0.05	0.62	0.40
Combined Maximum	*1.77*	*14.06*	*27.92*	*0.05*	*0.62*	*0.40*
2032						
X-057 (Yard Structures), X-058 (Yard Piping), X-059 (Tunnels) Plantwide Miscellaneous Rehabilitation and Replacement	0.40	3.61	7.36	0.01	0.14	0.09
Combined Maximum	*0.40*	*3.61*	*7.36*	*0.01*	*0.14*	*0.09*
2035						
X-044 Steve Anderson Lift Station Rehabilitation	0.41	3.07	11.60	0.02	0.21	0.09
Combined Maximum	*0.41*	*3.07*	*11.60*	*0.02*	*0.21*	*0.09*
2036						
X-044 Steve Anderson Lift Station Rehabilitation	0.41	3.07	11.60	0.02	0.21	0.09
Combined Maximum	*0.41*	*3.07*	*11.60*	*0.02*	*0.21*	*0.09*
Maximum						
Maximum Daily Emissions	**42.92**	**29.51**	**103.12**	**0.18**	**3.18**	**1.69**

Notes: VOC = volatile organic compound; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter.
See Appendix D for detailed results.
Emissions shown represent the maximum emissions during summer or winter as estimated in CalEEMod.
Estimated emissions include Tier 4 Final equipment for all equipment over 50 horsepower (MM-AQ-1). When applying the engine tier mitigation in CalEEMod, CalEEMod assumes the diesel engine emission standards set for that selected tier and engine power class for CO, non-methane hydrocarbons (VOC), NO_x and PM. The CO standard for Tier 4 Final is higher than what is typically observed when using non-tiered equipment, resulting in higher estimated mitigated CO emissions than unmitigated emissions in some years.
[a] These estimates reflect control of fugitive dust (watering two times daily) required by South Coast Air Quality Management District Rule 403.

Table 4.2-16. Collection System Projects Estimated Maximum Daily Construction Emissions – Mitigated

Project	VOC	NO_x	CO	SO_x	PM_{10}[a]	$PM_{2.5}$[a]
	Pounds per day					
2021						
7-66 Sunflower and Red Hill Interceptor Rehab/Repair	0.47	2.10	24.89	0.04	0.26	0.11
Combined Maximum	*0.47*	*2.10*	*24.89*	*0.04*	*0.26*	*0.11*
2022						
7-68 MacArthur Dual Force Main Improvements	0.59	2.46	27.16	0.05	0.44	0.16

Table 4.2-16. Collection System Projects Estimated Maximum Daily Construction Emissions – Mitigated

Project	VOC	NO_x	CO	SO_x	PM_{10}[a]	$PM_{2.5}$[a]
	Pounds per day					
5-68 Newport Beach Pump Station Odor Control Improvements	1.04	6.35	25.28	0.04	0.48	0.26
7-65 Gisler–Red Hill Interceptor Rehabilitation	0.47	2.10	24.89	0.04	0.26	0.11
7-67 Main Street P5 Force Main Rehabilitation	0.38	1.52	16.61	0.03	0.18	0.07
Combined Maximum	*2.48*	*12.43*	*93.94*	*0.16*	*1.36*	*0.60*
2023						
X-078 Air Jumper Additions and Rehabilitation (Two Air Jumpers Concurrently)	0.5	2.13	26.62	0.05	0.31	0.12
7-68 MacArthur Dual Force Main Improvements	0.59	2.46	27.16	0.05	0.44	0.16
5-68 Newport Beach Pump Station Odor Control Improvements	0.99	6.22	25.19	0.04	0.46	0.24
7-65 Gisler–Red Hill Interceptor Rehabilitation	0.09	0.30	4.22	0.01	0.08	0.03
7-67 Main Street P5 Force Main Rehabilitation	0.31	1.43	16.58	0.03	0.17	0.07
X-076 Santa Ana Trunk Sewer Rehabilitation Phase II	1.95	16.67	22.64	0.04	0.99	0.84
Combined Maximum	*4.43*	*29.21*	*122.41*	*0.22*	*2.45*	*1.46*
2024						
X-078 Air Jumper Additions and Rehabilitation (Two Air Jumpers Concurrently)	0.5	2.13	26.62	0.05	0.31	0.12
2-73 Yorba Linda Pump Station Abandonment	0.44	1.86	19.55	0.03	0.28	0.11
X-060 Newhope Placentia Chemical Dosing Station	1.27	7.37	41.00	0.07	0.62	0.30
X-076 Santa Ana Trunk Sewer Rehabilitation Phase II	1.82	15.63	22.58	0.04	0.88	0.73
X-082 North Trunk Improvement Project	0.62	2.67	27.42	0.04	0.46	0.17
Combined Maximum	*4.65*	*29.66*	*137.17*	*0.23*	*2.55*	*1.43*
2025						
X-078 Air Jumper Additions and Rehabilitation (Two Air Jumpers Concurrently)	0.5	2.13	26.62	0.05	0.31	0.12
2-73 Yorba Linda Pump Station Abandonment	0.44	1.85	19.53	0.03	0.30	0.11
X-076 Santa Ana Trunk Sewer Rehabilitation Phase II	0.29	2.41	3.80	0.01	0.16	0.11

Table 4.2-16. Collection System Projects Estimated Maximum Daily Construction Emissions – Mitigated

Project	VOC	NO_x	CO	SO_x	PM_{10}[a]	$PM_{2.5}$[a]
	Pounds per day					
X-082 North Trunk Improvement Project	0.09	0.29	4.19	0.01	0.08	0.03
X-083 Greenville–Sullivan (Santa Ana) Sewer Upsize from 24 to 27 inch (14,460 feet)	0.66	2.73	27.41	0.04	0.47	0.17
Combined Maximum	*1.98*	*9.41*	*81.55*	*0.14*	*1.32*	*0.54*
2026						
X-078 Air Jumper Additions and Rehabilitation (Two Air Jumpers Concurrently)	0.5	2.13	26.62	0.05	0.31	0.12
11-33 Edinger Pumping Station Replacement	0.28	1.17	12.85	0.02	0.21	0.08
X-083 Greenville–Sullivan (Santa Ana) Sewer Upsize from 24 to 27 inch (14,460 feet)	0.33	1.05	11.44	0.02	0.18	0.07
Combined Maximum	*1.11*	*4.35*	*50.91*	*0.09*	*0.70*	*0.27*
2027						
X-078 Air Jumper Additions and Rehabilitation (Two Air Jumpers Concurrently)	0.5	2.13	26.62	0.05	0.31	0.12
11-33 Edinger Pumping Station Replacement	0.81	4.57	28.81	0.05	0.42	0.19
X-026 College Avenue Force Main Rehabilitation	0.57	2.50	27.09	0.05	0.48	0.17
Combined Maximum	*1.88*	*9.20*	*82.52*	*0.15*	*1.21*	*0.48*
2028						
X-078 Air Jumper Additions and Rehabilitation (Two Air Jumpers Concurrently)	0.5	2.13	26.62	0.05	0.31	0.12
11-33 Edinger Pumping Station Replacement	0.81	4.57	28.79	0.05	0.42	0.19
X-026 College Avenue Force Main Rehabilitation	0.57	2.50	27.09	0.05	0.48	0.17
2-49 Taft Branch (City of Orange) Sewer Upsize	0.62	2.97	27.59	0.04	0.47	0.18
Combined Maximum	*2.50*	*12.17*	*110.09*	*0.19*	*1.68*	*0.66*
2029						
X-078 Air Jumper Additions and Rehabilitation (Two Air Jumpers Concurrently)	0.5	2.13	26.62	0.05	0.31	0.12
X-063 South Santa Ana River Interceptor Connector Rehabilitation	0.58	2.46	27.18	0.04	0.44	0.16
Combined Maximum	*1.08*	*4.59*	*53.80*	*0.09*	*0.75*	*0.28*

Table 4.2-16. Collection System Projects Estimated Maximum Daily Construction Emissions – Mitigated

Project	VOC	NO_x	CO	SO_x	PM_{10}[a]	$PM_{2.5}$[a]
	Pounds per day					
2030						
X-078 Air Jumper Additions and Rehabilitation (Two Air Jumpers Concurrently)	0.5	2.13	26.62	0.05	0.31	0.12
X-071 Edinger/Springdale Trunk Sewer Rehabilitation	0.59	2.46	27.16	0.05	0.44	0.16
Combined Maximum	*1.09*	*4.59*	*53.78*	*0.10*	*0.75*	*0.28*
2031						
X-078 Air Jumper Additions and Rehabilitation (Two Air Jumpers Concurrently)	0.5	2.13	26.62	0.05	0.31	0.12
X-071 Edinger/Springdale Trunk Sewer Rehabilitation	0.30	1.40	16.54	0.03	0.22	0.08
7-63 MacArthur Pump Station Rehabilitation	1.58	6.51	48.93	0.09	0.96	0.48
X-065 Tustin–Orange Interceptor Sewer at Reach 17 Rehabilitation	0.57	2.50	27.09	0.05	0.48	0.17
X-023 Lido Pump Station Rehabilitation	0.38	1.52	16.61	0.03	0.18	0.07
11-34 Slater Avenue Pump Station Rehabilitation	0.38	1.52	16.61	0.03	0.18	0.07
7-64 Main Street Pump Station Rehabilitation	0.38	1.52	16.61	0.03	0.18	0.07
Combined Maximum	*4.09*	*17.10*	*169.01*	*0.31*	*2.51*	*1.06*
2032						
X-078 Air Jumper Additions and Rehabilitation (Two Air Jumpers Concurrently)	0.5	2.13	26.62	0.05	0.31	0.12
7-63 MacArthur Pump Station Rehabilitation	1.57	6.50	48.89	0.09	0.93	0.48
X-065 Tustin–Orange Interceptor Sewer at Reach 17 Rehabilitation	0.57	2.50	27.09	0.05	0.48	0.17
X-023 Lido Pump Station Rehabilitation	0.38	1.52	16.61	0.03	0.18	0.07
11-34 Slater Avenue Pump Station Rehabilitation	0.38	1.52	16.61	0.03	0.18	0.07
7-64 Main Street Pump Station Rehabilitation	0.38	1.52	16.61	0.03	0.18	0.07
Combined Maximum	*3.78*	*15.69*	*152.43*	*0.28*	*2.26*	*0.98*
2033						
X-078 Air Jumper Additions and Rehabilitation (Two Air Jumpers Concurrently)	0.5	2.13	26.62	0.05	0.31	0.12
3-67 Seal Beach Pump Station Replacement	1.78	8.11	23.79	0.04	2.83	1.53

Table 4.2-16. Collection System Projects Estimated Maximum Daily Construction Emissions – Mitigated

Project	VOC	NO_x	CO	SO_x	PM_{10}[a]	$PM_{2.5}$[a]
	Pounds per day					
X-084 Tustin Avenue Sewer Relief	0.57	2.50	27.09	0.05	0.48	0.17
11-34 Slater Avenue Pump Station Rehabilitation	0.38	1.52	16.61	0.03	0.18	0.07
7-64 Main Street Pump Station Rehabilitation	0.38	1.52	16.61	0.03	0.18	0.07
3-68 Los Alamitos Sub-Trunk Extension	1.48	26.75	44.49	0.18	3.72	1.09
Combined Maximum	*5.09*	*42.53*	*155.21*	*0.38*	*7.70*	*3.05*
2034						
3-67 Seal Beach Pump Station Replacement	0.01	0.01	0.09	0.00	0.07	0.02
X-066 Tustin–Orange Interceptor Sewer at Reach 18 Rehabilitation	0.57	2.50	27.09	0.05	0.48	0.17
X-086 Santa Ana River Sewer Relief	0.69	2.71	27.22	0.05	0.51	0.18
X-067 (X-085) Hoover–Western Sub-Trunks Sewer Rehabilitation	0.59	2.46	27.16	0.05	0.44	0.16
Combined Maximum	*1.86*	*7.68*	*81.56*	*0.15*	*1.50*	*0.53*
2035						
X-086 Santa Ana River Sewer Relief	0.69	2.70	27.20	0.05	0.53	0.18
X-067 (X-085) Hoover–Western Sub-Trunks Sewer Rehabilitation	0.59	2.46	27.16	0.05	0.44	0.16
Combined Maximum	*1.28*	*5.16*	*54.36*	*0.10*	*0.97*	*0.34*
2036						
X-040 College Avenue Pump Station Replacement	0.78	6.32	13.88	0.03	0.25	0.13
X-061 Imperial Highway Relief Interceptor Rehabilitation	0.59	2.46	27.16	0.05	0.44	0.16
X-022 15th Street Pump Station Rehabilitation	0.38	1.52	16.61	0.03	0.18	0.07
X-041 A Street Pump Station Rehabilitation	0.38	1.52	16.61	0.03	0.18	0.07
X-024 Rocky Point Pump Station Rehabilitation	0.78	6.32	22.95	0.04	0.38	0.17
Combined Maximum	*2.91*	*18.14*	*97.21*	*0.18*	*1.43*	*0.60*
2037						
X-040 College Avenue Pump Station Replacement	0.53	4.33	22.95	0.04	0.38	0.17
X-061 Imperial Highway Relief Interceptor Rehabilitation	0.59	2.46	27.16	0.05	0.44	0.16

Table 4.2-16. Collection System Projects Estimated Maximum Daily Construction Emissions – Mitigated

Project	VOC	NO_x	CO	SO_x	PM_{10}[a]	$PM_{2.5}$[a]
	Pounds per day					
X-068 North Trunk Rehabilitation	0.57	2.50	27.09	0.05	0.48	0.17
X-022 15th Street Pump Station Rehabilitation	0.38	1.52	16.61	0.03	0.18	0.07
X-041 A Street Pump Station Rehabilitation	0.38	1.52	16.61	0.03	0.18	0.07
5-66 Crystal Cove Pumping Station Upgrade and Rehabilitation	0.38	1.52	16.61	0.03	0.18	0.07
X-024 Rocky Point Pump Station Rehabilitation	0.78	6.32	22.95	0.04	0.38	0.17
X-025 Bitter Point Pump Station Rehabilitation	0.78	6.32	22.95	0.04	0.38	0.17
Combined Maximum	*4.39*	*26.49*	*172.93*	*0.31*	*2.60*	*1.05*
2038						
5-66 Crystal Cove Pumping Station Upgrade and Rehabilitation	0.38	1.52	16.61	0.03	0.18	0.07
X-025 Bitter Point Pump Station Rehabilitation	0.78	6.32	22.95	0.04	0.38	0.17
Combined Maximum	*1.16*	*7.84*	*39.56*	*0.07*	*0.56*	*0.24*
Maximum						
Maximum Daily Emissions	**5.09**	**42.53**	**172.93**	**0.38**	**7.70**	**3.05**

Notes: VOC = volatile organic compound; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter.
See Appendix D for detailed results.
Emissions shown represent the maximum emissions during summer or winter as estimated in CalEEMod.
Estimated emissions include Tier 4 Final equipment for all equipment over 50 horsepower (**MM-AQ-1**). When applying the engine tier mitigation in CalEEMod, CalEEMod assumes the diesel engine emission standards set for that selected tier and engine power class for CO, non-methane hydrocarbons (VOCs), NO_x and PM. The CO standard for Tier 4 Final is higher than what is typically observed when using non-tiered equipment, resulting in higher estimated mitigated CO emissions than unmitigated emissions in some years.
[a] These estimates reflect control of fugitive dust (watering two times daily) required by South Coast Air Quality Management District Rule 403.

Table 4.2-17. Annual Combined FMP Projects Estimated Maximum Daily Construction Emissions – Mitigated

Project	VOC	NO_x	CO	SO_x	PM_{10}[a]	$PM_{2.5}$[a]
	Pounds per day					
2021						
Plant 1	0.00	0.00	0.00	0.00	0.00	0.00
Plant 2	18.26	10.58	56.09	0.11	2.91	1.56
Joint Plant	0.31	1.35	16.58	0.03	0.16	0.07
Collection System	0.47	2.1	24.89	0.04	0.26	0.11
Combined Maximum	*19.04*	*14.03*	*97.56*	*0.18*	*3.33*	*1.74*
2022						
Plant 1	0.00	0.00	0.00	0.00	0.00	0.00
Plant 2	2.54	14.59	104.77	0.19	4.15	2.08

Table 4.2-17. Annual Combined FMP Projects Estimated Maximum Daily Construction Emissions – Mitigated

Project	VOC	NO_x	CO	SO_x	PM_{10}[a]	$PM_{2.5}$[a]
	Pounds per day					
Joint Plant	0.31	1.34	16.56	0.03	0.16	0.07
Collection System	2.48	12.43	93.94	0.16	1.36	0.6
Combined Maximum	*5.33*	*28.36*	*215.27*	*0.38*	*5.67*	*2.75*
2023						
Plant 1	0.88	4.12	31.66	0.06	0.59	0.22
Plant 2	36.68	15.07	91.32	0.15	3.56	1.82
Joint Plant	0.30	1.29	16.54	0.03	0.16	0.07
Collection System	4.43	29.21	122.41	0.22	2.45	1.46
Combined Maximum	*42.29*	*49.69*	*261.93*	*0.46*	*6.76*	*3.57*
2024						
Plant 1	1.55	6.3	50.66	0.08	1.55	0.55
Plant 2	4.21	18.18	116.94	0.19	1.97	0.72
Joint Plant	1.26	6.45	42.99	0.08	3.18	1.69
Collection System	4.65	29.66	137.17	0.23	2.55	1.43
Combined Maximum	*11.67*	*60.59*	*347.76*	*0.58*	*9.25*	*4.39*
2025						
Plant 1	1.7	8.43	55.9	0.1	1.37	0.49
Plant 2	1.77	11.39	79.54	0.13	1.42	0.51
Joint Plant	42.92	29.51	103.12	0.18	2.98	1.41
Collection System	1.98	9.41	81.55	0.14	1.32	0.54
Combined Maximum	*48.37*	*58.74*	*320.11*	*0.55*	*7.09*	*2.95*
2026						
Plant 1	6.26	10.66	59.87	0.1	1.43	0.54
Plant 2	1.69	8.29	50.85	0.08	0.86	0.36
Joint Plant	2.94	21.01	61.21	0.11	1.39	0.98
Collection System	1.11	4.35	50.91	0.09	0.7	0.27
Combined Maximum	*12.00*	*44.31*	*222.84*	*0.38*	*4.38*	*2.15*
2027						
Plant 1	1.9	9.83	62.58	0.1	1.1	0.47
Plant 2	1.83	12.14	59.53	0.1	0.99	0.52
Joint Plant	2.79	20.56	53.02	0.09	1.36	0.96
Collection System	1.88	9.2	82.52	0.15	1.21	0.48
Combined Maximum	*8.40*	*51.73*	*257.65*	*0.44*	*4.66*	*2.43*
2028						
Plant 1	1.32	7.81	45.06	0.08	0.76	0.33
Plant 2	0.08	0.29	4.17	0.01	0.08	0.03
Joint Plant	2.79	20.56	52.98	0.09	1.36	0.96
Collection System	2.5	12.17	110.09	0.19	1.68	0.66
Combined Maximum	*6.69*	*40.83*	*212.30*	*0.37*	*3.88*	*1.98*
2029						
Plant 1	0.44	4.04	17.37	0.04	0.34	0.13
Plant 2	0.00	0.00	0.00	0.00	0.00	0.00
Joint Plant	2.62	19.72	44.62	0.08	1.23	0.91

Table 4.2-17. Annual Combined FMP Projects Estimated Maximum Daily Construction Emissions – Mitigated

Project	VOC	NO_x	CO	SO_x	PM_{10}[a]	$PM_{2.5}$[a]
	Pounds per day					
Collection System	1.08	4.59	53.8	0.09	0.75	0.28
Combined Maximum	*4.14*	*28.35*	*115.79*	*0.21*	*2.32*	*1.32*
2030						
Plant 1	0.44	2.14	17.27	0.04	0.31	0.13
Plant 2	0.00	0.00	0.00	0.00	0.00	0.00
Joint Plant	1.78	14.07	27.94	0.05	0.62	0.40
Collection System	1.09	4.59	53.78	0.10	0.75	0.28
Combined Maximum	*3.31*	*20.80*	*98.99*	*0.19*	*1.68*	*0.81*
2031						
Plant 1	1.25	9.73	46.07	0.09	0.75	0.28
Plant 2	1.18	7.21	45.72	0.10	1.88	0.49
Joint Plant	1.77	14.06	27.92	0.05	0.62	0.40
Collection System	4.09	17.10	169.01	0.31	2.51	1.06
Combined Maximum	*8.29*	*48.10*	*288.72*	*0.55*	*5.76*	*2.23*
2032						
Plant 1	2.89	23.12	88.04	0.17	1.69	0.7
Plant 2	2.24	14.19	76.83	0.14	1.18	0.48
Joint Plant	0.4	3.61	7.36	0.01	0.14	0.09
Collection System	3.78	15.69	152.43	0.28	2.26	0.98
Combined Maximum	*9.31*	*56.61*	*324.66*	*0.60*	*5.27*	*2.25*
2033						
Plant 1	1.36	12.09	31.94	0.06	0.69	0.37
Plant 2	0.08	0.29	4.15	0.01	0.08	0.03
Joint Plant	0.00	0.00	0.00	0.00	0.00	0.00
Collection System	5.09	42.53	155.21	0.38	7.70	3.05
Combined Maximum	*6.53*	*54.91*	*191.30*	*0.45*	*8.47*	*3.45*
2034						
Plant 1	1.95	17.13	47.08	0.09	0.87	0.5
Plant 2	0.00	0.00	0.00	0.00	0.00	0.00
Joint Plant	0.00	0.00	0.00	0.00	0.00	0.00
Collection System	1.86	7.68	81.56	0.15	1.5	0.53
Combined Maximum	*3.81*	*24.81*	*128.64*	*0.24*	*2.37*	*1.03*
2035						
Plant 1	2.15	17.59	44.25	0.09	0.75	0.38
Plant 2	0.00	0.00	0.00	0.00	0.00	0.00
Joint Plant	0.41	3.07	11.6	0.02	0.21	0.09
Collection System	1.28	5.16	54.36	0.1	0.97	0.34
Combined Maximum	*3.84*	*25.82*	*110.21*	*0.21*	*1.93*	*0.81*
2036						
Plant 1	2.02	16.01	71.71	0.15	1.13	0.46
Plant 2	1.25	8.76	38.2	0.07	0.64	0.27
Joint Plant	0.41	3.07	11.6	0.02	0.21	0.09

Table 4.2-17. Annual Combined FMP Projects Estimated Maximum Daily Construction Emissions – Mitigated

Project	VOC	NO_x	CO	SO_x	PM_{10}[a]	$PM_{2.5}$[a]
	Pounds per day					
Collection System	2.91	18.14	97.21	0.18	1.43	0.6
Combined Maximum	*6.59*	*45.98*	*218.72*	*0.42*	*3.41*	*1.42*
2037						
Plant 1	1.43	10	40.56	0.08	0.68	0.3
Plant 2	1.8	12.48	65.81	0.12	1	0.41
Joint Plant	0.00	0.00	0.00	0.00	0.00	0.00
Collection System	4.39	26.49	172.93	0.31	2.6	1.05
Combined Maximum	*7.62*	*48.97*	*279.30*	*0.51*	*4.28*	*1.76*
2038						
Plant 1	0.8	6.11	12.97	0.02	0.34	0.15
Plant 2	1.36	9.56	47.31	0.08	0.68	0.29
Joint Plant	0.00	0.00	0.00	0.00	0.00	0.00
Collection System	1.16	7.84	39.56	0.07	0.56	0.24
Combined Maximum	*3.32*	*23.51*	*99.84*	*0.17*	*1.58*	*0.68*
2039						
Plant 1	0.28	2.75	12.47	0.02	0.34	0.12
Plant 2	0.93	6.42	32.34	0.06	0.48	0.19
Joint Plant	0.00	0.00	0.00	0.00	0.00	0.00
Collection System	0.00	0.00	0.00	0.00	0.00	0.00
Combined Maximum	*1.21*	*9.17*	*44.81*	*0.08*	*0.82*	*0.31*
2040						
Plant 1	0.00	0.00	0.00	0.00	0.00	0.00
Plant 2	1.15	7.17	42.09	0.08	0.6	0.23
Joint Plant	0.00	0.00	0.00	0.00	0.00	0.00
Collection System	0.00	0.00	0.00	0.00	0.00	0.00
Combined Maximum	*1.15*	*7.17*	*42.09*	*0.08*	*0.60*	*0.23*
Maximum						
Maximum Daily Emissions	**48.37**	**60.59**	**347.76**	**0.60**	**9.25**	**4.39**
SCAQMD Threshold	*75*	*100*	*550*	*150*	*150*	*55*
Threshold exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

Notes: FMP = Facilities Master Plan; VOC = volatile organic compound; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; SCAQMD = South Coast Air Quality Management District. See Appendix D for detailed results.

[a] These estimates reflect control of fugitive dust (watering two times daily) required by SCAQMD Rule 403.

As shown in Table 4.2-17, maximum daily NO_x emissions generated during proposed project construction would be reduced below the SCAQMD mass daily construction threshold of 100 pounds per day in all construction years. Accordingly, regarding the potential for the proposed project to result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard, impacts would be less than significant with mitigation.

3. Would the project expose sensitive receptors to substantial pollutant concentrations?

Less-than-Significant Impact with Mitigation Incorporated. The potential for the proposed project to result in impacts relating to LSTs, CO hotspots, TACs (health risk), and health effects associated with criteria air pollutants are discussed below.

As discussed in Section 4.2.1.3, sensitive receptors are those individuals more susceptible to the effects of air pollution than the population at large. People most likely to be affected by air pollution include children, the elderly, and people with cardiovascular and chronic respiratory diseases. According to SCAQMD, sensitive receptors include residences, schools, playgrounds, childcare centers, long-term healthcare facilities, rehabilitation centers, convalescent centers, and retirement homes (SCAQMD 1993).

Sensitive receptors near Plant 1 include residential receptors approximately 100 feet from the western boundary of the site and 400 feet from the eastern site boundary; sensitive receptors near Plant 2 include residential receptors approximately 100 feet from the western boundary of the site. The joint plant projects would occur on Plant 1 and/or Plant 2, so the closest sensitive receptors are the same as the ones identified for Plant 1 and Plant 2. The collection system projects are located within the Sanitation District operating region, which includes developed lands that support various land uses, and sensitive receptors such as residences could be located within 25 meters (approximately 82 feet) of project sites.

Localized Significance Thresholds

An LST analysis has been prepared to determine potential impacts to nearby sensitive receptors during construction of the project. As indicated in the discussion of the thresholds of significance (Section 4.2.3), SCAQMD also recommends the evaluation of localized NO_2, CO, PM_{10}, and $PM_{2.5}$ impacts as a result of construction activities to sensitive receptors in the immediate vicinity of the project site. The impacts were analyzed using methods consistent with those in SCAQMD's Final LST Methodology (2009). According to the Final LST Methodology, "off-site mobile emissions from the project should not be included in the emissions compared to the LSTs" (SCAQMD 2008). Hauling of construction materials associated with project construction are not expected to cause substantial air quality impacts to sensitive receptors along off-site roadways. Localized emissions from the trucks would be relatively brief in nature and would cease once the trucks pass through the main streets.

LSTs are evaluated at a site-specific level because the focus is localized emissions. While emissions from project activities would occur at different locations within the Plant 1 and Plant 2 sites and thus, the nearest off-site sensitive receptors would be different, emissions from all areas of activity are conservatively combined and presented in the on-site emissions for Plants 1 and 2. For example, activities occurring within the plants could be far apart, and would impact different receptors. By combining emissions, the analysis assumes that all emissions are impacting the same receptor equally. Because the joint plant projects would occur on Plant 1 and/or Plant 2, maximum on-site emissions were added to the Plant 1 and/or Plant 2 on-site emissions, as appropriate.

Conversely, the collection system projects would occur at different locations within the Sanitation District service area and would not potentially impact the same receptor at the same time. Therefore, collection system projects are evaluated on the individual project level and are not combined before comparing to the applicable SCAQMD LST.

Construction activities associated with the proposed project would result in temporary sources of on-site fugitive dust and construction equipment emissions. As discussed above, off-site emissions from vendor trucks, haul trucks, and worker vehicle trips are not included in the LST analysis. The most stringent SCAQMD localized significance criteria for the appropriate SRA (for 1-acre project sites corresponding to a distance to a sensitive receptor of 25 meters [82 feet]) are presented in Tables 4.2-18, 4.2-19, and 4.2-20, and compared to the maximum daily on-site construction emissions generated during proposed project construction activities. The LSTs applied are conservative because for some FMP projects, the nearest sensitive receptor could be located farther from the project site than 25 meters, which would result in a less stringent (i.e., higher) LST criteria.

Table 4.2-18. Plant 1 and Applicable Joint Plant Estimated Maximum Daily On-Site Construction Emissions

Project	NO_x	CO	PM_{10}[a]	$PM_{2.5}$[a]
	Pounds per day			
2021				
J-98 Plantwide Miscellaneous Electrical Power Distribution System Improvements (Replacement)	12.66	14.74	0.67	0.67
Combined Maximum	*12.66*	*14.74*	*0.67*	*0.67*
2022				
J-98 Plantwide Miscellaneous Electrical Power Distribution System Improvements (Replacement)	11.71	14.70	0.59	0.59
Combined Maximum	*11.71*	*14.70*	*0.59*	*0.59*
2023				
P1-135 Digester Ferric Piping Replacement	21.57	27.79	1.06	1.00
J-98 Plantwide Miscellaneous Electrical Power Distribution System Improvements (Replacement)	10.86	14.68	0.51	0.51
Combined Maximum	*32.43*	*42.47*	*1.57*	*1.51*
2024				
P1-126 Primary Clarifiers Replacements and Improvements	25.77	36.48	1.66	1.19
X-090 Network, Telecommunications, and Service Relocation	5.97	7.39	0.59	0.43
J-98 Plantwide Miscellaneous Electrical Power Distribution System Improvements (Replacement)	10.18	14.66	0.44	0.44
J-120 Plantwide Miscellaneous Process Control Systems Upgrades	10.18	14.66	0.44	0.44
J-133 Laboratory Rehabilitation at Plant 1	12.73	8.48	3.24	1.97
Combined Maximum	*64.83*	*81.67*	*6.37*	*4.47*
2025				
P1-126 Primary Clarifiers Replacements and Improvements	19.66	25.89	0.78	0.76
X-093 Administrative Facilities and Power Building 3A Demolition	11.45	14.45	0.85	0.51

Table 4.2-18. Plant 1 and Applicable Joint Plant Estimated Maximum Daily On-Site Construction Emissions

Project	NO_x	CO	PM_{10}[a]	$PM_{2.5}$[a]
	Pounds per day			
X-077 Switchgear Replacement at Central Generation	6.38	7.32	0.27	0.26
J-98 Plantwide Miscellaneous Electrical Power Distribution System Improvements (Replacement)	9.58	14.64	0.38	0.38
J-120 Plantwide Miscellaneous Process Control Systems Upgrades	9.58	14.64	0.38	0.38
J-133 Laboratory Rehabilitation at Plant 1	13.82	18.10	1.19	0.56
X-057 (Yard Structures), X-058 (Yard Piping), X-059 (Tunnels) Plantwide Miscellaneous Rehabilitation and Replacement	18.29	27.62	0.76	0.76
Combined Maximum	*88.76*	*122.66*	*4.61*	*3.61*
2026				
P1-126 Primary Clarifiers Replacements and Improvements	19.66	25.89	0.78	0.76
X-093 Administrative Facilities and Power Building 3A Demolition	11.45	14.45	0.85	0.51
X-092 Standby Generator Feeders for Plant 1 Secondary Systems	8.76	10.37	0.33	0.32
J-98 Plantwide Miscellaneous Electrical Power Distribution System Improvements (Replacement)	9.58	14.64	0.38	0.38
J-120 Plantwide Miscellaneous Process Control Systems Upgrades	9.58	14.64	0.38	0.38
X-057 (Yard Structures), X-058 (Yard Piping), X-059 (Tunnels) Plantwide Miscellaneous Rehabilitation and Replacement	18.29	27.62	0.76	0.76
Combined Maximum	*77.32*	*107.61*	*3.48*	*3.11*
2027				
P1-126 Primary Clarifiers Replacements and Improvements	19.42	25.67	0.82	0.78
X-092 Standby Generator Feeders for Plant 1 Secondary Systems	8.76	10.37	0.33	0.32
X-048 Activated Sludge (AS)-1 Aeration Basin and Blower Rehabilitation	12.40	18.37	0.56	0.48
J-120 Plantwide Miscellaneous Process Control Systems Upgrades	9.58	14.64	0.38	0.38
Combined Maximum	*50.16*	*69.05*	*2.09*	*1.96*
2028				
X-048 Activated Sludge (AS)-1 Aeration Basin and Blower Rehabilitation	21.24	28.40	0.83	0.81
P1-126 Primary Clarifiers Replacements and Improvements	7.85	12.14	0.33	0.33

Table 4.2-18. Plant 1 and Applicable Joint Plant Estimated Maximum Daily On-Site Construction Emissions

Project	NO_x	CO	PM_{10}[a]	$PM_{2.5}$[a]
	Pounds per day			
J-120 Plantwide Miscellaneous Process Control Systems Upgrades	9.58	14.64	0.38	0.38
Combined Maximum	*38.67*	*55.18*	*1.54*	*1.52*
2029				
X-017 Primary Clarifiers 6-37	6.37	7.94	0.25	0.23
X-048 Activated Sludge (AS)-1 Aeration Basin and Blower Rehabilitation	5.53	7.94	0.22	0.22
J-120 Plantwide Miscellaneous Process Control Systems Upgrades	9.58	14.64	0.38	0.38
Combined Maximum	*21.48*	*30.52*	*0.85*	*0.83*
2030				
X-017 Primary Clarifiers 6-37	4.34	7.89	0.10	0.10
X-048 Activated Sludge (AS)-1 Aeration Basin and Blower Rehabilitation	4.34	7.89	0.10	0.10
Combined Maximum	*8.68*	*15.78*	*0.20*	*0.20*
2031				
P1-127 Central Generation Rehabilitation	2.47	7.26	0.07	0.07
X-017 Primary Clarifiers 6-37	13.18	24.95	0.26	0.26
X-038 City Water Pump Station Rehabilitation	3.68	6.46	0.08	0.08
X-048 Activated Sludge (AS)-1 Aeration Basin and Blower Rehabilitation	0.00	0.00	0.00	0.00
Combined Maximum	*19.33*	*38.67*	*0.41*	*0.41*
2032				
P1-127 Central Generation Rehabilitation	12.66	23.75	0.25	0.25
X-017 Primary Clarifiers 6-37	13.18	24.95	0.26	0.26
X-038 City Water Pump Station Rehabilitation	3.68	6.46	0.08	0.08
X-049 Activated Sludge (AS)-1 Clarifier and RAS Pump Station Rehabilitation	4.76	9.74	0.11	0.11
X-043 Dissolved Air Flotation Thickener (DAFT) Demolition	4.47	11.99	0.37	0.17
Combined Maximum	*38.75*	*76.89*	*1.07*	*0.87*
2033				
P1-127 Central Generation Rehabilitation	1.80	3.64	0.04	0.04
X-017 Primary Clarifiers 6-37	0.00	0.00	0.00	0.00
X-049 Activated Sludge (AS)-1 Clarifier and RAS Pump Station Rehabilitation	13.28	25.84	0.28	0.28
Combined Maximum	*15.08*	*29.48*	*0.32*	*0.32*
2034				
X-015 Trickling Filters Rehabilitation	6.74	16.86	0.21	0.16
X-049 Activated Sludge (AS)-1 Clarifier and RAS Pump Station Rehabilitation	13.28	25.84	0.28	0.28
Combined Maximum	*20.02*	*42.70*	*0.49*	*0.44*

Table 4.2-18. Plant 1 and Applicable Joint Plant Estimated Maximum Daily On-Site Construction Emissions

Project	NO_x	CO	PM_{10}[a]	$PM_{2.5}$[a]
	Pounds per day			
2035				
X-006 Waste Sidestream Pump Station 1 Upgrade	11.27	24.75	0.15	0.15
X-015 Trickling Filters Rehabilitation	7.23	16.94	0.12	0.12
Combined Maximum	*18.50*	*41.69*	*0.27*	*0.27*
2036				
X-006 Waste Sidestream Pump Station 1 Upgrade	7.97	17.38	0.10	0.10
X-015 Trickling Filters Rehabilitation	7.23	16.94	0.12	0.12
X-039 Plant Water Pump Station Rehabilitation	3.16	6.43	0.05	0.05
X-079 Primary Scrubber Rehabilitation	9.27	21.66	0.23	0.14
Combined Maximum	*27.63*	*62.41*	*0.50*	*0.41*
2037				
X-039 Plant Water Pump Station Rehabilitation	1.60	3.63	0.02	0.02
X-079 Primary Scrubber Rehabilitation	7.67	18.04	0.13	0.13
X-018 Activated Sludge (AS) 2 Rehabilitation	5.98	13.41	0.09	0.09
Combined Maximum	*15.25*	*35.08*	*0.24*	*0.24*
2038				
X-018 Activated Sludge (AS) 2 Rehabilitation	5.98	12.68	0.09	0.09
Combined Maximum	*5.98*	*12.68*	*0.09*	*0.09*
2039				
X-018 Activated Sludge (AS) 2 Rehabilitation	5.30	10.36	0.06	0.06
Combined Maximum	*5.30*	*10.36*	*0.06*	*0.06*
Maximum				
Maximum Daily On-Site Emissions	**88.76**	**122.66**	**6.37**	**4.47**
SCAQMD LST	*92*	*647*	*4*	*3*
Threshold exceeded?	**No**	**No**	**Yes**	**Yes**

Notes: NO_x = oxides of nitrogen; CO = carbon monoxide; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; SCAQMD = South Coast Air Quality Management District; LST = localized significance threshold; RAS = return activated sludge.
See Appendix D for detailed results.

[a] These estimates reflect control of fugitive dust (watering two times daily) required by SCAQMD Rule 403.

As shown in Table 4.2-18, the combined maximum emissions from Plant 1 and applicable joint plant projects would exceed the LST for PM_{10} during two construction years (2024 and 2025), and would exceed the LST for $PM_{2.5}$ during three construction years (2024, 2025, and 2026); NO_x and CO LSTs would not be exceeded during all construction years.

Table 4.2-19 presents estimated maximum daily on-site criteria air pollutant emissions generated during proposed construction of Plant 2 projects and joint plant projects located within the Plant 2 boundaries.

Table 4.2-19. Plant 2 and Applicable Joint Plant Estimated Maximum Daily On-Site Construction Emissions

Project	NO_x	CO	PM_{10}[a]	$PM_{2.5}$[a]
	Pounds per day			
2021				
P2-138 Operations and Maintenance Complex at Plant 2	59.01	40.22	3.49	2.57
Combined Maximum	*59.01*	*40.22*	*3.49*	*2.57*
2022				
P2-126 Substation and Warehouse Replacement at Plant 2	27.47	31.75	3.40	2.12
P2-138 Operations and Maintenance Complex at Plant 2	50.00	39.01	2.35	2.11
Combined Maximum	*77.47*	*70.76*	*5.75*	*4.23*
2023				
P2-126 Substation and Warehouse Replacement at Plant 2	54.92	68.33	4.59	3.29
Combined Maximum	*54.92*	*68.33*	*4.59*	*3.29*
2024				
P2-126 Substation and Warehouse Replacement at Plant 2	58.16	80.32	2.59	2.41
X-050 Activated Sludge (AS) Aeration Basin at Plant 2	15.95	23.30	0.71	0.71
J-120 Plantwide Miscellaneous Process Control Systems Upgrades	10.18	14.66	0.44	0.44
Combined Maximum	*84.29*	*118.28*	*3.74*	*3.56*
2025				
P2-126 Substation and Warehouse Replacement at Plant 2	32.36	46.46	1.35	1.24
X-050 Activated Sludge (AS) Aeration Basin at Plant 2	15.05	23.27	0.61	0.61
J-120 Plantwide Miscellaneous Process Control Systems Upgrades	9.58	14.64	0.38	0.38
X-057 (Yard Structures), X-058 (Yard Piping), X-059 (Tunnels) Plantwide Miscellaneous Rehabilitation and Replacement	18.29	27.62	0.76	0.76
Combined Maximum	*75.28*	*111.99*	*3.10*	*2.99*
2026				
X-032 Truck Loading Facility Rehabilitation at Plant 2	11.64	15.16	0.45	0.43
X-050 Activated Sludge (AS) Aeration Basin at Plant 2	8.76	10.37	0.33	0.32
X-054 Waste Side-Stream Pump Station C Rehabilitation at Plant 2	11.74	18.57	0.47	0.45

Table 4.2-19. Plant 2 and Applicable Joint Plant Estimated Maximum Daily On-Site Construction Emissions

Project	NO_x	CO	PM_{10}[a]	$PM_{2.5}$[a]
	Pounds per day			
J-120 Plantwide Miscellaneous Process Control Systems Upgrades	9.58	14.64	0.38	0.38
X-057 (Yard Structures), X-058 (Yard Piping), X-059 (Tunnels) Plantwide Miscellaneous Rehabilitation and Replacement	18.29	27.62	0.76	0.76
Combined Maximum	*60.01*	*86.36*	*2.39*	*2.34*
2027				
X-032 Truck Loading Facility Rehabilitation at Plant 2	11.64	15.16	0.45	0.43
X-034 Sodium Bisulfite Station Replacement and Bleach Station Demolition at Plant 2	9.33	14.89	0.39	0.36
X-050 Activated Sludge (AS) Aeration Basin at Plant 2	2.40	3.66	0.10	0.10
X-054 Waste Side-Stream Pump Station C Rehabilitation at Plant 2	11.74	18.57	0.47	0.45
J-120 Plantwide Miscellaneous Process Control Systems Upgrades	9.58	14.64	0.38	0.38
J-121 Plantwide Miscellaneous Process Control Systems Upgrades	4.79	7.32	0.19	0.19
X-057 (Yard Structures), X-058 (Yard Piping), X-059 (Tunnels) Plantwide Miscellaneous Rehabilitation and Replacement	18.29	27.62	0.76	0.76
Combined Maximum	*67.77*	*101.86*	*2.74*	*2.67*
2028				
X-034 Sodium Bisulfite Station Replacement and Bleach Station Demolition at Plant 2	2.40	3.66	0.10	0.10
J-120 Plantwide Miscellaneous Process Control Systems Upgrades	9.58	14.64	0.38	0.38
J-121 Plantwide Miscellaneous Process Control Systems Upgrades	4.79	7.32	0.19	0.19
X-057 (Yard Structures), X-058 (Yard Piping), X-059 (Tunnels) Plantwide Miscellaneous Rehabilitation and Replacement	18.29	27.62	0.76	0.76
Combined Maximum	*35.06*	*53.24*	*1.43*	*1.43*
2029				
J-120 Plantwide Miscellaneous Process Control Systems Upgrades	9.58	14.64	0.38	0.38
X-057 (Yard Structures), X-058 (Yard Piping), X-059 (Tunnels) Plantwide Miscellaneous Rehabilitation and Replacement	18.29	27.62	0.76	0.76
Combined Maximum	*27.87*	*42.26*	*1.14*	*1.14*

Table 4.2-19. Plant 2 and Applicable Joint Plant Estimated Maximum Daily On-Site Construction Emissions

Project	NO_x	CO	PM_{10}[a]	$PM_{2.5}$[a]
	Pounds per day			
2030				
X-057 (Yard Structures), X-058 (Yard Piping), X-059 (Tunnels) Plantwide Miscellaneous Rehabilitation and Replacement	13.92	27.45	0.32	0.32
Combined Maximum	*13.92*	*27.45*	*0.32*	*0.32*
2031				
P2-119 Central Generation Rehabilitation at Plant 2	3.98	10.80	0.30	0.13
X-007 Waste Side-stream Pump Station 2A Upgrade at Plant 2	13.03	26.37	0.41	0.41
X-036 City Water Pump Station Rehabilitation at Plant 2	2.47	7.26	0.10	0.08
X-057 (Yard Structures), X-058 (Yard Piping), X-059 (Tunnels) Plantwide Miscellaneous Rehabilitation and Replacement	13.92	27.45	0.32	0.32
Combined Maximum	*33.40*	*71.88*	*1.13*	*0.94*
2032				
P2-119 Central Generation Rehabilitation at Plant 2	13.68	26.10	0.27	0.27
X-007 Waste Side-stream Pump Station 2A Upgrade at Plant 2	7.28	13.73	0.15	0.15
X-036 City Water Pump Station Rehabilitation at Plant 2	3.68	6.46	0.08	0.08
X-037 Plant Water Pump Station and 12 kV Distribution Center A Demolition at Plant 2	9.17	17.40	0.48	0.29
X-057 (Yard Structures), X-058 (Yard Piping), X-059 (Tunnels) Plantwide Miscellaneous Rehabilitation and Replacement	3.61	7.27	0.07	0.07
Combined Maximum	*37.42*	*70.96*	*1.05*	*0.86*
2033				
P2-119 Central Generation Rehabilitation at Plant 2	1.80	3.64	0.04	0.04
Combined Maximum	*1.80*	*3.64*	*0.04*	*0.04*
2036				
X-014 Trickling Filter Solids-Contact Odor Control	6.75	17.25	0.10	0.10
X-030 Headworks Rehabilitation	1.98	4.88	0.04	0.04
X-052 Activated Sludge (AS) RAS/WAS/PEPS/Vaporizers Rehabilitation at Plant 2	4.07	11.10	0.07	0.07
Combined Maximum	*12.80*	*33.23*	*0.21*	*0.21*

Table 4.2-19. Plant 2 and Applicable Joint Plant Estimated Maximum Daily On-Site Construction Emissions

Project	NO_x	CO	PM_{10}[a]	$PM_{2.5}$[a]
	Pounds per day			
2037				
X-030 Headworks Rehabilitation	7.32	16.04	0.09	0.09
X-031 Trickling Filter Solids-Contact Rehabilitation at Plant 2	11.76	27.45	0.16	0.16
X-052 Activated Sludge (AS) RAS/WAS/PEPS/Vaporizers Rehabilitation at Plant 2	6.86	14.83	0.09	0.09
Combined Maximum	*25.94*	*58.32*	*0.34*	*0.34*
2038				
X-030 Headworks Rehabilitation	7.32	16.04	0.09	0.09
X-031 Trickling Filter Solids-Contact Rehabilitation at Plant 2	11.76	25.85	0.15	0.15
Combined Maximum	*19.08*	*41.89*	*0.24*	*0.24*
2039				
X-030 Headworks Rehabilitation	1.60	3.63	0.02	0.02
X-031 Trickling Filter Solids-Contact Rehabilitation at Plant 2	11.12	23.76	0.14	0.14
Combined Maximum	*12.72*	*27.39*	*0.16*	*0.16*
2040				
X-031 Trickling Filter Solids-Contact Rehabilitation at Plant 2	13.62	36.36	0.20	0.20
Combined Maximum	*13.62*	*36.36*	*0.20*	*0.20*
Maximum				
Maximum Daily On-Site Emissions	**84.29**	**118.28**	**4.59**	**3.56**
SCAQMD LST	*92*	*647*	*4*	*3*
Threshold exceeded?	**No**	**No**	**Yes**	**Yes**

Notes: NO_x = oxides of nitrogen; CO = carbon monoxide; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; SCAQMD = South Coast Air Quality Management District; LST = localized significance threshold; RAS = return activated sludge ;PEPS = Primary Effluent Pump Station.
See Appendix D for detailed results.
[a] These estimates reflect control of fugitive dust (watering two times daily) required by SCAQMD Rule 403.

As shown in Table 4.2-19, combined maximum emissions of Plant 2 and applicable joint plant projects would exceed the applicable LST for PM_{10} during two construction years (2022 and 2023) and exceed the LST for $PM_{2.5}$ during three construction years (2022, 2023, and 2024), primarily due to construction of P2-126 Substation and Warehouse Replacement at Plant 2 and P2-138 Operations and Maintenance Complex at Plant 2. For the remaining construction years, combined maximum on-site emissions would not exceed the applicable LST.

Table 4.2-20 presents estimated maximum daily on-site criteria air pollutant emissions generated during construction of collection system projects. As previously explained, because the collection system projects would occur at various sites within the Sanitation District service area, each project is evaluated individually

in its potential to exceed the applicable LSTs rather than combined, as performed for the Plant 1, Plant 2, and joint plant projects, which would occur within the same area.

Table 4.2-20. Collection System Estimated Maximum Daily On-Site Construction Emissions

Project	NO_x	CO	PM_{10}[a]	$PM_{2.5}$[a]
	Pounds per day			
2021				
7-66 Sunflower and Red Hill Interceptor Rehab/Repair	17.65	22.17	0.9	0.9
Maximum	*17.65*	*22.17*	*0.90*	*0.90*
2022				
7-68 MacArthur Dual Force Main Improvements	19.21	45.96	0.65	0.62
5-68 Newport Beach Pump Station Odor Control	19.23	22.69	1.01	0.99
7-65 Gisler – Red Hill Interceptor Rehabilitation	17.65	22.17	0.90	0.90
7-67 Main Street P5 Force Main Rehabilitation	11.79	14.82	0.61	0.61
Maximum	*19.23*	*45.96*	*1.01*	*0.99*
2023				
X-078 Air Jumper Additions and Rehabilitation	8.91	12.17	0.45	0.45
7-68 MacArthur Dual Force Main Improvements	19.21	45.96	0.65	0.62
5-68 Newport Beach Pump Station Odor Control Improvements	17.86	22.58	0.88	0.86
7-65 Gisler – Red Hill Interceptor Rehabilitation	2.72	3.67	0.13	0.13
7-67 Main Street P5 Force Main Rehabilitation	10.94	14.79	0.53	0.53
X-076 Santa Ana Trunk Sewer Rehabilitation Phase II	16.37	22.13	0.78	0.78
Maximum	*19.21*	*45.96*	*0.88*	*0.86*
2024				
X-078 Air Jumper Additions and Rehabilitation	8.91	12.17	0.45	0.45
2-73 Yorba Linda Pump Station Abandonment	17.51	16.36	0.82	0.74
X-060 Newhope Placentia Chemical Dosing Station	27.60	36.38	1.19	1.17
X-076 Santa Ana Trunk Sewer Rehabilitation Phase II	15.34	22.10	0.68	0.68
X-082 North Trunk Improvement Project	15.11	23.74	0.73	0.70
Maximum	*27.60*	*36.38*	*1.19*	*1.17*
2025				
X-078 Air Jumper Additions and Rehabilitation	8.91	12.17	0.45	0.45

Table 4.2-20. Collection System Estimated Maximum Daily On-Site Construction Emissions

Project	NO_x	CO	PM_{10}[a]	$PM_{2.5}$[a]
	Pounds per day			
2-73 Yorba Linda Pump Station Abandonment	16.12	16.17	0.72	0.65
X-076 Santa Ana Trunk Sewer Rehabilitation Phase II	2.40	3.66	0.10	0.10
X-082 North Trunk Improvement Project	2.40	3.66	0.10	0.10
X-083 Greenville–Sullivan (Santa Ana) Sewer upsize from 24 to 27 inch (14,460 feet)	13.89	23.68	0.64	0.60
Maximum	*16.12*	*23.68*	*0.72*	*0.65*
2026				
X-078 Air Jumper Additions and Rehabilitation	8.91	12.17	0.45	0.45
11-33 Edinger Pumping Station Replacement	9.08	11.04	0.39	0.36
X-083 Greenville–Sullivan (Santa Ana) Sewer upsize from 24 to 27 inch (14,460 feet)	5.82	9.70	0.28	0.26
Maximum	*9.08*	*12.17*	*0.45*	*0.45*
2027				
X-078 Air Jumper Additions and Rehabilitation	8.91	12.17	0.45	0.45
11-33 Edinger Pumping Station Replacement	16.64	25.43	0.66	0.65
X-026 College Avenue Force Main Rehabilitation	10.33	24.74	0.32	0.32
Maximum	*16.64*	*25.43*	*0.66*	*0.65*
2028				
X-078 Air Jumper Additions and Rehabilitation	8.91	12.17	0.45	0.45
11-33 Edinger Pumping Station Replacement	16.64	25.43	0.66	0.65
X-026 College Avenue Force Main Rehabilitation	10.33	24.74	0.32	0.32
2-49 Taft Branch (City of Orange) Sewer Upsize	14.26	23.99	0.65	0.61
Maximum	*16.64*	*25.43*	*0.66*	*0.65*
2029				
X-078 Air Jumper Additions and Rehabilitation	8.91	12.17	0.45	0.45
X-063 South Santa Ana River Interceptor Connector Rehabilitation	13.89	23.68	0.63	0.60
Maximum	*13.89*	*23.68*	*0.63*	*0.60*
2030				
X-078 Air Jumper Additions and Rehabilitation	8.91	12.17	0.45	0.45
X-071 Edinger / Springdale Trunk Sewer Rehabilitation	10.33	24.74	0.32	0.32
Maximum	*10.33*	*24.74*	*0.45*	*0.45*

Table 4.2-20. Collection System Estimated Maximum Daily On-Site Construction Emissions

Project	NO_x	CO	PM_{10}[a]	$PM_{2.5}$[a]
	Pounds per day			
2031				
X-078 Air Jumper Additions and Rehabilitation	8.91	12.17	0.45	0.45
X-071 Edinger / Springdale Trunk Sewer Rehabilitation	7.25	14.65	0.19	0.19
7-63 MacArthur Pump Station Rehabilitation	19.21	45.96	0.65	0.62
X-065 Tustin-Orange Interceptor Sewer at Reach 17 Rehabilitation	10.33	24.74	0.32	0.32
X-023 Lido Pump Station Rehabilitation	11.79	14.82	0.61	0.61
11-34 Slater Avenue Pump Station Rehabilitation	11.79	14.82	0.61	0.61
7-64 Main Street Pump Station Rehabilitation	11.79	14.82	0.61	0.61
Maximum	*19.21*	*45.96*	*0.65*	*0.62*
2032				
X-078 Air Jumper Additions and Rehabilitation	8.91	12.17	0.45	0.45
7-63 MacArthur Pump Station Rehabilitation	19.21	45.96	0.65	0.62
X-065 Tustin-Orange Interceptor Sewer at Reach 17 Rehabilitation	10.33	24.74	0.32	0.32
X-023 Lido Pump Station Rehabilitation	11.79	14.82	0.61	0.61
11-34 Slater Avenue Pump Station Rehabilitation	11.79	14.82	0.61	0.61
7-64 Main Street Pump Station Rehabilitation	11.79	14.82	0.61	0.61
Maximum	*19.21*	*45.96*	*0.65*	*0.62*
2033				
X-078 Air Jumper Additions and Rehabilitation	8.91	12.17	0.45	0.45
3-67 Seal Beach Pump Station Replacement	11.89	23.49	2.87	1.65
3-68 Los Alamitos Sub-Trunk Extension	10.48	21.16	0.37	0.28
11-34 Slater Avenue Pump Station Rehabilitation	11.79	14.82	0.61	0.61
7-64 Main Street Pump Station Rehabilitation	11.79	14.82	0.61	0.61
X-084 Tustin Avenue Sewer Relief	10.33	24.74	0.32	0.32
Maximum	*11.89*	*24.74*	*2.87*	*1.65*
2034				
3-67 Seal Beach Pump Station Replacement	0.00	0.00	0.00	0.00
X-066 Tustin-Orange Interceptor Sewer at Reach 18 Rehabilitation	10.33	24.74	0.32	0.32
X-086 Santa Ana River Sewer Relief	10.33	24.74	0.33	0.32

Table 4.2-20. Collection System Estimated Maximum Daily On-Site Construction Emissions

Project	NO_x	CO	PM_{10}[a]	$PM_{2.5}$[a]
	Pounds per day			
X-067 (X-085) Hoover-Western Sub-Trunks Sewer Rehabilitation	19.21	45.96	0.65	0.62
Maximum	*19.21*	*45.96*	*0.65*	*0.62*
2035				
X-086 Santa Ana River Sewer Relief	8.43	24.71	0.19	0.18
X-067 (X-085) Hoover-Western Sub-Trunks Sewer Rehabilitation	19.21	45.96	0.65	0.62
Maximum	*19.21*	*45.96*	*0.65*	*0.62*
2036				
X-040 College Avenue Pump Station Replacement	6.19	13.64	0.08	0.08
X-061 Imperial Highway Relief Interceptor Rehabilitation	19.21	45.96	0.65	0.62
X-022 15th Street Pump Station Rehabilitation	11.79	14.82	0.61	0.61
X-041 A Street Pump Station Rehabilitation	11.79	14.82	0.61	0.61
X-024 Rocky Point Pump Station Rehabilitation	9.71	22.75	0.14	0.14
Maximum	*19.21*	*45.96*	*0.65*	*0.62*
2037				
X-040 College Avenue Pump Station Replacement	9.71	22.75	0.14	0.14
X-061 Imperial Highway Relief Interceptor Rehabilitation	19.21	45.96	0.65	0.62
X-068 North Trunk Rehabilitation	10.33	24.74	0.32	0.32
X-022 15th Street Pump Station Rehabilitation	11.79	14.82	0.61	0.61
X-041 A Street Pump Station Rehabilitation	11.79	14.82	0.61	0.61
5-66 Crystal Cove Pumping Station Upgrade and Rehabilitation	11.79	14.82	0.61	0.61
X-024 Rocky Point Pump Station Rehabilitation	9.71	22.75	0.14	0.14
X-025 Bitter Point Pump Station Rehabilitation	9.71	22.75	0.14	0.14
Maximum	*19.21*	*45.96*	*0.65*	*0.62*
2038				
5-66 Crystal Cove Pumping Station Upgrade and Rehabilitation	11.79	14.82	0.61	0.61
X-025 Bitter Point Pump Station Rehabilitation	9.71	22.75	0.14	0.14
Maximum	*11.79*	*22.75*	*0.61*	*0.61*

Table 4.2-20. Collection System Estimated Maximum Daily On-Site Construction Emissions

Project	NO_x	CO	PM_{10}[a]	$PM_{2.5}$[a]
	Pounds per day			
Maximum				
Maximum Daily On-Site Emissions	27.60	45.96	2.87	1.65
SCAQMD LST	*81*	*647*	*4*	*3*
Threshold exceeded?	No	No	No	No

Notes: NO_x = oxides of nitrogen; CO = carbon monoxide; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; SCAQMD = South Coast Air Quality Management District; LST = localized significance threshold.
See Appendix D for detailed results.
[a] These estimates reflect control of fugitive dust (watering two times daily) required by SCAQMD Rule 403.

As shown in Table 4.2-20, no collection system project would exceed the applicable LST.

Summary

As shown in Table 4.2-18, Plant 1 and Applicable Joint Plant Estimated Maximum Daily On-Site Construction Emissions, the combined maximum emissions from Plant 1 and applicable joint plant projects would exceed the LST for PM_{10} during two construction years (2024 and 2025), and would exceed the LST for $PM_{2.5}$ during three construction years (2024, 2025, and 2026); NO_x and CO LSTs would not be exceeded during all construction years. As shown in Table 4.2-19, Plant 2 and Applicable Joint Plant Estimated Maximum Daily On-Site Construction Emissions, combined maximum emissions of Plant 2 and applicable joint plant projects would exceed the applicable LST for PM_{10} during two construction years (2022 and 2023) and exceed the LST for $PM_{2.5}$ during three construction years (2022, 2023, and 2024), primarily due to construction of P2-126 Substation and Warehouse Replacement at Plant 2 and P2-138 Operations and Maintenance Complex at Plant 2. For the remaining construction years, combined maximum on-site emissions would not exceed the applicable LST. As shown in Table 4.2-20, Collection System Estimated Maximum Daily On-Site Construction Emissions, no collection system project would exceed the applicable LST. Due to the exceedance of the PM_{10} and $PM_{2.5}$ LSTs at Plant 1 and Plant 2, the proposed project would result in a potentially significant LST impact and **MM-AQ-1** would be required.

MM-AQ-1 would be implemented to reduce on-site emissions of PM_{10} and $PM_{2.5}$, specifically from on-site construction equipment. No collection system project would exceed the applicable LST. Only the years that exceeded the LST under unmitigated conditions are presented in Tables 4.2-21 and 4.2-22, which present mitigated on-site emissions for Plant 1 and applicable joint plant projects, and for Plant 2 and applicable joint plant projects, respectively. For all other construction years, on-site emissions would not exceed the applicable LST under unmitigated conditions.

Table 4.2-21. Plant 1 and Applicable Joint Plant Estimated Maximum Daily On-Site Construction Emissions – Mitigated

Project	NO_x	CO	PM_{10}[a]	$PM_{2.5}$[a]
	Pounds per day			
2024				
P1-126 Primary Clarifiers Replacements and Improvements	5.36	41.22	0.56	0.18

Table 4.2-21. Plant 1 and Applicable Joint Plant Estimated Maximum Daily On-Site Construction Emissions – Mitigated

Project	NO_x	CO	PM_{10}[a]	$PM_{2.5}$[a]
	Pounds per day			
X-090 Network, Telecommunications, and Service Relocation	0.61	7.85	0.36	0.20
J-98 Plantwide Miscellaneous Electrical Power Distribution System Improvements (Replacement)	1.14	16.23	0.04	0.04
J-120 Plantwide Miscellaneous Process Control Systems Upgrades	1.14	16.23	0.04	0.04
J-133 Laboratory Rehabilitation at Plant 1	3.31	9.43	2.75	1.52
Combined Maximum	*11.56*	*90.96*	*3.75*	*1.98*
2025				
P1-126 Primary Clarifiers Replacements and Improvements	5.28	28.59	0.17	0.17
X-093 Administrative Facilities and Power Building 3A Demolition	1.49	17.72	0.40	0.10
X-077 Switchgear Replacement at Central Generation	0.67	8.11	0.02	0.02
J-98 Plantwide Miscellaneous Electrical Power Distribution System Improvements (Replacement)	1.14	16.23	0.04	0.04
J-120 Plantwide Miscellaneous Process Control Systems Upgrades	1.14	16.23	0.04	0.04
J-133 Laboratory Rehabilitation at Plant 1	3.24	11.20	0.91	0.16
X-057 (Yard Structures), X-058 (Yard Piping), X-059 (Tunnels) Plantwide Miscellaneous Rehabilitation and Replacement	18.29	27.62	0.76	0.76
Combined Maximum	*31.25*	*125.70*	*2.34*	*1.29*
2026				
P1-126 Primary Clarifiers Replacements and Improvements	5.28	28.59	0.17	0.17
X-093 Administrative Facilities and Power Building 3A Demolition	1.49	17.72	0.40	0.10
X-092 Standby Generator Feeders for Plant 1 Secondary Systems	3.04	11.92	0.07	0.07
J-98 Plantwide Miscellaneous Electrical Power Distribution System Improvements (Replacement)	1.14	16.23	0.04	0.04
J-120 Plantwide Miscellaneous Process Control Systems Upgrades	1.14	16.23	0.04	0.04
X-057 (Yard Structures), X-058 (Yard Piping), X-059 (Tunnels) Plantwide Miscellaneous Rehabilitation and Replacement	18.29	27.62	0.76	0.76
Combined Maximum	*30.38*	*118.31*	*1.48*	*1.18*

Table 4.2-21. Plant 1 and Applicable Joint Plant Estimated Maximum Daily On-Site Construction Emissions – Mitigated

Project	NO_x	CO	PM_{10}[a]	$PM_{2.5}$[a]
	Pounds per day			
Maximum				
Maximum Daily On-Site Emissions	31.25	125.70	3.75	1.98
SCAQMD LST	*92*	*647*	*4*	*3*
Threshold exceeded?	No	No	No	No

Notes: NO_x = oxides of nitrogen; CO = carbon monoxide; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; SCAQMD = South Coast Air Quality Management District; LST = localized significance threshold.
See Appendix D for detailed results.
Emissions shown represent the maximum emissions during summer or winter as estimated in CalEEMod.
Estimated emissions include Tier 4 Final equipment for all equipment over 50 horsepower (MM-AQ-1). When applying the engine tier mitigation in CalEEMod, CalEEMod assumes the diesel engine emission standards set for that selected tier and engine power class for CO, non-methane hydrocarbons (VOC), NO_x and PM. The CO standard for Tier 4 Final is higher than what is typically observed when using non-tiered equipment, resulting in higher estimated mitigated CO emissions than unmitigated emissions in some years.
[a] These estimates reflect control of fugitive dust (watering two times daily) required by SCAQMD Rule 403.

As shown in Table 4.2-21, with **MM-AQ-1**, project-generated on-site emissions of from Plant 1 and applicable joint plant projects in 2024, 2025, and 2026 would be below all applicable LSTs, including the LSTs for PM_{10} and $PM_{2.5}$.

Table 4.2-22. Plant 2 and Applicable Joint Plant Estimated Maximum Daily On-Site Construction Emissions – Mitigated

Project	NO_x	CO	PM_{10}[a]	$PM_{2.5}$[a]
	Pounds per day			
2022				
P2-126 Substation and Warehouse Replacement at Plant 2	6.08	34.82	2.75	1.52
P2-138 Operations and Maintenance Complex at Plant 2	5.55	54.91	0.30	0.19
Combined Maximum	*11.63*	*89.73*	*3.05*	*1.71*
2023				
P2-126 Substation and Warehouse Replacement at Plant 2	13.04	74.89	2.85	1.63
Combined Maximum	*13.04*	*74.89*	*2.85*	*1.63*
2024				
P2-126 Substation and Warehouse Replacement at Plant 2	14.04	86.64	0.36	0.24
X-050 Activated Sludge (AS) Aeration Basin at Plant 2	2.97	25.14	0.07	0.07
J-120 Plantwide Miscellaneous Process Control Systems Upgrades	1.14	16.23	0.04	0.04
Combined Maximum	*18.15*	*128.01*	*0.47*	*0.35*

Table 4.2-22. Plant 2 and Applicable Joint Plant Estimated Maximum Daily On-Site Construction Emissions – Mitigated

Project	NO_x	CO	PM_{10}[a]	$PM_{2.5}$[a]
	Pounds per day			
Maximum				
Maximum Daily On-Site Emissions	18.15	128.01	3.05	1.71
SCAQMD LST	*92*	*647*	*4*	*3*
Threshold exceeded?	No	No	No	No

Notes: NO_x = oxides of nitrogen; CO = carbon monoxide; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; SCAQMD = South Coast Air Quality Management District; LST = localized significance threshold.
See Appendix D for detailed results.
Emissions shown represent the maximum emissions during summer or winter as estimated in CalEEMod.
Estimated emissions include Tier 4 Final equipment for all equipment over 50 horsepower (MM-AQ-1). When applying the engine tier mitigation in CalEEMod, CalEEMod assumes the diesel engine emission standards set for that selected tier and engine power class for CO, non-methane hydrocarbons (VOC), NO_x and PM. The CO standard for Tier 4 Final is higher than what is typically observed when using non-tiered equipment, resulting in higher estimated mitigated CO emissions than unmitigated emissions in some years.
[a] These estimates reflect control of fugitive dust (watering two times daily) required by SCAQMD Rule 403.

As shown in Table 4.2-22, with **MM-AQ-1**, project-generated on-site emissions of from Plant 2 and applicable joint plant projects in 2022, 2023, and 2024 would be below all applicable LSTs, including the LSTs for PM_{10} and $PM_{2.5}$.

Accordingly, with the implementation of **MM-AQ-1**, the project would result in an LST impact that is less than significant.

Carbon Monoxide Hotspots

Mobile source impacts occur on two scales. Regionally, project-related travel would add to regional trip generation and increase the vehicle miles traveled within the local airshed and the SCAB. Locally, traffic generated by the project would be added to the local roadway system near the project sites. If such traffic occurs during periods of poor atmospheric ventilation, is composed of a large number of vehicles cold-started and operating at pollution-inefficient speeds, and is operating on roadways already crowded with non-proposed project traffic, there is a potential for the formation of microscale CO hotspots in the area immediately around points of congested traffic. Because of continued improvement in vehicular emissions at a rate faster than the rate of vehicle growth and/or congestion, the potential for CO hotspots in the SCAB is steadily decreasing.

At the time that the SCAQMD Handbook (1993) was published, the SCAB was designated nonattainment under the CAAQS and NAAQS for CO. In 2007, the SCAQMD was designated in attainment for CO under both the CAAQS and NAAQS as a result of the steady decline in CO concentrations in the SCAB due to turnover of older vehicles, introduction of cleaner fuels, and implementation of control technology on industrial facilities. The SCAQMD conducted CO modeling for the 2003 AQMP[11] (SCAQMD 2003b) for the four worst-case intersections in the SCAB: (1) Wilshire Boulevard and Veteran Avenue, (2) Sunset Boulevard and Highland Avenue, (3) La Cienega Boulevard and Century Boulevard, and (4) Long Beach Boulevard and Imperial Highway. At the time the 2003 AQMP was prepared, the intersection of Wilshire Boulevard and Veteran Avenue was the most congested intersection in Los Angeles County, with an average daily traffic

[11] SCAQMD's CO hotspot modeling guidance has not changed since 2003.

volume of about 100,000 vehicles per day. Using CO emission factors for 2002, the peak modeled CO 1-hour concentration was estimated to be 4.6 ppm at the intersection of Wilshire Boulevard and Veteran Avenue. When added to the maximum 1-hour CO concentration from 2016 through 2018 at the West Vermont Street monitoring station (see Table 4.2-3, Local Ambient Air Quality Data), which was 3.7 ppm in 2016, the 1-hour CO would be 8.3 ppm, while the CAAQS is 20 ppm.

The 2003 AQMP also projected 8-hour CO concentrations at these four intersections for 1997 and from 2002 through 2005. From years 2002 through 2005, the maximum 8-hour CO concentration was 3.8 ppm at the Sunset Boulevard and Highland Avenue intersection in 2002; the maximum 8-hour CO concentration was 3.4 ppm at the Wilshire Boulevard and Veteran Avenue in 2002. Adding the 3.8 ppm to the maximum 8-hour CO concentration from 2016 through 2018 at the West Vermont Street monitoring station (see Table 4.2-3), which was 2.6 ppm in 2017, the 8-hour CO would be 6.4 ppm, while the CAAQS is 9.0 ppm.

Accordingly, CO concentrations at congested intersections would not exceed the 1-hour or 8-hour CO CAAQS unless projected daily traffic would be at least over 100,000 vehicles per day. Because the proposed project would not increase daily traffic volumes at any study intersection to more than 100,000 vehicles per day (see Section 4.13, Transportation), a CO hotspot is not anticipated to occur and associated impacts would be less than significant. As such, potential project-generated impacts associated with CO hotspots would be less than significant.

Toxic Air Contaminants (Health Risk Assessment)

Construction

In addition to impacts from criteria pollutants, certain projects may include emissions of pollutants identified by the state and federal government as TACs or hazardous air pollutants. State law has established the framework for California's TAC identification and control project, which is generally more stringent than the federal project, and is aimed at TACs that are a problem in California. The state has formally identified more than 200 substances as TACs, including the federal hazardous air pollutants, and is adopting appropriate control measures for sources of these TACs.

"Incremental cancer risk" is the net increased likelihood that a person continuously exposed to concentrations of TACs resulting from a project over a 9-, 30-, and 70-year exposure period would contract cancer based on the use of standard OEHHA risk-assessment methodology (OEHHA 2015). In addition, some TACs have noncarcinogenic effects. TACs that would potentially be emitted during construction activities would be DPM emitted from heavy-duty construction equipment and heavy-duty trucks. Heavy-duty construction equipment and diesel trucks are subject to CARB Airborne Toxic Control Measures to reduce DPM emissions. According to the OEHHA, HRAs should be based on a 30-year exposure duration based on typical residency period; however, such assessments should be limited to the period/duration of activities associated with the project (OEHHA 2015). After proposed construction is completed, there would be no long-term source of TAC emissions during operation.

However, as a precautionary measure, an HRA for Plant 1, Plant 2, and joint plant projects was performed to evaluate the risk from diesel exhaust emissions on existing sensitive receptors from construction activities. As explained previously, collection system projects are not anticipated to require intensive construction activities or occur over a long period of time, and based on the anticipated duration of construction, the intensity of construction, and the location of nearby sensitive receptors, the Plant 1 and

Plant 2, plus joint plant projects, represent the maximum condition for the construction HRA. The HRA methodology was described in Section 4.2.3.2, and the detailed assessment is provided in Appendix D. Table 4.2-23 summarizes the results of the HRA for project construction.

Table 4.2-23. Project Construction Health Risk – Unmitigated

Receptor	Cancer Risk (persons per million)	Chronic Impact
Maximally Exposed Individual Resident[1]	46.2	0.01
SCAQMD Significance Criteria	10	1.0
Exceed Threshold?	**Yes**	**No**

Source: Appendix D.
Notes: SCAQMD = South Coast Air Quality Management District; TAC = toxic air contaminant; AERMOD = American Meteorological Society/Environmental Protection Agency Regulatory Model; HARP2 = Hotspots Analysis and Reporting Program Version 2.
TAC exposure at receptors modeled with AERMOD, which were then input into HARP2 to generate health risk estimates. Exposure was assumed to begin in the third trimester of pregnancy for a duration of 20 years.
1 The maximally exposed individual resident for annual cancer and chronic health risk impacts is located west of the Plant 2 site at UTM coordinates 411227.04 meters Easting/3723000.34 meters Northing

As shown in Table 4.2-23, the incremental cancer risk at the maximally exposed individual resident of 46.2 in 1 million (assuming exposure starts in third trimester of pregnancy) from proposed project construction would exceed the SCAQMD threshold of 10 in 1 million without mitigation. As such, impacts would be potentially significant and **MM-AQ-1** is required.

Regarding the construction HRA, **MM-AQ-1** would also be implemented to reduce project-generated exhaust PM_{10} (DPM) emissions. The maximally exposed receptor would be the nearest existing residence to the west of the Plant 2 site. Potential health risk at the maximally exposed individual resident resulting from proposed construction activities with incorporation of **MM-AQ-1** is shown in Table 4.2-24. As previously discussed, this is highly conservative, as the highest year of emissions was applied to the entire exposure duration.

Table 4.2-24. Project Construction Health Risk – Mitigated

Receptor	Cancer Risk (persons per million)	Chronic Impact
Maximally Exposed Individual Resident[1,2]	7.3	0.002
SCAQMD Significance Criteria	10	1.0
Exceed Threshold?	**No**	**No**

Source: Appendix D.
Notes: SCAQMD = South Coast Air Quality Management District; TAC = toxic air contaminant.
TAC exposure at receptors modeled with AERMOD, which were then input into HARP2 to generate health risk estimates. Exposure was assumed to begin in the third trimester of pregnancy for a duration of 20 years.
1 The maximally exposed individual resident for annual cancer and chronic health risk impacts is located west of the Plant 2 site at UTM coordinates 411227.04 meter Easting / 3723000.34 meters Northing
2 Mitigated emissions include implementation of MM-AQ-1.

As shown in Table 4.2-24, with incorporation of higher-tier engines during construction, as included in **MM-AQ-1**, the proposed project would result in an incremental cancer risk of 7.3 in 1 million. The mitigated chronic hazard index would be 0.002 at the maximally exposed individual resident, which would be below the SCAQMD threshold of 1.0. Project health risk impacts associated with construction would, thus, be less than significant with mitigation.

Operation

Following completion of proposed construction activities, project-related TAC emissions would cease. Health impacts associated with TACs are generally associated with long-term exposure and there are no meaningful sources of TACs for the operating phase of the project; therefore, there are no anticipated health impacts related to operational TACs. Because no operational TACs are anticipated to occur as a result of operation of the project, impacts would be less than significant.

Health Effects of Criteria Air Pollutants

Construction emissions of the proposed project would exceed the SCAQMD threshold for NO_x; for all other criteria air pollutants, including VOC, CO, SO_x, PM_{10}, and $PM_{2.5}$, construction emissions would not exceed relevant thresholds. The proposed project is not anticipated to result in a net increase in operational emissions.

As discussed in Section 4.2.1 under the heading "Pollutants and Effects," health effects associated with O_3 include respiratory symptoms, worsening of lung disease leading to premature death, and damage to lung tissue (CARB 2019b). VOCs and NO_x are precursors to O_3, for which the SCAB is designated as nonattainment with respect to the NAAQS and CAAQS. The contribution of VOCs and NO_x to regional ambient O_3 concentrations is the result of complex photochemistry. The increases in O_3 concentrations in the SCAB due to O_3 precursor emissions tend to be found downwind of the source location because of the time required for the photochemical reactions to occur. Further, the potential for exacerbating excessive O_3 concentrations would also depend on the time of year that the VOC emissions would occur, because exceedances of the O_3 NAAQS and CAAQS tend to occur between April and October when solar radiation is highest. Due to the lack of quantitative methods to assess this complex photochemistry, the holistic effect of a single project's emissions of O_3 precursors is speculative. That being said, because the proposed project would exceed the SCAQMD NO_x threshold during project construction, the project could contribute to health effects associated with O_3.

Health effects associated with NO_x and NO_2 include lung irritation and enhanced allergic responses (see Section 4.2.1.2) (CARB 2019b). Although project-related NO_x emissions would exceed the SCAQMD construction mass daily thresholds, because the SCAB is a designated attainment area for NO_2 (and NO_2 is a constituent of NO_x) and the existing NO_2 concentrations in the area are well below the NAAQS and CAAQS standards,[12] it is not anticipated that the project would cause an exceedance of the NAAQS and CAAQS for NO_2 or result in potential health effects associated with NO_2 and NO_x. Nonetheless, because the proposed project would exceed the SCAQMD NO_x threshold during project construction, the project could contribute to health effects associated with NO_x and NO_2.

[12] See Table 4.2-3, which shows that ambient concentrations of NO_2 at the West Vermont Street monitoring station have not exceeded the NAAQS or CAAQS between 2016 and 2018.

Health effects associated with CO include chest pain in patients with heart disease, headache, light-headedness, and reduced mental alertness (see Section 4.2.1.2) (CARB 2019b). CO tends to be a localized impact associated with congested intersections. The potential for CO hotspots was previously discussed and determined to be less than significant. Thus, the proposed project's CO emissions would not contribute to significant health effects associated with CO.

Health effects associated with PM_{10} include premature death and hospitalization, primarily for worsening of respiratory disease (see Section 4.2.1.2) (CARB 2019b). Construction of the proposed project would not exceed mass daily thresholds for PM_{10} or $PM_{2.5}$, would not contribute to exceedances of the NAAQS and CAAQS for particulate matter, and would not obstruct the SCAB from coming into attainment for these pollutants. Additionally, the project would be required to comply with SCAQMD Rule 403, which limits the amount of fugitive dust generated during construction. Because the proposed project would not exceed the SCAQMD mass daily construction thresholds for PM_{10} and $PM_{2.5}$, the project is not anticipated to result in health effects associated with PM_{10} or $PM_{2.5}$.

In summary, construction and operation of the proposed project would not result in exceedances of the SCAQMD significance thresholds for VOC, CO, SO_x, PM_{10}, and $PM_{2.5}$; however, because the project would exceed the SCAQMD construction threshold for NO_x, potential health effects associated with O_3 and NO_x are potentially significant and **MM-AQ-1** is required.

As shown in Table 4.2-17, with implementation of **MM-AQ-1** project-generated construction emissions are less than the SCAQMD mass daily thresholds for all pollutants; therefore, impacts would be less than significant with mitigation.

The California Supreme Court's *Sierra Club v. County of Fresno* (2018) 6 Cal. 5th 502 decision (referred to herein as the Friant Ranch decision) (issued on December 24, 2018), addresses the need to correlate mass emission values for criteria air pollutants to specific health consequences, and contains the following direction from the California Supreme Court: "The Environmental Impact Report (EIR) must provide an adequate analysis to inform the public how its bare numbers translate to create potential adverse impacts or it must explain what the agency *does* know and why, given existing scientific constraints, it cannot translate potential health impacts further." (Italics original.) (Sierra Club v. County of Fresno 2018.) Currently, SCAQMD, CARB, and EPA have not approved a quantitative method to reliably, meaningfully, and consistently translate the mass emission estimates for the criteria air pollutants resulting from the proposed project to specific health effects. In addition, there are numerous scientific and technological complexities associated with correlating criteria air pollutant emissions from an individual project to specific health effects or potential additional nonattainment days.

In connection with the judicial proceedings culminating in issuance of the Friant Ranch decision, the SCAQMD and the San Joaquin Valley Air Pollution Control District (SJVAPCD) filed amicus briefs attesting to the extreme difficulty of correlating an individual project's criteria air pollutant emissions to specific health impacts. Both SJVAPCD and SCAQMD have among the most sophisticated air quality modeling and health impact evaluation capabilities of the air districts in California. The key, relevant points from SCAQMD and SJVAPCD briefs is summarized herein.

In requiring a health impact type of analysis for criteria air pollutants, it is important to understand how O_3 and PM is formed, dispersed and regulated. The formation of O_3 and PM in the atmosphere, as secondary pollutants,[13] involves complex chemical and physical interactions of multiple pollutants from natural and anthropogenic

[13] Air pollutants formed through chemical reactions in the atmosphere are referred to as secondary pollutants.

sources. The O_3 reaction is self-perpetuating (or catalytic) in the presence of sunlight because NO_2 is photochemically reformed from nitric oxide (NO). In this way, O_3 is controlled by both NO_x and VOC emissions (NRC 2005). The complexity of these interacting cycles of pollutants means that incremental decreases in one emission may not result in proportional decreases in O_3 (NRC 2005). Although these reactions and interactions are well understood, variability in emission source operations and meteorology creates uncertainty in the modeled O_3 concentrations to which downwind populations may be exposed (NRC 2005). Once formed, O_3 can be transported long distances by wind and due to atmospheric transport, contributions of precursors from the surrounding region can also be important (EPA 2008). Because of the complexity of O_3 formation, a specific tonnage amount of VOCs or NO_X emitted in a particular area does not equate to a particular concentration of O_3 in that area (SJVAPCD 2015). PM can be divided into two categories: directly emitted PM and secondary PM. Secondary PM, like O_3, is formed via complex chemical reactions in the atmosphere between precursor chemicals such as SO_x and NO_x (SJVAPCD 2015). Because of the complexity of secondary PM formation, including the potential to be transported long distances by wind, the tonnage of PM-forming precursor emissions in an area does not necessarily result in an equivalent concentration of secondary PM in that area (SJVAPCD 2015). This is especially true for individual projects, like the proposed project, where project-generated criteria air pollutant emissions are not derived from a single "point source," but from construction equipment and mobile sources (passenger cars and trucks) driving to, from and around the FMP project sites.

Another important technical nuance is that health effects from air pollutants are related to the concentration of the air pollutant that an individual is exposed to, not necessarily the individual mass quantity of emissions associated with an individual project. For example, health effects from O_3 are correlated with increases in the ambient level of O_3 in the air a person breathes (SCAQMD 2015). However, it takes a large amount of additional precursor emissions to cause a modeled increase in ambient O_3 levels over an entire region (SCAQMD 2015). The lack of link between the tonnage of precursor pollutants and the concentration of O_3 and $PM_{2.5}$ formed is important because it is not necessarily the tonnage of precursor pollutants that causes human health effects; rather, it is the concentration of resulting O_3 that causes these effects (SJVAPCD 2015). Indeed, the ambient air quality standards, which are statutorily required to be set by EPA at levels that are requisite to protect the public health, are established as concentrations of O_3 and $PM_{2.5}$ and not as tonnages of their precursor pollutants (EPA 2018b). Because the ambient air quality standards are focused on achieving a particular concentration region-wide, the tools and plans for attaining the ambient air quality standards are regional in nature. For CEQA analyses, project-generated emissions are typically estimated in pounds per day or tons per year and compared to mass daily or annual emission thresholds. While CEQA thresholds are established at levels that the air basin can accommodate without affecting the attainment date for the AAQS, even if a project exceeds established CEQA significance thresholds, this does not mean that one can easily determine the concentration of O_3 or PM that will be created at or near the project site on a particular day or month of the year, or what specific health impacts will occur (SJVAPCD 2015).

In regard to regional concentrations and air basin attainment, the San Joaquin Valley Air Pollution Control District (SJVAPCD) emphasized that attempting to identify a change in background pollutant concentrations that can be attributed to a single project, even one as large as the entire Friant Ranch Specific Plan, is a theoretical exercise. The SJVAPCD brief noted that it “would be extremely difficult to model the impact on NAAQS attainment that the emissions from the Friant Ranch project may have” (SJVAPCD 2015). The situation is further complicated by the fact that background concentrations of regional pollutants are not uniform either temporally or geographically throughout an air basin, but are constantly fluctuating based

upon meteorology and other environmental factors. SJVAPCD noted that the currently available modeling tools are equipped to model the impact of all emission sources in the San Joaquin Valley Air Basin on attainment (SJVAPCD 2015). The SJVAPCD brief then indicated that, "Running the photochemical grid model used for predicting O_3 attainment with the emissions solely from the Friant Ranch project (which equate to less than one-tenth of one percent of the total NO_x and VOC in the Valley) is not likely to yield valid information given the relative scale involved" (SJVAPCD 2015).

SCAQMD and SJVAPCD have indicated that it is not feasible to quantify project-level health impacts based on existing modeling (SCAQMD 2015; SJVAPCD 2015). Even if a metric could be calculated, it would not be reliable because the models are equipped to model the impact of all emission sources in an air basin on attainment and would likely not yield valid information or a measurable increase in O_3 concentrations sufficient to accurately quantify O_3-related health impacts for an individual project.

Nonetheless, following the Supreme Court's Friant Ranch decision, some EIRs where estimated criteria air pollutant emissions exceeded applicable air district thresholds have included a quantitative analysis of potential project-generated health effects using a combination of a regional photochemical grid model (PGM)[14] and the EPA Benefits Mapping and Analysis Program (BenMAP or BenMAP–Community Edition [CE])[15]. The publicly available health impact assessments (HIAs) typically present results in terms of an increase in health incidences and/or the increase in background health incidence for various health outcomes resulting from the project's estimated increase in concentrations of O_3 and $PM_{2.5}$.[16] To date, the five publicly available HIAs reviewed herein have concluded that the evaluated project's health effects associated with the estimated project-generated increase in concentrations of O_3 and $PM_{2.5}$ represent a small increase in incidences and a very small percent of the number of background incidences, indicating that these health impacts are negligible and potentially within the models' margin of error. It is also important to note that while the results of the five available HIAs conclude that the project emissions do not result in a substantial increase in health incidences, the estimated emissions and assumed toxicity is also conservatively inputted into the HIA and thus, overestimate health incidences, particularly for $PM_{2.5}$.

As explained in the SJVAPCD brief and noted previously, running the PGM used for predicting O_3 attainment with the emissions solely from an individual project like the Friant Ranch project or the proposed project is not likely to yield valid information given the relative scale involved. The five examples reviewed support the SJVAPCD's brief contention that consistent, reliable, and meaningful results may not be provided by methods applied at this time. Accordingly, additional work in the industry and more importantly, air district participation, is needed to develop a more meaningful analysis to correlate project-level mass criteria air

14 The first step in the publicly available HIAs includes running a regional PGM, such as the Community Multiscale Air Quality (CMAQ) model or the Comprehensive Air Quality Model with extensions (CAMx) to estimate the increase in concentrations of O_3 and $PM_{2.5}$ as a result of project-generated emissions of criteria and precursor pollutants. Air districts, such as the SCAQMD, use photochemical air quality models for regional air quality planning. These photochemical models are large-scale air quality models that simulate the changes of pollutant concentrations in the atmosphere using a set of mathematical equations characterizing the chemical and physical processes in the atmosphere (EPA 2017).

15 After estimating the increase in concentrations of O_3 and $PM_{2.5}$, the second step in the five examples includes use of BenMAP or BenMAP-CE to estimate the resulting associated health effects. BenMAP estimates the number of health incidences resulting from changes in air pollution concentrations (EPA 2018c). The health impact function in BenMAP-CE incorporates four key sources of data: (i) modeled or monitored air quality changes, (ii) population, (iii) baseline incidence rates, and (iv) an effect estimate. All of the five example HIAs focused on O_3 and $PM_{2.5}$.

16 The following CEQA documents included a quantitative HIA to address Friant Ranch: (1) California State University Dominguez Hills 2018 Campus Master Plan EIR (CSU Dominguez Hills 2019), (2) March Joint Powers Association K4 Warehouse and Cactus Channel Improvements EIR (March JPA 2019), (3) Mineta San Jose Airport Amendment to the Airport Master Plan EIR (City of San Jose 2019), (4) City of Inglewood Basketball and Entertainment Center Project EIR (City of Inglewood 2019), and (5) San Diego State University Mission Valley Campus Master Plan EIR (SDSU 2019).

pollutant emissions and health effects for decision makers and the public. Furthermore, at the time of writing, no HIA has concluded that health effects estimated using the PGM and BenMAP approach are substantial provided that the estimated project-generated incidences represent a very small percent of the number of background incidences, potentially within the models' margin of error.

Of importance, with **MM-AQ-1**, project-generated construction emissions are less than the SCAQMD mass daily thresholds for all pollutants and health effects associated with project-generated criteria air pollutant emissions are less than significant with mitigation.

d) Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Less-than-Significant Impact. The occurrence and severity of potential odor impacts depends on numerous factors. The nature, frequency, and intensity of the source; the wind speeds and direction; and the sensitivity of receiving location each contribute to the intensity of the impact. Although offensive odors seldom cause physical harm, they can be annoying and cause distress among the public and generate citizen complaints.

Odors would be potentially generated from vehicles and equipment exhaust emissions during construction of the project. Potential odors produced during construction would be attributable to concentrations of unburned hydrocarbons from tailpipes of construction equipment, architectural coatings, and asphalt pavement application. Such odors would disperse rapidly from the project site and generally occur at magnitudes that would not affect substantial numbers of people. Therefore, impacts associated with odors during construction would be less than significant. No mitigation is required.

Land uses and industrial operations associated with odor complaints include agricultural uses, wastewater treatment plants, food-processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding (SCAQMD 1993). The projects addressed in this PEIR do not propose appreciable changes to regular operations and maintenance activity by Sanitation District personnel. In addition, the proposed project actually includes construction of odor control systems (i.e., X-014 Trickling Filter Solids - Contact Odor Control and 5-68 Newport Beach Pump Station Odor Control Improvements). Therefore, proposed project operations would result in an odor impact that is less than significant. No mitigation is required.

4.2.5 Mitigation Measures

To reduce criteria air pollutants potentially resulting from FMP project construction, specifically mass daily NO_x emissions and associated regional air quality impacts and PM_{10} and associated LST and health risk (cancer risk) impacts, the Sanitation District shall implement **MM-AQ-1**.

MM-AQ-1 Prior to the commencement of construction activities for each project, the Orange County Sanitation District (Sanitation District) shall require its construction contractor to demonstrate that all 50-horsepower or greater diesel-powered equipment is powered with California Air Resources Board (CARB)-certified Tier 4 Final engines.

An exemption from this requirement may be granted if (1) the Sanitation District documents equipment with Tier 4 Final engines are not reasonably available, and (2) the required corresponding reductions in criteria air pollutant emissions can be achieved for the project from other combinations of construction equipment. Before an exemption may be granted, the Sanitation District's construction contractor shall: (1) demonstrate that at least two construction fleet owners/operators in Orange County were contacted and that those owners/operators confirmed Tier 4 Final equipment could not be located within Orange County during the desired construction schedule; and (2) the proposed replacement equipment has been evaluated using California Emissions Estimator Model (CalEEMod) or other industry standard emission estimation method and documentation provided to the Sanitation District to confirm that project-generated emissions do not exceed applicable South Coast Air Quality Management District (SCAQMD) mass daily thresholds, the applicable SCAQMD localized significance thresholds, or the SCAQMD carcinogenic (cancer) risk threshold.

4.2.6 Level of Significance After Mitigation

With implementation of **MM-AQ-1**, project-level and program-level impacts to air quality would be reduced to a less-than-significant level.

4.2.7 Cumulative Impacts

Cumulative impacts are discussed in detail under Section 4.2.4(b). Maximum daily emissions of NO_x, would exceed the SCAQMD mass daily construction threshold in 11 of the 20 years of construction. However, with implementation of MM-AQ-1, maximum daily NO_x emissions would be reduced below the SCAQMD mass daily construction threshold in all construction years. Therefore, cumulative construction-related impacts would be less than cumulatively considerable with mitigation incorporated. The proposed project would not result in a net increase in operational criteria air pollutant emissions and therefore, cumulative operational-related impacts would be less than cumulatively considerable.

4.2.8 Impact Summary

Table 4.2-25 summarizes the impacts for the FMP projects assessed at the project level at Plant 1, Plant 2, joint plant projects, and collection system projects under each threshold analyzed in this PEIR section.

It is important to note that regional criteria air pollutants emissions are a cumulative impact and the total criteria air pollutant emissions generated from implementation of the project should be considered on the whole instead of at an individual project-level for the evaluation of the potential to conflict with the SCAQMD AQMP and the potential to result in cumulatively considerable net increase of nonattainment criteria pollutants as evaluated in Section 4.2.4. Accordingly, the overall impact determination for the potential for the project to conflict with the SCAQMD AQMP and the potential to result in cumulatively considerable net increase of nonattainment criteria pollutants, as evaluated for the entire project, is applied to all project components in Table 4.2-25. Localized air quality impacts and other emissions, such as odors, can be evaluated at a project-level, as appropriate.

Table 4.2-25. Summary of FMP Project Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
Would the project conflict with or obstruct implementation of the applicable air quality plan?					
Plant 1					
P1-126	Primary Clarifiers Replacements and Improvements	Replace	Significant	MM-AQ-1	Less than Significant
X-093	Administrative Facilities and Power Building 3A Demolition	Misc. (Demo)	Significant	MM-AQ-1	Less than Significant
X-092	Standby Generator Feeders for Plant 1 Secondary Systems	Misc.	Significant	MM-AQ-1	Less than Significant
X-048	Activated Sludge (AS)-1 Aeration Basin and Blower Rehabilitation	Rehab	Significant	MM-AQ-1	Less than Significant
P1-135	Digester Ferric Piping Replacement	Replace	Significant	MM-AQ-1	Less than Significant
X-077	Switchgear Replacement at Central Generation	Replace	Significant	MM-AQ-1	Less than Significant
X-090	Network, Telecommunications, and Service Relocation at Plant 1	Misc.	Significant	MM-AQ-1	Less than Significant
Plant 2					
P2-126	Substation and Warehouse Replacement at Plant 2	Misc.	Significant	MM-AQ-1	Less than Significant
X-050	Activated Sludge (AS) Aeration Basin	Rehab	Significant	MM-AQ-1	Less than Significant
X-032	Truck Loading Facility Rehabilitation	Rehab	Significant	MM-AQ-1	Less than Significant
X-054	Waste Side-Stream Pump Station C Rehabilitation	Rehab	Significant	MM-AQ-1	Less than Significant
X-034	Sodium Bisulfite Station Replacement and Bleach Station Demolition	Replace	Significant	MM-AQ-1	Less than Significant
P2-138	P2-138 Operations and Maintenance Complex at Plant 2	Replace	Significant	MM-AQ-1	Less than Significant
Joint Plant Projects					
J-98	Plantwide Miscellaneous Electrical Power Distribution System Improvements	Replace	Significant	MM-AQ-1	Less than Significant
J-120	Plantwide Miscellaneous Process Control System Upgrades	Replace	Significant	MM-AQ-1	Less than Significant
J-133	Laboratory Rehabilitation or Replacement at Plant 1	Rehab	Significant	MM-AQ-1	Less than Significant
X-057	Plantwide Miscellaneous Yard Structures Rehabilitation or Replacement	Misc.	Significant	MM-AQ-1	Less than Significant
X-058	Plantwide Miscellaneous Yard Piping Replacement	Replace	Significant	MM-AQ-1	Less than Significant
X-059	Plantwide Miscellaneous Tunnels Rehabilitation	Rehab	Significant	MM-AQ-1	Less than Significant

Table 4.2-25. Summary of FMP Project Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
J-121	UPS System Upgrades	Replace	Significant	MM-AQ-1	Less than Significant
X-044	Steve Anderson Lift Station Rehabilitation	Rehab	Significant	MM-AQ-1	Less than Significant
Collection System Projects					
5-68	Newport Beach Pump Station Odor Control Improvements	Misc.	Significant	MM-AQ-1	Less than Significant
X-076	Santa Ana Trunk Sewer Rehabilitation Phase II	Rehab	Significant	MM-AQ-1	Less than Significant
X-082	North Trunk Improvement Project	Replace	Significant	MM-AQ-1	Less than Significant
X-060	Newhope Placentia Chemical Dosing Station	Misc.	Significant	MM-AQ-1	Less than Significant
11-33	Edinger Pumping Station Replacement	Replace	Significant	MM-AQ-1	Less than Significant
X-063	South Santa Ana River Interceptor Connector Rehabilitation	Rehab	Significant	MM-AQ-1	Less than Significant
2-73	Yorba Linda Pump Station Abandonment	Misc.	Significant	MM-AQ-1	Less than Significant
3-67	Seal Beach Pump Station Replacement	Replace	Significant	MM-AQ-1	Less than Significant
2-49	Taft Branch Sewer Improvements	Replace	Significant	MM-AQ-1	Less than Significant
X-083	Greenville–Sullivan Sewer Relief Project	Replace	Significant	MM-AQ-1	Less than Significant
Would the project 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?					
Plant 1					
P1-126	Primary Clarifiers Replacements and Improvements	Replace	Significant	MM-AQ-1	Less than Significant
X-093	Administrative Facilities and Power Building 3A Demolition	Misc. (Demo)	Significant	MM-AQ-1	Less than Significant
X-092	Standby Generator Feeders for Plant 1 Secondary Systems	Misc.	Significant	MM-AQ-1	Less than Significant
X-048	Activated Sludge (AS)-1 Aeration Basin and Blower Rehabilitation	Rehab	Significant	MM-AQ-1	Less than Significant
P1-135	Digester Ferric Piping Replacement	Replace	Significant	MM-AQ-1	Less than Significant
X-077	Switchgear Replacement at Central Generation	Replace	Significant	MM-AQ-1	Less than Significant
X-090	Network, Telecommunications, and Service Relocation at Plant 1	Misc.	Significant	MM-AQ-1	Less than Significant

Table 4.2-25. Summary of FMP Project Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
Plant 2					
P2-126	Substation and Warehouse Replacement at Plant 2	Misc.	Significant	MM-AQ-1	Less than Significant
X-050	Activated Sludge (AS) Aeration Basin	Rehab	Significant	MM-AQ-1	Less than Significant
X-032	Truck Loading Facility Rehabilitation	Rehab	Significant	MM-AQ-1	Less than Significant
X-054	Waste Side-Stream Pump Station C Rehabilitation	Rehab	Significant	MM-AQ-1	Less than Significant
X-034	Sodium Bisulfite Station Replacement and Bleach Station Demolition	Replace	Significant	MM-AQ-1	Less than Significant
P2-138	P2-138 Operations and Maintenance Complex at Plant 2	Replace	Significant	MM-AQ-1	Less than Significant
Joint Plant Projects					
J-98	Plantwide Miscellaneous Electrical Power Distribution System Improvements	Replace	Significant	MM-AQ-1	Less than Significant
J-120	Plantwide Miscellaneous Process Control Systems Upgrades	Replace	Significant	MM-AQ-1	Less than Significant
J-133	Laboratory Rehabilitation or Replacement at Plant 1	Rehab	Significant	MM-AQ-1	Less than Significant
X-057	Plantwide Miscellaneous Yard Structures Rehabilitation or Replacement	Misc.	Significant	MM-AQ-1	Less than Significant
X-058	Plantwide Miscellaneous Yard Piping Replacement	Replace	Significant	MM-AQ-1	Less than Significant
X-059	Plantwide Miscellaneous Tunnels Rehabilitation	Rehab	Significant	MM-AQ-1	Less than Significant
J-121	UPS System Upgrades	Replace	Significant	MM-AQ-1	Less than Significant
X-044	Steve Anderson Lift Station Rehabilitation	Rehab	Significant	MM-AQ-1	Less than Significant
Collection System Projects					
5-68	Newport Beach Pump Station Odor Control Improvements	Misc.	Significant	MM-AQ-1	Less than Significant
X-076	Santa Ana Trunk Sewer Rehabilitation Phase II	Rehab	Significant	MM-AQ-1	Less than Significant
X-082	North Trunk Improvement Project	Replace	Significant	MM-AQ-1	Less than Significant
X-060	Newhope Placentia Chemical Dosing Station	Misc.	Significant	MM-AQ-1	Less than Significant
11-33	Edinger Pumping Station Replacement	Replace	Significant	MM-AQ-1	Less than Significant
X-063	South Santa Ana River Interceptor Connector Rehabilitation	Rehab	Significant	MM-AQ-1	Less than Significant

Table 4.2-25. Summary of FMP Project Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
2-73	Yorba Linda Pump Station Abandonment	Misc.	Significant	MM-AQ-1	Less than Significant
3-67	Seal Beach Pump Station Replacement	Replace	Significant	MM-AQ-1	Less than Significant
2-49	Taft Branch Sewer Improvements	Replace	Significant	MM-AQ-1	Less than Significant
X-083	Greenville–Sullivan Sewer Relief Project	Replace	Significant	MM-AQ-1	Less than Significant
Would the project expose sensitive receptors to substantial pollutant concentrations?					
Plant 1					
P1-126	Primary Clarifiers Replacements and Improvements	Replace	Significant	MM-AQ-1	Less than Significant
X-093	Administrative Facilities and Power Building 3A Demolition	Misc. (Demo)	Significant	MM-AQ-1	Less than Significant
X-092	Standby Generator Feeders for Plant 1 Secondary Systems	Misc.	Significant	MM-AQ-1	Less than Significant
X-048	Activated Sludge (AS)-1 Aeration Basin and Blower Rehabilitation	Rehab	Significant	MM-AQ-1	Less than Significant
P1-135	Digester Ferric Piping Replacement	Replace	Significant	MM-AQ-1	Less than Significant
X-077	Switchgear Replacement at Central Generation	Replace	Significant	MM-AQ-1	Less than Significant
X-090	Network, Telecommunications, and Service Relocation at Plant 1	Misc.	Significant	MM-AQ-1	Less than Significant
Plant 2					
P2-126	Substation and Warehouse Replacement at Plant 2	Misc.	Significant	MM-AQ-1	Less than Significant
X-050	Activated Sludge (AS) Aeration Basin	Rehab	Significant	MM-AQ-1	Less than Significant
X-032	Truck Loading Facility Rehabilitation	Rehab	Significant	MM-AQ-1	Less than Significant
X-054	Waste Side-Stream Pump Station C Rehabilitation	Rehab	Significant	MM-AQ-1	Less than Significant
X-034	Sodium Bisulfite Station Replacement and Bleach Station Demolition	Replace	Significant	MM-AQ-1	Less than Significant
P2-138	P2-138 Operations and Maintenance Complex at Plant 2	Replace	Significant	MM-AQ-1	Less than Significant
Joint Plant Projects					
J-98	Plantwide Miscellaneous Electrical Power Distribution System Improvements	Replace	Significant	MM-AQ-1	Less than Significant
J-120	Plantwide Miscellaneous Process Control Systems Upgrades	Replace	Significant	MM-AQ-1	Less than Significant

Table 4.2-25. Summary of FMP Project Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
J-133	Laboratory Rehabilitation or Replacement at Plant 1	Rehab	Significant	MM-AQ-1	Less than Significant
X-057	Plantwide Miscellaneous Yard Structures Rehabilitation or Replacement	Misc.	Significant	MM-AQ-1	Less than Significant
X-058	Plantwide Miscellaneous Yard Piping Replacement	Replace	Significant	MM-AQ-1	Less than Significant
X-059	Plantwide Miscellaneous Tunnels Rehabilitation	Rehab	Significant	MM-AQ-1	Less than Significant
J-121	UPS System Upgrades	Replace	Significant	MM-AQ-1	Less than Significant
X-044	Steve Anderson Lift Station Rehabilitation	Rehab	Significant	MM-AQ-1	Less than Significant
Collection System Projects					
5-68	Newport Beach Pump Station Odor Control Improvements	Misc.	Significant	MM-AQ-1	Less than Significant
X-076	Santa Ana Trunk Sewer Rehabilitation Phase II	Rehab	Significant	MM-AQ-1	Less than Significant
X-082	North Trunk Improvement Project	Replace	Significant	MM-AQ-1	Less than Significant
X-060	Newhope Placentia Chemical Dosing Station	Misc.	Significant	MM-AQ-1	Less than Significant
11-33	Edinger Pumping Station Replacement	Replace	Significant	MM-AQ-1	Less than Significant
X-063	South Santa Ana River Interceptor Connector Rehabilitation	Rehab	Significant	MM-AQ-1	Less than Significant
2-73	Yorba Linda Pump Station Abandonment	Misc.	Significant	MM-AQ-1	Less than Significant
3-67	Seal Beach Pump Station Replacement	Replace	Significant	MM-AQ-1	Less than Significant
2-49	Taft Branch Sewer Improvements	Replace	Significant	MM-AQ-1	Less than Significant
X-083	Greenville–Sullivan Sewer Relief Project	Replace	Significant	MM-AQ-1	Less than Significant
Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?					
Plant 1					
P1-126	Primary Clarifiers Replacements and Improvements	Replace	Less than Significant	—	Less than Significant
X-093	Administrative Facilities and Power Building 3A Demolition	Misc. (Demo)	Less than Significant	—	Less than Significant
X-092	Standby Generator Feeders for Plant 1 Secondary Systems	Misc.	Less than Significant	—	Less than Significant

Table 4.2-25. Summary of FMP Project Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
X-048	Activated Sludge (AS)-1 Aeration Basin and Blower Rehabilitation	Rehab	Less than Significant	—	Less than Significant
P1-135	Digester Ferric Piping Replacement	Replace	Less than Significant	—	Less than Significant
X-077	Switchgear Replacement at Central Generation	Replace	Less than Significant	—	Less than Significant
X-090	Network, Telecommunications, and Service Relocation at Plant 1	Misc.	Less than Significant	—	Less than Significant
Plant 2					
P2-126	Substation and Warehouse Replacement at Plant 2	Misc.	Less than Significant	—	Less than Significant
X-050	Activated Sludge (AS) Aeration Basin	Rehab	Less than Significant	—	Less than Significant
X-032	Truck Loading Facility Rehabilitation	Rehab	Less than Significant	—	Less than Significant
X-054	Waste Side-Stream Pump Station C Rehabilitation	Rehab	Less than Significant	—	Less than Significant
X-034	Sodium Bisulfite Station Replacement and Bleach Station Demolition	Replace	Less than Significant	—	Less than Significant
P2-138	P2-138 Operations and Maintenance Complex at Plant 2	Replace	Less than Significant	—	Less than Significant
Joint Plant Projects					
J-98	Plantwide Miscellaneous Electrical Power Distribution System Improvements	Replace	Less than Significant	—	Less than Significant
J-120	Plantwide Miscellaneous Process Control System Upgrades	Replace	Less than Significant	—	Less than Significant
J-133	Laboratory Rehabilitation or Replacement at Plant 1	Rehab	Less than Significant	—	Less than Significant
X-057	Plantwide Miscellaneous Yard Structures Rehabilitation or Replacement	Misc.	Less than Significant	—	Less than Significant
X-058	Plantwide Miscellaneous Yard Piping Replacement	Replace	Less than Significant	—	Less than Significant
X-059	Plantwide Miscellaneous Tunnels Rehabilitation	Rehab	Less than Significant	—	Less than Significant
J-121	UPS System Upgrades	Replace	Less than Significant	—	Less than Significant
X-044	Steve Anderson Lift Station Rehabilitation	Rehab	Less than Significant	—	Less than Significant
Collection System Projects					
5-68	Newport Beach Pump Station Odor Control Improvements	Misc.	Less than Significant	—	Less than Significant

Table 4.2-25. Summary of FMP Project Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
X-076	Santa Ana Trunk Sewer Rehabilitation Phase II	Rehab	Less than Significant	—	Less than Significant
X-082	North Trunk Improvement Project	Replace	Less than Significant	—	Less than Significant
X-060	Newhope Placentia Chemical Dosing Station	Misc.	Less than Significant	—	Less than Significant
11-33	Edinger Pumping Station Replacement	Replace	Less than Significant	—	Less than Significant
X-063	South Santa Ana River Interceptor Connector Rehabilitation	Rehab	Less than Significant	—	Less than Significant
2-73	Yorba Linda Pump Station Abandonment	Misc.	Less than Significant	—	Less than Significant
3-67	Seal Beach Pump Station Replacement	Replace	Less than Significant	—	Less than Significant
2-49	Taft Branch Sewer Improvements	Replace	Less than Significant	—	Less than Significant
X-083	Greenville–Sullivan Sewer Relief Project	Replace	Less than Significant	—	Less than Significant

Note: UPS = uninterruptible power system.

4.2.9 References

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4.3 Biological Resources

This section describes the existing visual conditions of the Facilities Master Plan (FMP) area and vicinity, identifies associated regulatory requirements, evaluates potential impacts, and identifies mitigation measures to reduce impacts related to implementation of the proposed FMP. The biological resources discussed in this chapter were determined to occur within the study area for the FMP, which is defined as the FMP collection system alignments, facilities, and a 100-foot buffer, through a desktop analysis of the existing conditions and evaluation of potential for the FMP to result in significant impacts to sensitive biological resources. The desktop analysis also included a database review of previously recorded special-status species in the vicinity of the study area. This section addresses potential impacts to candidate, sensitive, or special-status species as identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife (CDFW) or U.S. Fish and Wildlife Service (USFWS), resulting from implementation of the proposed FMP and project-level activities for the FMP. The location in which the projects in the FMP would occur is the FMP area.

4.3.1 Existing Conditions

4.3.1.1 Regional Setting

The FMP area is regionally located within the Peninsular Range between the Pacific Ocean and the Santa Ana Mountains. The FMP area includes the central, northern, and western portions of the urban and suburban areas of Orange County that are connected to the Los Angeles basin. Regionally, the climate is Mediterranean and characterized by mild, dry summers and wet winters. Average temperatures near Newport Beach range from approximately 55° Fahrenheit (F) to 68°F, and near Yorba Linda range from 53°F to 77°F, and the area generally receives an average rainfall of less than 11 inches per year (WRCC 2020). The regional topography is relatively flat but gradually slopes up to the northeast, with an elevation that ranges from sea level at the Pacific Ocean to approximately 600 feet above mean sea level at the foothills of the Santa Ana Mountains.

4.3.1.2 Project Setting

The FMP area is the Orange County Sanitation District (Sanitation District) service area of approximately 479 square miles throughout the northwestern and central portions of Orange County. The FMP is composed of four different areas: Reclamation Plant No. 1 (Plant 1) facility improvements, Treatment Plant No. 2 (Plant 2) facility improvements, joint plant improvements at Plant 1 and Plant 2, and collection system improvements. The study area is generally characterized by urbanized and developed areas with ornamental landscapes, and minimal native scrub habitats. The setting for each project area is described in further detail below.

Reclamation Plant No. 1 Facility Improvements

Plant 1 is bordered by the Santa Ana River to the east, Interstate 405 and Ellis Avenue to the north, Ward Street to the west, and Garfield Avenue to the south. Plant 1 is entirely developed with buildings, infrastructure, and access roads. No significant topographic features occur within Plant 1. The vast majority of the soils on site have been significantly altered due to compaction and construction of the facility, and the only vegetation that exists on site consists of ornamental landscaped sod grass, shrubs, and trees such as gum (*Eucalyptus* sp.), pine (*Pinus* sp.), and pepper (*Schinus* sp.).

Treatment Plant No. 2 Facility Improvements

Plant 2 is approximately 3 miles south of Plant 1 and is bordered by the Santa Ana River to the east, Hamilton Avenue to the north, Brookhurst Street to the west, and Pacific Coast Highway to the south. Similar to Plant 1, Plant 2 is entirely developed with buildings, infrastructure, and access roads. The vast majority of the soils on site have been significantly altered due to compaction and construction of the facility, and the only vegetation that exists on site consists of ornamental landscaped sod grass, shrubs, and trees such as gum.

Joint Plant Improvements

The project area for the joint plant improvements occurs entirely within Plant 1 and Plant 2, which are described above. These projects would occur within the developed areas of both plants that are characterized by concrete and asphalt, with ornamental grass sod, shrubs, and trees.

Collection System Improvements

The collection system improvements study areas are throughout the Sanitation District service area within the 20 cities of Orange County. These projects would variously include the replacement or rehabilitation of pipeline and pump stations. Most facilities are located on existing roads and District rights-of-way (ROW) traversing developed and disturbed areas with some ornamental landscaping and minimal natural vegetation communities including California bush sunflower (*Encelia californica*) and California sagebrush (A*rtemisia californica*).

Topography

Topography within the FMP area is relatively flat with an elevation range of sea level at the Pacific Ocean with a gradual ascent towards the Santa Ana Mountains at an elevation of approximately 600 feet above mean sea level (USGS 2020a). The significant topographic features within the FMP area include the Santa Ana River, the Newport Back Bay estuary that connects to San Diego Creek and the Peters Canyon Channel, the San Joaquin Hills, the Bolsa Chica Wetlands, Huntington Harbor, Coyote Hills, and Imperial Hills. The FMP area is surrounded by the Santa Ana Mountains, the Cleveland National Forest, the San Gabriel River, and the Puente Hills.

Soils

The U.S Department of Agriculture Natural Resources Conservation Service maps the study area as containing several soil types including the following: Metz loamy sand, Bolsa silt loam, Hueneme fine sandy loam, Omni silt loam, San Emigdio fine sandy loam, Modjeska gravelly loam, Myford sandy loam, Mocho loam, Sorrento clay loam, Corralitos loamy sand, Xeralphic arents, Soboba gravelly loamy sand, Cropley clay, Alo clay, Nacimiento clay loam, Calleguas clay loam, and Balcom clay loam (USDA 2019). The following land use types were also mapped within the study area riverwash, pits, and beaches. According to the Natural Resources Conservation Service, all of the soil types listed above are considered hydric soils in Orange County except for the following soil series: San Emigdio, Modjeska, Mocho, Xeralphic arents, Alo, Nacimiento, Calleguas, and Balcom. The observed surface soils throughout the majority of the study area show evidence of previous and continued disturbance from previous construction of facilities, roads, and ROWs. The previous grading and compaction of the natural soil horizons has significantly altered the natural soil composition; therefore, the vast majority of the mapped soils in the study area do not exhibit typical soil characteristics. The soils mapped within the FMP projects included in the study area are presented below in Table 4.3-1.

Table 4.3-1. Soils Mapped within the Study Area

FMP Projects	Project Number[a]	Soil Map Unit
Plant 1 Improvements	P1-126	Metz loamy sand, moderately fine substratum Bolsa silt loam, drained Hueneme fine sandy loam, drained Riverwash
	X-093	
	X-092	
	X-048	
	P1-135	
	X-077	
	X-017	
	X-038	
	P1-127	
	X-049	
	X-015	
	X-006	
	X-079	
	X-039	
	X-018	
	X-043	
	X-090	
Plant 2 Improvements	P2-126	Bolsa silt loam, drained Riverwash Tidal flats
	P2-138	
	X-050	
	X-032	
	X-054	
	X-034	
	X-007	
	P2-119	
	X-036	
	X-037	
	X-052	
	X-030	
	X-031	
	X-014	
Joint Plant Improvements	J-98	Metz loamy sand, moderately fine substratum Bolsa silt loam, drained Hueneme fine sandy loam, drained Bolsa silt loam, drained Riverwash Tidal flats
	J-120	
	J-133	
	X-057	
	X-058	
	X-059	
	J-121	
	X-044	
Collection System Improvements	X-076	Metz loamy sand, moderately fine substratum Hueneme fine sandy loam, drained Omni silt loam, drained Bolsa silt loam, drained Riverwash
	X-082	San Emigdio fine sandy loam, 0% to 2% slopes Modjeska gravelly loam, 0% to 2% slopes Myford sandy loam, 0% to 2% slopes
	X-060	Mocho loam, 0% to 2% slopes
	11-33	Bolsa silty clay loam, drained

Table 4.3-1. Soils Mapped within the Study Area

FMP Projects	Project Number[a]	Soil Map Unit
	X-063	Metz loamy sand Metz loamy sand, moderately fine substratum Corralitos loamy sand Myford fine sandy loam, 9% to 30% slopes eroded Mocho loam, 2% to 9% slopes Riverwash
	3-67	Bolsa silty clay loam, drained
	2-49	Myford sandy loam, thick surface, 0% to 2% slopes Sorrento clay loam, 2% to 9% slopes
	X-083	Bolsa silt loam, drained Hueneme fine sandy loam, drained
	7-66	Chino silty clay loam Omni clay, drained
	7-65	Myford sandy loam, 2% to 9% slopes Omni clay, drained
	7-68	Myford sandy loam, 2% to 9% slopes Myford sandy loam, thick surface, 0% to 2% slopes Xeralfic arents, loamy, 9% to 15% slopes
	X-026	Myford sandy loam, 2% to 9% slopes Omni clay, drained
	X-071	Omni clay, drained Bolsa silty clay loam, drained
	X-065	Soboba gravelly loamy sand, 0% to 5% slopes San Emigdio fine sandy loam, 0% to 2% slopes Pits
	3-68	Bolsa silty loam, drained Bolsa silty clay loam, drained
	X-067 (X-085)	Bolsa silty loam, drained Metz loamy sand Hueneme fine sandy loam, drained San Emigdio fine sandy loam, 0% to 2% slopes
	X-066	Cropley clay, 0% to 2% slopes Myford sandy loam, (thick surface) 2% to 15% slopes Alo clay, 9% to 15% slopes
	X-061	Myford sandy loam, 9% to 30% slopes, eroded Nacimiento clay loam, 15% to 30% slopes Sorrento clay loam, 0% to 2% slopes
	X-068	Cropley clay, 0% to 2% slopes Myford sandy loam, 0% to 2% slopes
	7-67	Myford sandy loam, (thick surface) 2% to 9% slopes Omni clay, drained
	X-023	Beaches
	X-084	San emigdio fine sandy loam, 0% to 2% slopes Mocho loam, 0% to 2% slopes
	X-086	Metz loamy sand Corralitos loamy sand Pits
	X-022	Beaches

Table 4.3-1. Soils Mapped within the Study Area

FMP Projects	Project Number[a]	Soil Map Unit
	X-040	Omni clay, drained
	11-34	Bolsa silty clay loam (drained)
	7-64	Omni clay, drained
	7-63	Xeralfic arents, loamy, 9% to 15% slopes Pits
	X-024	Calleguas clay loam, 50% to 75% slopes, eroded Beaches
	X-041	Beaches
	5-66	Balcom clay loam, 9% to 50% slopes
	X-025	Beaches

Source: NRCS Web Soil Survey (USDA 2019).
Note:
[a] Projects excluded include 5-68 (odor control) and X-078 (air jumpers), since these occur across the Newport Beach pump stations and the FMP area, respectively.

Vegetation Communities and Land Covers

The vast majority of the study area is characterized by developed land associated with the urban and suburban areas of Orange County as depicted on the Figure 4.3 series, which shows Grids A7 through N6. The majority of the proposed FMP's collection systems will occur within public ROW and both Plant 1 and Plant 2 occur within existing developed land with associated ornamental vegetation. The dominant vegetation community is landscaped ornamental vegetation that predominantly consists of non-native species. However, there are two project areas that contain native species that are either naturally occurring or were planted as part of restoration activities. These vegetation communities and land cover types are described in this section for each plant area and are depicted on Figure 4.3-1 through 4.3-47. Table 4.3-2 summarizes the mapped extent of each vegetation community or land cover within the study area for each of the FMP projects. Projects are listed for joint plant improvements but the vegetation communities and land covers within this series of projects is the same for those listed individually for Plant 1 and Plant 2.

The sensitive natural communities known to occur in the region include Southern California Arroyo Chub/Santa Ana Sucker Stream, Southern Cottonwood Willow Riparian Forest, Southern Foredunes, Southern Coast Live Oak Riparian Forest, Valley Needlegrass Grassland, Southern Dune Scrub, and Southern Coastal Salt Marsh. Southern California Arroyo Chub/Santa Ana Sucker Stream occurs within portions of the study area adjacent to the Santa Ana River including Plant 1 and Plant 2, and Southern Coastal Salt Marsh occurs adjacent to Plant 2. However, none of these sensitive natural communities occur within the project boundaries of any of the FMP projects.

Table 4.3-2. Vegetation Communities and Land Covers within the Study Area

FMP Projects	Project Number	Vegetation Community or Land Cover	Map Code	Study Area	
				Project Site (acres)	*100-Foot Buffer (acres)*
Plant 1 Improvements[a]	P1-126	Urban/Developed	DEV	109.9	13.89
	X-093				
	X-092				

Table 4.3-2. Vegetation Communities and Land Covers within the Study Area

FMP Projects	Project Number	Vegetation Community or Land Cover	Map Code	Study Area	
				Project Site (acres)	*100-Foot Buffer (acres)*
	X-048				
	P1-135				
	X-077	Parks and Ornamental Plantings	ORN	0.0	0.0
	X-017				
	X-038				
	P1-127				
	X-049				
	X-015	Non-Vegetated Channel	NVC	0.0	5.22
	X-006				
	X-079				
	X-039				
	X-018				
	X-043				
			Plant 1 Improvements Subtotal	*109.90*	*19.11*
Plant 2 Improvements[a]	P2-126	Urban/Developed	DEV	110.90	22.45
	P2-138				
	X-050				
	X-032				
	X-054				
	X-034				
	X-090	Open Water	OW	0.0	5.79
	X-007				
	P2-119				
	X-036				
	X-037	Quailbush	Atrlen	0.0	0.26
	X-052				
	X-030				
	X-031				
	X-014				
			Plant 2 Improvements Subtotal	*110.90*	*28.50*
Joint Plant Improvements	J-98	Same as Plant 1 and Plant 2 above	—	—	—
	J-120				
	J-133				
	X-057				
	X-058				
	X-059				
	J-121				
	X-044				
			Joint Plant Improvements Subtotal	—	—
	X-076	Non-Vegetated Channel	NVC	0.36	1.76
		Parks and Ornamental Plantings	ORN	0.18	1.26
		Urban/Developed	DEV	13.06	66.84
	X-082	Urban/Developed	DEV	5.83	30.04
	X-060	Urban/Developed	DEV	0.04	1.14
	11-33	Urban/Developed	DEV	0.03	0.15

Table 4.3-2. Vegetation Communities and Land Covers within the Study Area

FMP Projects	Project Number	Vegetation Community or Land Cover	Map Code	Study Area	
				Project Site (acres)	*100-Foot Buffer (acres)*
	X-063	Urban/Developed	DEV	0.81	2.58
	3-67	Parks and Ornamental Plantings	ORN	0.0	0.03
		Urban/Developed	DEV	0.03	0.63
	2-49	Urban/Developed	DEV	8.76	44.74
	X-083	Urban/Developed	DEV	14.71	73.58
	7-66	Urban/Developed	DEV	6.62	34.04
	7-65	Parks and Ornamental Plantings	ORN	1.96	7.54
		Urban/Developed	DEV	13.90	72.13
	7-68	Urban/Developed	DEV	1.83	9.68
	X-026	Parks and Ornamental Plantings	ORN	0.0	1.33
		Urban/Developed	DEV	5.78	4.68
	X-071	Open Water	OW	0.0	3.68
		Parks and Ornamental Plantings	ORN	0.0	0.97
		Urban/Developed	DEV	6.99	33.77
	X-065	Disturbed Habitat	DH	0.0	1.41
		Urban/Developed	DEV	1.65	8.60
	3-68	General Agriculture	AGR	0.0	2.84
		Parks and Ornamental Plantings	ORN	0.0	3.49
		Urban/Developed	DEV	5.19	20.18
	X-067 (X-085)	Urban/Developed	DEV	9.00	51.10
	X-066	Arroyo Willow	Sallas	1.20	3.33
		Disturbed Habitat	DH	0.22	2.62
		Parks and Ornamental Plantings	ORN	0.07	0.26
		Urban/Developed	DEV	1.88	13.29
	X-061	Urban/Developed	DEV	5.67	30.30
	X-068	Urban/Developed	DEV	1.40	8.79
	7-67	Urban/Developed	DEV	6.20	26.76
	X-023	Urban/Developed	DEV	0.01	0.95
	X-084	Urban/Developed	DEV	20.88	4.05
	X-086	California Brittle Bush-California Sagebrush	Enccal-Artcal	0.0	4.25
		Parks and Ornamental Plantings	ORN	0.02	9.90
		Urban/Developed	DEV	13.02	60.67
	X-022	Urban/Developed	DEV	0.01	0.97
	X-040	Urban/Developed	DEV	0.02	0.0
	11-34	Urban/Developed	DEV	0.03	1.05

Table 4.3-2. Vegetation Communities and Land Covers within the Study Area

FMP Projects	Project Number	Vegetation Community or Land Cover	Map Code	Study Area	
				Project Site (acres)	*100-Foot Buffer (acres)*
	7-64	Urban/Developed	DEV	0.05	0.65
	7-63	Urban/Developed	DEV	0.01	0.40
	X-024	Urban/Developed	DEV	0.02	1.00
	X-041	Urban/Developed	DEV	0.01	0.93
	5-66	Parks and Ornamental Plantings	ORN	0.0	0.78
		Urban/Developed	DEV	0.02	0.20
	X-025	Urban/Developed	DEV	0.06	1.35
Collection System Improvements Subtotal				*147.53*	*650.69*
Vegetation Communities and Land Covers Total				**368.33**	**698.30**

Note:
[a] Vegetation Communities and Land Covers are listed for Plant 1 and Plant 2 projects collectively, not for individual projects.

Shrubland Alliances and Stands

Coastal Sage Scrub

California Brittle Bush-California Sagebrush Association

The California Brittle Bush-California sagebrush association (*Encelia californica-Artemisia californica*) includes bush sunflower and California sagebrush as the co-dominant shrubs in the canopy. This association has a continuous or intermittent shrub canopy less than 7 feet (2 meters) in height with a variable ground layer that may be grassy (Sawyer et al. 2009). Species typically observed within this association include Common yarrow (*Achillea millefolium*), black sage (*Salvia mellifera*), white sage (*Salvia apiana*), California brittlebush (*Encelia farinosa*), chaparral yucca (*Yucca whipplei*), Mendocino bushmallow (*Malacothamnus fasciculatus*), Menzies' goldenbush (*Isocoma menziesii*), coyotebrush (*Baccharis pilularis*), and common deerweed (*Acmispon glaber* var. *glaber*) (Sawyer et al. 2009). This vegetation community association occurs to the immediate southwest of project X-086, Santa Ana River Sewer Relief, in the northern portion of the FMP area, along the public areas associated with the Santa Ana River Lakes in east Anaheim.

The California brittle bush-California sagebrush association has a state rank of S3, which means it is vulnerable in the state due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation (USDA 2020). Therefore, this community is considered sensitive by CDFW.

Chenopod Scrub

Quailbush (Atriplex lentiformis association)

The quailbush (*Atriplex lentiformis*) shrubland alliance includes big saltbush as the dominant or co-dominant shrub in the canopy. This community has an open to intermittent canopy with shrubs less than 3 meters in height, and an herbaceous layer that is variable with seasonal herbs and non-native grasses (Sawyer et al. 2009). Species typically observed in this alliance include burro weed (*Ambrosia dumosa*), burrobush (*Ambrosia salsola*), spiny saltbush

(*Atriplex confertifolia*), cattle spinach (*Atriplex polycarpa*), green rabbitbrush (*Chrysothamnus viscidiflorus*), bladderpod (*Cleome isomeris*), green ephedra (*Ephedra viridis*), hop sage (*Grayia spinosa*), creosote bush (*Larrea tridentata*), and bush seepweed (*Suaeda moquinii*). This community occurs in the southwest corner of the survey buffer for Plant 2, adjacent to the Santa Ana River Trail.

The quailbush shrubland alliance has a state rank of S4, meaning it is apparently secure globally and is not vulnerable to extirpation or extinction in the state (USDA 2019). This alliance is not considered a sensitive vegetation community per CDFW (2019c).

Riparian Woodland

Arroyo Willow Thickets (Salix lasiolepis association)

Arroyo willow thickets alliance communities include arroyo willow as the dominant or co-dominant shrub in the canopy. Arroyo willow thickets have an open to continuous shrub or tree canopy less than 10 meters (33 feet) in height with a variable herbaceous layer (Sawyer et al. 2009). Species associated with the arroyo willow thickets alliance include bigleaf maple (*Acer macrophyllum*), coyotebrush, mulefat (*Baccharis salicifolia*), common buttonbush (*Cephalanthus occidentalis*), American dogwood (*Cornus sericea*), California wax myrtle (*Morella californica*), California sycamore (*Platanus racemosa*), southern cottonwood (*Populus fremontii*), black cottonwood (*Populus trichocarpa*), willow (*Salix* spp.) and blue elderberry (*Sambucus nigra*) (Sawyer et al. 2009). This community is mapped for project X-066, Tustin-Orange Interceptor Sewer at Reach 18 Rehabilitation, that occurs within and immediately adjacent to a concrete-lined drainage channel that contains native riparian habitat.

The arroyo willow thickets association has a state rank of S4, meaning it is apparently secure globally and is not vulnerable to extirpation or extinction in the state (USDA 2019). This alliance is not considered a sensitive vegetation community per CDFW (2019a).

Non-Natural Land Covers/Unvegetated Communities

Non-natural land covers and unvegetated communities are generally not recognized by the Natural Communities List (CDFW 2019a). These mapping units are used to differentiate areas that have been significantly disturbed, lack native or naturally occurring habitats, or have been constructed upon and lack vegetation. Because these non-natural and unvegetated communities do not typically support sensitive species, none of these land cover types are considered sensitive per CDFW (2019b).

Parks and Ornamental Plantings

This mapping unit is not recognized by the California Native Plant Society's (CNPS's) Manual of California Vegetation (Sawyer et al. 2009); however, it is included within Oberbauer et al. (2008). According to Oberbauer et al. (2008), parks and ornamental plantings include a mix of non-native woodland and non-native grassland vegetation, but is specific to areas of active recreational use. The parks and ornamental plantings community was mapped for the existing landscaped areas associated with developments and local public parks, which have been planted with grass sod and scattered trees that are regularly landscaped. The top five tree species typically found within ornamental areas include stone pine (*Pinus pinea*), Aleppo pine (*Pinus halepensis*), Afghan pine (*Pinus eldarica*), Canary Island Pine (*Pinus canariensis*), Brazilian pepper tree (*Schinus terebinthifolius*), Peruvian pepper tree (*Schinus molle*), and Mexican fan palm (*Washingtonia robusta*). This vegetation community is not considered sensitive by CDFW (2019b).

General Agriculture

This mapping unit is not recognized by the CNPS's Manual of California Vegetation (Sawyer et al. 2009); however, it is included within Oberbauer et al. (2008). According to Oberbauer et al. (2008), all lands that support an active agricultural operation can be considered as general agriculture. The general agriculture mapping unit is found along the eastern boundary of Project 3-68, Los Alamitos Sub-Trunk Extension. Current aerial photography depicts this area as containing fallow fields that typically support row crops. This vegetation community is not considered sensitive by CDFW (2019b).

Open Water

This mapping unit is not recognized by the CNPS's Manual of California Vegetation (Sawyer et al. 2009); however, it is included within Oberbauer et al. (2008). According to Oberbauer et al. (2008), open water—freshwater is comprised of year-round bodies of fresh water (extremely low salinity) in the form of reservoirs/lakes, streams, ponds, or rivers. Open water areas are aquatic areas that generally lack emergent vegetation, but typically support hydrophytic vegetation around their margins (e.g., mulefat scrub, southern willow scrub, freshwater marsh, or herbaceous wetland). This community can be found within the southern and eastern border of Plant 1, adjacent to the Santa Ana River and Project X-071, Edinger/Springdale Trunk Sewer Rehabilitation, on the northern border near the Westminster Channel. While portions of areas mapped as open water contain suitable habitat for special-status species or are mapped as critical habitat for listed species (e.g., the Santa Ana sucker [*Catostomus santaanae*]), this community designation is not considered a sensitive natural community by CDFW on its own (CDFW 2019b; USFWS 2020a).

Non-vegetated Channel or Floodway

This mapping unit is not recognized by the CNPS's Manual of California Vegetation (Sawyer et al. 2009); however, it is included within Oberbauer et al. (2008). According to Oberbauer et al. (2008), non-vegetated or concrete channels refer to a non-native land cover that consists of open sections of engineered concrete-lined channels, flood control channels, or channelized rivers and streams that are confined by levees. These areas typically do not contain vegetation due to the lack of exposed soils or regular scouring or maintenance. Non-vegetated channels are mapped for the Santa Ana River and various flood control channels within the FMP area.

While this vegetation community is not considered sensitive by CDFW (2019b), impacts associated with a non-vegetated channel that is subject to regulatory agency jurisdiction is considered significant and would require mitigation.

Disturbed Land

This mapping unit is not recognized by the CNPS's Manual of California Vegetation (Sawyer et al. 2009); however, is included within Oberbauer et al. (2008). According to Oberbauer et al. (2008), The disturbed or barren mapping unit refers to areas that lack vegetation but still retain a pervious surface or that are dominated by a sparse cover of ruderal vegetation such as Maltese star-thistle (*Centaurea melitensis*), wild oat (*Avena fatua*), black mustard (*Brassica nigra*), spiny sowthistle (*Sonchus asper*), and prickly lettuce (*Lactuca serriola*). Disturbed portions of the study area include projects such as X-065, Gisler-Red Hill Interceptor Rehabilitation, and X-066, Sunflower and Red Hill Interceptor Rehabilitation/Repair, where unvegetated disturbed upland areas occur within the survey buffer. This vegetation community is not considered sensitive by CDFW (2019b).

Developed Land

This mapping unit is not recognized by the CNPS's Manual of California Vegetation (Sawyer et al. 2009); however, it is included within Oberbauer et al. (2008). According to Oberbauer et al. (2008), the developed mapping unit refers to areas that generally have been graded and cleared of natural vegetation, which are then constructed upon with concrete and asphalt surfaces. Ornamental landscaped vegetation that is associated with developed areas are also included in this mapping unit.

Plants and Wildlife

Plants

Plant species expected to occur within the FMP area include those suited to growing in disturbed and developed conditions, or that were planted as part of landscaping and are regularly maintained. The majority of the plant species expected to occur within Plant 1 and Plant 2, and within public ROW, consist of ornamental tree species such as gum, pine, and pepper, as well as ground cover and shrub species such as sod grass, iceplant (*Mesembryanthemum* sp.), and Japanese boxwood (*Buxus microphylla*). A few areas containing native species exist within the FMP area, specifically adjacent to projects 5-68, Newport Beach Pump Station Odor Control Improvements; X-066, Tustin-Orange Interceptor Sewer at Reach 18 Rehabilitation; X-086, Santa Ana River Sewer Relief; and 5-66, Crystal Cove Pumping Station Upgrade and Rehabilitation, where either native restoration has includes stands of California sagebrush, bush sunflower, giant wild rye, and common yarrow, or native habitat exists adjacent to developed and disturbed areas.

Wildlife

Wildlife species expected to occur within the FMP area include those that are adapted to urban and suburban environments that are adjacent to constrained undeveloped land and open space. Species commonly observed include a mix of small to medium-sized mammals, shorebirds, passerines, and raptors, common reptiles and amphibians, and a number of insects including butterflies. Wildlife species expected to occur are described by taxonomic group below.

Birds

The avian species expected to occur within the FMP area include common species such as mourning dove (*Zenaida macroura*), American crow (*Corvus brachyrhynchos*), common raven (*Corvus corax*), northern rough-winged swallow (*Stelgidopteryx serripennis*), song sparrow (*Melospiza melodia*), California towhee (*Melozone crissalis*), Cassin's kingbird (*Tyrannus vociferans*), Anna's hummingbird (*Calypte anna*), European starling (*Sturnus vulgaris*), and red-tailed hawk (*Buteo jamaicensis*).

Reptiles and Amphibians

Reptiles and amphibians expected to occur within the FMP area include species such as common side-blotched lizard (*Uta stansburiana*), western fence lizard (*Sceloporus occidentalis*), Pacific tree frog (*Pseudacris regilla*), and western toad (*Anaxyrus boreas*).

Insects

Butterfly species expected to occur within the FMP area include, but are not limited to, funeral duskywing (*Erynnis funeralis*), cabbage white (*Pieris rapae*), and anise swallowtail (*Papilio zelicaon*).

Mammals

Mammal species expected to occur within the FMP area include: coyote (*Canis latrans*), desert cottontail (*Sylvilagus audubonii*), Botta's pocket gopher (*Thomomys bottae*), California ground squirrel (*Otospermophilus beecheyi*), and eastern fox squirrel (*Sciurus niger*).

4.3.1.3 Sensitive Biological Resources

Special-Status Species

Appendix D provides tables of all special-status species whose geographic ranges fall within the study area. Species potentially occurring based on habitat relationships are identified as having moderate or high potential to occur based on habitat conditions, and species for which there is little or no suitable habitat are identified as not expected to occur or having low potential to occur. Special-status species occurrences and designated critical habitat areas previously documented in the study area were reviewed using online data maps and database queries (CDFW 2020a; CNPS 2020; USFWS 2020a).

Special-Status Plant Species

Special-status plants include those listed, or candidates for listing, as threatened or endangered by the USFWS and CDFW, and species identified as rare by the CNPS (CNPS 2020; CDFW 2020b). Of particular concern are those species with a California Rare Plant Rank (CRPR) 1A, presumed extinct in California; CRPR 1B, rare, threatened, or endangered throughout its range; CRPR 2, rare or endangered in California, more common elsewhere; and CRPR 3, those appearing on a review list for plants that require more information. CRPR 4 species are those with limited distribution in California. Plants with a CRPR 4 are not considered special status and are omitted from further discussion.

Based on the results of the literature review and database searches, 37 special-status plant species were reported in the California Natural Diversity Database (CNDDB), USFWS, and CNPS databases as occurring in the study area. Special-status plant species previously documented in the region and have a potential to occur in the study area are provided in Appendix E. Appendix E analyzes the special-status plant species that were included in these databases and evaluated as part of this assessment. For each species evaluated, a determination was made regarding the potential for the species to occur on site based on information gathered during the field reconnaissance, including the location of the site, habitats present, current site conditions, and past and present land use.

There are several special-status plant species documented in the region that have a potential to occur. However, based on the habitat requirements and known site conditions, particularly the developed and disturbed nature of the vast majority of the FMP area, no special-status plant species have a moderate or high potential to occur. Therefore, all special-status species evaluated have a low potential or are not expected to occur within the FMP area. The full evaluation of these species and a description of suitable habitats is included in Appendix E.

Additionally, there is no USFWS-designated critical habitat for special-status plant species within the study area (USFWS 2020).

Special-Status Wildlife Species

Special-status wildlife include those listed, or candidates for listing, as threatened or endangered by the USFWS and CDFW, and designated as species of special concern (SSC) by CDFW. Based on the results of the literature review and database searches, 50 special-status wildlife species were reported in the CNDDB and USFWS iPac databases as occurring in the study area (CDFW 2019c, CDFW 2020a; USFWS 2020b). Special-status wildlife species that were documented in the region are provided in Appendix E. Appendix E evaluates the special-status wildlife species that were included in these databases and evaluated as part of this assessment. For each species evaluated, a determination was made regarding the potential for the species to occur on site based on information gathered during the field reconnaissance, including the location of the site, habitats present, current site conditions, and past and present land use.

There are several special-status wildlife species that are documented in the FMP area that were determined to have no or low potential to occur within the study area based on an evaluation of geographic range and vegetation communities known to occur within the study area. Of the 41 special-status wildlife species listed in the CNDDB and USFWS databases as occurring in the study area, 30 are not expected to occur within the study area, and 12 were determined to have a low potential to occur. These species are omitted from further discussion in this program environmental impact report (PEIR). A total of eight special-status wildlife species have at least a moderate to high potential to occur within the study area based on the soils, vegetation communities (habitat) present, elevation range, and previous known locations. These species are summarized in Table 4.3-3.

Additionally, USFWS-designated critical habitat for Santa Ana sucker is mapped within the portions of the Santa Ana River adjacent to project X-063, the South Santa Ana River Interceptor Connector Rehabilitation project (USFWS 2020b).

Table 4.3-3. Special-Status Wildlife Species with a Moderate to High Potential to Occur within the Study Area

Scientific Name	Common Name	Federal/State	Potential to Occur	Project Number
Reptiles				
Actinemys marmorata	northwestern pond turtle	None/SSC	Moderate	X-086
Birds				
Agelaius tricolor (nesting colony)	tricolored blackbird	BCC/ST	Moderate	X-071
Athene cunicularia (burrow sites and some wintering sites)	burrowing owl	BCC/SSC	Moderate	X-065, 3-68
Buteo swainsoni (nesting)	Swainson's hawk	BCC/ST	High	3-67
Empidonax traillii extimus (nesting)	southwestern willow flycatcher	FE/SE	Moderate	X-066
Polioptila californica californica	coastal California gnatcatcher	FT/SSC	High	5-68, X-086, 5-66

Table 4.3-3. Special-Status Wildlife Species with a Moderate to High Potential to Occur within the Study Area

Scientific Name	Common Name	Federal/State	Potential to Occur	Project Number
Vireo bellii pusillus (nesting)	least Bell's vireo	FE/SE	Moderate	X-066
Fish				
Catostomus santaanae	Santa Ana sucker	FT/None	Moderate	Plant 1, Plant 2, X-063

Status Legend
Federal
BCC: USFWS—Birds of Conservation Concern
FE: Federally listed as endangered
FT: Federally listed as threatened
State
SSC: California Species of Special Concern
ST: State listed as threatened
SE: State listed as endangered

Coastal California Gnatcatcher

Coastal California gnatcatcher is listed as federally threatened and a California SSC that occurs in native coastal sage scrub habitats throughout coastal Southern California and Baja Mexico. Suitable habitat for this species occurs within the stands of coastal sage scrub habitat that have been planted as part of landscaping for the Santa Ana River Lakes, which is located adjacent to the program-level project X-086, the Santa Ana River Sewer Relief project, and native coastal sage scrub habitat in the vicinity of project 5-66, Crystal Cove Pumping Station Upgrade and Rehabilitation, and project 5-68, Newport Beach Pump Station Odor Control Improvements (Figures 4.3-21, 4.3-22, 4.3-17, 4.3-28, and 4.3-36 [showing grids G21, G22, F21, H23, and J24]). This species has been previously recorded within 1 mile of the study area for these three projects (CDFW 2020a). Focused USFWS protocol surveys (USFWS 1997) have not been conducted for the proposed FMP; however, the presence of coastal California gnatcatcher has been well documented within the FMP area.

Swainson's Hawk

Swainson's hawk is a state-listed threatened species. Swainson's hawk is a medium-sized raptor with relatively long, pointed wings that curve up somewhat in a slight dihedral while the bird is in flight. The most distinctive identifying feature of adults is dark head and breast band distinctive from the lighter colored belly, and the underside of the wing with the linings lighter than the dark gray flight feathers. Swainson's hawk breeds in the western United States and Canada and winters in South America as far south as Argentina. A raptor adapted to the open grasslands, it has become increasingly dependent on agriculture, especially alfalfa crops, as native communities are converted to agricultural lands. Swainson's hawks often nest peripheral to riparian systems. They will also use lone trees in agricultural fields or pastures and roadside trees when available and adjacent to suitable foraging habitat.

Project 3-67, Seal Beach Pump Station Replacement, has an adjacent agricultural field with suitable habitat for this species to forage. Additionally, there has been a nest and a pair observed in 2019 less than 1 mile from this project site (Figures 4.3-1 and 4.3-2 [showing grids A7 and A8]) (CDFW 2020a).

Least Bell's Vireo

Least Bell's vireo is a state- and federally listed endangered species that nests and forages in low, dense riparian thickets along water or along dry parts of intermittent streams. Least Bell's vireos are small songbirds, generally no more than 5 inches in length, with a 7-inch wingspan. This vireo forages in riparian and adjacent shrubland late in the nesting season. Least Bell's vireo prefer to nest in areas with low aquatic and herbaceous cover. Least Bell's vireos are extremely vulnerable to cowbird parasitism, which, in concert with habitat loss and degradation, is considered a primary factor responsible for the species' decline.

This species has the potential to occur within native willow habitat located within and immediately adjacent to the alignment for project X-066, the Tustin-Orange Interceptor Sewer at Reach 18 Rehabilitation project, due to suitable habitat and a recorded occurrence within 1 mile from this project location (Figures 4.3-46 and 4.3-47 [showing grids N5 and N6]).

Southwestern Willow Flycatcher

Southwestern willow flycatcher is a state- and federally listed endangered species that nests in dense riparian habitats along streams, reservoirs, and wetlands. This species is a small passerine, or perching bird, less than 15 centimeters (5.75 inches) long from the tip of its bill to the tip of its tail. It weighs 11–12 grams. It has a brownish-olive to gray-green upper body, a whitish throat contrasting with a pale olive breast, a pale yellow belly, and two light wing bars. Males and females do not differ in plumage, but juveniles differ from adults by having buffy wing bars. This species uses a variety of riparian and shrubland habitats during migration, but is restricted to areas of relatively wide stands of willow woodland.

This species has the potential to occur within native willow habitat located within and immediately adjacent to the alignment for project X-066, the Tustin-Orange Interceptor Sewer at Reach 18 Rehabilitation, due to suitable habitat. However, there have been no CNDDB occurrences within 5 miles of the project area (Figures 4.3-46 and 4.3-47 [showing grids N5 and N6]) (CDFW 2020a).

Tricolored Blackbird

Tricolored blackbird is a state candidate for listing and SSC, and as such, is treated as a listed species regarding the significance of potential project-related impacts to this species. Tricolored blackbirds are largely endemic to California, with 90% of the population occurring within the state (Churchwell et al. 2005). Tricolored blackbirds have three habitat requirements for a successful nesting colony: (1) nearby open fresh water; (2) protected nesting habitat, such as flooded marsh vegetation or thorny vegetation; and (3) suitable feeding areas near the nesting colony such as rice fields, lightly grazed pasture, dairies, or alfalfa fields (Churchwell et al. 2005). Although the habitat has been greatly reduced, tricolored blackbirds still use grassland and riparian feeding areas. A portion of project X-071, Edinger/Springdale Trunk Sewer Rehabilitation, is adjacent to Carr Park, where this species has been previously observed within 500 feet of the project alignment (Figure 4.3-6 [showing grid C12) (CDFW 2020a; eBird 2020). While ponded areas exist in the project area, the aquatic vegetation associated with the pond in the vicinity of project X-071 is the only location within the project area that provides suitable habitat.

Burrowing Owl

Burrowing owl is a USFWS Bird of Conservation Concern and CDFW SSC species. It occurs throughout North and Central America west of the eastern edge of the Great Plains south to Panama. The winter range is much the same

as the nesting range, except that most burrowing owls apparently vacate the northern areas of the Great Plains and the Great Basin in winter (County of Riverside 2006). They can inhabit annual and perennial grasslands and scrublands characterized by low-growing vegetation. Although burrowing owls prefer large, contiguous areas of treeless grasslands, they have also been known to occupy fallow agriculture fields, golf courses, cemeteries, road allowances, airports, vacant lots in residential areas and university campuses, and fairgrounds when nest burrows are present (Bates 2006; County of Riverside 2006). They typically require burrows made by fossorial mammals, such as California ground squirrels. This species also prefers sandy soils with higher bulk density and less silt, clay, and gravel (Townsend and Lenihan 2007).

There are potential open areas with ground squirrel burrows that may provide suitable habitat for this species, particularly near projects X-065, the Tustin-Orange Interceptor Sewer at Reach 17 Rehabilitation, and X-066, the Tustin-Orange Interceptor Sewer at Reach 18 Rehabilitation (Figures 4.3-46 and 4.3-47 [showing grids N5 and N6]). However, the land in these areas is disturbed and likely not suitable to support nesting for this species.

Santa Ana Sucker

Santa Ana sucker, a federally listed endangered species and state SSC, occurs within inundated portions of the Santa Ana River that occur within the FMP area. This species has been previously recorded downstream of the Prado Dam. The Santa Ana sucker is a small, bottom-feeding fish with an average length of 4.5 inches. They prefer cool, clear water and coarse substrates consisting of gravel, rubble, and boulders. Larvae and young are found in the area of a stream where it gradually grades to expose bank, about 6 inches deep and shallower. Adults are found within pools or holes that are usually 18 to 50 inches deep. River flow levels in the Santa Ana River vary greatly from season to season. Flow is generally low with sudden peaks following rain events. Perennial flow in the middle reaches of the river is mostly made up of wastewater treatment plant discharges. Fourteen wastewater treatment plants discharge to the Santa Ana River, contributing a perennial flow that is increasing as the region's population increases.

The FMP area is within the geographic range of this species, and while there are no streams within the project boundaries, portions of the Santa Ana River provide suitable and critical habitat for this species that occur adjacent to Plant 1, Plant 2, and X-063, the South Santa Ana River Interceptor Connector Rehabilitation, where a CNDDB occurrence has been recorded (Figures 4.3-13 and 4.3-14 [showing grids E19 and E20]) (CDFW 2020a).

Jurisdictional Waters

A formal jurisdictional delineation was not conducted as part of the FMP analysis; however, a desktop analysis of potential jurisdictional resources was performed as part of the assessment. The extent of potential agency jurisdiction was not mapped or quantified for this effort; however, the location of major waterways, wetlands, and flood control channels were identified. Waters of the United States that are subject to the jurisdiction of the U.S. Army Corps of Engineers (USACE) under Section 404 of the Clean Water Act (CWA) include the Ordinary High Water Mark limits observed within features such as the Santa Ana River and various flood control channels throughout the FMP area. The Santa Ana River is the most significant waterway within the FMP area that is identified as a relatively permanent water that directly connects downstream to a traditional navigable water the Pacific Ocean; therefore, any tributaries to the Santa Ana River demonstrate a hydrologic connectivity to a waters of the United States. The Newport Back Bay and Bolsa Chica wetlands are two major wetlands within the FMP area, and there are a number of large lakes and ponds as well. Potential waters of the United States that occur within the 100-foot study area of the various project areas include the Santa Ana River, Westminster Channel, and unnamed flood control channels.

Waters of the State

The features described above as potentially subject to USACE's jurisdiction also potentially fall under the authority of the Santa Ana Regional Water Quality Control Board (RWQCB) in accordance with CWA Section 401.

California Fish and Game Code Section 1602 Jurisdiction

Areas under CDFW jurisdiction identified on the study area include all non-wetland waters of the United States and state, as described above, as well as upland banks and associated habitats. Riparian habitats that are connected downstream to aquatic resources are also potentially subject to CDFW jurisdiction.

Wildlife Corridors and Habitat Linkages

Wildlife corridors are linear features that connect large patches of natural open space and provide avenues for the migration of animals. Wildlife corridors contribute to population viability by assuring continual exchange of genes between populations, providing access to adjacent habitat areas for foraging and mating, and providing routes for recolonization of habitat after local extirpation or ecological catastrophes (e.g., fires). Habitat linkages are small patches that join larger blocks of habitat and help reduce the adverse effects of habitat fragmentation. Habitat linkages provide a potential route for gene flow and long-term dispersal of plants and animals and may also serve as primary habitat for smaller animals, such as reptiles and amphibians. Habitat linkages may be continuous habitat or discrete habitat islands that function as steppingstones for dispersal.

The FMP area is located within the northern, central, and western portions of Orange County, entirely within suburban and urban portions of the county that are predominantly developed. Regional wildlife movement corridors such as the Santa Ana River and Newport Back Bay facilitate the movement of wildlife within the region. Additionally, the various concrete-lined flood control channels located throughout the FMP area facilitate local wildlife movement. While local wildlife, particularly bird species, do move through the FMP area and small to medium sized mammals occur within the study area, the existing uses on the upland portions of the proposed projects within the FMP area do not necessarily function as a corridor to facilitate the movement of wildlife between two larger stands of regional habitat.

4.3.2 Relevant Plans, Policies, and Ordinances

Federal

Federal Endangered Species Act

The federal Endangered Species Act (FESA) of 1973 (16 USC 1531 et seq.), as amended, is administered by the USFWS for most plant and animal species and by the National Oceanic and Atmospheric Administration National Marine Fisheries Service for certain marine species. This legislation is intended to provide a means to conserve the ecosystems upon which endangered and threatened species depend and provide programs for the conservation of those species, thus preventing the extinction of plants and wildlife. FESA defines an endangered species as "any species that is in danger of extinction throughout all or a significant portion of its range." A threatened species is defined as "any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range." Under FESA, it is unlawful to "take" any listed species, and "take" is defined as, "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct."

FESA allows for the issuance of incidental take permits for listed species under Section 7, which is generally available for projects that also require other federal agency permits or other approvals, and under Section 10, which provides for the approval of Habitat Conservation Plans (HCPs) on private property without any other federal agency involvement.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) was originally passed in 1918 as four bilateral treaties, or conventions, for the protection of a shared migratory bird resource. The primary motivation for the international negotiations was to stop the "indiscriminate slaughter" of migratory birds by market hunters and others. The MBTA protects over 800 species of birds (including their parts, eggs, and nests) from killing, hunting, pursuing, capturing, selling, and shipping unless expressly authorized or permitted.

Clean Water Act

The CWA provides guidance for the restoration and maintenance of the chemical, physical, and biological integrity of the nation's waters. Section 401 requires a project operator for a federal license or permit that allows activities resulting in a discharge to waters of the United States to obtain state certification, thereby ensuring that the discharge will comply with provisions of the CWA. The RWQCB administers the certification program in California. Section 402 establishes a permitting system for the discharge of any pollutant (except dredged or fill material) into waters of the United States. Section 404 establishes a permit program administered by USACE that regulates the discharge of dredged or fill material into waters of the United States, including wetlands. USACE implementing regulations are found at 33 Code of Federal Regulations 320 and 330. Guidelines for implementation are referred to as the Section 404(b)(1) Guidelines, which were developed by the United States Environmental Protection Agency in conjunction with USACE (40 CFR 230). The guidelines allow the discharge of dredged or fill material into the aquatic system only if there is no practicable alternative that would have less adverse impacts.

Wetlands and Other Waters of the United States

Aquatic resources, including riparian areas, wetlands, and certain aquatic vegetation communities, are considered sensitive biological resources and can fall under the jurisdiction of several regulatory agencies. USACE exerts jurisdiction over waters of the United States, including all waters that are subject to the ebb and flow of the tide; wetlands and other waters such as lakes, rivers, streams (including intermittent or ephemeral streams), mudflats, sandflats, sloughs, prairie potholes, vernal pools, wet meadows, playa lakes, or natural ponds; and tributaries of the above features. The extent of waters of the United States is generally defined as that portion that falls within the limits of the Ordinary High Water Mark. Typically, the Ordinary High Water mark corresponds to the 2-year flood event.

Wetlands, including swamps, bogs, seasonal wetlands, seeps, marshes, and similar areas, are defined by USACE as "those areas that are inundated or saturated by surface or groundwater 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 conditions" (33 CFR 328.3[b]; 40 CFR 230.3[t]). Indicators of three wetland parameters (i.e., hydric soils, hydrophytic vegetation, and wetlands hydrology), as determined by field investigation, must be present for USACE to classify a site as a wetland (USACE 1987).

State

California Endangered Species Act

The California Endangered Species Act (CESA) (California Fish and Game Code (CFGC), Section 2050 et seq.) provides protection and prohibits the take of plant, fish, and wildlife species listed by the State of California. Unlike FESA, state-listed plants have the same degree of protection as wildlife, but insects and other invertebrates may not be listed. Take is defined similarly to FESA and is prohibited for both listed and candidate species. Take authorization may be obtained from the CDFW under the CESA Section 2081, which allows take of a listed species for educational, scientific, or management purposes. In this case, private developers consult with CDFW to develop a set of measures and standards for managing the listed species, including full mitigation for impacts, funding of implementation, and monitoring of mitigation measures.

California Fully Protected Species

Sections 3511, 4700, 5050, and 5515 of the Fish and Game Code outline protection for fully protected species of mammals, birds, reptiles, amphibians, and fish. Species that are fully protected by these sections may not be taken or possessed at any time. CDFW cannot issue permits or licenses that authorize the "take" of any fully protected species, except under certain circumstances, such as scientific research and live capture and relocation of such species pursuant to a permit for the protection of livestock. Furthermore, it is the responsibility of the CDFW to maintain viable populations of all native species. Toward that end, the CDFW has designated certain vertebrate species as SSC, because declining population levels, limited ranges, and/or continuing threats have made them vulnerable to extinction.

California Native Plant Protection Act

The Native Plant Protection Act of 1977 directed the CDFW to carry out the Legislature's intent to "preserve, protect and enhance rare and endangered plants in this State." The Native Plant Protection Act gave the California Fish and Game Commission the power to designate native plants as "endangered" or "rare" and protect endangered and rare plants from take. CESA expanded on the original Native Plant Protection Act and enhanced legal protection for plants, but the Native Plant Protection Act remains part of the Fish and Game Code. To align with federal regulations, CESA created the categories of "threatened" and "endangered" species. It converted all "rare" animals into the act as threatened species, but did not do so for rare plants. Thus, there are three listing categories for plants in California: rare, threatened, and endangered. Because rare plants are not included in the CESA, mitigation measures for impacts to rare plants are specified in a formal agreement between CDFW and the project proponent.

California Environmental Quality Act

California Environmental Quality Act (CEQA) requires identification of a project's potentially significant impacts on biological resources and ways that such impacts can be avoided, minimized, or mitigated. The act also provides guidelines and thresholds for use by lead agencies for evaluating the significance of proposed impacts.

CEQA Guidelines Section 15380(b)(1) defines endangered animals or plants as species or subspecies whose "survival and reproduction in the wild are in immediate jeopardy from one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, disease, or other factors." A rare animal or plant is defined in Section 15380(b)(2) as a species that, although not presently threatened with extinction, exists "in such small numbers throughout all or a significant portion of its range that it may become endangered if its environment

worsens; or … [t]he species is likely to become endangered within the foreseeable future throughout all or a significant portion of its range and may be considered 'threatened' as that term is used in the federal Endangered Species Act." Additionally, an animal or plant may be presumed to be endangered, rare, or threatened if it meets the criteria for listing, as defined further in CEQA Guidelines Section 15380(c).

CDFW has developed a list of "Special Species" as "a general term that refers to all of the taxa the California Natural Diversity Database (CNDDB) is interested in tracking, regardless of their legal or protection status." This is a broader list than those species that are protected under FESA, CESA, and other Fish and Game Code provisions, and includes lists developed by other organizations, including, for example, the Audubon Watch List Species. Guidance documents prepared by other agencies, including the Bureau of Land Management Sensitive Species and USFWS Birds of Special Concern, are also included on this CDFW Special Species list. Additionally, CDFW has concluded that plant species included on the CNPS's CRPR List 1 and 2, and potentially some List 3 plants, are covered by CEQA Guidelines Section 15380.

Section IV, Appendix G (Environmental Checklist Form), of the CEQA Guidelines requires an evaluation of impacts to "any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or the U.S. Fish and Wildlife Service."

California Fish and Game Code Section 1602

Under these sections of the CFGC, the project proponent is required to notify CDFW prior to any project that would divert, obstruct, or change the natural flow, bed, channel, or bank of any river, stream, or lake. Pursuant to the CFCG, a "stream" is defined as a body of water that flows at least periodically, or intermittently, through a bed or channel having banks and supporting fish or other aquatic life. Based on this definition, a watercourse with surface or subsurface flows that supports or has supported riparian vegetation is a stream and is subject to CDFW jurisdiction. Altered or artificial watercourses valuable to fish and wildlife are subject to CDFW jurisdiction. CDFW also has jurisdiction over dry washes that carry water during storm events.

Preliminary notification and project review generally occur during the environmental process. When an existing fish or wildlife resource may be substantially adversely affected, CDFW is required to propose reasonable project changes to protect the resource. These modifications are formalized in a Streambed Alteration Agreement, which becomes part of the plans, specifications, and bid documents for the FMP.

California Wetland Definition

Unlike the federal government, California has adopted the Cowardin et al. (1979) definition of wetlands. For purposes of this classification, wetlands must have one or more of the following three attributes: (1) at least periodically, the land supports predominantly hydrophytes (at least 50% of the aerial vegetative cover); (2) the substrate is predominantly undrained hydric soil; and (3) the substrate is nonsoil and saturated with water or covered by shallow water at some time during the growing season of each year.

Under normal circumstances, the federal definition of wetlands requires all three wetland identification parameters to be met, whereas the Cowardin definition requires the presence of at least one of these parameters. For this reason, identification of wetlands by state agencies consists of the union of all areas that are periodically inundated or saturated or in which at least seasonal dominance by hydrophytes may be documented or in which hydric soils are present.

Section 401 Clean Water Act

Under CWA Section 401, the local RWQCB—the Santa Ana RWQCB—must certify that actions receiving authorization under Section 404 of the CWA also meet state water quality standards. The RWQCB requires projects to avoid impacts to wetlands if feasible and requires that projects do not result in a net loss of wetland acreage or a net loss of wetland function and values. Compensatory mitigation for impacts to wetlands and/or waters of the state is required.

Porter-Cologne Water Quality Control Act

The RWQCB also has jurisdiction over waters deemed 'isolated' or not subject to Section 404 jurisdiction under the Southern Waste Agency of Northern Cook County decision. Dredging, filling, or excavation of isolated waters constitutes a discharge of waste to waters of the state, and prospective dischargers are required obtain authorization through an Order of Waste Discharge or waiver thereof from the RWQCB and comply with other requirements of Porter-Cologne Act.

Local

Orange County Natural Community Conservation Plan/Habitat Conservation Plan

The Natural Community Conservation Act, codified at Fish and Game Code Sections 2800–2840, authorizes the preparation of Natural Community Conservation Plans (NCCPs) to protect natural communities and species while allowing a reasonable amount of economic development. At the same time, FESA Section 10 provides for the preparation of HCPs to permit the taking of federally listed threatened and endangered species. Under both state and federal statutes, joint planning processes result in the preparation and adoption of a NCCP/HCP. The study area is within the NCCP/HCP for the County of Orange Central and Coastal Subregion, specifically within the Central Subregion of the NCCP/HCP, and is therefore analyzed in this PEIR in the context of the NCCP/HCP with regards to the special-status species identified in the NCCP/HCP and the mitigation provisions of the NCCP/HCP.

The NCCP/HCP was reviewed and approved by the USFWS and CDFW (then the California Department of Fish and Game) in 1996 to address protection and management of coastal sage scrub (CSS) habitat and CSS-obligate species, and other covered habitats and species, and mitigate anticipated impacts to those habitats and species, on a program, sub-regional level, rather than on a project-by-project, single species basis.

It should be noted that a Southern Subregion NCCP/HCP was proposed, but CDFW did not adopt the NCCP. However, USFWS finalized the Southern Subregion HCP to authorize development of Rancho Mission Viejo and select Orange County projects (i.e., expansion of a landfill and an extension of La Pata). There is an in-lieu fee program authorized for only a few select development sites within Cota de Caza (Snyder pers. comm. 2012).

The Central and Coastal Subregion NCCP/HCP (herein referred to as "NCCP/HCP") includes a habitat reserve in excess of 37,000 acres for the protection of CSS, other upland habitats, the coastal California gnatcatcher, and other primarily CSS-dependent species identified in the NCCP/HCP. Specifically, under FESA and CESA, the NCCP/HCP, USFWS, and CDFW authorize "take" of 39 "identified species" of plants and wildlife (including "covered" and "conditionally covered" species). Further, the NCCP/HCP contains requirements for adaptive management, interim management, and funding management for the Reserve system within the NCCP/HCP, as well as procedures and minimization measures related to the "take" of "identified species" and habitat. Thus, the NCCP/HCP provides for the protection and management of a broad range of plant and wildlife populations, while providing certainty to the public and affected landowners with respect to the location of future development and open space in the subregion.

The majority of the proposed FMP activities occur partially within the Matrix Area as mapped by the Orange County NCCP/HCP, which includes the predominantly developed areas of the County, and partially within the Central-Coastal Subarea Plan of the NCCP/HCP. For projects that occur within the Matrix Area, no habitat and species conservation goals have been established; therefore, no guidelines to protect biological resources are proposed for the Matrix Area.

County of Orange General Plan

The County of Orange General Plan includes specific goals and objectives within each resource element to guide development within the County. The Natural Resources Component of the Resources Element provides specific policies related to the protection of biological resources (County of Orange 2013).

Resources Element – Natural Resources Component

Goal

1 Protect wildlife and vegetation resources and promote development that preserves these resources.

Objective

1.1 To prevent the elimination of significant wildlife and vegetation through resource inventory and management strategies.

Policies

1. **Wildlife and Vegetation.** To identify and preserve the significant wildlife and vegetation habitats of the County.

City of Huntington Beach General Plan

The City of Huntington Beach General Plan was adopted in 2017 and provides guidance on the extent and types of development in the 27.3-square-mile city limits. Chapter 4 of the General Plan pertains to Environmental Resources and Conservation, and establishes goals and policies to protect and conserve Huntington Beach's environmental resources. The conservation element of Chapter 4 provides for the conservation, development, and utilization of natural resources, including water and its hydraulic force, forests, soils, rivers and other waters, harbors, fisheries, wildlife, minerals, and other natural resources to the extent that they are present in the planning area. The open space element protects open space intended for the preservation of natural resources, managed resource production, outdoor recreation, and public health and safety. Chapter 4 also includes an Open Space Plan and a Conservation Plan, and prescribes goals and policies to provide tools to protect and improve the environmental resources present in Huntington Beach. These issues, policies, and goals are provided below (City of Huntington Beach 2017).

Issue: Identifying and protecting habitat areas and connections

Goal

ERC-6 Various agencies that oversee habitat areas and wildlife corridors, including but not limited to parks, beaches, coastal dunes, marine waters, and wetlands, coordinate decision-making and management to ensure ongoing protection of resources.

Policies

A Create, improve, and/or acquire areas that enhance habitat resources and identify, prioritize, and restore as habitat key areas of land that link fragmented wildlife habitat, as funding and land are available.

B Support land acquisition, conservation easements, or other activities undertaken by landowners to create and preserve habitat linkages that support the integrity of ecosystems.

C Preserve and enhance the connection between the Huntington Beach Wetlands and the wetland/riparian area in Bartlett Park via the Huntington Beach Channel.

D Use future specific and area plans as a means to complete wildlife corridors.

E Establish aquatic and terrestrial connections between the Bolsa Chica Wetlands and Central Park by restoring areas in the oil fields to a more natural environment.

Issue: Protecting habitat resources in wetlands

Goal

ERC-7 Wetland areas that serve as important biological resources for threatened and endangered birds, fish, and other species are protected and restored.

Policies

A Protect important wetland areas in the planning area through land use regulation or through nonprofit land trust or public ownership and management.

B Maintain and enhance existing natural vegetation buffer areas surrounding riparian habitats and protect these areas from new development.

C Support County efforts to designate and manage environmentally sensitive lands—such as the Bolsa Chica Wetlands, the Huntington Beach Wetlands, and lands near the mouth of the Santa Ana River and north of Newland Street—for inclusion into a coastal wetlands preserve.

D Minimize filling, dredging, and channelization of river and wetland areas other than necessary dredging to keep the tidal channel open.

E Reduce pollutant runoff from new development and urban runoff to the maximum extent practicable.

F Continue to evaluate and mitigate the effects of domestic and industrial wastes on living marine resources.

G Seek opportunities to naturalize flood channels while also enhancing flood protection capacity.

Issue: Protecting coastal habitat resources

Goal

ERC-8 Coastal dunes and habitat resources remain resilient to potential impacts of encroaching development, urban runoff, and possible sea level rise.

Policies

A Sustain the biological productivity of coastal waters and maintain healthy populations of species of marine organisms adequate to support long-term commercial, recreational, scientific, and educational purposes.

B Promote the improvement of tidal circulation in the Bolsa Chica Wetlands, Huntington Harbour, Huntington Beach Wetlands, and Anaheim Bay and minimize impacts to sand migration, aesthetics, and usability of the beach area.

C Prohibit development that jeopardizes or diminishes the integrity of sensitive or protected coastal plant and animal communities, accounting for expected changes from sea level rise.

Issue: Protecting trees

Goal

ERC-9 Huntington Beach's trees and groves serves important biological functions, including but not limited to nesting and roosting areas for both birds and butterflies, and perches for raptor species.

Policies

A Identify, track, and protect trees and groves on public property that provide valuable habitat.

B Maximize and maintain tree coverage on public lands and in open spaces.

Issue: Protecting habitats in parks

Goal

ERC-10 An enhanced network of parks, open spaces, and recreation facilities contributes to habitat preservation.

Policies

A Continue to preserve portions of parks as natural habitat for a variety of species.

B Continue to naturalize disturbed areas within parks and prevent the invasion of exotic plants. Design nature parks and natural areas so that habitat value for wildlife is emphasized on par with recreational value for people.

C Evaluate incompatible recreation activities which may damage open spaces and sensitive habitat areas.

D Support the use of native vegetation and green infrastructure in parks to manage water use, reduce urban runoff impacts, and provide natural habitat.

Issue: Maintaining water quality

Goal

ERC-17 Enhance and protect water quality of all natural water bodies including rivers, creeks, harbors, wetlands, and the ocean.

Policies

A Require redevelopment to comply with the City's National Pollutant Discharge Elimination System permit and other regional permits issued by the State Water Resources Control Board and the Santa Ana Regional Water Quality Control Board.

B Require that new development and significant redevelopment projects employ innovative and efficient drainage technologies that comply with federal and state water quality requirements and reduce runoff and water quality impacts to downstream environments.

C Continue to require new development and significant redevelopment projects to propose protective safeguards and implement best management practices that minimize non-point source pollution and runoff associated with construction activities and ongoing operations.

D Continue to require that new development and significant redevelopment projects incorporate low-impact development best management practices, which may include infiltration, harvest and reuse, evapotranspiration, and bio-treatment.

E Prioritize investment in green stormwater infrastructure that restores natural landscapes before employing other management solutions.

F Reduce pollutant runoff from new development to marine biological resources and wetlands by requiring the use of the most effective best management practices currently available.

G Partner with and provide information to community organizations, community members, and businesses regarding best practices to minimize runoff and improve groundwater recharge.

H Reduce impacts of new development and significant redevelopment project sites' hydrologic regime (hydromodification).

I Continue working with the County and the Regional Water Quality Control Board (RWQCB) on the Integrated Regional Water Quality Management Plan to explore and expand more regional treatment of stormwater runoff.

City of Huntington Beach Tree Ordinance

Chapter 13.50 of the City of Huntington Beach Charter and Codes provides for the protection of parkway and street trees on public property within the city. According to the chapter, no person shall plant, spray, or maintain any tree on any street, parkway, or public place without first applying for and obtaining a permit from the City of Huntington Beach to do so. There is no fee from the city to apply for a permit. Applications for permits shall be filed with the director no fewer than 10 days prior to the time the work is to be commenced. The director shall issue such permits

if the applicant has complied with the provisions of this chapter and the City standard on insurance requirements, and the work to be performed meets the requirements and conditions contained in the Standards and the Tree Management Program (City of Huntington Beach 2001).

City of Fountain Valley General Plan

The City of Fountain Valley General Plan was adopted in 1995, and Chapter 4 of the General Plan discusses Parks, Recreation, and Open Space and identifies open space for the preservation of natural resources. Chapter 5 includes the Conservation Element for the conservation, development, and utilization of natural resources. The goals and policies that pertain to the protection of biological resources from both chapters are included below (City of Fountain Valley 1995):

Goal

4.3 Conserve, protect, and enhance the natural resources in Fountain Valley.

Policy

4.3.1 Ensure the optimal use and support of the natural resources in the City for the benefit of all present and future citizens of the City.

Goal

5.2 Protect Fountain Valley's existing and future water resources.

Policies

5.2.1 Conserve scarce water resources.

5.2.2 Work with federal, state, and county governments and agencies to maintain and improve the quality and quantity of local and regional groundwater resources available to the City.

Goal

5.4 Conservation of Fountain Valley's biological resources.

Policies:

5.4.1 Conserve and enhance biological resources by facilitating development in a manner which reflects the characteristics, sensitivities, and constraints of these resources.

5.4.2 The City shall coordinate with community groups and neighborhoods in developing a tree replacement program for those existing trees which must be removed along public and private streets.

City of Fountain Valley Tree Ordinance

Chapter 12.04 of the City of Fountain Valley municipal code provides for the protection of trees, shrubs, and plants within public property (City of Fountain Valley 1980). The planting and maintenance of all trees in or upon any street, parkway or public right-of-way area in the city, and the pruning, trimming and removal of the same, shall be at all

times subject to the authority and control of the director of public works, subject to the authority and control of the city council. The director of public works may authorize the removal or pruning by the city, or by any other person as herein provided, of any tree or shrub in or upon any street, parkway, or public place which interferes with the construction of any driveway, sidewalk, curb, or other construction work, or the maintenance thereof, or any tree or shrub which is dead or which creates a hazard to the public safety or which does not conform to the type or variety designated for the particular place in which the same is situated.

No person shall cut, trim, plant, prune, remove, injure, or interfere with any tree, shrub, or plant upon any street, parkway or public place of the city without prior permission and approval therefor from the director of public works. The director of public works is authorized to grant such permission at his discretion, and may grant the same, subject to the condition that any removed tree be replaced by a tree of the type designated for the street and meeting the specifications of the director of public works and/or such other conditions as may be appropriate in the circumstances. No such permission shall be valid for a longer period than 30 days after its date of issuance. Any person maintaining any overhead wires or any pipes or underground conduits along or across any street, parkway or public place of the city, or owning any property abutting upon any street, parkway. or public place of the city, or proposing to erect, repair, alter or remove any building or structure, desiring to have any tree, shrub, or plant cut, trimmed, pruned, or removed may file with the director of public works a written request for a permit for such work to be done and it shall be within the discretion of the director of public works to require a written agreement upon the part of the petitioner to pay the costs thereof and to do such work in the way stipulated by the director of public works before the issuance of any permit hereunder.

Additionally, during the erection, repair, alteration, or removal of any building, house, or structure in the city, no person in charge of such work shall leave any tree, shrub or plant in any street, parkway, or public place of the city in the vicinity of such building or structure without such good and sufficient guards or protectors as shall prevent injury to the tree, shrub, or plant arising out of or by reason of the erection, repair, alteration, or removal. No person owning or controlling property abutting upon any public street or public place in the city, upon which are located hedges, trees, shrubs, or plants, shall permit the plantings to encroach upon the sidewalk, curb, or street or the branches thereof to overhang the sidewalk, curb, or street in such a manner as to impede or interfere with vehicular or pedestrian traffic, drainage flow, or maintenance thereof, or to create a hazardous condition, and he shall keep the plantings trimmed as the public convenience shall require.

If any such hedge, tree, shrub, or plant is hazardous to the traveling public or impedes the progress or the vision of the public on any such street or public place, or the maintenance thereof, the city may order the same or such part or parts thereof as are hazardous or impair or impede normal use, to be trimmed or removed so as to remedy such condition. If such tree, hedge, shrub, or plant standing on any private property is cut down or removed or trimmed to remove the condition within 10 days after notice in writing of the order is given by the city to the owner, occupant or agent of the property upon which such described condition exists, the same shall be deemed a public nuisance and may be abated as such.

City of Newport Beach General Plan

The City of Newport Beach General Plan is intended to provide protection and preservation for existing neighborhoods (City of Newport Beach 2006). The subjects of the Conservation and Open Space Element have been merged into the Natural Resources Element (Chapter 10). The primary objective of the Natural Resources Element is to provide direction regarding the conservation, development, and utilization of natural resources. It identifies Newport Beach's natural resources and presents policies for their preservation, development, and wise use. This element addresses water supply (as a resource) and water quality (includes bay and ocean quality, and

potable drinking water), air quality, terrestrial and marine biological resources, open space, archaeological and paleontological resources, mineral resources, visual resources, and energy.

Goal

NR3 Enhancement and protection of water quality of all natural water bodies, including coastal waters, creeks, bays, harbors, and wetlands.

Policies

NR 3.1 Chemical Uses Impacting Water Quality. Support regulations limiting or banning the use insecticides, fertilizers, and other chemicals which are shown to be detrimental to water quality.

NR 3.2 Water Pollution Prevention. Promote pollution prevention and elimination methods that minimize the introduction of pollutants into natural water bodies.

NR 3.3 Ground Water Contamination. Suspend activities and implement appropriate health and safety procedures in the event that previously unknown groundwater contamination is encountered during construction. Where site contamination is identified, implement an appropriate remediation strategy that is approved by the City and the state agency with appropriate jurisdiction.

NR 3.4 Storm Drain Sewer System Permit. Require all development to comply with the regulations under the City's municipal separate storm drain system permit under the National Pollutant Discharge Elimination System.

NR 3.5 Natural Water Bodies. Require that development does not degrade natural water bodies.

NR 3.6 Watershed Runoff Quality Control. Represent Newport Beach by participating in watershed-based runoff reduction, water quality control, and other planning efforts with the California Regional Water Quality Control Board (RWQCB), the County of Orange, and upstream cities. Promote regulation of upstream dischargers (cities, Orange County, residential and commercial uses) in the San Diego Creek and Santa Ana/Delhi Channel watersheds.

Goal

NR 10 Protection of sensitive and rare terrestrial and marine resources from urban development.

Policies

NR 10.1 Terrestrial and Marine Resource Protection. Cooperate with the state and federal resource protection agencies and private organizations to protect terrestrial and marine resources.

NR 10.2 Orange County Natural Communities Conservation Plan. Comply with the policies contained within the Orange County Natural Communities Conservation Plan.

NR 10.3 Analysis of Environmental Study Areas. Require a site-specific survey and analysis prepared by a qualified biologist as a filing requirement for any development permit applications where development would occur within or contiguous to areas identified as ESAs.

NR 10.4 New Development Siting and Design. Require that the siting and design of new development, including landscaping and public access, protect sensitive or rare resources against any significant disruption of habitat values.

NR 10.5 Development in Areas Containing Significant or Rare Biological Resources. Limit uses within an area containing any significant or rare biological resources to only those uses that are dependent on such resources, except where application of such a limitation would result in a taking of private property. If application of this policy would likely constitute a taking of private property, then a non-resource-dependent use shall be allowed on the property, provided development is limited to the minimum amount necessary to avoid a taking and the development is consistent with all other applicable resource protection policies. Public access improvements and educational, interpretative and research facilities are considered resource dependent uses.

NR 10.6 Use of Buffers. Maintain a buffer of sufficient size around significant or rare biological resources, if present, to ensure the protection of these resources. Require the use of native vegetation and prohibit invasive plant species within these buffer areas.

NR 10.7 Exterior Lighting. Shield and direct exterior lighting away from significant or rare biological resources to minimize impacts to wildlife.

NR 10.8 Standards for Buck Gully and Morning Canyon. Prepare natural habitat protection regulations for Buck Gully and Morning Canyon for the purpose of providing standards to ensure both the protection of the natural habitats in these areas and of private property rights. Include standards for the placement of structures, native vegetation/fuel modification buffers, and erosion and sedimentation control structures.

NR 10.9 Development on Banning Ranch. Protect the sensitive and rare resources that occur on Banning Ranch. If future development is permitted, require that an assessment be prepared by a qualified biologist that delineates sensitive and rare habitat and wildlife corridors. Require that development be concentrated to protect biological resources and coastal bluffs, and structures designed to not be intrusive on the surrounding landscape. Require the restoration or mitigation of any sensitive or rare habitat areas that are affected by future development.

NR 10.10 Giant Kelp Reforestation. Support reforestation programs for giant kelp.

NR 10.11 Tide Pool Exhibits. Support the construction of tide pool exhibits away from ocean beaches to provide an educational alternative to the tide pools at Corona del Mar State Beach and Crystal Cove State Park.

Goal

NR 11 Protection of environmental resources in Newport Harbor while preserving and enhancing public recreational boating activities.

Policies

NR 11.1 Harbor Area Management Plan. Develop a Harbor Area Management Plan that will provide a comprehensive approach to the management of the resources of Newport Bay, such as protection of eelgrass and other natural resources, dredging for navigation, and continued use of private piers.

NR 11.2 Joint City/County Study. Prepare and fund a joint City/County study that would (a) identify the respective services provided by the City and County in Newport Harbor, (b) determine the cost of these services, (c) identify opportunities if any, for the City and County to realign resources to provide services at reduced costs, (d) identify the sources of revenue available to defray the cost of those services, and (e) identify potential feasible methods of providing those services other tan with public agency personnel such as volunteers.

NR 11.3 Eelgrass Protection. Avoid impacts to eelgrass (*Zostera marina*) to the extent feasible. Mitigate losses of eelgrass in accordance with the Southern California Eelgrass Mitigation Policy. Encourage the restoration of eelgrass in Newport Harbor at appropriate sites, where feasible.

NR 11.4 Interagency Coordination on Establishing Eelgrass Restoration Sites. Cooperate with the County of Orange, the U.S. Army Corps of Engineers, and resource agencies to establish eelgrass restoration sites.

NR 11.5 Eelgrass Mitigation. Allow successful eelgrass restoration sites to serve as mitigation sites for City projects and as a mitigation bank from which eelgrass mitigation credits will be issued to private property owners for eelgrass removal resulting from dock and channel dredging projects.

Goal

NR 12 Protection of coastal dune habitats.

Policies

NR 12.1 Exotic Vegetation Removal and Native Vegetation Restoration. Require the removal of exotic vegetation and the restoration of native vegetation in dune habitat.

NR 12.2 Dune Habitat Protection. Design and site recreation areas to avoid impacts to dune habitat areas, and direct public access away from these resources through methods such as well-defined footpaths, boardwalks, protective fencing, and signage.

NR 12.3 Beach Sand Removal. Limit earthmoving of beach sand in dune habitat areas to projects necessary for the protection of coastal resources and existing development.

Goal

NR 13 Protection, maintenance, and enhancement of Southern California wetlands.

Policies

NR 13.1 Wetland Protection. Recognize and protect wetlands for their commercial, recreational, water quality, and habitat value.

NR 13.2 Wetland Delineation. Require a survey and analysis with the delineation of all wetland areas when the initial site survey indicates the presence or potential for wetland species or indicators. Wetland delineations will be conducted in accordance with the definitions of wetland boundaries established by California Department of Fish and Game, and/or United States Fish and Wildlife Service.

Goal

NR 16 Protection and management of Upper Newport Bay commensurate with the standards applicable to our nation's most valuable natural resources.

Policies

NR 16.1 Funding Support for Upper Newport Bay Ecosystem Restoration Project. Support and secure federal funding for Upper Newport Bay ecosystem restoration to restore the Upper Newport Bay to a more ideal ecosystem.

NR 16.2 Big Canyon Creek Restoration Project. Coordinate the Big Canyon Creek Restoration Project so that its outcomes are consistent with goals for Upper Newport Bay established by Orange County and the Department of Fish and Game.

NR 16.3 Management of Upper Newport Bay Ecological Reserve (UNBER) 4. Support and implement cooperative management of the Upper Newport Bay Ecological Reserve by cooperating with Orange County, California Department of Fish and Game, U.S. Fish and Wildlife Service, local universities and colleges, nonprofits, and volunteer organizations to improve resource management, implement resource enhancement projects, and expand opportunities for passive public access, recreation, and education.

NR 16.4 Management of Upper Newport Bay Ecological Reserve. Assist the County of Orange in its management of the Upper Newport Bay Nature Reserve, including the Peter and Mary Muth Center, to enhance the Reserve's natural resources, passive public access (especially along the West Bay) and public education programs.

NR 16.5 Public Uses within Upper Newport Bay Ecological Reserve. Maintain public use of the Upper Newport Bay Ecological Reserve to the extent such use is consistent with the preservation of sensitive resources.

NR 16.6 Water-Related Education and Research within Upper Newport Bay. Promote facilities in and around Upper Newport Bay to adequately serve as water quality and estuarine education and research programs.

Goal

NR 17 Maintenance and expansion of designated open space resources.

Policies

NR 17.1 Open Space Protection. Protect, conserve, and maintain designated open space areas that define the City's urban form, serve as habitat for many species, and provide recreational opportunities.

NR 17.2 Other Uses of Public Sites Designated for Open Space. Consider conversion of public sites designated for open space to other uses only when the conversion will meet a significant need, and there are no alternative sites that could feasibly meet that need.

NR 17.3 New Open Space Areas. Consider opportunities to expand designated open space areas within the City.

4.3.3 Thresholds of Significance

The significance criteria used to evaluate the proposed FMP's impacts to biological resources are based on Appendix G of the CEQA Guidelines. According to Appendix G, a significant impact related to biological resources would occur if the project would:

1. 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 California Department of Fish and Game or U.S. Fish and Wildlife Service.
2. 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 California Department of Fish and Game or U.S. Fish and Wildlife Service.
3. 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.
4. 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.
5. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
6. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

4.3.4 Impacts Analysis

Approach to Analysis

This section addresses direct, indirect, and cumulative impacts to biological resources that would result from implementation and operation of the proposed FMP. The analysis will include a project-level analysis of FMP activities that would commence within the next 10 years because they are near-term and are thus more likely to already have developed project-specific information. The analysis will also include a program-level analysis for projects that would take place at a future date, where less information is known. Both of these are listed in Table 3-1 of Section 3.4.2. Each CEQA threshold pertaining to biological resources will also be analyzed in terms of direct and indirect impacts as defined below:

- **Direct impacts** refer to complete loss of a biological resource. For purposes of this PEIR, it refers to the area where vegetation clearing, grubbing, or grading replaces biological resources. Direct impacts were quantified by overlaying the proposed impact limits on the biological resources map of the study area. Direct impacts would occur from construction-related activities.

- **Indirect impacts** are reasonably foreseeable effects caused by project implementation on remaining or adjacent biological resources outside the direct disturbance zone. Indirect impacts may affect areas outside the disturbance zone, including open space and areas within the study area. Indirect impacts may be short-term and construction-related, or long-term in nature and associated with development in proximity to biological resources.

The evaluation of proposed project-level and program-level impacts using the thresholds of significance presented above is organized by the resource potentially affected: special-status species, riparian and sensitive vegetation communities (special-status vegetation communities), jurisdictional waters and wetlands, wildlife movement, local policies and ordinances, and regional conservation plans. The analysis presented below focuses on construction-related impacts on the proposed footprint for the FMP, as well as a 100-foot buffer around impact areas to account for adjacent off-site resources. The operation phase of the proposed project-level and program-level project activities would be similar to existing facility uses within the service area, and there would be no new operational impact from implementing the proposed FMP projects.

1. Would the project 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 California Department of Fish and Game or U.S. Fish and Wildlife Service?

Less-than-Significant Impact with Mitigation Incorporated. The analysis below evaluates the project-level and program-level impacts that may occur as a direct and indirect result of project-level and program-level implementation. Direct and indirect impacts from project-level and program-level projects may occur to nesting birds if project implementation occurs during the general breeding season. These potential direct and indirect impacts would be reduced to a less-than-significant level through implementation of **Mitigation Measure (MM) BIO-1**. Additionally, project-level indirect impacts to the Santa Ana sucker would be considered less than significant. Direct impacts to program-level project activities may result in significant impacts to special-status species such as the state and federally endangered least Bell's vireo and southwestern willow flycatcher. Potential direct impacts to these species would be reduced to a less-than-significant level with implementation of **MM-BIO-2**. Additionally, indirect impacts from program-level project activities may occur to burrowing owl, coastal California gnatcatcher, and tricolored blackbird. Potential indirect impacts to these species would be reduced to a less-than-significant level with implementation of **MM-BIO-2**.

Project-Level Analysis

Direct Impacts

Project-level activities that occur within the FMP area provide potentially suitable habitat for special-status species such as the federally threatened coastal California gnatcatcher and Santa Ana sucker, particularly adjacent to project 5-68, Newport Beach Pump Station Odor Control Improvements, and projects within Plant 1 and Plant 2. However, no direct impacts to these species would occur because no project impacts would encroach into suitable habitat for the coastal California gnatcatcher and Santa Ana sucker. Additionally, no removal of suitable habitat for coastal California gnatcatcher or the Santa Ana sucker would occur as a result of implementation of project 5-68 or any of the proposed projects within Plant 1 and Plant 2. Therefore, there would be no direct impact to any special-status wildlife species as a result of implementing the project-level projects.

The proposed project-level activities in the FMP area contain landscaped trees and native shrubs within and immediately adjacent to each project site that provide suitable nesting habitat for bird species protected under the MBTA and CFGC 3500. Trimming, pruning, and/or removal of trees and landscaped shrubs may occur as a result of construction of the project-level projects. Therefore, there may be a potential for a significant direct impact to occur to nesting birds, particularly during the general nesting season of February 1 through August 31. To reduce the potential for significant impacts to nesting birds, implementation of **MM-BIO-1**, which requires avoidance during the nesting bird season (typically February 1 through August 31), or conducting a preconstruction survey if avoidance is not possible, is prescribed to reduce potential direct impacts to nesting birds below a level of significance. Therefore, direct impacts to nesting birds would be considered less than significant with mitigation.

Indirect Impacts

Indirect impacts associated with project-level activities may occur to the federally threatened Santa Ana sucker through implementation of projects within Plant 1 and Plant 2, and project X-063, the South Santa Ana River Interceptor Connector Rehabilitation project. Suitable habitat for the Santa Ana sucker occurs within portions of the Santa Ana River adjacent to Plant 1, Plant 2, and project X-063. Project-level projects within Plant 1 and Plant 2 would be contained entirely within the grounds of the existing facilities. Fugitive dust from the implementation of projects within Plant 1 and Plant may settle within the adjacent Santa Ana River, which could degrade habitat within the river for the sucker by increasing sedimentation and turbidity. However, the projects within Plant 1 and Plant 2 would be required to comply with South Coast Air Quality Management District's rule regarding fugitive dust, and would also be required to implement best management practices (BMPs) as part of the projects' stormwater pollution prevention plan (SWPPP) which would reduce potential indirect impacts. The SWPPP and BMPs are required by the National Pollutant Discharge Elimination System program and discussed further in Chapter 4.9, Hydrology and Water Quality, of this PEIR. Therefore, potential indirect impacts to special-status species through implementation of project-level projects are considered less than significant.

However, noise generated by construction activities, including vegetation removal and grading, conducted during the avian breeding season (February 1 through August 31), could result in potential indirect impacts to nesting birds. Noise related to these activities has the potential to disrupt reproductive and feeding activities. Under the MBTA and CFGC, indirect impacts to individual native birds, active nests, or the young of nesting native bird species would be considered potentially significant. To reduce the potential for significant impacts to nesting birds, implementation of **MM-BIO-1**, which requires avoidance of nests during the nesting bird season (typically February 1 through August 31) or conducting a preconstruction survey if avoidance is not possible, would reduce potential indirect impacts to nesting birds to a less-than-significant level. Therefore, indirect impacts to nesting birds would be considered less than significant with mitigation.

Program-Level Analysis

Direct Impacts

Potential direct impacts to the state and federally endangered least Bell's vireo and southwestern willow flycatcher could occur within suitable native willow habitat associated with a concrete-lined channel that occurs within and immediately adjacent to project X-066, the Tustin-Orange Interceptor Sewer at Reach 18 Rehabilitation project. As currently designed, vegetation may be trimmed and/or removed for this rehabilitation project, and if this habitat is determined to be occupied by either federally listed species,

vegetation removal would result in a direct impact, which would be considered significant. To reduce potential direct impacts to least Bell's vireo and/or southwestern willow flycatcher, implementation of **MM-BIO-2** would reduce potential impacts to a less-than-significant level through biological reconnaissance and potential focused species surveys to determine presence/absence of the species, and subsequent USFWS permitting should either species be found and determined to be impacted. Therefore, potential direct impacts to special-status species as a result of implementation of project X-066 would be considered less than significant with mitigation.

Additionally, the proposed program-level activities in the FMP area contain landscaped trees and native shrubs within and immediately adjacent to each project site that provides suitable nesting habitat for bird species protected under the MBTA and CFGC 3500. Trimming, pruning, and/or removal of trees and landscaped shrubs may occur as a result of construction of the program-level activities. Therefore, there may be a potential for a significant direct impact to occur to nesting birds, particularly during the general nesting season of February 1 through August 31. To reduce the potential for significant impacts to nesting birds, implementation of **MM-BIO-1**, which requires avoidance during the nesting bird season (typically February 1 through August 31), or conducting a preconstruction survey if avoidance is not possible, would reduce potential direct impacts to nesting birds below a level of significance. Therefore, direct impacts to nesting birds would be considered less than significant with mitigation.

Indirect Impacts

Potential indirect impacts to special-status species may occur during implementation of program-level activities through the increased human presence and noise during construction to burrowing owl, a California SSC, the federally listed as threatened coastal California gnatcatcher, and the state-listed as threatened tricolored blackbird.

Burrowing Owl

Burrowing owl has the potential to occur adjacent to project sites X-065 and 3-68, which are both located adjacent to undeveloped and disturbed areas that contain suitable habitat with recorded occurrences within 5 miles. If burrowing owl is determined to be nesting within 500-feet of the proposed impact areas for projects X-065 and 3-68, indirect impacts could result in nest failure, which would be considered significant. Implementation of **MM-BIO-2** would require a determination whether burrowing owl is present/absent within adjacent habitat areas, and would include avoidance, relocation, and compensatory mitigation to reduce potential indirect impacts to a less-than-significant level. Therefore, potential indirect impacts to burrowing owl from program-level activities would be considered less than significant with mitigation.

Coastal California Gnatcatcher

Program-level activities that could result in potential indirect impacts to the coastal California gnatcatcher include projects X-086, Santa Ana Sewer Relief, and 5-66, Crystal Cove Pumping Station Upgrade and Rehabilitation. Suitable coastal sage scrub habitat occurs just outside the study area for both projects. Suitable habitat near project X-086 is located within planted California brittle bush-California sagebrush vegetation that is associated with the Santa Ana River Lakes located southeast of the intersection of East La Palma Avenue and North Tustin Avenue in east Anaheim. The replacement of the sewer line would occur entirely within the ROW for La Palma Avenue. However, if coastal California gnatcatcher is determined to

nest within the adjacent coastal sage scrub habitat, potential indirect impacts could occur through increased human presence and noise within 300 feet of an active coastal California gnatcatcher nest. Nest failure through adjacent harassment from project-related activities would be considered a significant impact. Implementation of **MM-BIO-2** would reduce potential indirect impacts to a level below significance through biological reconnaissance, breeding season avoidance, focused protocol surveys, and USFWS permitting if it is determined that impacts would occur. Therefore, potential project-related indirect impacts to coastal California gnatcatcher through implementation of project X-086 would be considered less than significant with mitigation.

Additionally, project 5-66 occurs within a developed area associated with an existing pump station that is surrounded by ornamental landscaped vegetation with native coastal sage scrub vegetation in the vicinity, yet outside of the study area for project 5-66. While coastal California gnatcatcher could nest in the vicinity of project 5-66, the increased human presence and noise from the rehabilitation and upgrade of the existing pump station would not be greater than the ambient noise levels generated from vehicle traffic on the adjacent Pacific Coast Highway. Ambient noise levels at this location range from 67.8 A-weighted decibels (dBA) to 77.9 dBA, and construction-related noise ranges from approximately 80 dBA to 85 dBA on average as stated in Chapter 4.11, Noise, which would not be a significant increase that could result in noise-related harassment. Therefore, there would be no potential indirect impact to coastal California gnatcatcher through implementation of project 5-66, and no mitigation is required.

Tricolored Blackbird

Potential indirect impacts to tricolored blackbird may occur through implementation of project X-071, the Edinger/Springdale Trunk Sewer Rehabilitation, through the increased human presence and noise from the rehabilitation of the trunk sewer line in the Springdale Street ROW. The previous record of tricolored blackbird in this location is approximately 200-feet east of the project location. If this species is determined to occur within 300 feet of the project site, the increased human presence and noise during rehabilitation activities may result in nest failure, which would be considered a significant impact. Implementation of **MM-BIO-2** includes a biological reconnaissance, breeding season avoidance, preconstruction surveys to determine presence/absence, and biological monitoring if a nesting tricolored blackbird is found, which would reduce impacts to a less-than-significant level. Therefore, project-related indirect impacts to tricolored blackbird would be considered less than significant with mitigation.

Nesting Birds

Noise generated by construction activities, including vegetation removal and grading, conducted during the avian breeding season (February 1 through August 31), could result in potential indirect impacts to nesting birds. Noise related to these activities has the potential to disrupt reproductive and feeding activities. Under the MBTA and CFGC, indirect impacts to individual native birds, active nests, or the young of nesting native bird species would be considered potentially significant. To reduce the potential for significant impacts to nesting birds, implementation of **MM-BIO-1**, which requires avoidance of nests during the nesting bird season (typically February 1 through August 31) or conducting a preconstruction survey if avoidance is not possible, would reduce potential indirect impacts to nesting birds to a less-than-significant level. Therefore, indirect impacts to nesting birds would be considered less than significant with mitigation.

2. Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

Less-than-Significant Impact with Mitigation Incorporated. The analysis below details the project-level and program-level impacts that may occur as a direct and indirect result of project-level and program-level implementation. Direct and indirect impacts from project-level projects would have no impact on riparian habitat or sensitive natural communities. Direct and indirect impacts from program-level projects may occur to arroyo willow thicket habitat that may be occupied by state- and federally listed species, and if so, direct impacts to this vegetation community would be considered significant. Significant impacts to sensitive natural communities would be reduced to a less-than-significant level through implementation of MM-BIO-3.

Project-Level Analysis

Direct and Indirect Impacts

The majority of the habitats associated with the project-level activities for the proposed FMP are disturbed and developed and lack native and natural vegetation. The vegetation observed within these disturbed and developed areas are landscaped ornamental species associated with the developments and ROWs. However, Plant 1, Plant 2, and project X-063, the South Santa Ana River Interceptor Connector Rehabilitation project, occur immediately adjacent to the Santa Ana River, which contains Southern California Arroyo Chub/Santa Ana Sucker Stream in inundated portions of the river, and scattered native riparian habitat, which are considered sensitive natural communities. Nonetheless, no direct impacts would occur to these sensitive natural communities because the proposed projects would be constructed entirely within developed portions of Plant 1 and Plant 2, and would not encroach into any portions of the Santa Ana River. Additionally, no indirect impacts would occur as construction of these projects would be contained within a relatively small impact footprint within the plants that would not result in the trimming or encroachment of adjacent native vegetation and habitats. Therefore, the project-level activities would result in no impacts to sensitive natural communities.

Program-Level Analysis

Direct Impacts

The proposed program-level activities would be primarily contained within disturbed and developed portions of the FMP area that do not contain native or any sensitive natural vegetation communities. However, Plant 1 and Plant 2 occur immediately adjacent to the Santa Ana River, which contains Southern California Arroyo Chub/Santa Ana Sucker Stream in inundated portions of the river, and scattered native riparian habitat, which are considered sensitive natural communities. No direct impacts to the Santa Ana River would occur as a result of implementation of program-level projects in Plant 1 and Plant 2 as these projects would be entirely contained within the boundaries of both facilities.

However, project X-066, the Tustin-Orange Interceptor Sewer at Reach 18 Rehabilitation project, occurs within and immediately adjacent to arroyo willow thickets habitat associated with a concrete-lined flood control channel. Although arroyo willow thickets are ranked as an S4 vegetation community, and therefore not considered sensitive, this community may provide suitable habitat for the state- and federally listed as

endangered least Bell's vireo and southwestern willow flycatcher. If either species is observed in this vegetation community during focused species surveys, then this community would be considered sensitive and would require compensatory-based mitigation for project-related impacts. Project X-066 would require tree trimming and/or removal, which would be considered significant if the arroyo willow vegetation is occupied by least Bell's vireo or southwestern willow flycatcher. Implementation of **MM-BIO-3** would reduce potential impacts to a less-than-significant level through biological reconnaissance, focused protocol surveys for least Bell's vireo and southwestern willow flycatcher (USFWS 2001; Sogge et al. 2010), and habitat-based compensatory mitigation. Therefore, the future implementation of project X-066 would result in a less-than-significant impact with mitigation.

Indirect Impacts

Similar to direct impacts, project X-066 is the only project that occurs within and immediately adjacent to a potentially sensitive natural community, the arroyo willow thickets associated with a concrete-lined channel. If this community is determined to be occupied by a state- or federally listed species then indirect impacts would be considered significant if project activities in this area result in habitat degradation or root system impacts from construction equipment use. Indirect impacts that result in habitat loss would require compensatory habitat-based mitigation through **MM-BIO-3**. Therefore, an indirect impact from the proposed program-level activities, specifically X-066, would result in a less-than-significant impact with mitigation.

3. Would the project 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?

Less-than-Significant Impact with Mitigation Incorporated. The analysis below details the project-level and program-level impacts that may occur as a direct and indirect result of project-level and program-level implementation. Direct impacts from project-level activities would have no impact on federally protected wetlands or jurisdictional waters, and indirect impacts from project-level activities would be considered less than significant. Additionally, direct impacts from program-level activities, specifically project X-066, would be considered less than significant with implementation of **MM-BIO-4.** Lastly, indirect impacts to program-level activities would be considered less than significant.

Project-Level Analysis

Direct Impacts

The project-level activities associated with Plant 1 and Plant 2, as well as the joint plant improvements, would occur immediately adjacent to the channelized Santa Ana River, which is a relatively permanent water under the jurisdiction of the USACE, RWQCB, and CDFW. Because this portion of the Santa Ana River is a concrete-lined trapezoidal channel, the limits of jurisdiction are defined as the flat channel bottom for Waters of the United States/state, and the top of each levee for CDFW jurisdiction. The Santa Ana River lacks suitable hydrophytic vegetation and soils to support federally protected wetlands or vernal pools. Based on a review of the proposed project locations within Plant 1 and Plant 2, no activities are proposed to occur outside of the facility boundaries of both plants; therefore, no potential direct impacts would occur as a result of implementing the proposed project activities within Plant 1 and Plant 2.

Additionally, the majority of the collector system improvement activities would occur within existing ROWs that do not encroach into a federally protected wetland or jurisdictional feature. However, jurisdictional resources occur within the study area of two projects—11-33, Edinger Pumping Station Replacement, and

X-063, South Santa Ana River Interceptor Connector Rehabilitation—and the air jumper rehabilitations (X-078). The Westminster Channel, a concrete-lined flood control channel, occurs adjacent to project 11-33. As currently designed, no project replacement activities would encroach into the Westminster Channel; therefore, no direct impacts to this jurisdictional feature would occur. The Santa Ana River is located below the interceptor connector line that would be rehabilitated as part of project X-063, and no proposed project activities would encroach into the Santa Ana River in order to conduct the rehabilitation. Additionally, the proposed air jumper rehabilitations for project X-076 would not result in any work activities outside the existing pipelines and manholes that would cause any ground-disturbing impact. Therefore, the project-level activities would result in no direct impact to federally protected wetlands and jurisdictional features.

Indirect Impacts

The implementation of project-level activities within Plant 1 and Plant 2 that occur adjacent to the Santa Ana River would not result in potential indirect impacts to the Santa Ana River because all projects would be contained within the confines of both facilities. There is a potential for dust from project activities within Plant 1, Plant 2, and project 11-33 to settle within the adjacent Santa Ana River and Westminster Channel, which would be considered the indirect placement of fill within a jurisdictional feature. Additionally, there may be indirect impacts to the Santa Ana River from rehabilitation project X-063 if any toxics, project materials, or non-sediment-related pollutants inadvertently fall into the River below. However, the projects within Plant 1 and Plant 2, as well as project 11-33 and X-063, would be required to implement BMPs as part of the projects' SWPPP, which would reduce potential indirect impacts. The SWPPP and BMPs, which are required by the National Pollutant Discharge Elimination System program, include straw wattles, drop inlet protection, and waste handling and disposal, among others. The SWPPP and BMPs are discussed further in Chapter 4.9 of this PEIR. Since the BMPs would reduce any potential project-related indirect impacts that may occur as a result of projects within Plant 1 and Plant 2, and replacement and rehabilitation of projects 11-33 and X-063, respectively, there would be a less-than-significant indirect impact to federally protected wetlands and jurisdictional features.

Program-Level Analysis

Direct Impacts

Direct impacts to federally protected wetland and jurisdictional waters from the program-level activities may only occur during rehabilitation activities for project X-066, the Tustin-Orange Interceptor Sewer at Reach 18 Rehabilitation project that occurs within and immediately adjacent to an unnamed concrete-lined flood control channel that is mapped as an intermittent stream and contains native riparian habitat. Project X-066 may result in the potential direct impact to a jurisdictional flood control channel. If the final project design results in encroachment or the placement of fill within this unnamed jurisdictional channel, this impact would be considered significant. **MM-BIO-4** would reduce potential impacts to a jurisdictional feature to a less-than-significant level through biological reconnaissance, jurisdictional delineation, regulatory agency permitting, and compensatory habitat-based mitigation. Therefore, direct impacts resulting from implementation of project X-066 would be less than significant with mitigation incorporated.

Indirect Impacts

Indirect impacts to federally protected wetlands and jurisdictional waters from program-level activities may only occur during rehabilitation activities for project X-071, the Edinger/Springdale Trunk Sewer

Rehabilitation project. A portion of the Edinger/Springdale trunk sewer line runs parallel to and immediately south of the Westminster Channel, which is mapped within the study area for the project. No encroachment into the Westminster Channel is proposed, but due to the project's location adjacent to the channel, there is potential for indirect impacts to occur due to the possibility of excess dust, toxics, and pollutants entering into the channel during construction activities. However, potential indirect impacts would be reduced below the level of significance through implementation of BMPs for the project's SWPPP. Therefore, potential indirect impacts to federally protected wetlands and jurisdictional features would be less than significant.

4. Would the project 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 Impact. The analysis below evaluates the project-level and program-level impacts that may occur as a direct and indirect result of project-level and program-level implementation. Direct and indirect impacts from project-level and program-level projects would result in a less-than-significant impact on wildlife movement corridors and wildlife nursery sites.

Project-Level Analysis

Direct and Indirect Impacts

The projects proposed for Plant 1, Plant 2, the joint plant improvements, and the collection systems that will be analyzed at the project level occur in previously disturbed and developed areas of Orange County. The Santa Ana River, a significant movement corridor for multiple species, occurs immediately adjacent to Plant 1 and Plant 2. However, the impacts of projects at Plant 1 and Plant 2 would remain entirely within Plant 1 and Plant 2, entirely contained within the developed boundaries of both plants. Because the proposed projects within Plant 1 and Plant 2 would not directly impede wildlife movement within the Santa Ana River, or cause an interruption in wildlife use in the region for species that rely on the Santa Ana River for movement between habitats fragmented by urban and suburban development. Additionally, the collection system improvements would be contained entirely within public ROWs and would not result in the construction of any new buildings or structures that could impede wildlife movement. The increased human presence in these areas during construction would be temporary and would not discourage local wildlife use. Furthermore, projects such as X-063, the South Santa Ana River Interceptor Connector Rehabilitation project, would cross the Santa Ana River along Imperial Highway, but would not encroach into the river or impede wildlife during construction. Therefore, potential direct and indirect impacts to project-level activities in the FMP area would be less than significant.

Program-Level Analysis

Direct Impacts and Indirect Impacts

The program-level activities proposed for Plant 1, Plant 2, and the collection system would occur primarily within disturbed and developed portions of the FMP area. Opportunities for wildlife movement occur within regional corridors such as the Santa Ana River, and local corridors that occur within concrete-lined flood control channels. Future project implementation of the program-level activities would not result in the new construction of buildings or structures that would impede or restrict the movement of wildlife within local and regional corridors. Potential direct impacts to wildlife corridors would be restricted by existing development as the scope of each program-level project would be limited to the boundaries of existing

facilities and ROWs. Potential indirect impacts to program-level projects would also be limited to the existing facility boundaries; however, while projects such as X-066, the Tustin-Orange Interceptor Sewer at Reach 18 Rehabilitation project, occur within and adjacent to a native riparian area associated with a flood control channel, this project would not permanently restrict the opportunities for wildlife to move through the area because no new permanent structures would be constructed within the channel. There may be a temporary impact during construction due to the increase in noise and human presence; however, this temporary impact would not impede wildlife movement. Therefore, implementation of the program-level projects would result in a less-than-significant direct and indirect impact on wildlife corridors and linkages.

5. Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

Less-than-Significant Impact with Mitigation Incorporated. The analysis below evaluates the project-level and program-level impacts that may occur as a direct and indirect result of project-level and program-level implementation. Direct and indirect impacts from project-level and program-level projects may have a potentially significant impact on local policies and ordinances pertaining to the protection of public and parkway trees that are trimmed or removed as part of the projects. Implementation of **MM-BIO-5** would reduce potential impacts to a less-than-significant level.

Project-Level Analysis

Direct Impacts and Indirect Impacts

Every project-level activity within the FMP area occurs within the vicinity of landscaped ornamental trees that are mainly on public property and ROWs. These activities may result in the trimming, pruning, and/or removal of street and parkway trees which would be considered a direct impact, as well as indirect impacts from encroachment and ground-disturbing activities associated with replacement and demolition activities for project activities. For project activities within the City of Huntington Beach and the City of Fountain Valley, direct and indirect impacts such as cutting, trimming, pruning, removing or injuring a tree within any street, parkway, or public place would be considered significant per Chapter 13.50 of the City of Huntington Beach Municipal Code, and Chapter 12.04 of the City of Fountain Valley Municipal Code. Implementation of **MM-BIO-5** would reduce potential direct and indirect impacts to city-protected trees to a less-than-significant level. Therefore, project-level impacts related to local policies or ordinances protecting biological resources would be less than significant with mitigation incorporated.

Program-Level Analysis

Direct Impacts and Indirect Impacts

Every program-level project within the FMP area occurs within the vicinity of landscaped ornamental trees that are mainly on public property and ROWs. These program-level project activities may result in the trimming, pruning, and/or removal of street and parkway trees, which would be considered a direct impact, as well as indirect impacts from encroachment and ground-disturbing activities associated with replacement and demolition activities. For project activities within the City of Huntington Beach and the City of Fountain Valley, direct and indirect impacts such as cutting, trimming, pruning, removing or injuring a tree within any street, parkway, or public place would be considered significant. Implementation of **MM-BIO-5** would reduce potential direct and indirect impacts to city-protected trees to a less-than-significant

level. Therefore, program-level impacts related to local policies or ordinances protecting biological resources would be less than significant with mitigation incorporated.

6. Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

No Impact. The analysis below evaluates the project-level and program-level impacts that may occur as a direct and indirect result of project-level and program-level implementation. Direct and indirect impacts from project-level and program-level activities would have no impact on an adopted HCP or NCCP.

Project-Level and Program-Level Analysis

Direct Impacts and Indirect Impacts

All projects occur partially within the Matrix Area and partially within the Central-Coastal Subarea Plan of the Orange County NCCP/HCP. For project-level and program-level projects that occur within the Matrix Area, no habitat and species conservation goals have been established for this area; therefore, no direct and indirect impacts from implementation of the project-level and program-level projects would result, and this would not conflict with the Orange County NCCP/HCP. Therefore, implementation of projects within the Matrix Area would result in no impact to the Orange County NCCP/HCP. Additionally, project-level and program-level impacts resulting from implementation of the proposed FMP activities within the Central-Coastal Subarea Plan of the Orange County NCCP/HCP would be primarily contained within existing disturbed and developed areas of Orange County. The majority of project sites that occur within and adjacent to natural and native areas, such as the Santa Ana River; concrete-lined drainages; and flood control channels that may contain or lack riparian habitats would not result in an impact to Reserve Areas or covered species and habitats because impacts would be restricted to the Matrix Area as mapped in the NCCP/HCP.

However, project 5-66, Crystal Cove Pumping Station Upgrade and Rehabilitation project, occurs adjacent to ornamental vegetation and coastal sage scrub habitat that could provide suitable habitat for the coastal California gnatcatcher, a covered species under the Orange County NCCP/HCP. While implementation of this project would not result in the removal of coastal sage scrub habitat, coastal California gnatcatcher may occur within vicinity of this project. However, based on the project site's location adjacent to Pacific Coast Highway, indirect impacts to coastal California gnatcatcher, should it be found in the immediate vicinity of the project site, are not expected to occur due to the minimal increase in noise levels during construction. Therefore, project-related impacts from the implementation of both project-level and program-level projects are expected to have no impact on the provisions of an adopted NCCP/HCP, and no mitigation is required.

4.3.5 Mitigation Measures

The following mitigation measures would reduce impacts from project-level and program-level projects that would result in potential impacts to nesting birds, special-status species, sensitive natural communities, jurisdictional waters and wetlands, and public and parkway trees.

MM-BIO-1 **Nesting Bird Avoidance.** Construction activities for project-level and program-level projects shall avoid the migratory bird nesting season (typically February 1 through August 31), to reduce any potential

significant impact to birds that may be nesting within 500 feet of project sites. If construction activities must occur during the migratory bird nesting season, an avian nesting survey of the project site and suitable habitat within 500 feet of the site shall be conducted for protected migratory birds and active nests. The avian nesting survey shall be performed by a qualified biologist meeting the standards in the field within 72 hours prior to the start of construction in accordance with the Migratory Bird Treaty Act (16 USC 703–712) and California Fish and Game Code, Sections 3503, 3503.5, and 3513. If an active bird nest is found, the nest shall be flagged and an appropriate buffer established around the nest, which shall be determined by the biologist based on the species' sensitivity to disturbance (up to 300 feet for passerines and up to 500 feet for raptors and special-status species). The nest area shall be avoided until the nest is vacated and the juveniles have fledged. No project activities may encroach into the buffer until a qualified biologist has determined that the nestlings have fledged, and the nest is no longer active.

MM-BIO-2 **Special-Status Species Surveys and Mitigation**. For any program-level projects identified in this program environmental impact report (PEIR) that may result in a significant impact to a special-status species, a biological reconnaissance of the project site will be conducted by a qualified biologist within 1 year prior to the start of construction of future program-level projects to determine if suitable habitat for special-status species occurs on the project site. If suitable habitat is present on or within the immediate vicinity (100–500 feet) of the project site, additional focused surveys and subsequent mitigation measures will be required as described below. The following species-specific measures will be implemented for projects identified with a potential to contain suitable habitat for special-status species.

Least Bell's Vireo and Southwestern Willow Flycatcher Protocol Level Surveys. As determined by a qualified biologist during the biological reconnaissance described above for program-level projects that would result in potential direct and indirect impacts to willow riparian habitat, specifically project X-066, U.S. Fish and Wildlife Survey (USFWS) protocol surveys for least Bell's vireo and southwestern willow flycatcher must be conducted by a biologist holding a USFWS permit for least bell's vireo and southwestern willow flycatcher to determine the presence or absence of these species on the project site and within 500 feet of the project site. Prior to construction, a total of eight visits are required to cover both species (three least Bell's vireo-only surveys and five combined least Bell's vireo and southwestern willow flycatcher surveys) with a minimum 10-day interval between surveys. If either listed species is observed during focused protocol surveys, all project activities shall cease during the combined nesting season of April through July to reduce impacts to a less-than-significant level.

However, if project activities cannot avoid the nesting season, potential direct impacts to either species may occur, which would be considered significant. To reduce impacts to less than significant, prior to implementing the project consultation with USFWS and the California Department of Fish and Wildlife (CDFW) will be required to initiate Section 7/10 consultation under the federal Endangered Species Act and apply for an Incidental Take Permit under Section 2081 of California Fish and Game Code. Additionally, impacts to occupied habitat for either species will require compensatory habitat-based mitigation through either the restoration of habitat and long-term conservation through a habitat conservation plan or through the purchase of mitigation credits at a minimum 1:1 ratio from an approved mitigation bank that sells credits for the conservation, creation, and enhancement of similar habitat types. However, the final mitigation strategy will be determined through agency consultation.

Burrowing Owl Focused Surveys. For program-level projects that occur in the vicinity of disturbed habitat that could provide suitable nesting habitat for burrowing owl with nearby occurrences, specifically projects X-086 and 5-66, focused surveys for burrowing owl shall be conducted in order to positively determine burrowing owl presence or absence prior to the start of construction as described below. In accordance with the protocol outlined in the 2012 California Department of Fish and Game Staff Report on Burrowing Owl Mitigation, four survey visits will be conducted by a qualified biologist on the study area (project site plus 500-foot buffer), spaced apart to allow an adequate amount of time to detect burrowing owl throughout the breeding season. At least one survey will be conducted between February 15 and April 15, and a minimum of three surveys conducted at least 3 weeks apart between April 15 and July 15, with at least one visit after June 15.

If burrowing owl is found within the study area, then avoidance of the owl's breeding season of February through July should occur to reduce potential indirect impacts to a less-than-significant level. If the breeding season cannot be avoided, then a qualified biologist must be on site during all project activities to monitor if adjacent construction noise (within 500 feet) and increased human presence are resulting in significant harassment of a nesting owl. If the biological monitor determines that project activities are significantly harassing burrowing owl, all activities shall halt until the nesting season has concluded. Because no suitable habitat for this species will be impacted, no compensatory habitat-based mitigation will be required.

Coastal California Gnatcatcher Surveys. For program-level projects that occur within suitable Coastal California gnatcatcher habitat, specifically project X-086, surveys shall be conducted by a qualified biologist to determine the presence/absence of this species prior to the start of construction as described below. Because project X-086 is not located within a Natural Community Conservation Plan area, per the 1997 USFWS Coastal California Gnatcatcher (*Polioptila californica californica*) Presence/Absence Survey Guidelines, six survey visits are required from March 15 through June 30 at least 1 week apart. If this species is absent, no further action is required.

If this species is present within the survey area (project site plus 500-foot buffer), the nest location will be recorded. There is a potential for indirect impacts to occur if construction commences during the breeding season (February 15 to August 31). Therefore, project activities for project X-086 shall avoid the breeding season to avoid potential indirect impacts. If construction must occur during the breeding season when this species is present, a biological monitor will be on site to determine if adjacent project activities will result in the significant harassment and potential nest failure of a nesting gnatcatcher. If the biological monitor determines significant harassment is occurring, project activities must halt until the nesting season has concluded and the biological monitor verifies the nest is no longer active. If construction results in nest failure and ultimate take of the species, consultation with USFWS will be required to permit the take and mitigate for species loss through the Section 7/10 process of the federal Endangered Species Act. Because no direct impacts through habitat removal will occur, no compensatory habitat-based mitigation or agency permitting is required.

Tricolored Blackbird Preconstruction Survey. Within 10 days prior to construction, a qualified biologist knowledgeable in tri-colored blackbird biology shall conduct a preconstruction survey within areas of suitable habitat for tricolored blackbird, such as Carr Park adjacent to project X-071. The biologist shall look for tricolored blackbirds that may be located within or immediately adjacent to the project site (within 500 feet). If any tricolored blackbirds are found, the biologist shall identify their location for avoidance and establish a buffer of up to 500 feet. If tricolored

blackbird are found and cannot be avoided by the project, additional mitigation will be required to comply with the California Endangered Species Act, such as applying for an Incidental Take Permit under Section 2081 of California Fish and Game Code prior to project implementation. Additionally, impacts to occupied habitat for this species will require compensatory habitat-based mitigation through the purchase of mitigation credits at a minimum 1:1 ratio from an approved mitigation bank. The final mitigation ratio will be determined through consultation with CDFW.

MM-BIO-3 **Sensitive Natural Communities**. If it is determined through implementation of **MM-BIO-2** that least Bell's vireo and/or southwestern willow flycatcher occur within suitable habitat within the project X-066 study area (project site plus 500-foot buffer area), and the final project design will result in tree trimming or vegetation removal, the following compensatory habitat-based mitigation will be required prior to project implementation. Mitigation will be carried out by the Orange County Sanitation District (Sanitation District) working with the regulatory agencies and can include the following options:

A. Conduct on-site or off-site habitat restoration of in-kind habitat at a ratio agreed upon by the regulatory agencies.

B. On-site revegetation of habitat will be identified in a habitat mitigation monitoring plan (HMMP) that meets regulatory agency standards, which also includes the design for restoration, monitoring requirements to determine if established performance criteria is met, and recommended remedial measures. The HMMP will also include enhancement activities of the remaining habitat on site.

C. If on-site restoration/enhancement is not feasible, the Sanitation District may also purchase off-site mitigation credits from a California Department of Fish and Wildlife-approved mitigation bank in the region that sells credits for the conservation, creation, and enhancement of similar habitat types.

MM-BIO-4 **Jurisdictional Waters and Wetlands**. Direct impacts to jurisdictional waters that may occur through program-level projects such as project X-066, shall be addressed during project-level California Environmental Quality Act review of the project prior to implementation through first a biological reconnaissance conducted by a qualified biologist, and a delineation of waters and wetlands to determine potential regulatory agency jurisdiction. If the reconnaissance and delineation determine potentially jurisdictional waters or wetlands occur and may be impacted by the project, mitigation to reduce impacts will be determined through the regulatory application process to implement Clean Water Act Section 401 and Section 404, the Porter-Cologne Water Quality Act, and California Fish and Game Code Section 1602. Direct impacts to jurisdictional non-wetland waters shall be mitigated through either the on-site restoration of habitat discussed in **MM-BIO-3**, or through the purchase of off-site mitigation credits. The Orange County Sanitation District may purchase credits through an agency-approved mitigation bank, in-lieu fee program, or other agreement. A ratio agreed upon by the regulatory agencies for establishment or reestablishment credits will be required for impacts to jurisdictional waters and associated willow riparian habitat. The compensatory mitigation ratio is based on the existing relatively low-quality aquatic resources that occur on the project site. However, the final mitigation ratio required will be determined through consultation with the regulatory resource agencies during the permitting process.

MM-BIO-5 **Public and Parkway Trees**. If the final project design for project-level and program-level projects determines that public and parkway trees may be impacted during project construction for any project-level and program-level projects that occur within the City of Huntington Beach, the City of

Fountain Valley, and any other city with a tree protection ordinance, a permit or permission from the applicable city must be obtained prior to cutting, trimming, pruning, or removing any tree, shrub or plant.

4.3.6 Level of Significance After Mitigation

With implementation of **MM-BIO-1** through **MM-BIO-5**, project-level and program-level impacts to biological resources would be reduced to a less-than-significant level.

4.3.7 Cumulative Impacts

The vast majority of the project-level and program-level projects proposed for the FMP would be primarily contained within existing developed facilities and ROWs that do not provide habitat for sensitive biological resources, beyond the potential to support nesting birds. The projects within existing ROWs would also not construct any new buildings or structures that would result in an impact to the land or cause an obstruction to wildlife moving through the region. And no conflicts with conservation plans would occur during the construction/implementation of any of the proposed FMP projects. Therefore, the majority of the proposed program would not result in a cumulatively considerable impact to biological resources within the service area. However, there are several projects that may result in a significant impact to biological resources that would require mitigation to reduce impacts. These projects are locally restricted to a relatively small footprint, but occur within or immediately adjacent to special-status species, sensitive natural communities, or jurisdictional waters. Project-level and program-level impacts would be reduced to a less-than-significant level through implementation of **MM-BIO-1** through **MM-BIO-5.** With implementation of these mitigation measures and due to the proposed impacts within existing developed areas, the proposed project-level and program-level projects would not contribute to a cumulatively considerable impact to biological resources, and no further measures to reduce impacts on a cumulative scale would be required.

4.3.8 Impact Summary

Table 4.3-4 summarizes the impacts for the FMP projects assessed at the project level at Plant 1, Plant 2, joint plant projects, and collection system projects under each threshold analyzed in this PEIR. Program-level impacts are not summarized in this table, but can be found in the impacts analysis in this chapter.

Table 4.3-4. Summary of FMP Project-Level Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures[a]	Level of Significance After Mitigation
Would the project 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 California Department of Fish and Game or U.S. Fish and Wildlife Service?					
Plant 1					
P1-126	Primary Clarifiers Replacements and Improvements	Replace	Significant	MM-BIO-1	Less than Significant
X-093	Administrative Facilities and Power Building 3A Demolition	Misc. (Demo)	Significant	MM-BIO-1	Less than Significant

Table 4.3-4. Summary of FMP Project-Level Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures[a]	Level of Significance After Mitigation
X-092	Standby Generator Feeders for Plant 1 Secondary Systems	Misc.	Significant	MM-BIO-1	Less than Significant
X-048	Activated Sludge (AS)-1 Aeration Basin and Blower Rehabilitation	Rehab	Significant	MM-BIO-1	Less than Significant
P1-135	Digester Ferric Piping Replacement	Replace	Significant	MM-BIO-1	Less than Significant
X-077	Switchgear Replacement at Central Generation	Replace	Significant	MM-BIO-1	Less than Significant
X-090	Network, Telecommunications, and Service Relocation at Plant 1	Misc.	Significant	MM-BIO-1	Less than Significant
Plant 2					
P2-126	Substation and Warehouse Replacement at Plant 2	Misc.	Significant	MM-BIO-1	Less than Significant
P2-138	Operations and Maintenance Complex at Plant 2	Replace	Significant	MM-BIO-1	Less than Significant
X-050	Activated Sludge (AS) Aeration Basin	Rehab	Significant	MM-BIO-1	Less than Significant
X-032	Truck Loading Facility Rehabilitation	Rehab	Significant	MM-BIO-1	Less than Significant
X-054	Waste Side-Stream Pump Station C Rehabilitation	Rehab	Significant	MM-BIO-1	Less than Significant
X-034	Sodium Bisulfite Station Replacement and Bleach Station Demolition	Replace	Significant	MM-BIO-1	Less than Significant
Joint Plant Projects					
J-98	Plantwide Miscellaneous Electrical Power Distribution System Improvements	Replace	Significant	MM-BIO-1	Less than Significant
J-120	Plantwide Miscellaneous Process Control Systems Upgrades	Replace	Significant	MM-BIO-1	Less than Significant
J-133	Laboratory Rehabilitation or Replacement at Plant 1	Rehab	Significant	MM-BIO-1	Less than Significant
X-057	Plantwide Miscellaneous Yard Structures Rehabilitation or Replacement	Misc.	Significant	MM-BIO-1	Less than Significant
X-058	Plantwide Miscellaneous Yard Piping Replacement	Replace	Significant	MM-BIO-1	Less than Significant
X-059	Plantwide Miscellaneous Tunnels Rehabilitation	Rehab	Significant	MM-BIO-1	Less than Significant
J-121	UPS System Upgrades	Replace	Significant	MM-BIO-1	Less than Significant
X-044	Steve Anderson Lift Station Rehabilitation	Rehab	Significant	MM-BIO-1	Less than Significant

Table 4.3-4. Summary of FMP Project-Level Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures[a]	Level of Significance After Mitigation
Collection System Projects					
5-68	Newport Beach Pump Station Odor Control Improvements	Misc.	Significant	MM-BIO-1	Less than Significant
X-076	Santa Ana Trunk Sewer Rehabilitation Phase II	Rehab	Significant	MM-BIO-1	Less than Significant
X-082	North Trunk Improvement Project	Replace	Significant	MM-BIO-1	Less than Significant
X-060	Newhope Placentia Chemical Dosing Station	Misc.	Significant	MM-BIO-1	Less than Significant
11-33	Edinger Pumping Station Replacement	Replace	Significant	MM-BIO-1	Less than Significant
X-063	South Santa Ana River Interceptor Connector Rehabilitation	Rehab	Significant	MM-BIO-1	Less than Significant
2-73	Yorba Linda Pump Station Abandonment	Misc.	Significant	MM-BIO-1	Less than Significant
3-67	Seal Beach Pump Station Replacement	Replace	Significant	MM-BIO-1	Less than Significant
2-49	Taft Branch Sewer Improvements	Replace	Significant	MM-BIO-1	Less than Significant
X-083	Greenville–Sullivan Sewer Relief Project	Replace	Significant	MM-BIO-1	Less than Significant
Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?					
Plant 1					
P1-126	Primary Clarifiers Replacements and Improvements	Replace	No Impact	—	No Impact
X-093	Administrative Facilities and Power Building 3A Demolition	Misc. (Demo)	No Impact	—	No Impact
X-092	Standby Generator Feeders for Plant 1 Secondary Systems	Misc.	No Impact	—	No Impact
X-048	Activated Sludge (AS)-1 Aeration Basin and Blower Rehabilitation	Rehab	No Impact	—	No Impact
P1-135	Digester Ferric Piping Replacement	Replace	No Impact	—	No Impact
X-077	Switchgear Replacement at Central Generation	Replace	No Impact	—	No Impact
X-090	Network, Telecommunications, and Service Relocation at Plant 1	Misc.	No Impact	—	No Impact
Plant 2					
P2-126	Substation and Warehouse Replacement at Plant 2	Misc.	No Impact	—	No Impact
P2-138	Operations and Maintenance Complex at Plant 2	Replace	No Impact	—	No Impact

Table 4.3-4. Summary of FMP Project-Level Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures[a]	Level of Significance After Mitigation
X-050	Activated Sludge (AS) Aeration Basin	Rehab	No Impact	—	No Impact
X-032	Truck Loading Facility Rehabilitation	Rehab	No Impact	—	No Impact
X-054	Waste Side-Stream Pump Station C Rehabilitation	Rehab	No Impact	—	No Impact
X-034	Sodium Bisulfite Station Replacement and Bleach Station Demolition	Replace	No Impact	—	No Impact
Joint Plant Projects					
J-98	Plantwide Miscellaneous Electrical Power Distribution System Improvements	Replace	No Impact	—	No Impact
J-120	Plantwide Miscellaneous Process Control Systems Upgrades	Replace	No Impact	—	No Impact
J-133	Laboratory Rehabilitation or Replacement at Plant 1	Rehab	No Impact	—	No Impact
X-057	Plantwide Miscellaneous Yard Structures Rehabilitation or Replacement	Misc.	No Impact	—	No Impact
X-058	Plantwide Miscellaneous Yard Piping Replacement	Replace	No Impact	—	No Impact
X-059	Plantwide Miscellaneous Tunnels Rehabilitation	Rehab	No Impact	—	No Impact
J-121	UPS System Upgrades	Replace	No Impact	—	No Impact
X-044	Steve Anderson Lift Station Rehabilitation	Rehab	No Impact	—	No Impact
Collection System Projects					
5-68	Newport Beach Pump Station Odor Control Improvements	Misc.	No Impact	—	No Impact
X-076	Santa Ana Trunk Sewer Rehabilitation Phase II	Rehab	No Impact	—	No Impact
X-082	North Trunk Improvement Project	Replace	No Impact	—	No Impact
X-060	Newhope Placentia Chemical Dosing Station	Misc.	No Impact	—	No Impact
11-33	Edinger Pumping Station Replacement	Replace	No Impact	—	No Impact
X-063	South Santa Ana River Interceptor Connector Rehabilitation	Rehab	No Impact	—	No Impact
2-73	Yorba Linda Pump Station Abandonment	Misc.	No Impact	—	No Impact
3-67	Seal Beach Pump Station Replacement	Replace	No Impact	—	No Impact
2-49	Taft Branch Sewer Improvements	Replace	No Impact	—	No Impact
X-083	Greenville–Sullivan Sewer Relief Project	Replace	No Impact	—	No Impact

Table 4.3-4. Summary of FMP Project-Level Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures[a]	Level of Significance After Mitigation
Would the project 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 1					
P1-126	Primary Clarifiers Replacements and Improvements	Replace	Less than Significant	—	Less than Significant
X-093	Administrative Facilities and Power Building 3A Demolition	Misc. (Demo)	Less than Significant	—	Less than Significant
X-092	Standby Generator Feeders for Plant 1 Secondary Systems	Misc.	Less than Significant	—	Less than Significant
X-048	Activated Sludge (AS)-1 Aeration Basin and Blower Rehabilitation	Rehab	Less than Significant	—	Less than Significant
P1-135	Digester Ferric Piping Replacement	Replace	Less than Significant	—	Less than Significant
X-077	Switchgear Replacement at Central Generation	Replace	Less than Significant	—	Less than Significant
X-090	Network, Telecommunications, and Service Relocation at Plant 1	Misc.	Less than Significant	—	Less than Significant
Plant 2					
P2-126	Substation and Warehouse Replacement at Plant 2	Misc.	Less than Significant	—	Less than Significant
P2-138	Operations and Maintenance Complex at Plant 2	Replace	Less than Significant	—	Less than Significant
X-050	Activated Sludge (AS) Aeration Basin	Rehab	Less than Significant	—	Less than Significant
X-032	Truck Loading Facility Rehabilitation	Rehab	Less than Significant	—	Less than Significant
X-054	Waste Side-Stream Pump Station C Rehabilitation	Rehab	Less than Significant	—	Less than Significant
X-034	Sodium Bisulfite Station Replacement and Bleach Station Demolition	Replace	Less than Significant	—	Less than Significant
Joint Plant Projects					
J-98	Plantwide Miscellaneous Electrical Power Distribution System Improvements	Replace	Less than Significant	—	Less than Significant
J-120	Plantwide Miscellaneous Process Control Systems Upgrades	Replace	Less than Significant	—	Less than Significant
J-133	Laboratory Rehabilitation or Replacement at Plant 1	Rehab	Less than Significant	—	Less than Significant
X-057	Plantwide Miscellaneous Yard Structures Rehabilitation or Replacement	Misc.	Less than Significant	—	Less than Significant

Table 4.3-4. Summary of FMP Project-Level Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures[a]	Level of Significance After Mitigation
X-058	Plantwide Miscellaneous Yard Piping Replacement	Replace	Less than Significant	—	Less than Significant
X-059	Plantwide Miscellaneous Tunnels Rehabilitation	Rehab	Less than Significant	—	Less than Significant
J-121	UPS System Upgrades	Replace	Less than Significant	—	Less than Significant
X-044	Steve Anderson Lift Station Rehabilitation	Rehab	Less than Significant	—	Less than Significant
Collection System Projects					
5-68	Newport Beach Pump Station Odor Control Improvements	Misc.	Less than Significant	—	Less than Significant
X-076	Santa Ana Trunk Sewer Rehabilitation Phase II	Rehab	Less than Significant	—	Less than Significant
X-082	North Trunk Improvement Project	Replace	Less than Significant	—	Less than Significant
X-060	Newhope Placentia Chemical Dosing Station	Misc.	Less than Significant	—	Less than Significant
11-33	Edinger Pumping Station Replacement	Replace	Less than Significant	—	Less than Significant
X-063	South Santa Ana River Interceptor Connector Rehabilitation	Rehab	Less than Significant	—	Less than Significant
2-73	Yorba Linda Pump Station Abandonment	Misc.	Less than Significant	—	Less than Significant
3-67	Seal Beach Pump Station Replacement	Replace	Less than Significant	—	Less than Significant
2-49	Taft Branch Sewer Improvements	Replace	Less than Significant	—	Less than Significant
X-083	Greenville–Sullivan Sewer Relief Project	Replace	Less than Significant	—	Less than Significant
Would the project 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?					
Plant 1					
P1-126	Primary Clarifiers Replacements and Improvements	Replace	Less than Significant	—	Less than Significant
X-093	Administrative Facilities and Power Building 3A Demolition	Misc. (Demo)	Less than Significant	—	Less than Significant
X-092	Standby Generator Feeders for Plant 1 Secondary Systems	Misc.	Less than Significant	—	Less than Significant
X-048	Activated Sludge (AS)-1 Aeration Basin and Blower Rehabilitation	Rehab	Less than Significant	—	Less than Significant
P1-135	Digester Ferric Piping Replacement	Replace	Less than Significant	—	Less than Significant

Table 4.3-4. Summary of FMP Project-Level Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures[a]	Level of Significance After Mitigation
X-077	Switchgear Replacement at Central Generation	Replace	Less than Significant	—	Less than Significant
X-090	Network, Telecommunications, and Service Relocation at Plant 1	Misc.	Less than Significant	—	Less than Significant
Plant 2					
P2-126	Substation and Warehouse Replacement at Plant 2	Misc.	Less than Significant	—	Less than Significant
P2-138	Operations and Maintenance Complex at Plant 2	Replace	Less than Significant	—	Less than Significant
X-050	Activated Sludge (AS) Aeration Basin	Rehab	Less than Significant	—	Less than Significant
X-032	Truck Loading Facility Rehabilitation	Rehab	Less than Significant	—	Less than Significant
X-054	Waste Side-Stream Pump Station C Rehabilitation	Rehab	Less than Significant	—	Less than Significant
X-034	Sodium Bisulfite Station Replacement and Bleach Station Demolition	Replace	Less than Significant	—	Less than Significant
Joint Plant Projects					
J-98	Plantwide Miscellaneous Electrical Power Distribution System Improvements	Replace	Less than Significant	—	Less than Significant
J-120	Plantwide Miscellaneous Process Control Systems Upgrades	Replace	Less than Significant	—	Less than Significant
J-133	Laboratory Rehabilitation or Replacement at Plant 1	Rehab	Less than Significant	—	Less than Significant
X-057	Plantwide Miscellaneous Yard Structures Rehabilitation or Replacement	Misc.	Less than Significant	—	Less than Significant
X-058	Plantwide Miscellaneous Yard Piping Replacement	Replace	Less than Significant	—	Less than Significant
X-059	Plantwide Miscellaneous Tunnels Rehabilitation	Rehab	Less than Significant	—	Less than Significant
J-121	UPS System Upgrades	Replace	Less than Significant	—	Less than Significant
X-044	Steve Anderson Lift Station Rehabilitation	Rehab	Less than Significant	—	Less than Significant
Collection System Projects					
5-68	Newport Beach Pump Station Odor Control Improvements	Misc.	Less than Significant	—	Less than Significant
X-076	Santa Ana Trunk Sewer Rehabilitation Phase II	Rehab	Less than Significant	—	Less than Significant
X-082	North Trunk Improvement Project	Replace	Less than Significant	—	Less than Significant

Table 4.3-4. Summary of FMP Project-Level Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures[a]	Level of Significance After Mitigation
X-060	Newhope Placentia Chemical Dosing Station	Misc.	Less than Significant	—	Less than Significant
11-33	Edinger Pumping Station Replacement	Replace	Less than Significant	—	Less than Significant
X-063	South Santa Ana River Interceptor Connector Rehabilitation	Rehab	Less than Significant	—	Less than Significant
2-73	Yorba Linda Pump Station Abandonment	Misc.	Less than Significant	—	Less than Significant
3-67	Seal Beach Pump Station Replacement	Replace	Less than Significant	—	Less than Significant
2-49	Taft Branch Sewer Improvements	Replace	Less than Significant	—	Less than Significant
X-083	Greenville–Sullivan Sewer Relief Project	Replace	Less than Significant	—	Less than Significant
Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?					
Plant 1					
P1-126	Primary Clarifiers Replacements and Improvements	Replace	Significant	MM-BIO-5	Less than Significant
X-093	Administrative Facilities and Power Building 3A Demolition	Misc. (Demo)	Significant	MM-BIO-5	Less than Significant
X-092	Standby Generator Feeders for Plant 1 Secondary Systems	Misc.	Significant	MM-BIO-5	Less than Significant
X-048	Activated Sludge (AS)-1 Aeration Basin and Blower Rehabilitation	Rehab	Significant	MM-BIO-5	Less than Significant
P1-135	Digester Ferric Piping Replacement	Replace	Significant	MM-BIO-5	Less than Significant
X-077	Switchgear Replacement at Central Generation	Replace	Significant	MM-BIO-5	Less than Significant
X-090	Network, Telecommunications, and Service Relocation at Plant 1	Misc.	Significant	MM-BIO-5	Less than Significant
Plant 2					
P2-126	Substation and Warehouse Replacement at Plant 2	Misc.	Significant	MM-BIO-5	Less than Significant
P2-138	Operations and Maintenance Complex at Plant 2	Replace	Significant	MM-BIO-5	Less than Significant
X-050	Activated Sludge (AS) Aeration Basin	Rehab	Significant	MM-BIO-5	Less than Significant
X-032	Truck Loading Facility Rehabilitation	Rehab	Significant	MM-BIO-5	Less than Significant
X-054	Waste Side-Stream Pump Station C Rehabilitation	Rehab	Significant	MM-BIO-5	Less than Significant

Table 4.3-4. Summary of FMP Project-Level Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures[a]	Level of Significance After Mitigation
X-034	Sodium Bisulfite Station Replacement and Bleach Station Demolition	Replace	Significant	MM-BIO-5	Less than Significant
Joint Plant Projects					
J-98	Plantwide Miscellaneous Electrical Power Distribution System Improvements	Replace	Less than Significant	MM-BIO-5	Less than Significant
J-120	Plantwide Miscellaneous Process Control Systems Upgrades	Replace	Less than Significant	MM-BIO-5	Less than Significant
J-133	Laboratory Rehabilitation or Replacement at Plant 1	Rehab	Less than Significant	MM-BIO-5	Less than Significant
X-057	Plantwide Miscellaneous Yard Structures Rehabilitation or Replacement	Misc.	Less than Significant	MM-BIO-5	Less than Significant
X-058	Plantwide Miscellaneous Yard Piping Replacement	Replace	Less than Significant	MM-BIO-5	Less than Significant
X-059	Plantwide Miscellaneous Tunnels Rehabilitation	Rehab	Less than Significant	MM-BIO-5	Less than Significant
J-121	UPS System Upgrades	Replace	Less than Significant	MM-BIO-5	Less than Significant
X-044	Steve Anderson Lift Station Rehabilitation	Rehab	Less than Significant	MM-BIO-5	Less than Significant
Collection System Projects					
5-68	Newport Beach Pump Station Odor Control Improvements	Misc.	Less than Significant	MM-BIO-5	Less than Significant
X-076	Santa Ana Trunk Sewer Rehabilitation Phase II	Rehab	Significant	MM-BIO-5	Less than Significant
X-082	North Trunk Improvement Project	Replace	Significant	MM-BIO-5	Less than Significant
X-060	Newhope Placentia Chemical Dosing Station	Misc.	Less than Significant	MM-BIO-5	Less than Significant
11-33	Edinger Pumping Station Replacement	Replace	Significant	MM-BIO-5	Less than Significant
X-063	South Santa Ana River Interceptor Connector Rehabilitation	Rehab	Significant	MM-BIO-5	Less than Significant
2-73	Yorba Linda Pump Station Abandonment	Misc.	Significant	MM-BIO-5	Less than Significant
3-67	Seal Beach Pump Station Replacement	Replace	Significant	MM-BIO-5	Less than Significant
2-49	Taft Branch Sewer Improvements	Replace	Significant	MM-BIO-5	Less than Significant
X-083	Greenville–Sullivan Sewer Relief Project	Replace	Significant	MM-BIO-5	Less than Significant

Table 4.3-4. Summary of FMP Project-Level Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures[a]	Level of Significance After Mitigation
Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?					
Plant 1					
P1-126	Primary Clarifiers Replacements and Improvements	Replace	No Impact	—	No Impact
X-093	Administrative Facilities and Power Building 3A Demolition	Misc. (Demo)	No Impact	—	No Impact
X-092	Standby Generator Feeders for Plant 1 Secondary Systems	Misc.	No Impact	—	No Impact
X-048	Activated Sludge (AS)-1 Aeration Basin and Blower Rehabilitation	Rehab	No Impact	—	No Impact
P1-135	Digester Ferric Piping Replacement	Replace	No Impact	—	No Impact
X-077	Switchgear Replacement at Central Generation	Replace	No Impact	—	No Impact
X-090	Network, Telecommunications, and Service Relocation at Plant 1	Misc.	No Impact	—	No Impact
Plant 2					
P2-126	Substation and Warehouse Replacement at Plant 2	Misc.	No Impact	—	No Impact
P2-138	Operations and Maintenance Complex at Plant 2	Replace	No Impact	—	No Impact
X-050	Activated Sludge (AS) Aeration Basin	Rehab	No Impact	—	No Impact
X-032	Truck Loading Facility Rehabilitation	Rehab	No Impact	—	No Impact
X-054	Waste Side-Stream Pump Station C Rehabilitation	Rehab	No Impact	—	No Impact
X-034	Sodium Bisulfite Station Replacement and Bleach Station Demolition	Replace	No Impact	—	No Impact
Joint Plant Projects					
J-98	Plantwide Miscellaneous Electrical Power Distribution System Improvements	Replace	No Impact	—	No Impact
J-120	Plantwide Miscellaneous Process Control Systems Upgrades	Replace	No Impact	—	No Impact
J-133	Laboratory Rehabilitation or Replacement at Plant 1	Rehab	No Impact	—	No Impact
X-057	Plantwide Miscellaneous Yard Structures Rehabilitation or Replacement	Misc.	No Impact	—	No Impact
X-058	Plantwide Miscellaneous Yard Piping Replacement	Replace	No Impact	—	No Impact
X-059	Plantwide Miscellaneous Tunnels Rehabilitation	Rehab	No Impact	—	No Impact
J-121	UPS System Upgrades	Replace	No Impact	—	No Impact

Table 4.3-4. Summary of FMP Project-Level Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures[a]	Level of Significance After Mitigation
X-044	Steve Anderson Lift Station Rehabilitation	Rehab	No Impact	—	No Impact
Collection System Projects					
5-68	Newport Beach Pump Station Odor Control Improvements	Misc.	No Impact	—	No Impact
X-076	Santa Ana Trunk Sewer Rehabilitation Phase II	Rehab	No Impact	—	No Impact
X-082	North Trunk Improvement Project	Replace	No Impact	—	No Impact
X-060	Newhope Placentia Chemical Dosing Station	Misc.	No Impact	—	No Impact
11-33	Edinger Pumping Station Replacement	Replace	No Impact	—	No Impact
X-063	South Santa Ana River Interceptor Connector Rehabilitation	Rehab	No Impact	—	No Impact
2-73	Yorba Linda Pump Station Abandonment	Misc.	No Impact	—	No Impact
3-67	Seal Beach Pump Station Replacement	Replace	No Impact	—	No Impact
2-49	Taft Branch Sewer Improvements	Replace	No Impact	—	No Impact
X-083	Greenville–Sullivan Sewer Relief Project	Replace	No Impact	—	No Impact

Notes: UPS = uninterruptible power system.
[a] **MM-BIO-2** through **MM-BIO-4** only apply to program-level impacts; therefore, they are not listed in this table.

4.3.9 References

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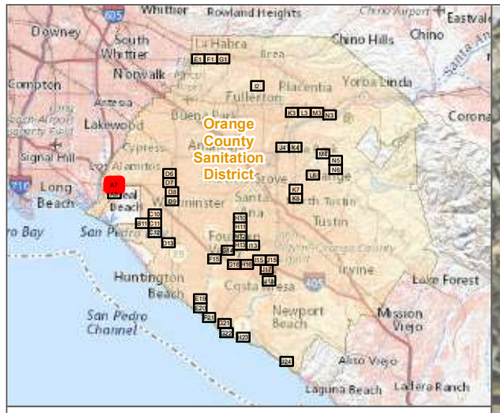


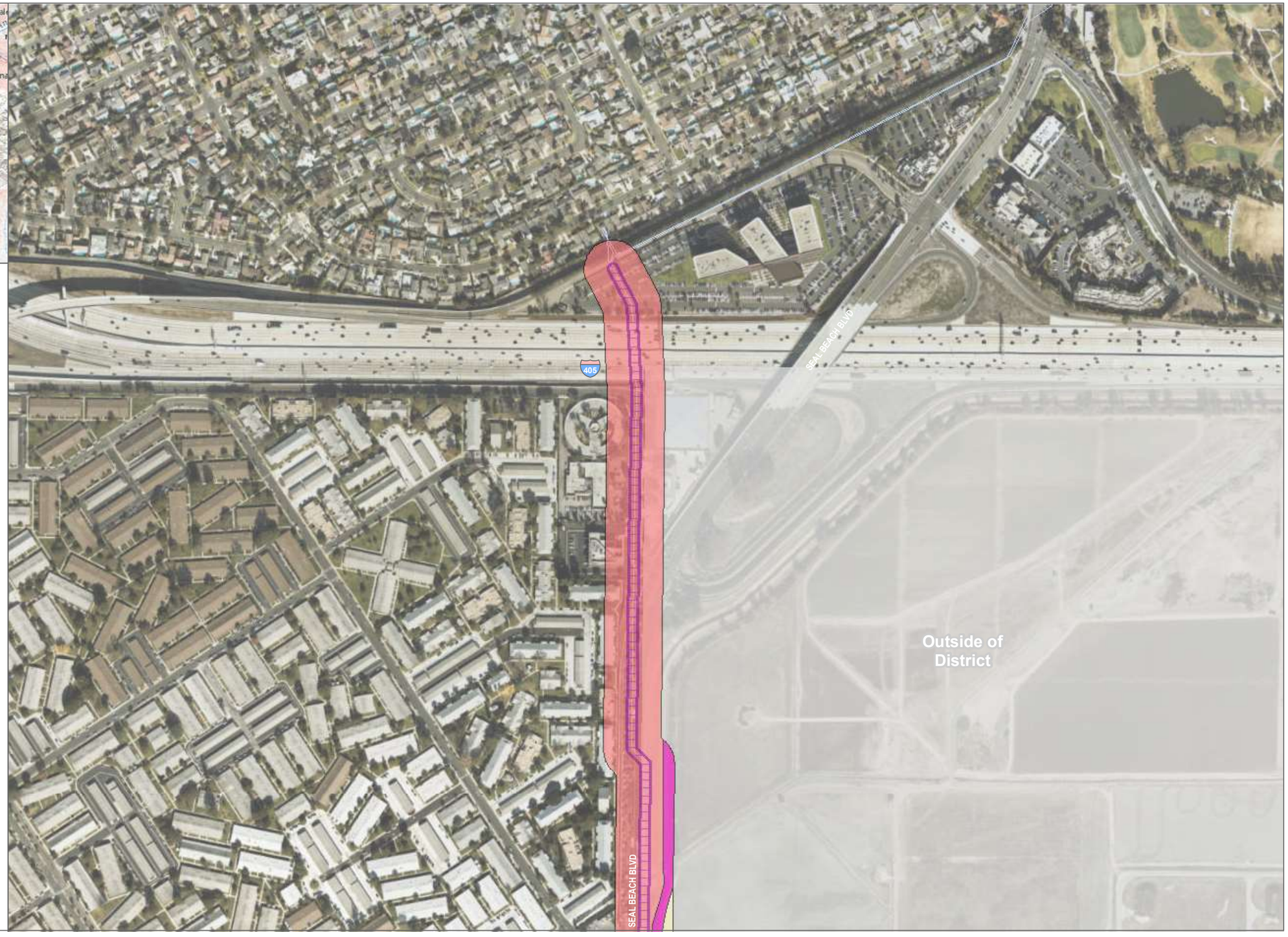
Collections System

Vegetation Communities

- AGR - General Agriculture
- DEV - Urban/Developed
- ORN - Parks and ornamental plantings

Project Type

- Miscellaneous



SOURCE: Port of Long Beach 2017 - Maxar 2019; CNDDB 2020

DUDEK

0 205 410 Feet

FIGURE 4.3-1

Biological Resources - Grid A7

Sanitation District Facilities Master Plan PEIR

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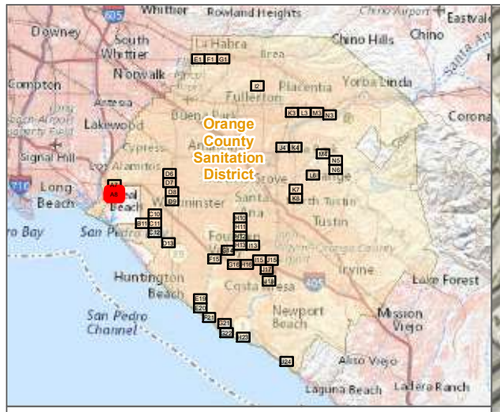

Collections System

Vegetation Communities

- AGR - General Agriculture
- DEV - Urban/Developed
- ORN - Parks and ornamental plantings
- P Pump Station

Project Type

- Replacement
- Miscellaneous

Outside of District

WESTMINSTER BLVD

SEAL BEACH BLVD

SOURCE: Port of Long Beach 2017 - Maxar 2019; CNDDB 2020

DUDEK

0 205 410 Feet

FIGURE 4.3-2

Biological Resources - Grid A8

Sanitation District Facilities Master Plan PEIR

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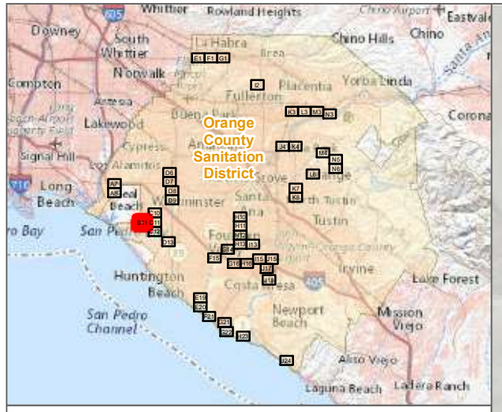

Collections System

Vegetation Communities

DEV - Urban/Developed

OW - Open water

P Pump Station

Project Type

Replacement

Rehabilitation

Outside of District

BOLSA CHICA ST

EDINGER AV

EDINGER

BOLSA CHICA

P

SOURCE: Port of Long Beach 2017 - Maxar 2019; CNDDB 2020

DUDEK

0 205 410 Feet

FIGURE 4.3-3

Biological Resources - Grid B11

Sanitation District Facilities Master Plan PEIR

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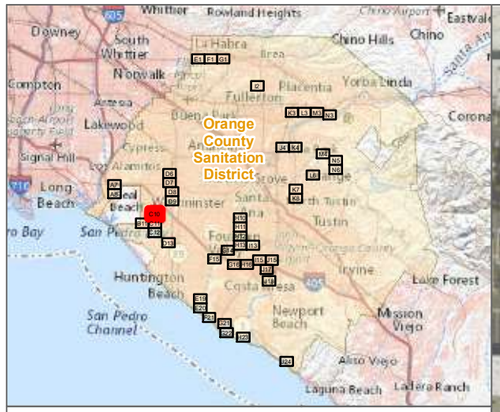

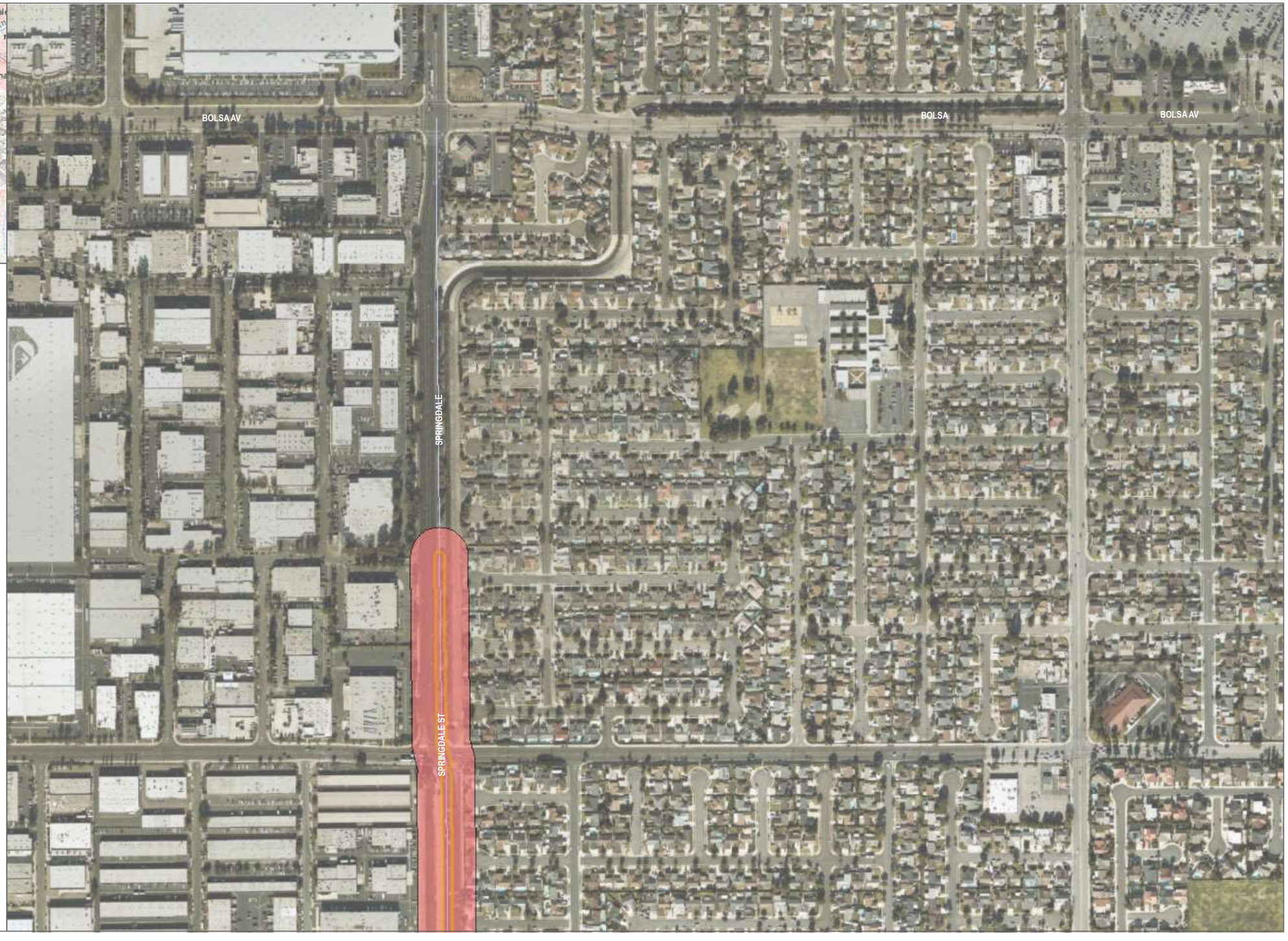

SOURCE: Port of Long Beach 2017 - Maxar 2019; CNDDB 2020

DUDEK

0 205 410 Feet

FIGURE 4.3-4

Biological Resources - Grid C10

Sanitation District Facilities Master Plan PEIR

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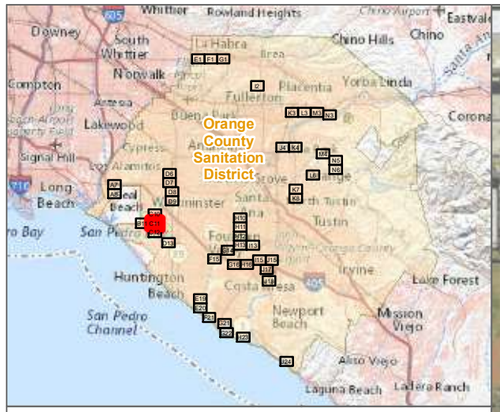


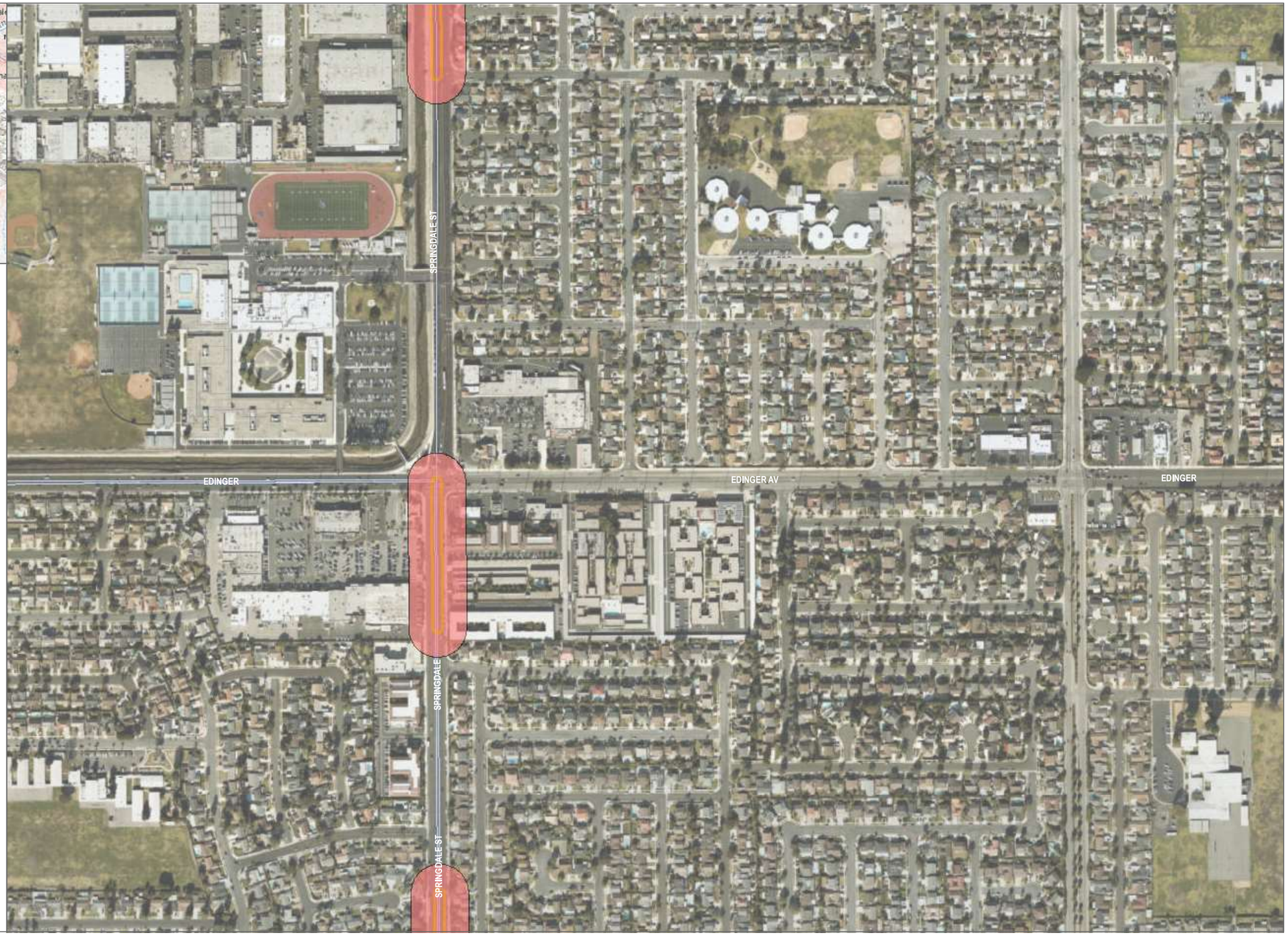
Collections System

Vegetation Communities

DEV - Urban/Developed

Project Type

Rehabilitation



SOURCE: Port of Long Beach 2017 - Maxar 2019; CNDDB 2020

DUDEK

0 205 410 Feet

FIGURE 4.3-5

Biological Resources - Grid C11

Sanitation District Facilities Master Plan PEIR

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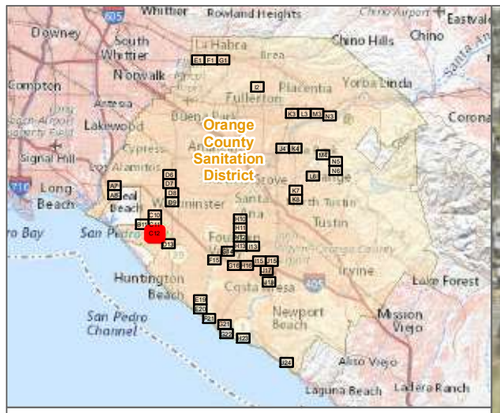

Collections System

Vegetation Communities

- DEV - Urban/Developed
- ORN - Parks and ornamental plantings
- OW - Open water

Project Type

- Rehabilitation

SOURCE: Port of Long Beach 2017 - Maxar 2019; CNDDB 2020

DUDEK

0 205 410 Feet

FIGURE 4.3-6

Biological Resources - Grid C12

Sanitation District Facilities Master Plan PEIR

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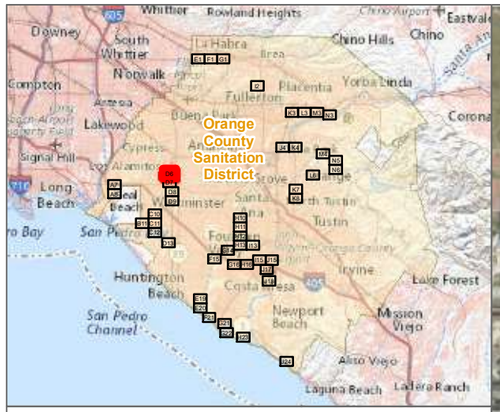


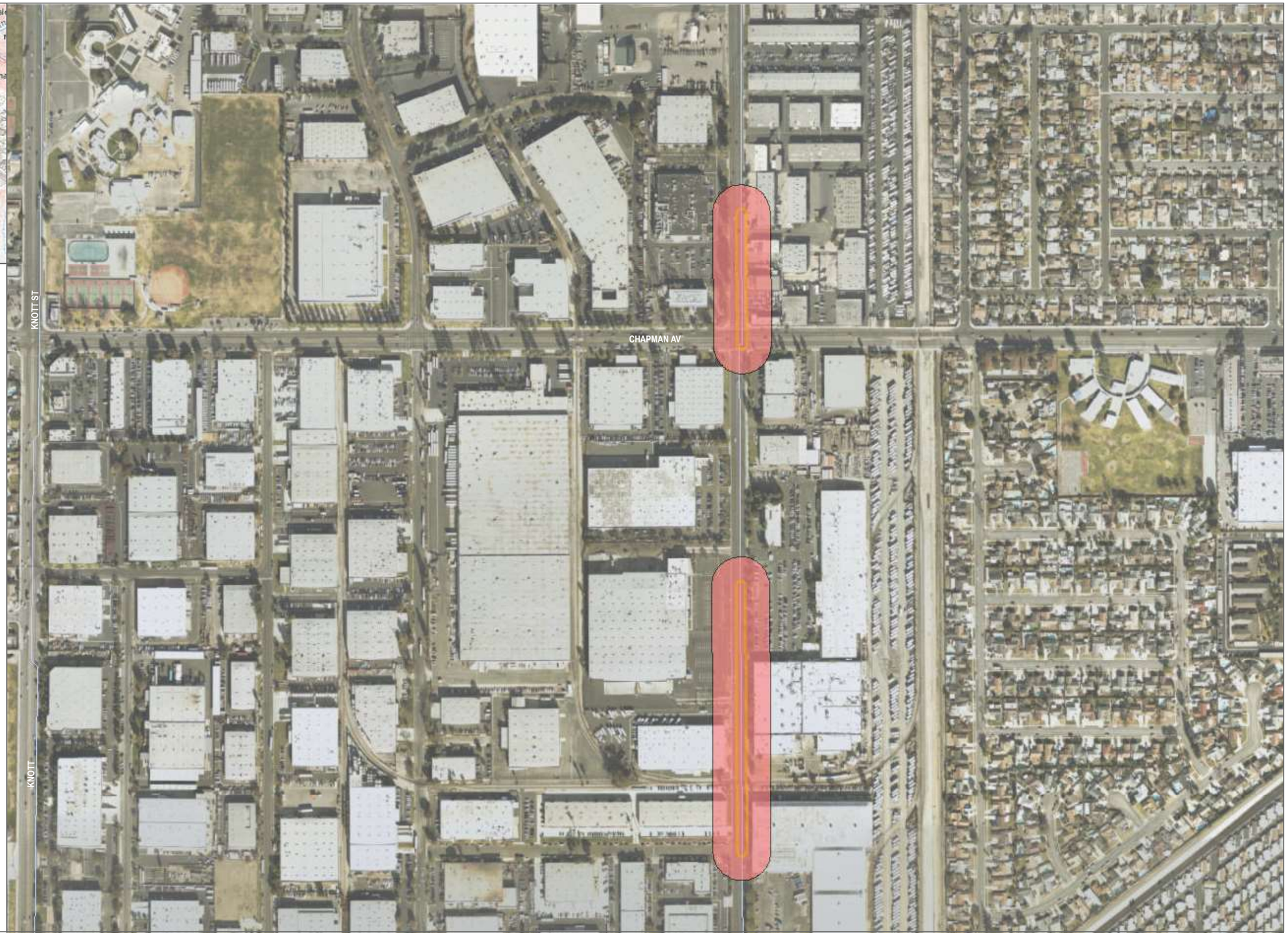
Collections System

Vegetation Communities

DEV - Urban/Developed

Project Type

Rehabilitation



SOURCE: Port of Long Beach 2017 - Maxar 2019; CNDDB 2020

DUDEK

0 205 410 Feet

FIGURE 4.3-7

Biological Resources - Grid D6

Sanitation District Facilities Master Plan PEIR

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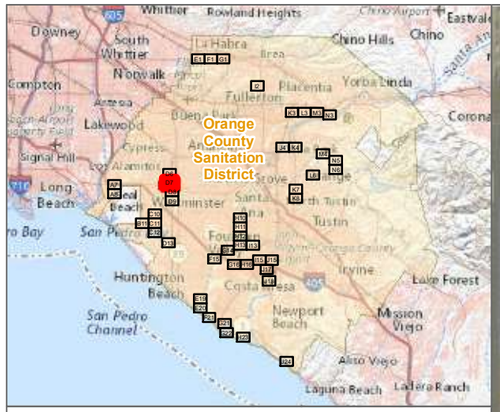


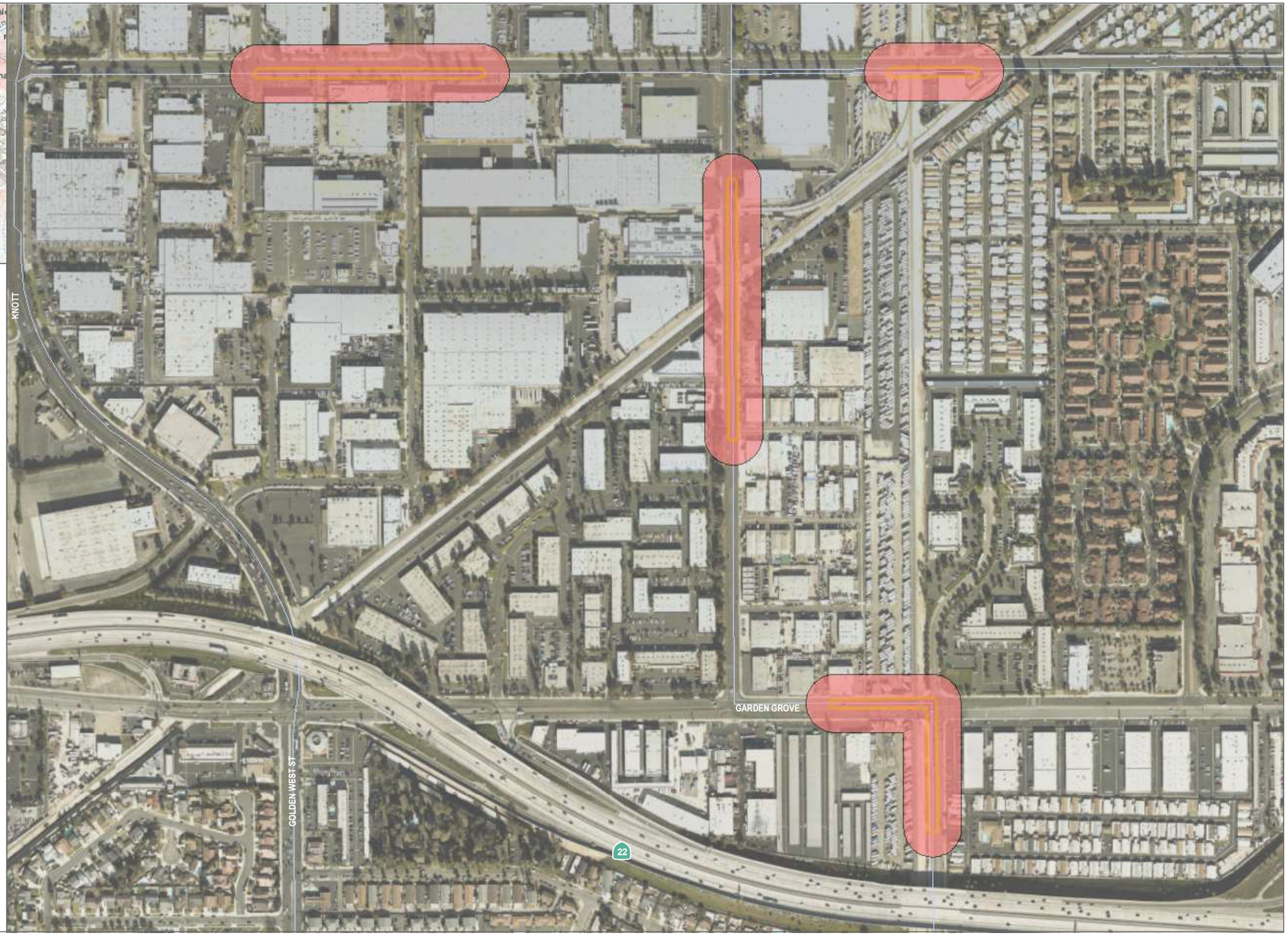
Collections System

Vegetation Communities

DEV - Urban/Developed

Project Type

Rehabilitation



SOURCE: Port of Long Beach 2017 - Maxar 2019; CNDDB 2020

DUDEK

0 205 410 Feet

FIGURE 4.3-8

Biological Resources - Grid D7

Sanitation District Facilities Master Plan PEIR

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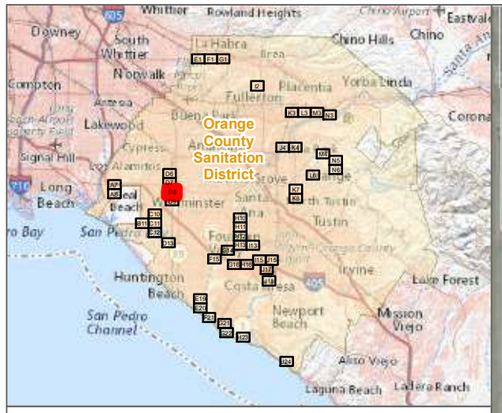

Collections System

Vegetation Communities

DEV - Urban/Developed

Project Type

Rehabilitation

SOURCE: Port of Long Beach 2017 - Maxar 2019; CNDDB 2020

DUDEK

0 205 410 Feet

FIGURE 4.3-9

Biological Resources - Grid D8

Sanitation District Facilities Master Plan PEIR

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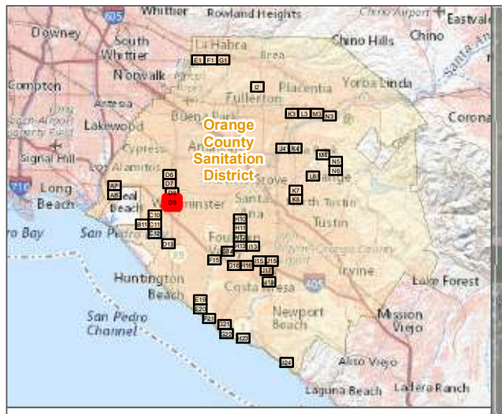


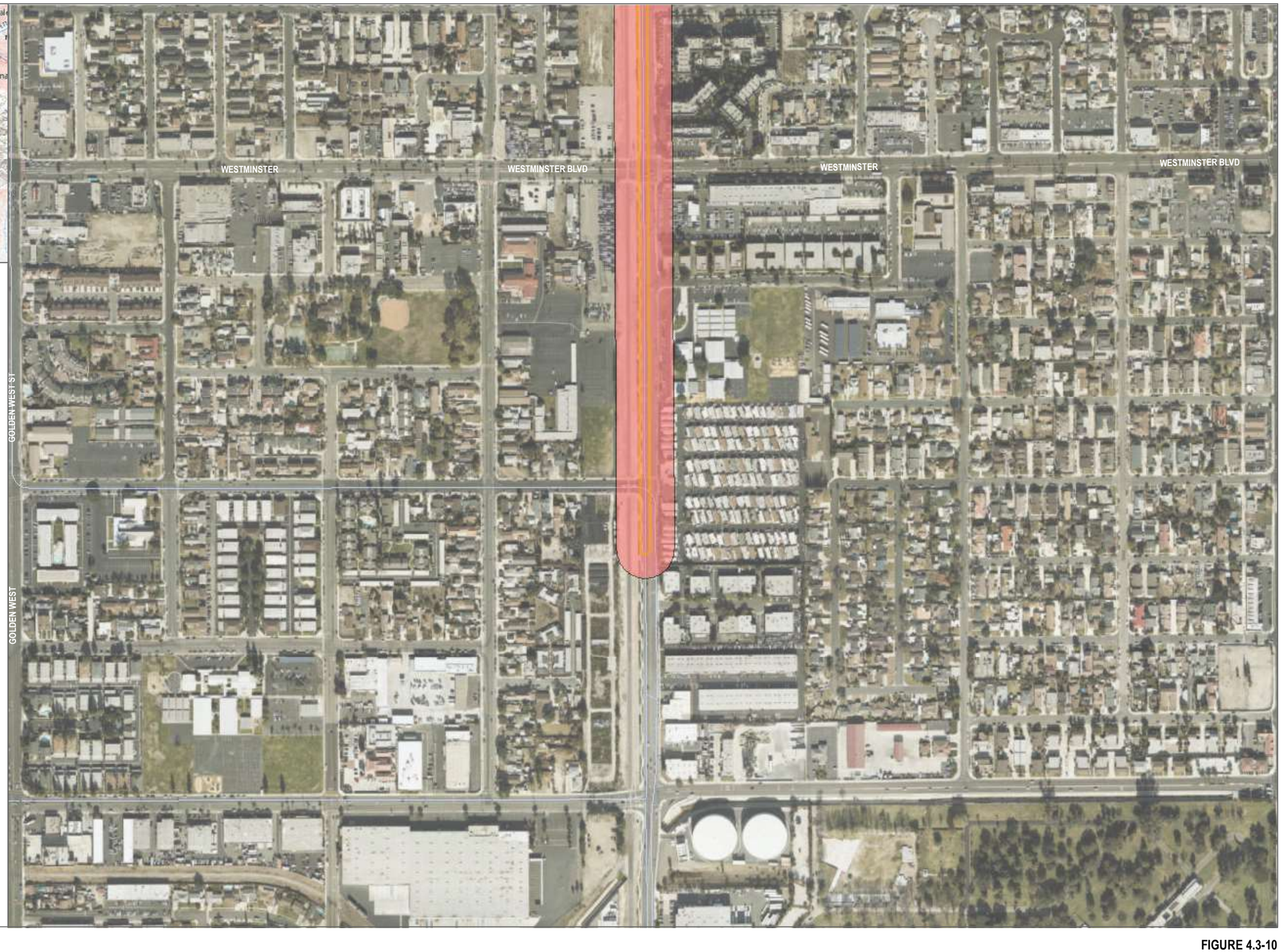
Collections System

Vegetation Communities

DEV - Urban/Developed

Project Type

Rehabilitation



SOURCE: Port of Long Beach 2017 - Maxar 2019; CNDDB 2020

DUDEK

0 205 410 Feet

FIGURE 4.3-10

Biological Resources - Grid D9

Sanitation District Facilities Master Plan PEIR

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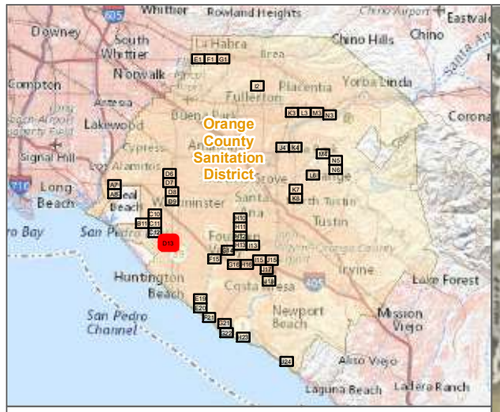


Collections System

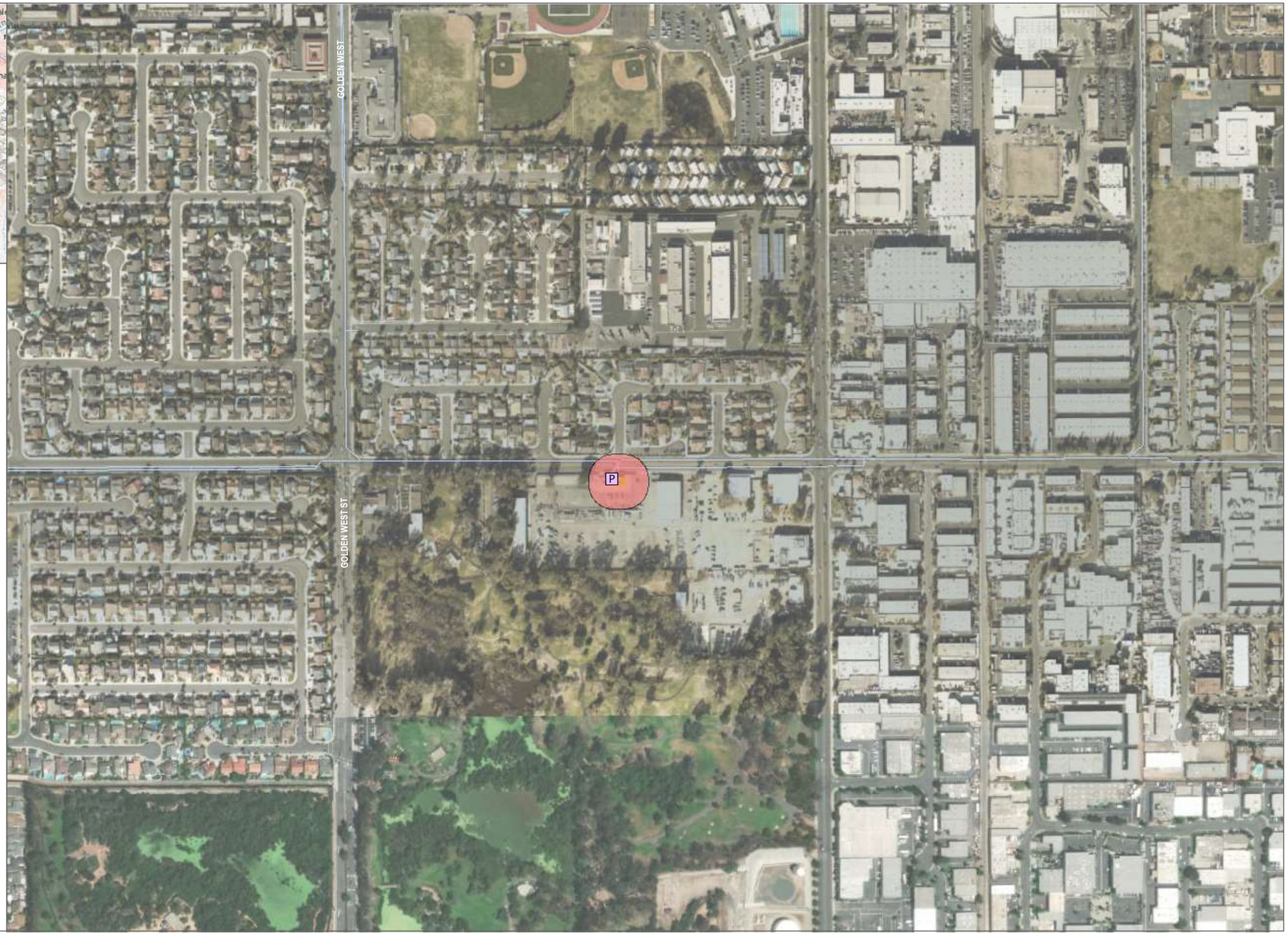
Vegetation Communities

DEV - Urban/Developed

Pump Station

Project Type

Rehabilitation



SOURCE: Port of Long Beach 2017 - Maxar 2019; CNDDB 2020

DUDEK

0 205 410 Feet

FIGURE 4.3-11

Biological Resources - Grid D13

Sanitation District Facilities Master Plan PEIR

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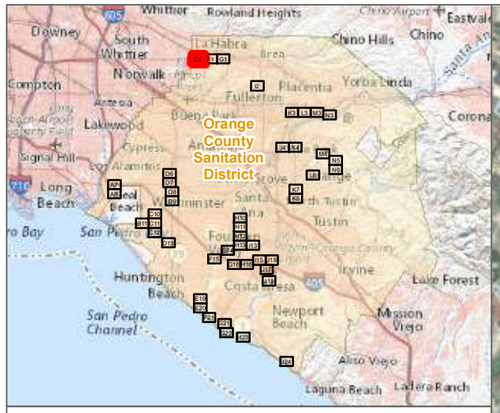

Collections System

Vegetation Communities

DEV - Urban/Developed

Project Type

Rehabilitation

SOURCE: Port of Long Beach 2017 - Maxar 2019; CNDDB 2020

DUDEK

0 205 410 Feet

FIGURE 4.3-12

Biological Resources - Grid E1

Sanitation District Facilities Master Plan PEIR

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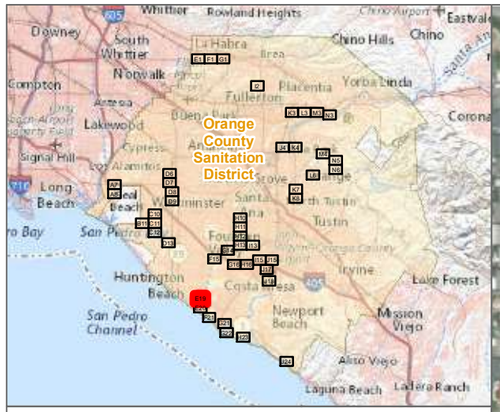

Collections System

Vegetation Communities

- DEV - Urban/Developed
- OW - Open water
- Treatment Plant No.2 Projects

SOURCE: Port of Long Beach 2017 - Maxar 2019; CNDDB 2020

DUDEK

0 205 410 Feet

FIGURE 4.3-13

Biological Resources - Grid E19

Sanitation District Facilities Master Plan PEIR

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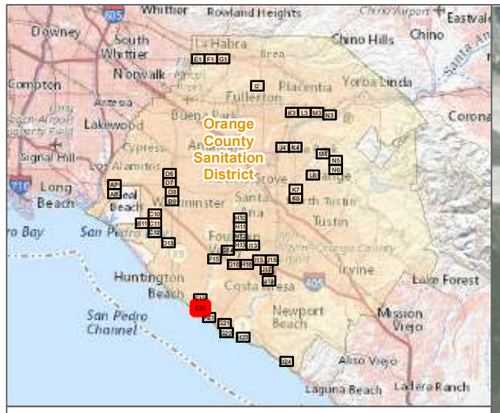

Collections System

Vegetation Communities

- Atrlen - Quailbush
- DEV - Urban/Developed
- OW - Open water
- Treatment Plant No.2 Projects

SOURCE: Port of Long Beach 2017 - Maxar 2019; CNDDB 2020

DUDEK

0 205 410 Feet

FIGURE 4.3-14

Biological Resources - Grid E20

Sanitation District Facilities Master Plan PEIR

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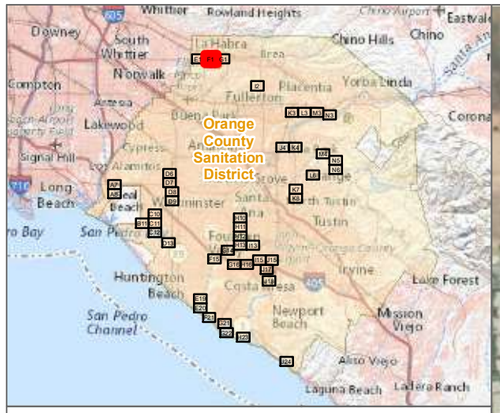


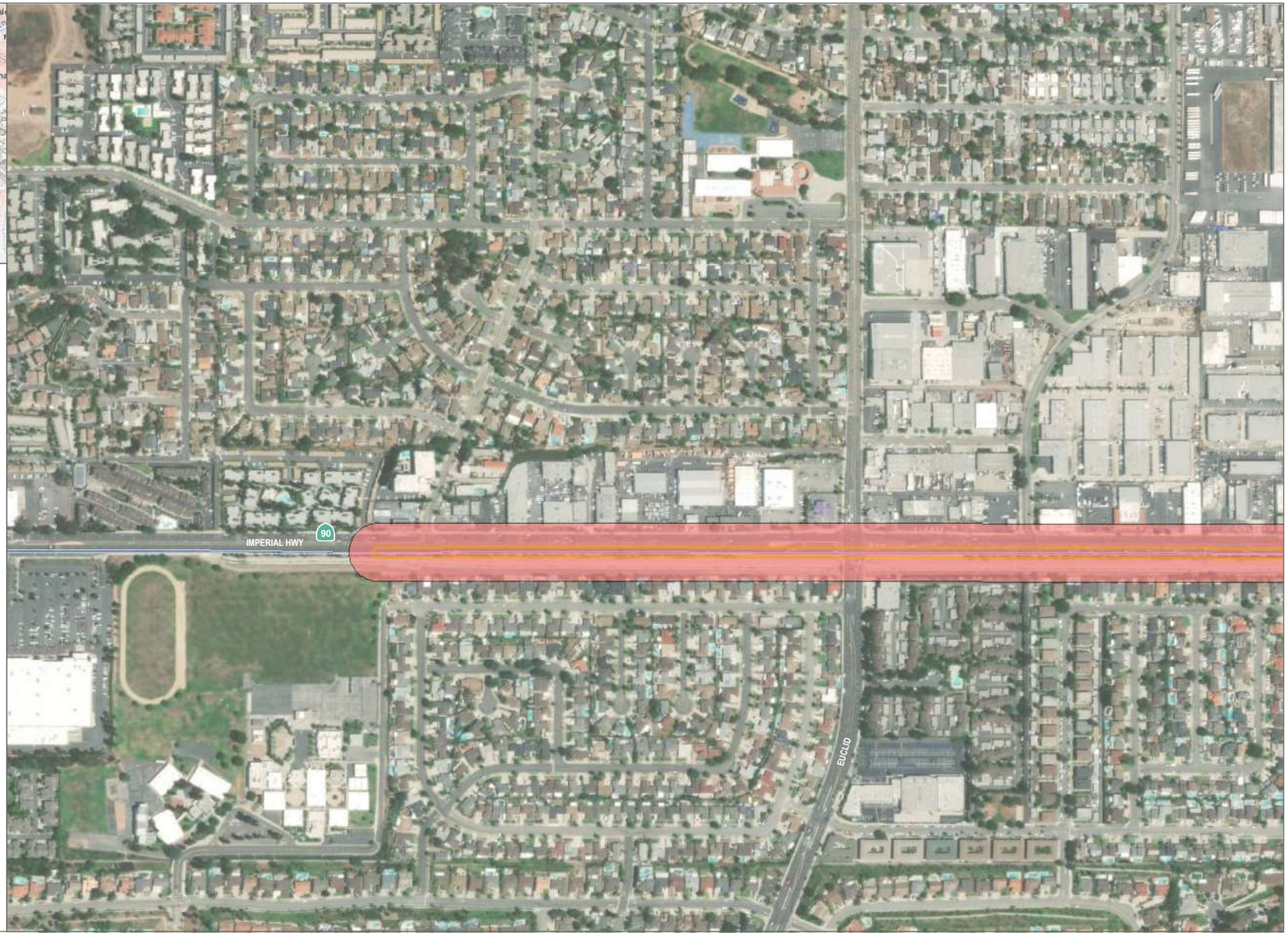
Collections System

Vegetation Communities

DEV - Urban/Developed

Project Type

Rehabilitation



SOURCE: Port of Long Beach 2017 - Maxar 2019; CNDDB 2020

DUDEK

0 205 410 Feet

FIGURE 4.3-15

Biological Resources - Grid F1

Sanitation District Facilities Master Plan PEIR

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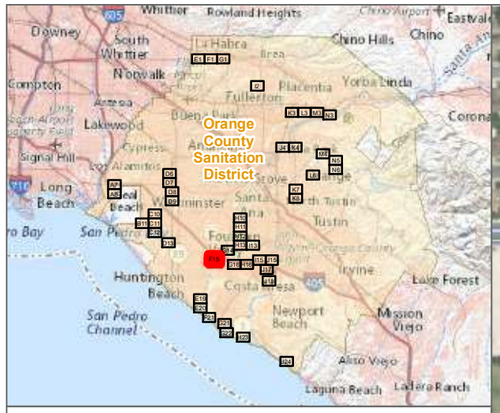

Collections System

Vegetation Communities

- DEV - Urban/Developed
- NVC - Non-Vegetated Channel or Floodway
- ORN - Parks and ornamental plantings
- Reclamation Plant No.1 Projects

Project Type

- Rehabilitation

SOURCE: Port of Long Beach 2017 - Maxar 2019; CNDDB 2020

DUDEK

0 205 410 Feet

FIGURE 4.3-16

Biological Resources - Grid F15

Sanitation District Facilities Master Plan PEIR

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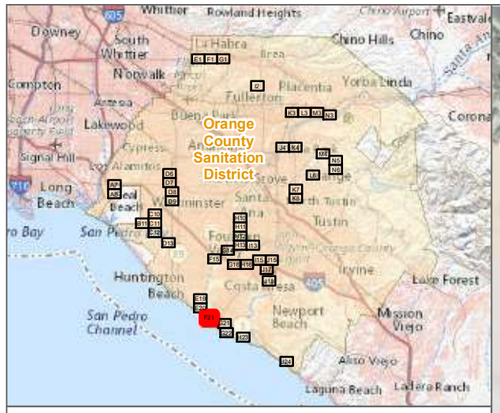

Collections System

Vegetation Communities

DEV - Urban/Developed

Pump Station

Project Type

Rehabilitation

SOURCE: Port of Long Beach 2017 - Maxar 2019; CNDDB 2020

DUDEK

0 205 410 Feet

FIGURE 4.3-17

Biological Resources - Grid F21

Sanitation District Facilities Master Plan PEIR

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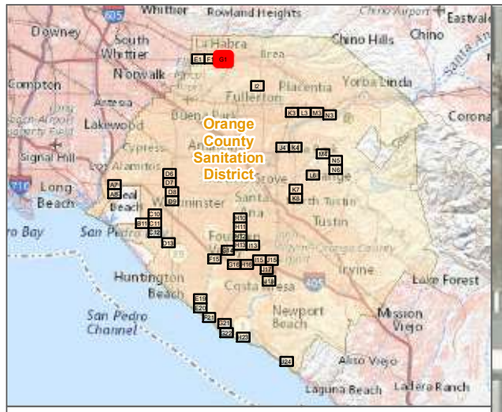

Collections System

Vegetation Communities

DEV - Urban/Developed

Project Type

Rehabilitation

SOURCE: Port of Long Beach 2017 - Maxar 2019; CNDDB 2020

DUDEK

0 205 410 Feet

FIGURE 4.3-18

Biological Resources - Grid G1

Sanitation District Facilities Master Plan PEIR

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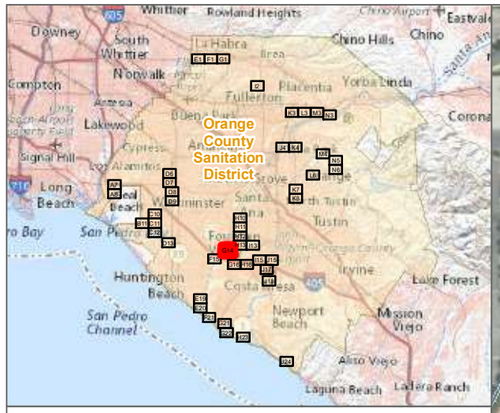

Collections System

Vegetation Communities

DEV - Urban/Developed

Project Type

Rehabilitation

SOURCE: Port of Long Beach 2017 - Maxar 2019; CNDDB 2020

DUDEK

0 205 410 Feet

FIGURE 4.3-19

Biological Resources - Grid G14

Sanitation District Facilities Master Plan PEIR

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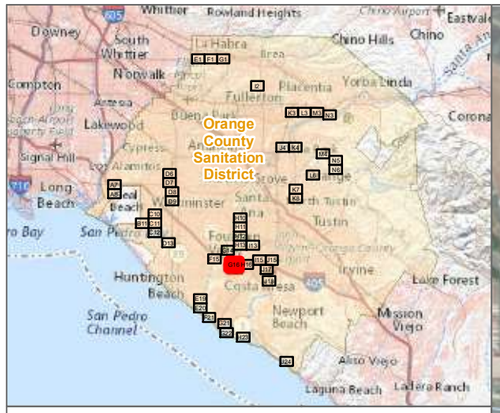


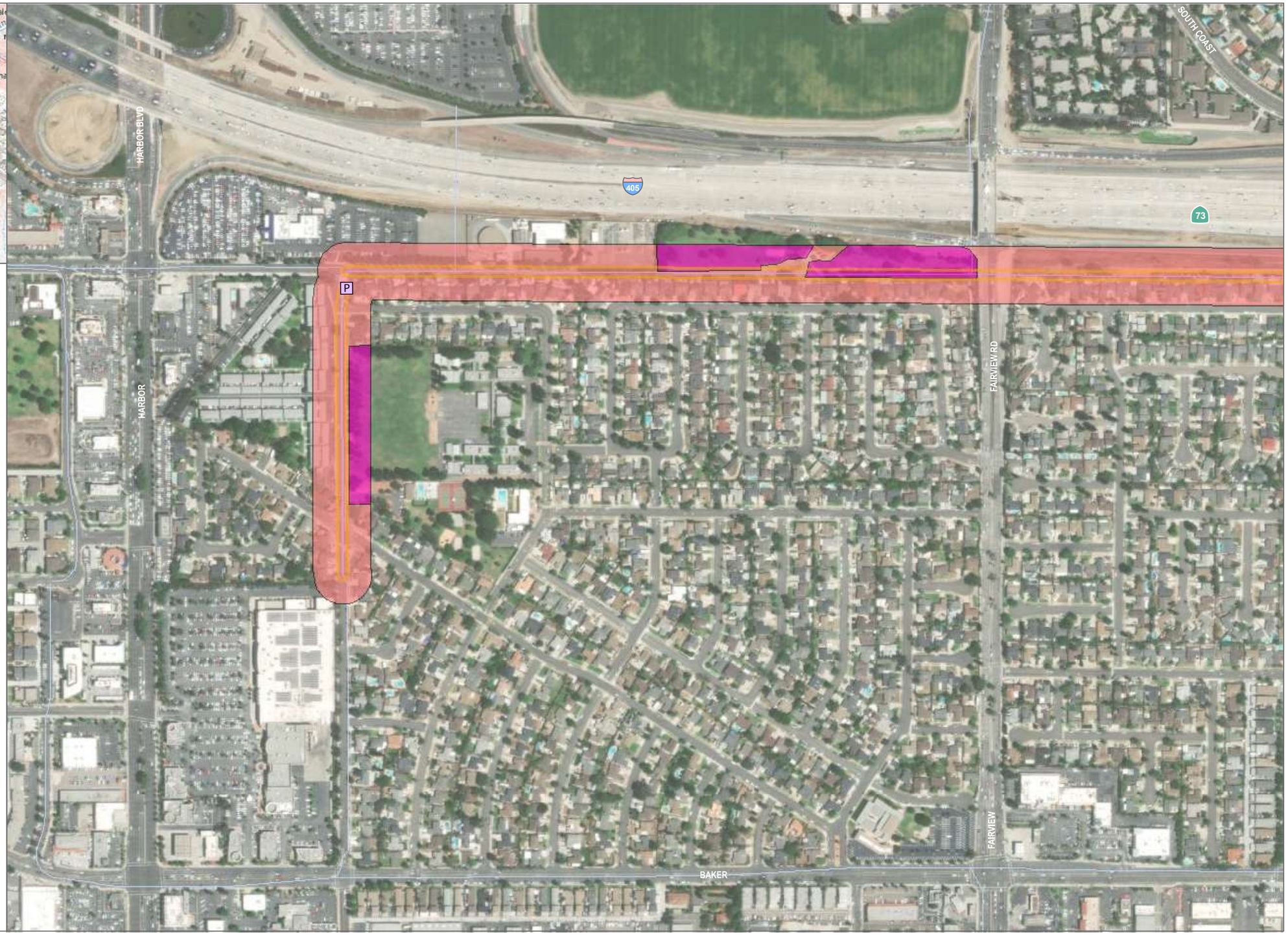
Collections System

Vegetation Communities

- DEV - Urban/Developed
- ORN - Parks and ornamental plantings
- P Pump Station

Project Type

- Replacement
- Rehabilitation



SOURCE: Port of Long Beach 2017 - Maxar 2019; CNDDB 2020

DUDEK

0 205 410 Feet

FIGURE 4.3-20

Biological Resources - Grid G16

Sanitation District Facilities Master Plan PEIR

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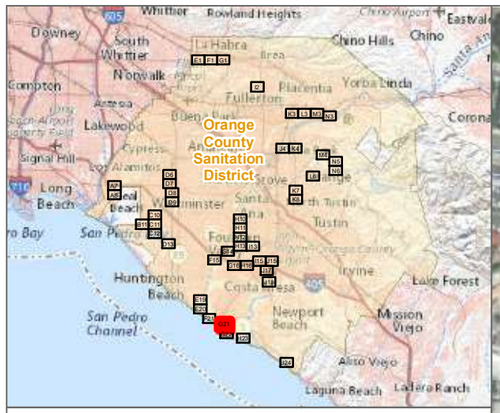

Collections System

Vegetation Communities

DEV - Urbanized/Developed

P Pump Station

Project Type

Rehabilitation

SOURCE: Port of Long Beach 2017 - Maxar 2019; CNDDB 2020

DUDEK

0 205 410 Feet

FIGURE 4.3-21

Biological Resources - Grid G21

Sanitation District Facilities Master Plan PEIR

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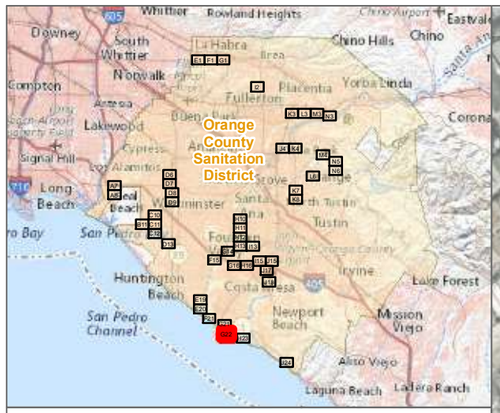


Collections System

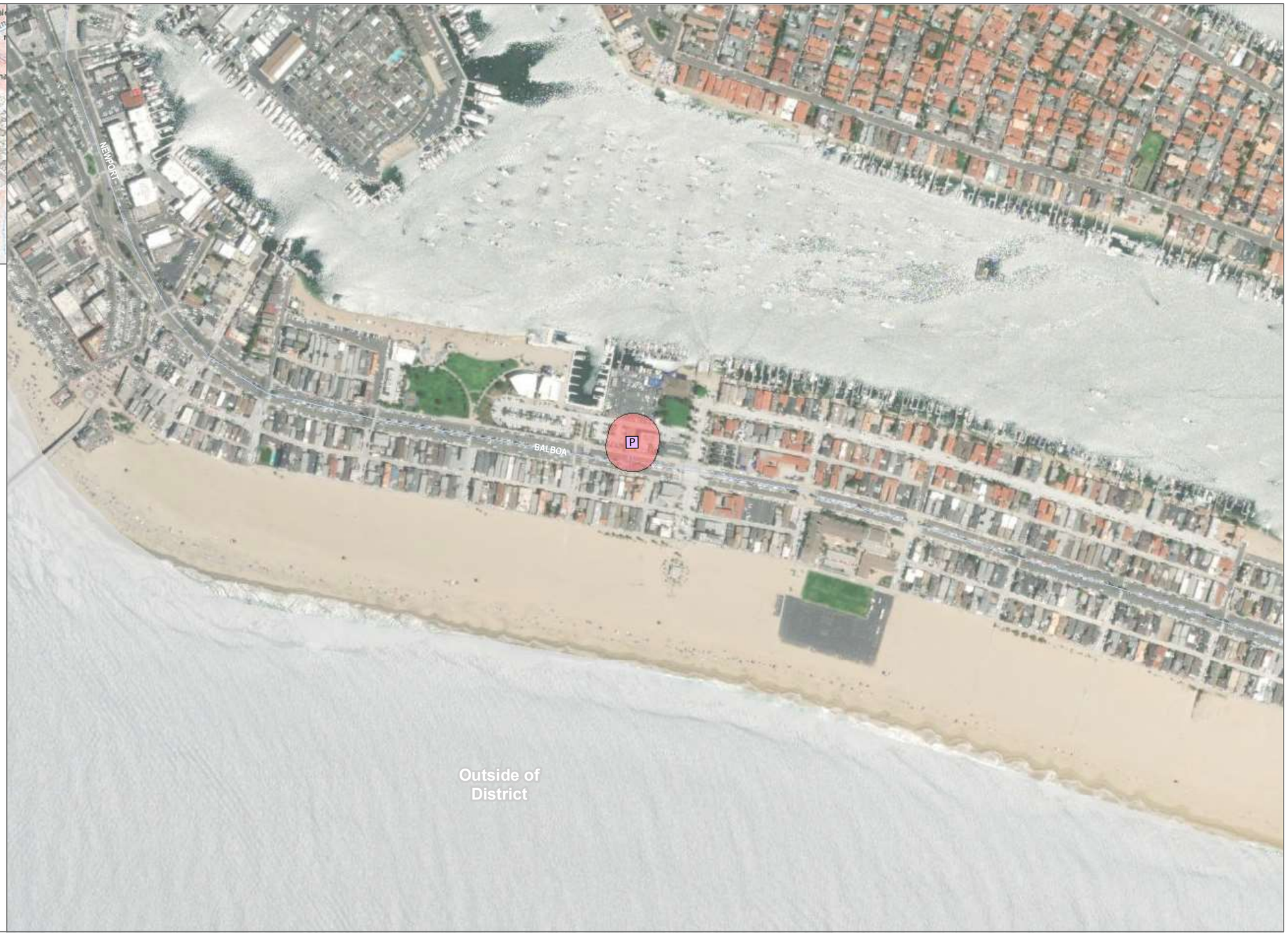
Vegetation Communities

DEV - Urban/Developed

Pump Station

Project Type

Rehabilitation



SOURCE: Port of Long Beach 2017 - Maxar 2019; CNDDB 2020

DUDEK

0 205 410 Feet

FIGURE 4.3-22

Biological Resources - Grid G22

Sanitation District Facilities Master Plan PEIR

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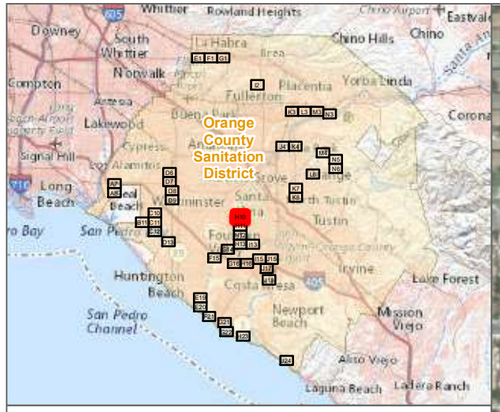


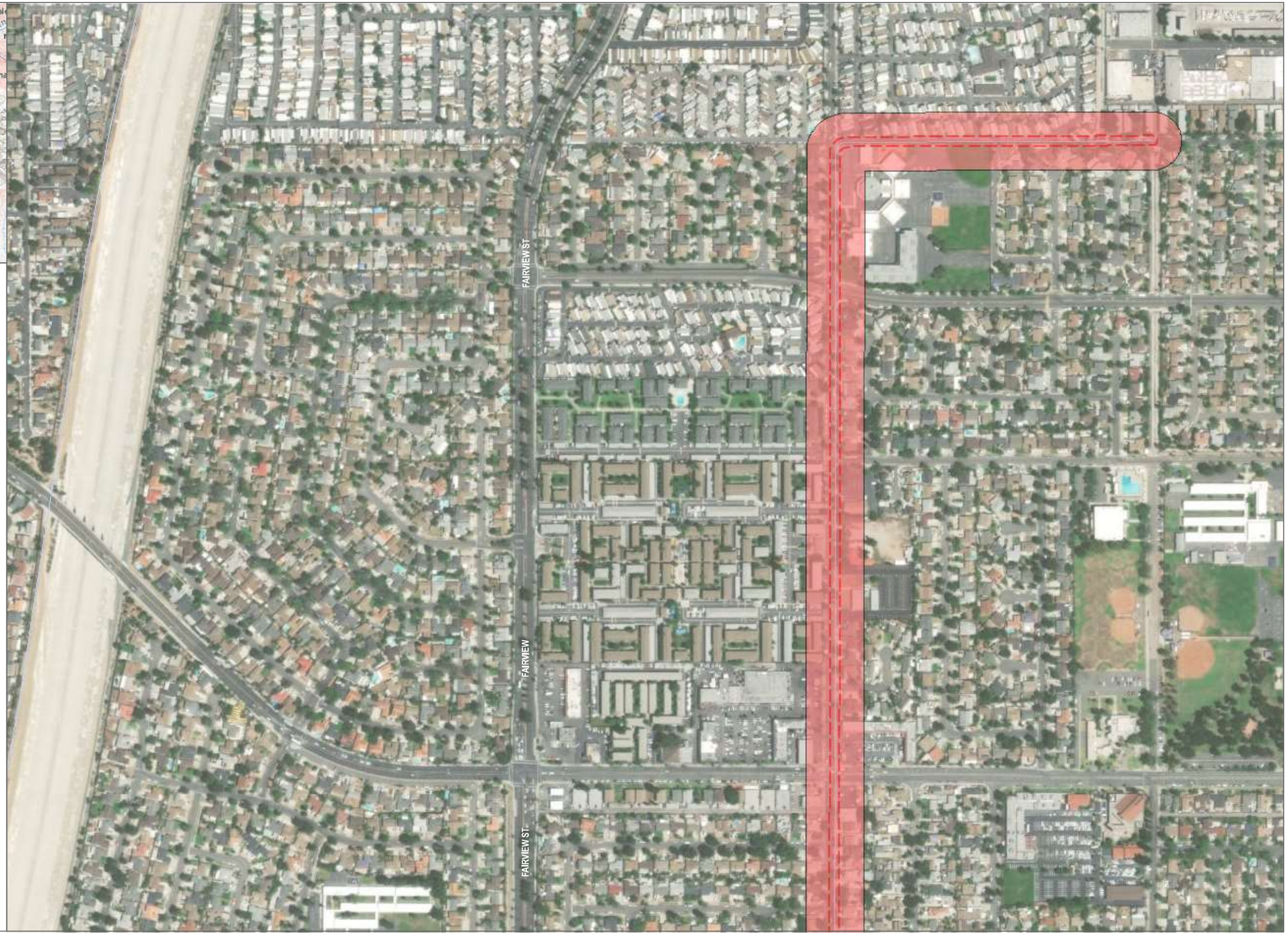
Collections System

Vegetation Communities

DEV - Urban/Developed

Project Type

Replacement



SOURCE: Port of Long Beach 2017 - Maxar 2019; CNDDB 2020

DUDEK

0 205 410 Feet

FIGURE 4.3-23

Biological Resources - Grid H10

Sanitation District Facilities Master Plan PEIR

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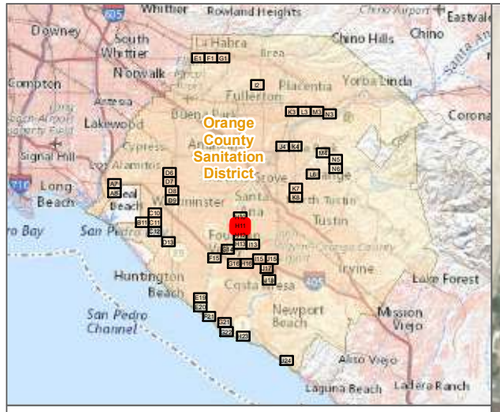

Collections System

Vegetation Communities

DEV - Urban/Developed

Project Type

Replacement

SOURCE: Port of Long Beach 2017 - Maxar 2019; CNDDB 2020

DUDEK

0 205 410 Feet

FIGURE 4.3-24

Biological Resources - Grid H11

Sanitation District Facilities Master Plan PEIR

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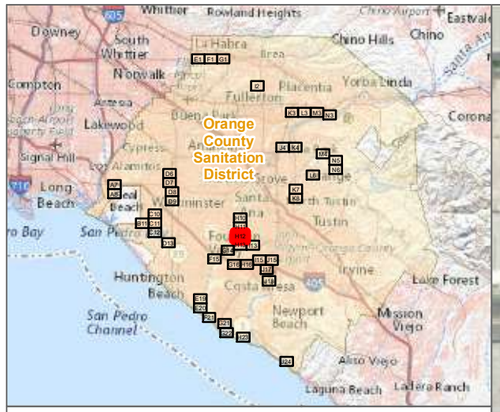


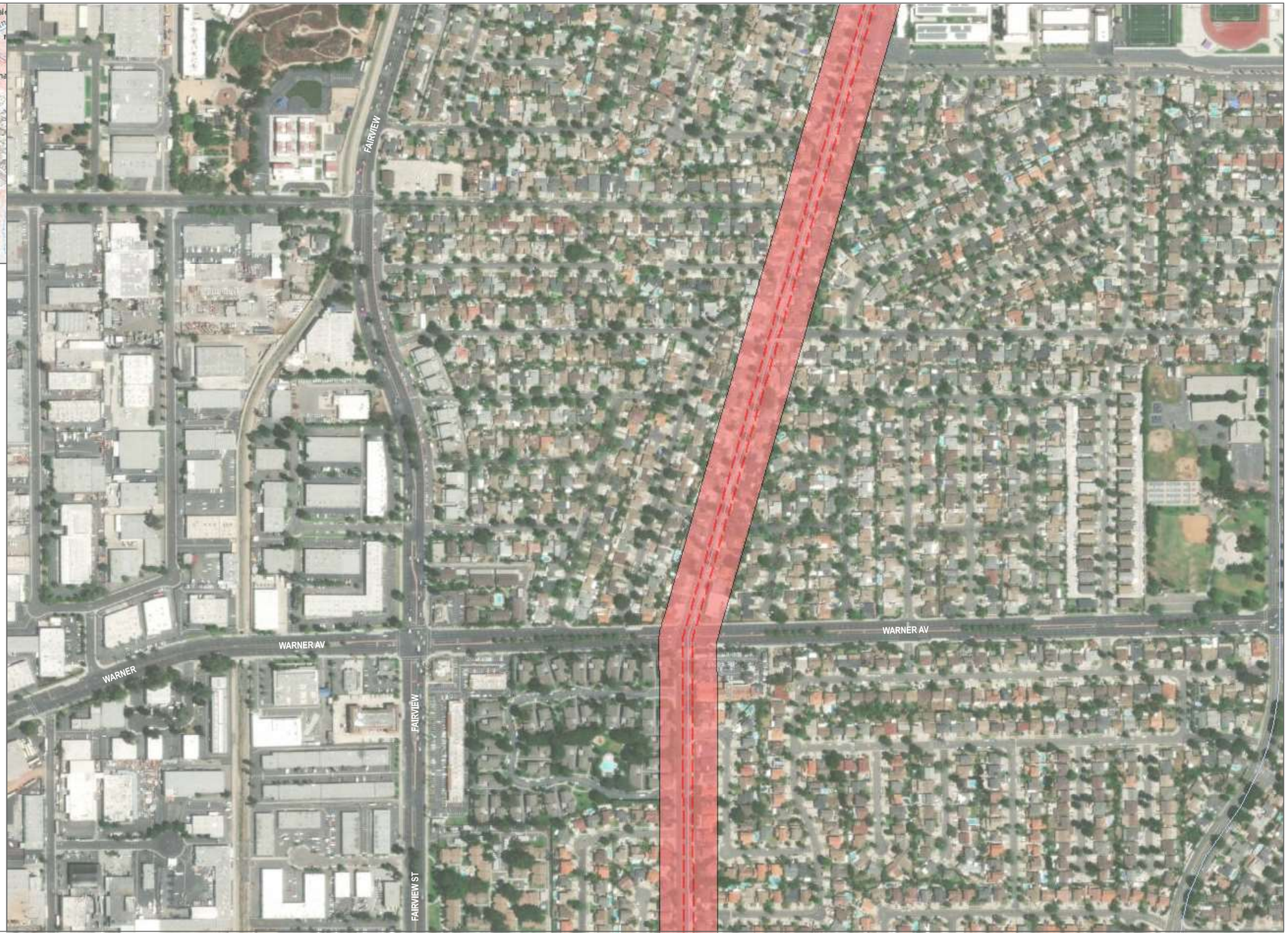
Collections System

Vegetation Communities

DEV - Urban/Developed

Project Type

Replacement



SOURCE: Port of Long Beach 2017 - Maxar 2019; CNDDB 2020

DUDEK

0 205 410 Feet

FIGURE 4.3-25

Biological Resources - Grid H12

Sanitation District Facilities Master Plan PEIR

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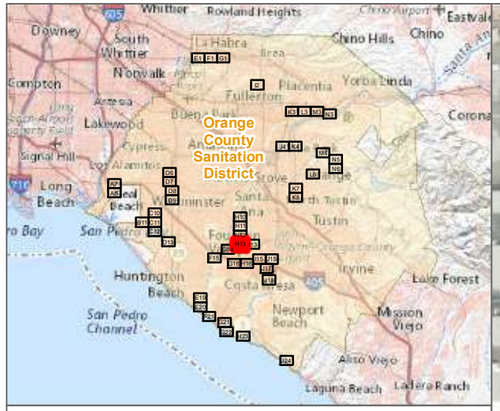


Collections System

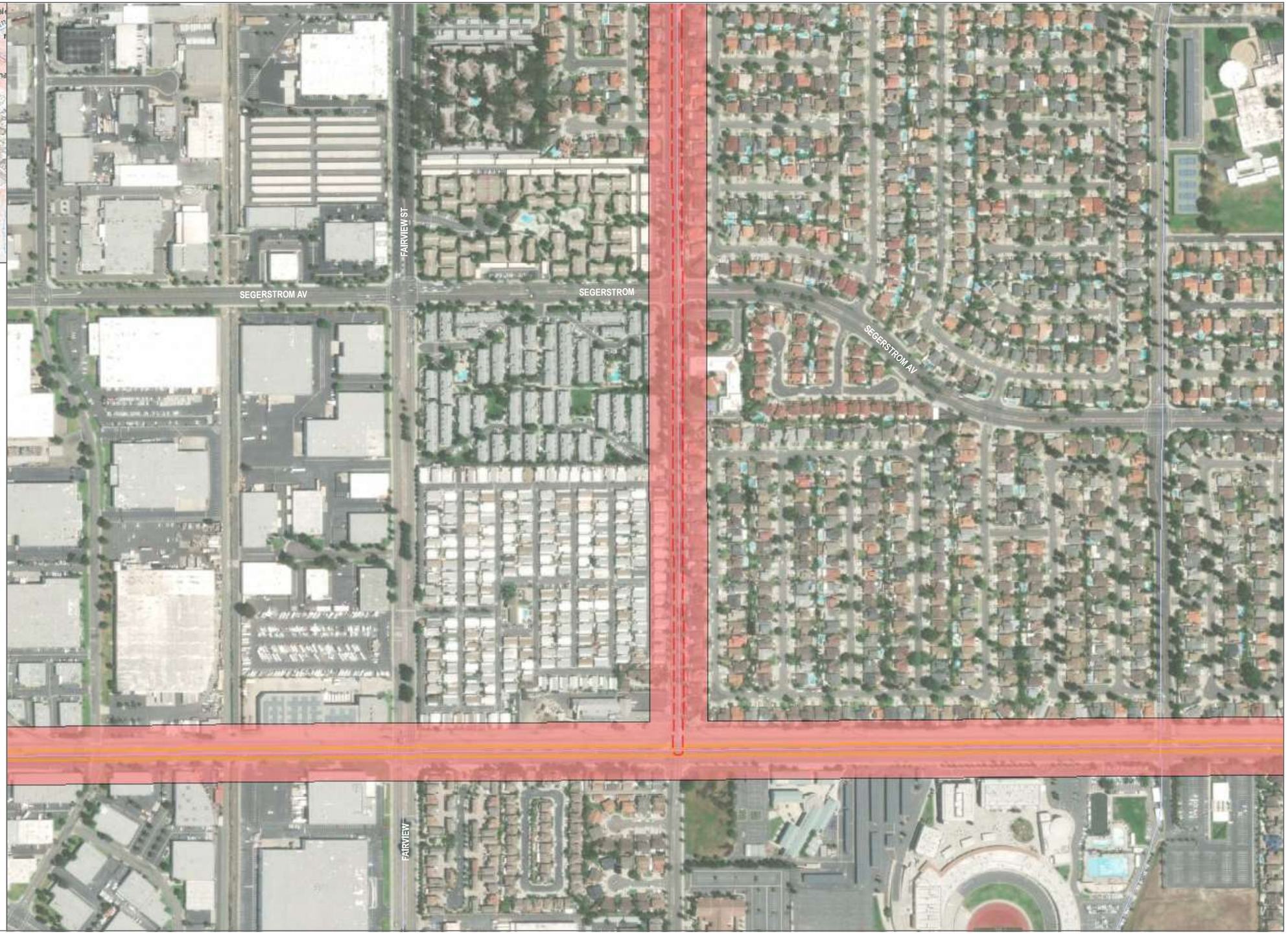
Vegetation Communities

DEV - Urban/Developed

Project Type

Replacement

Rehabilitation



SOURCE: Port of Long Beach 2017 - Maxar 2019; CNDDB 2020

DUDEK

0 205 410 Feet

FIGURE 4.3-26

Biological Resources - Grid H13

Sanitation District Facilities Master Plan PEIR

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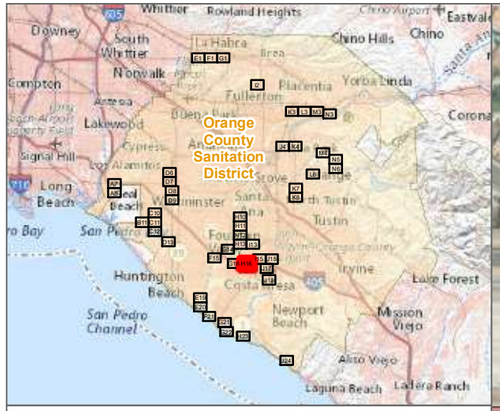

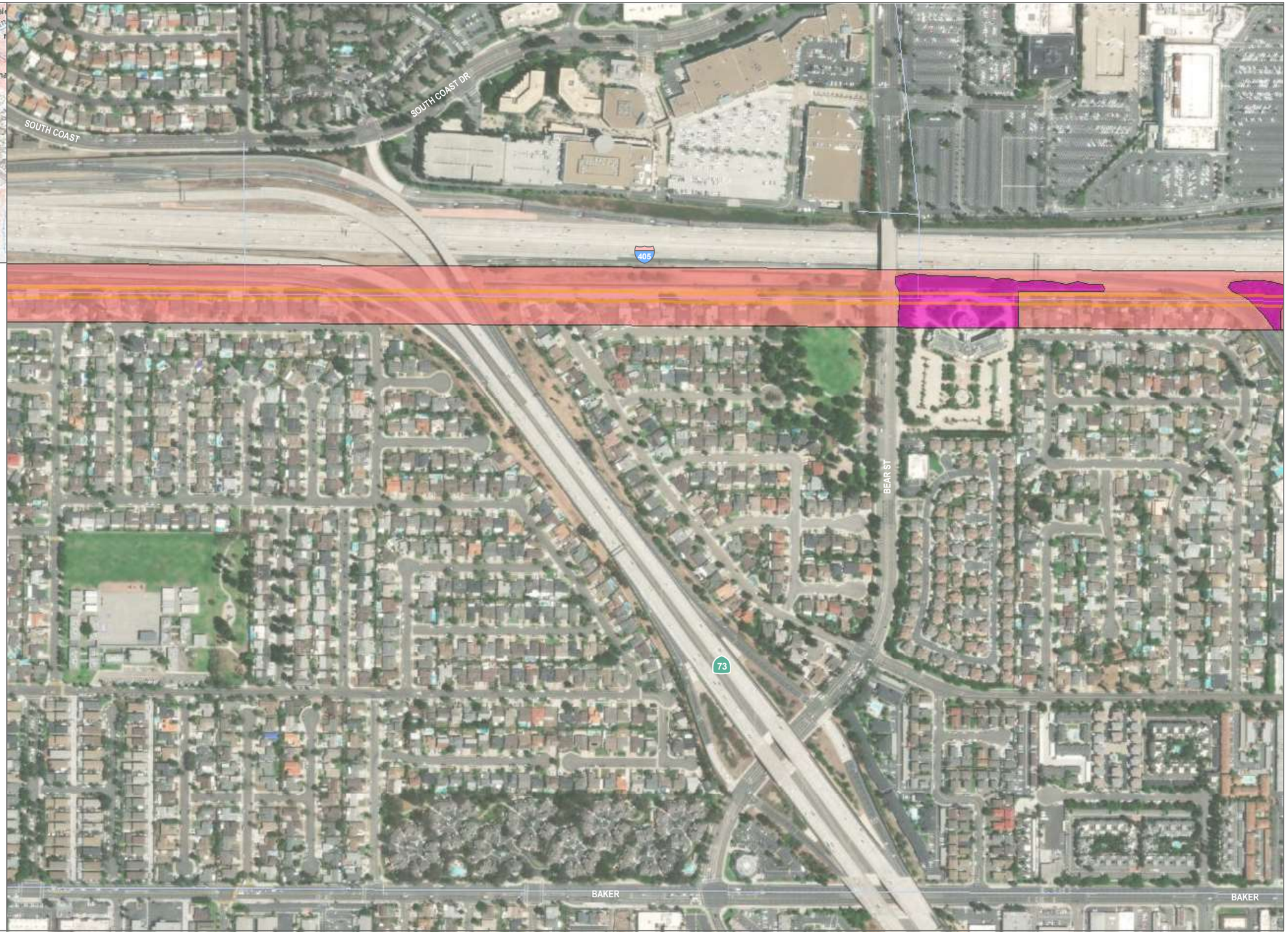

Collections System

Vegetation Communities

DEV - Urban/Developed

ORN - Parks and ornamental plantings

Project Type

Rehabilitation

SOURCE: Port of Long Beach 2017 - Maxar 2019; CNDDB 2020

DUDEK

0 205 410 Feet

FIGURE 4.3-27

Biological Resources - Grid H16

Sanitation District Facilities Master Plan PEIR

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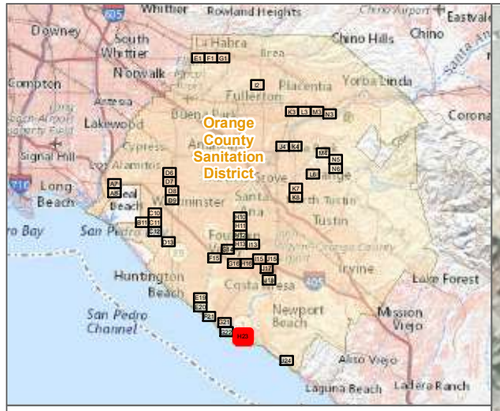


Collections System

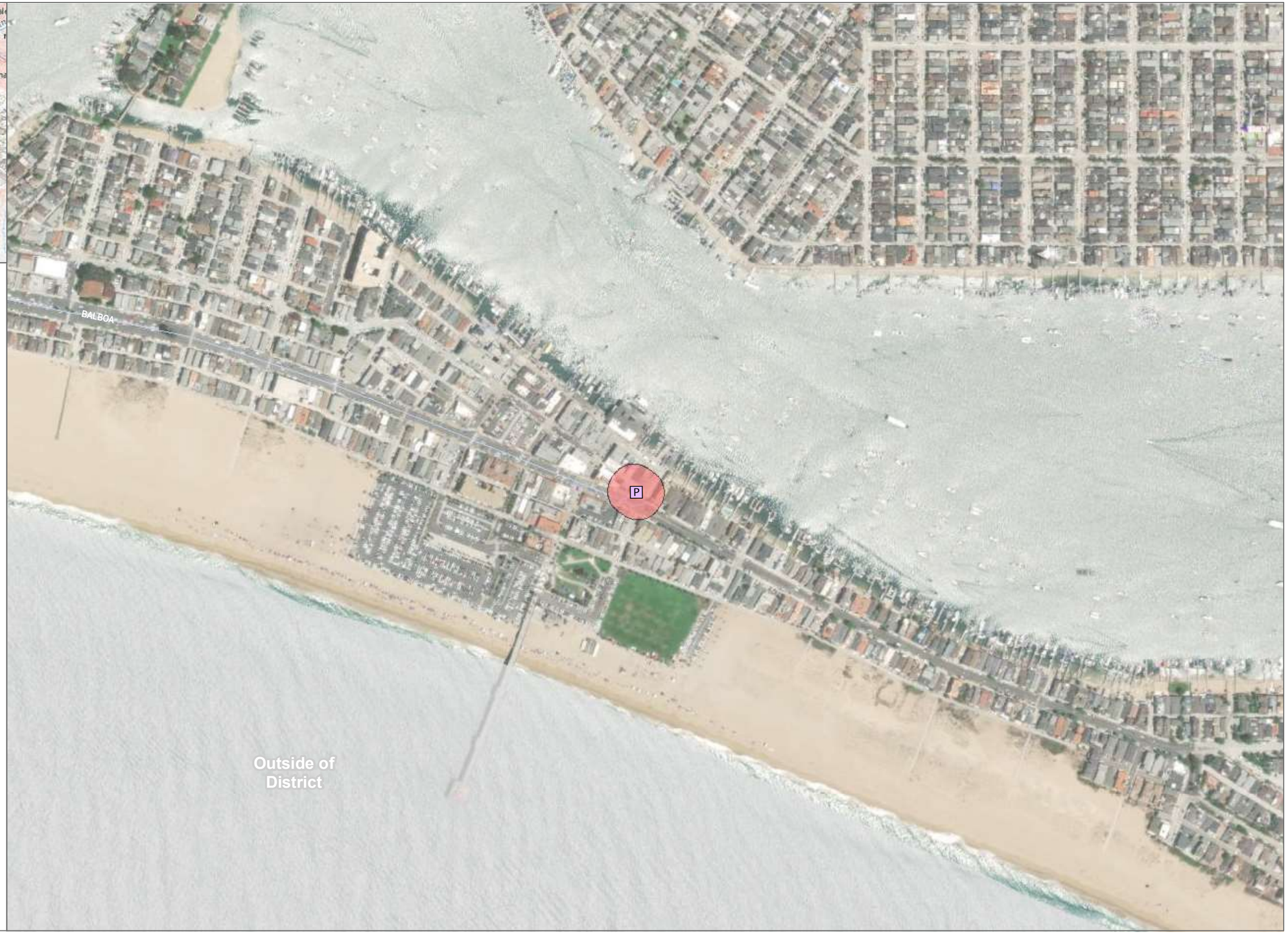
Vegetation Communities

DEV - Urban/Developed

Pump Station

Project Type

Rehabilitation



SOURCE: Port of Long Beach 2017 - Maxar 2019; CNDDB 2020

DUDEK

0 205 410 Feet

FIGURE 4.3-28

Biological Resources - Grid H23

Sanitation District Facilities Master Plan PEIR

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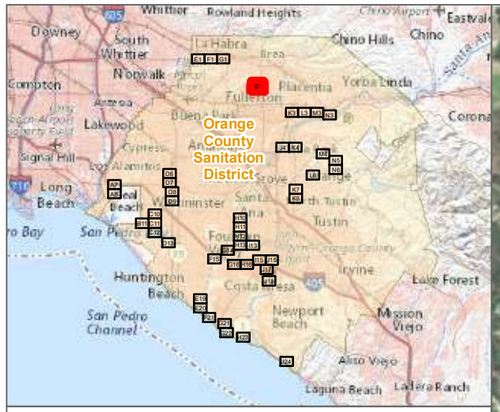


Collections System

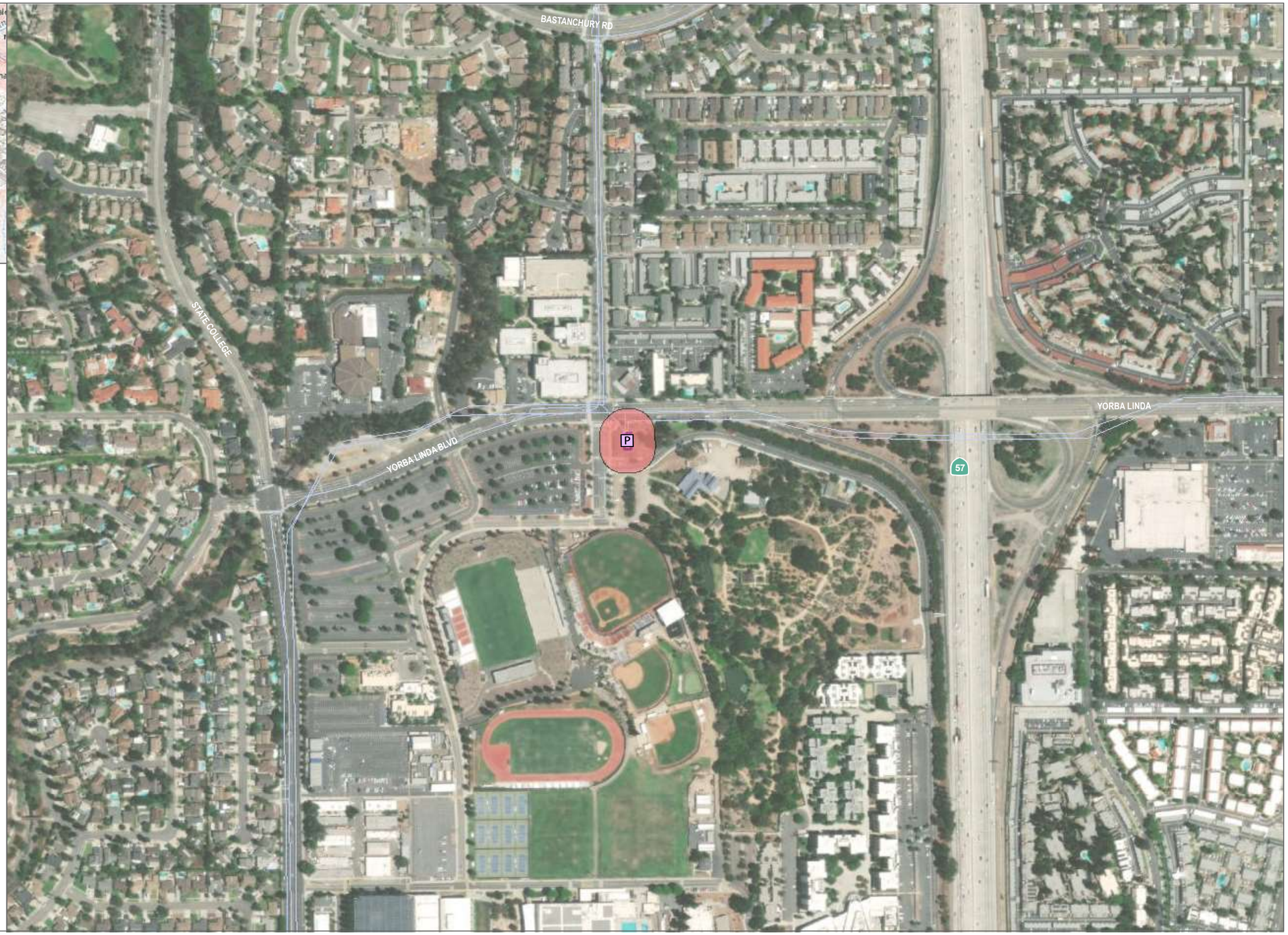
Vegetation Communities

DEV - Urban/Developed

Pump Station

Project Type

Miscellaneous



SOURCE: Port of Long Beach 2017 - Maxar 2019; CNDDB 2020

DUDEK

0 205 410 Feet

FIGURE 4.3-29

Biological Resources - Grid I2

Sanitation District Facilities Master Plan PEIR

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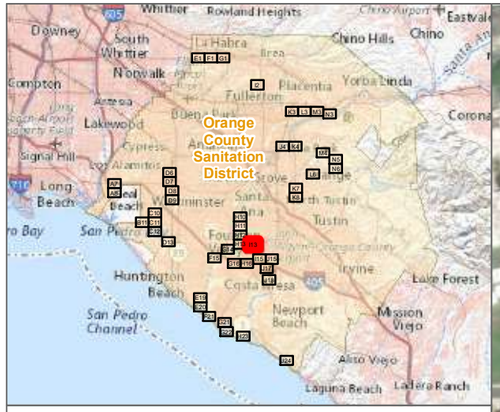


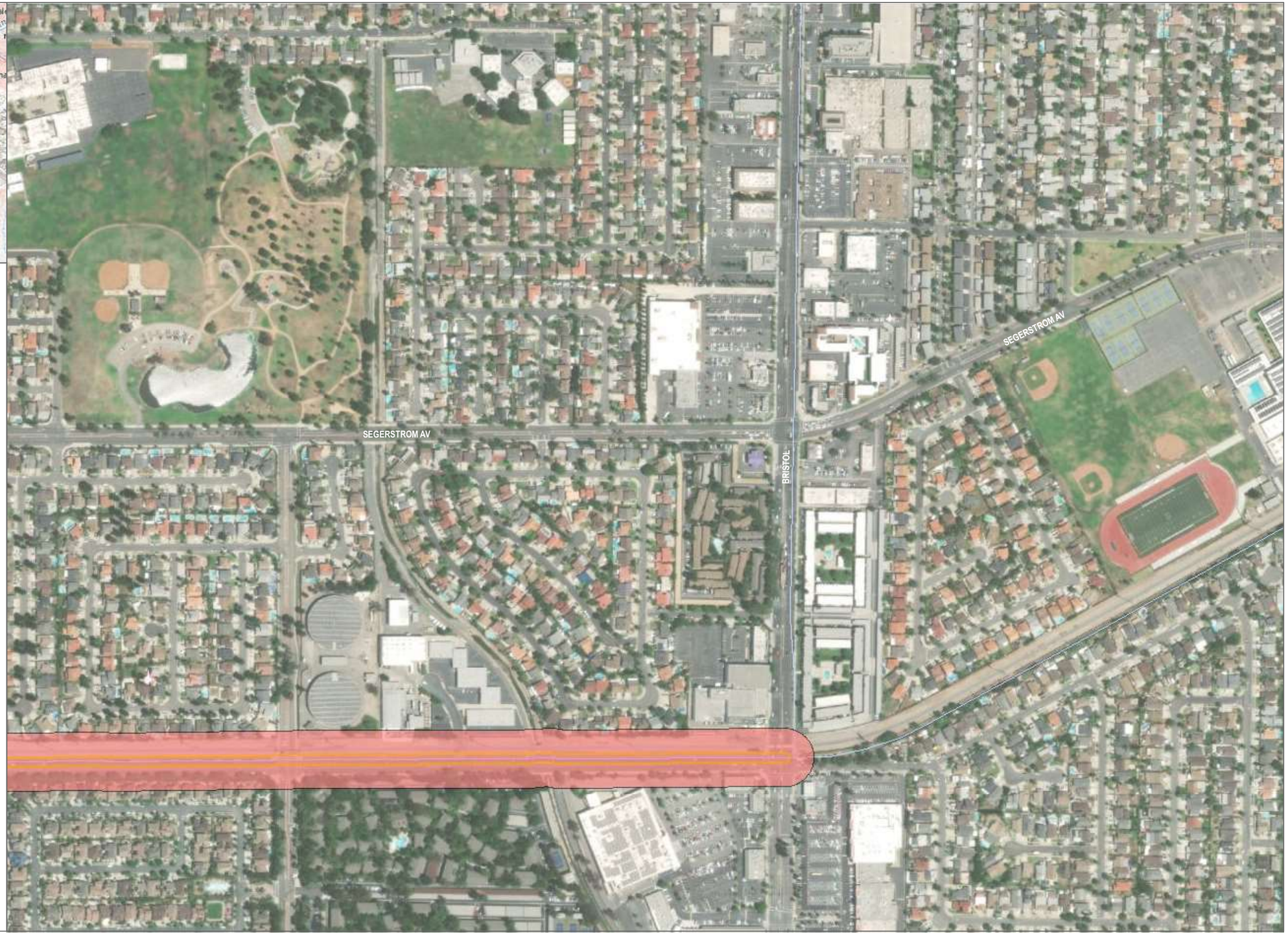
Collections System

Vegetation Communities

DEV - Urban/Developed

Project Type

Rehabilitation



SOURCE: Port of Long Beach 2017 - Maxar 2019; CNDDB 2020

DUDEK

0 205 410 Feet

FIGURE 4.3-30

Biological Resources - Grid I13

Sanitation District Facilities Master Plan PEIR

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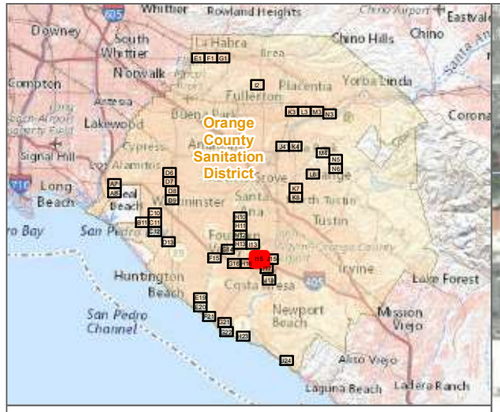

Collections System

Vegetation Communities

DEV - Urban/Developed

ORN - Parks and ornamental plantings

Project Type

Rehabilitation

SOURCE: Port of Long Beach 2017 - Maxar 2019; CNDDB 2020

DUDEK

0 205 410 Feet

FIGURE 4.3-31

Biological Resources - Grid I15

Sanitation District Facilities Master Plan PEIR

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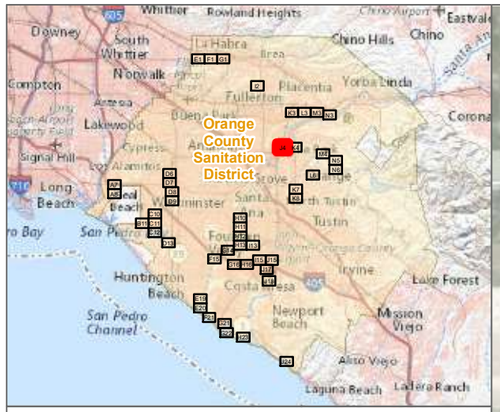

Collections System

Vegetation Communities

DEV - Urban/Developed

Project Type

Replacement

SOURCE: Port of Long Beach 2017 - Maxar 2019; CNDDB 2020

DUDEK

0 205 410 Feet

FIGURE 4.3-32

Biological Resources - Grid J4

Sanitation District Facilities Master Plan PEIR

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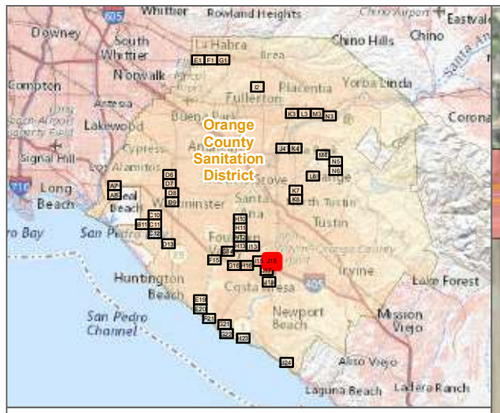

Collections System

Vegetation Communities

DEV - Urban/Developed

Pump Station

Project Type

Rehabilitation

SOURCE: Port of Long Beach 2017 - Maxar 2019; CNDDB 2020

DUDEK

0 205 410 Feet

FIGURE 4.3-33

Biological Resources - Grid J15

Sanitation District Facilities Master Plan PEIR

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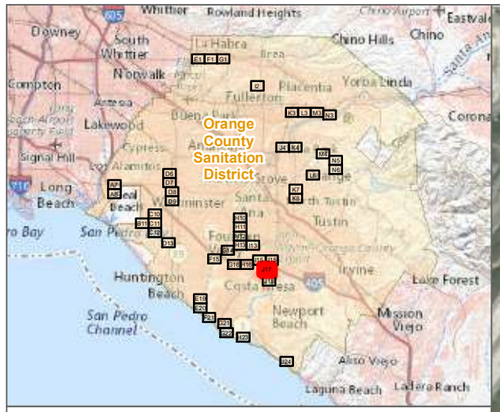

Collections System

Vegetation Communities

DEV - Urban/Developed

Project Type

Rehabilitation

SOURCE: Port of Long Beach 2017 - Maxar 2019; CNDDB 2020

DUDEK

0 205 410 Feet

FIGURE 4.3-34

Biological Resources - Grid J17

Sanitation District Facilities Master Plan PEIR

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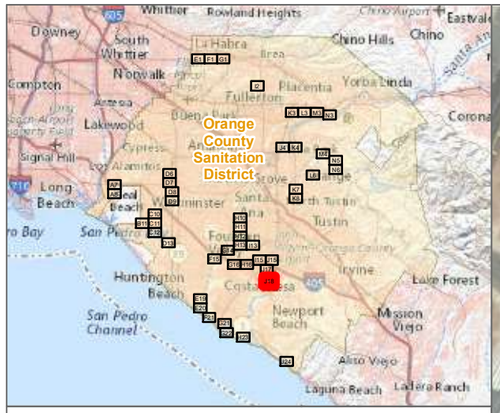

Collections System

Vegetation Communities

DEV - Urban/Developed

P Pump Station

Project Type

Rehabilitation

SOURCE: Port of Long Beach 2017 - Maxar 2019; CNDDB 2020

DUDEK 0 205 410 Feet

FIGURE 4.3-35

Biological Resources - Grid J18

Sanitation District Facilities Master Plan PEIR

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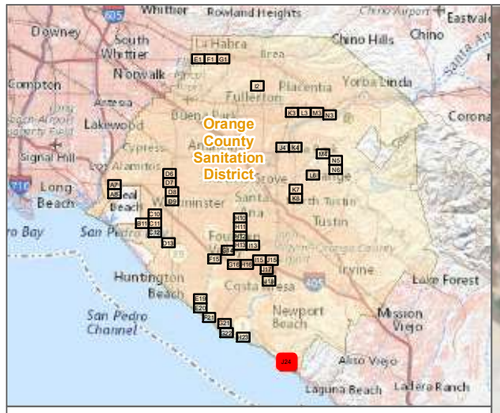

Collections System

Vegetation Communities

DEV - Urban/Developed

ORN - Parks and ornamental plantings

Pump Station

Project Type

Rehabilitation

Outside of District

SOURCE: Port of Long Beach 2017 - Maxar 2019; CNDDB 2020

DUDEK

0 205 410 Feet

FIGURE 4.3-36

Biological Resources - Grid J24

Sanitation District Facilities Master Plan PEIR

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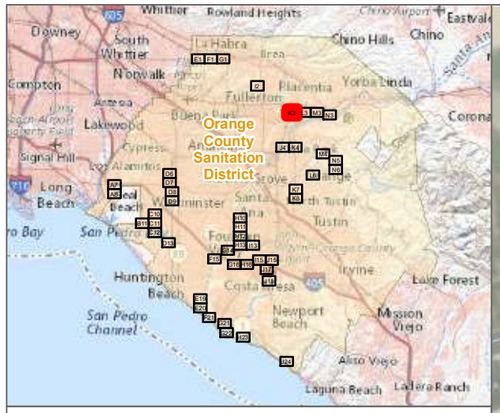

Collections System

Vegetation Communities

- DEV - Urban/Developed
- Enccal-Artcal - California brittle bush-California sagebrush
- ORN - Parks and ornamental plantings

Project Type

- Replacement

SOURCE: Port of Long Beach 2017 - Maxar 2019; CNDDB 2020

DUDEK

0 205 410 Feet

FIGURE 4.3-37

Biological Resources - Grid K3

Sanitation District Facilities Master Plan PEIR

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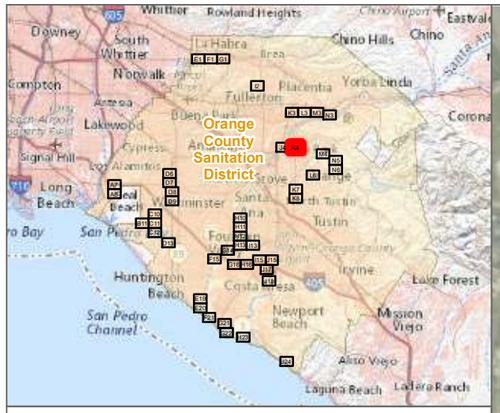

Collections System

Vegetation Communities

DEV - Urban/Developed

Project Type

Replacement

TUSTIN ST

TUSTIN

55

TAFT

TAFT AV

TUSTIN ST

SOURCE: Port of Long Beach 2017 - Maxar 2019; CNDDB 2020

DUDEK

0 205 410 Feet

FIGURE 4.3-38

Biological Resources - Grid K4

Sanitation District Facilities Master Plan PEIR

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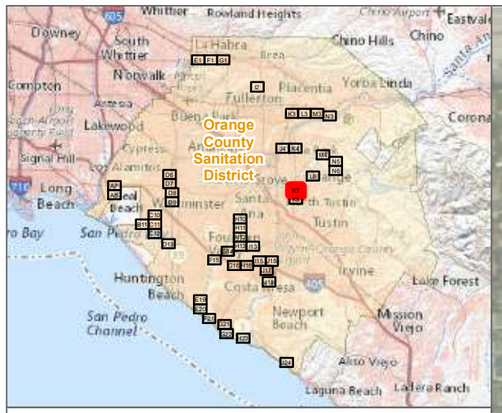


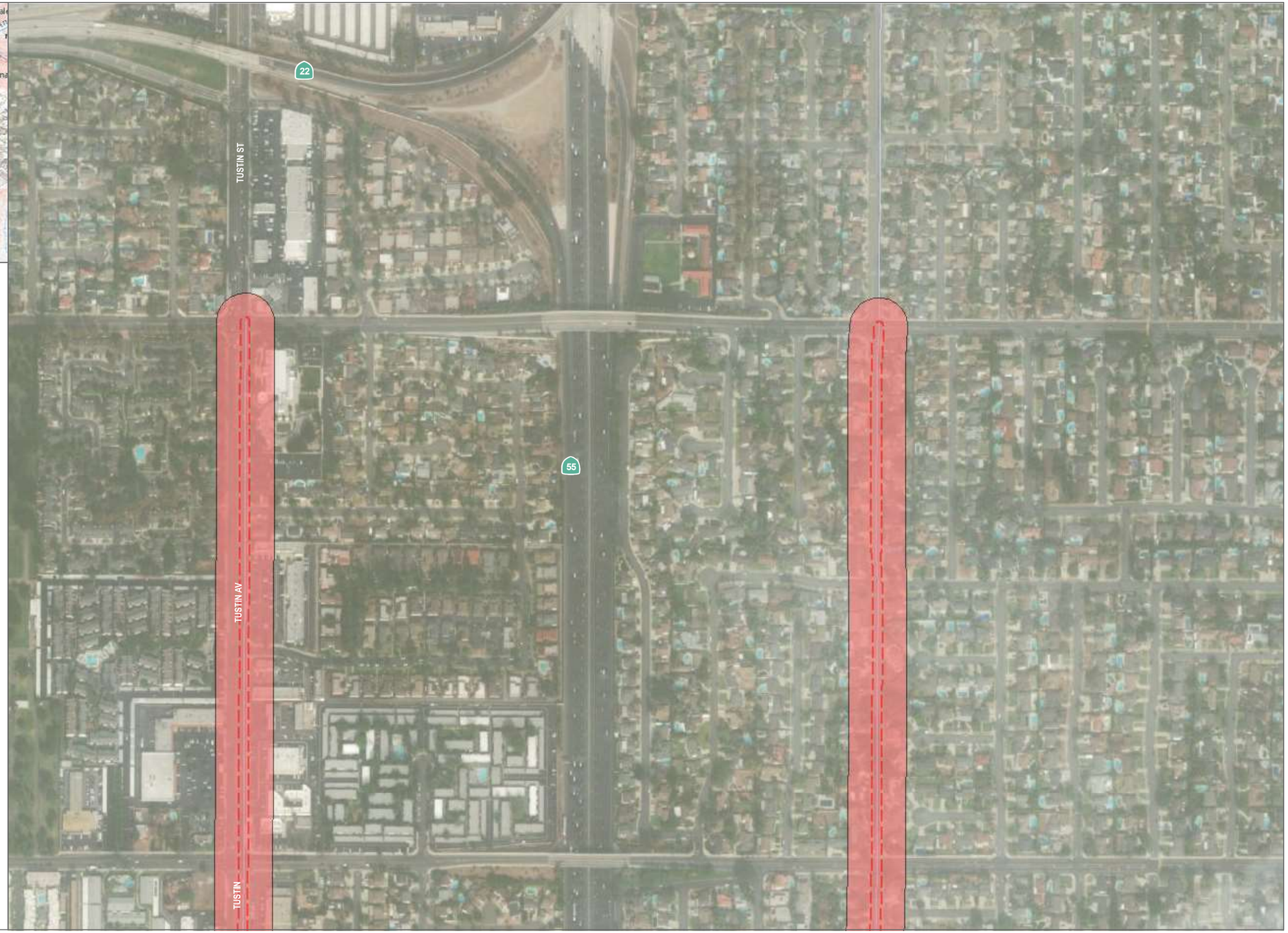
Collections System

Vegetation Communities

DEV - Urban/Developed

Project Type

Replacement



SOURCE: Port of Long Beach 2017 - Maxar 2019; CNDDB 2020

DUDEK

0 205 410 Feet

FIGURE 4.3-39

Biological Resources - Grid K7

Sanitation District Facilities Master Plan PEIR

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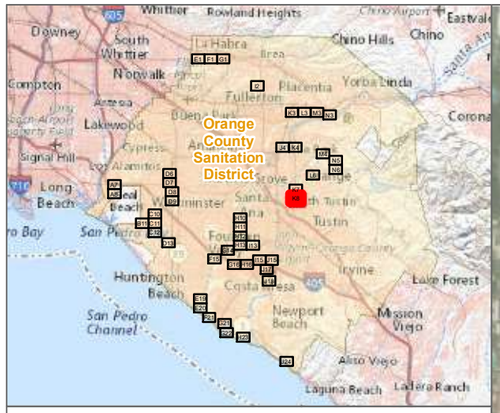

Collections System

Vegetation Communities

DEV - Urban/Developed

Project Type

Replacement

SOURCE: Port of Long Beach 2017 - Maxar 2019; CNDDB 2020

DUDEK

0 205 410 Feet

FIGURE 4.3-40

Biological Resources - Grid K8

Sanitation District Facilities Master Plan PEIR

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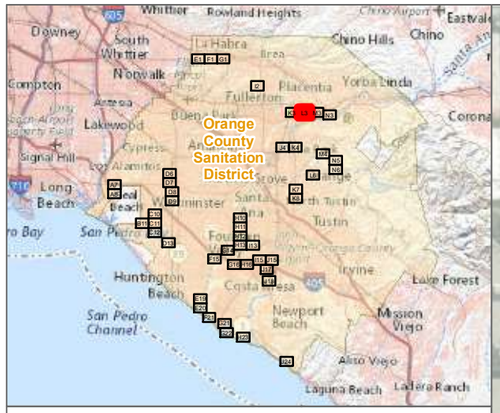

Collections System

Vegetation Communities

DEV - Urban/Developed

ORN - Parks and ornamental plantings

Project Type

Replacement

SOURCE: Port of Long Beach 2017 - Maxar 2019; CNDDB 2020

DUDEK

0 205 410 Feet

FIGURE 4.3-41

Biological Resources - Grid L3

Sanitation District Facilities Master Plan PEIR

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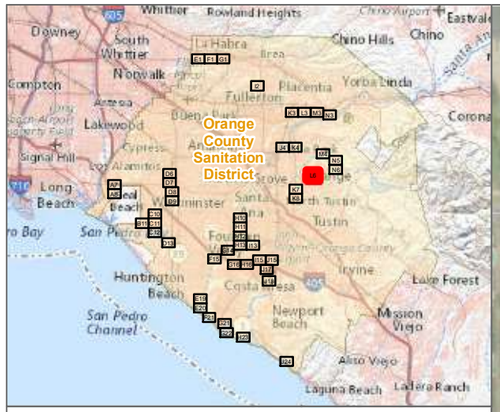

Collections System

Vegetation Communities

DEV - Urban/Developed

Project Type

Rehabilitation

SOURCE: Port of Long Beach 2017 - Maxar 2019; CNDDB 2020

DUDEK

0 205 410 Feet

FIGURE 4.3-42

Biological Resources - Grid L6

Sanitation District Facilities Master Plan PEIR

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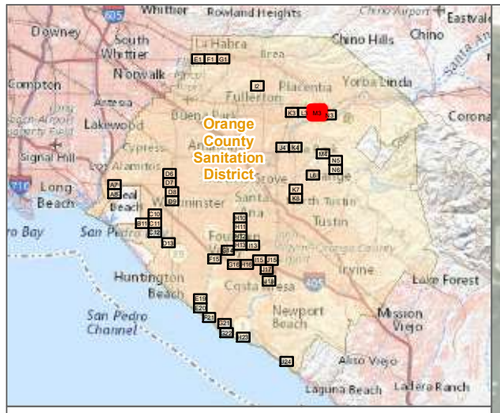

Collections System

Vegetation Communities

DEV - Urban/Developed

Project Type

Replacement

SOURCE: Port of Long Beach 2017 - Maxar 2019; CNDDB 2020

DUDEK

0 205 410 Feet

FIGURE 4.3-43

Biological Resources - Grid M3

Sanitation District Facilities Master Plan PEIR

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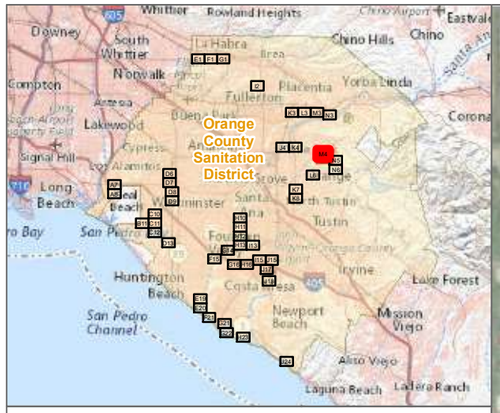

Collections System

Vegetation Communities

DEV - Urban/Developed

DH - Disturbed Habitat

Project Type

Rehabilitation

SOURCE: Port of Long Beach 2017 - Maxar 2019; CNDDB 2020

DUDEK

0 205 410 Feet

FIGURE 4.3-44

Biological Resources - Grid M4

Sanitation District Facilities Master Plan PEIR

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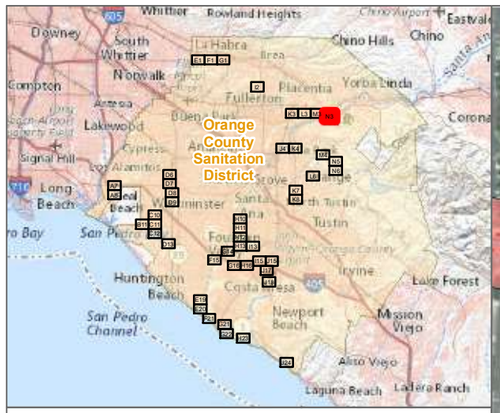

Collections System

Vegetation Communities

- DEV - Urban/Developed
- DH - Disturbed Habitat
- OW - Open water

Project Type

- Replacement
- Rehabilitation

SOURCE: Port of Long Beach 2017 - Maxar 2019; CNDDB 2020

DUDEK 0 205 410 Feet

FIGURE 4.3-45

Biological Resources - Grid N3

Sanitation District Facilities Master Plan PEIR

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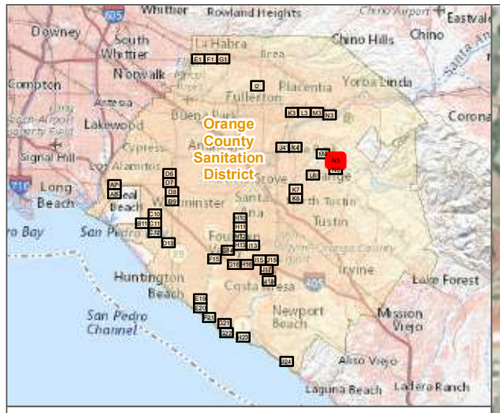


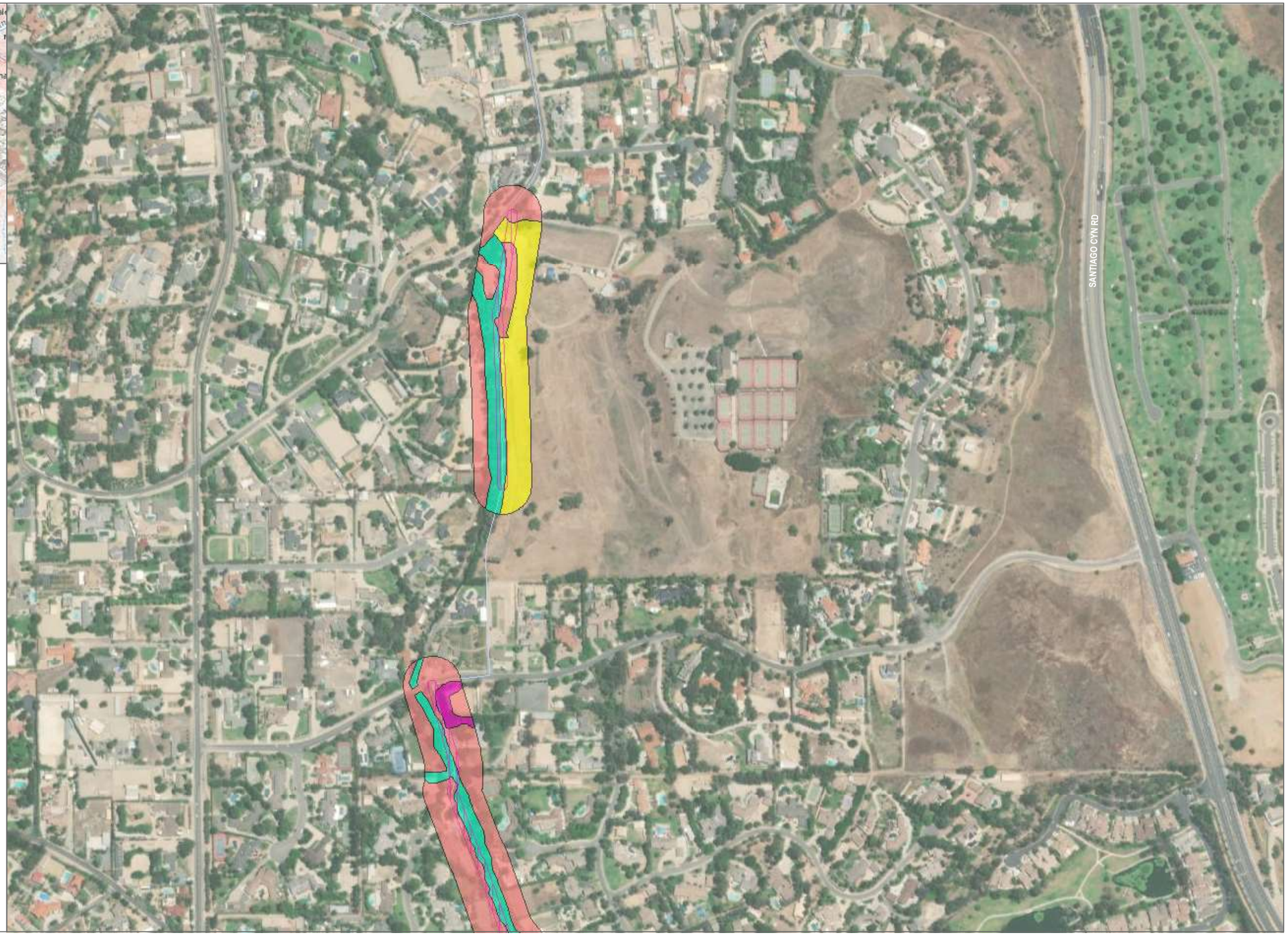
Collections System

Vegetation Communities

- DEV - Urban/Developed
- DH - Disturbed Habitat
- ORN - Parks and ornamental plantings
- Sallas - Arroyo willow

Project Type

- Spot Repair



SOURCE: Port of Long Beach 2017 - Maxar 2019; CNDDB 2020

DUDEK

0 205 410 Feet

FIGURE 4.3-46

Biological Resources - Grid N5

Sanitation District Facilities Master Plan PEIR

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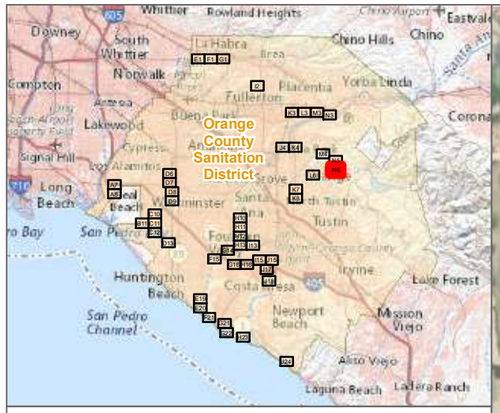


Collections System

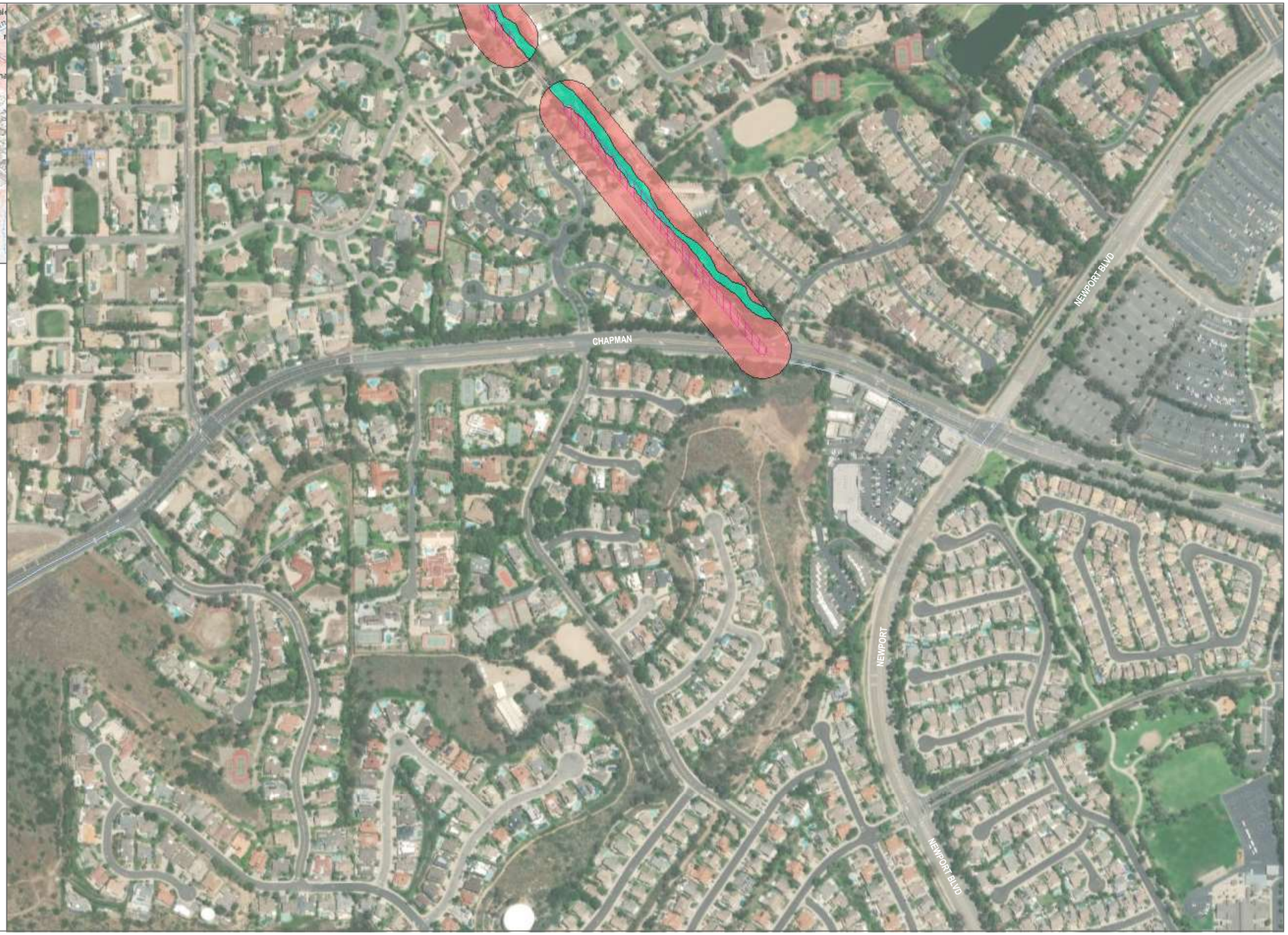
Vegetation Communities

DEV - Urban/Developed

Sallas - Arroyo willow

Project Type

Spot Repair



SOURCE: Port of Long Beach 2017 - Maxar 2019; CNDDB 2020

DUDEK

0 205 410 Feet

FIGURE 4.3-47

Biological Resources - Grid N6

Sanitation District Facilities Master Plan PEIR

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4.4 Cultural Resources

This section describes the existing conditions for cultural resources in the Facilities Master Plan (FMP) area, describes the associated regulatory requirements, and evaluates the potential impacts related to cultural resources as a result of implementing the FMP projects. The following cultural resources topics are examined in this section.

Archaeological Resources

Archaeological resources include prehistoric and historic landscapes, sites, features, and artifacts where human actions have resulted in detectable changes to the area. This can include changes in the soil and the presence of physical cultural remains. Archaeological resources can have a surface component, a subsurface component, or both. Historic archaeological resources are those originating after European contact. These resources may include subsurface features such as wells, cisterns, or privies.

Historical Resources

The California Environmental Quality Act (CEQA) defines historical resources as those that are listed in or eligible for listing in the California Register of Historical Resources (CRHR). As such, the term "historical resource" can include archaeological resources or built environment resources that are more than 45 years old. Historical built environment resources include buildings, structures, objects, or combinations thereof that are more than 45 years old. In 2018, the Orange County Sanitation District (Sanitation District) conducted two historic resources assessments for Reclamation Plant No. 1 (Plant 1) and Treatment Plant No. 2 (Plant 2) because a number of facilities at the two plants met the 45-year age threshold for historical resources prescribed by the California Office of Historic Preservation (Taylor 2018a, 2018b). The findings from these two assessments are included in the impacts analysis.

As stated in the July 2019 Initial Study (Appendix A to this program environmental impact report [PEIR]), the following issues are addressed in this section:

- The potential to cause a substantial adverse change in the significance of a historical resource
- The potential to cause a substantial adverse change in the significance of an archaeological resource

Potential impacts related to the disturbance of human remains, including those interred outside of dedicated cemeteries, were eliminated from further consideration in the Initial Study and are not analyzed further in this PEIR due to the fact that work would occur primarily in developed areas (on existing facility sites and within existing streets). If human remains are uncovered, agencies must follow California Health and Safety Code Section 7050.5.

The analysis provided in this section is based on an examination of existing maps, records, and reports. A records search was conducted on November 20 and December 12, 2019, at the South Central Coastal Information Center (SCCIC) at California State University, Fullerton. The search encompassed the FMP area and a 0.25-mile buffer. The purpose of the records search was to identify any previously recorded resources that may be located in or adjacent to the FMP area and to identify previous studies in the vicinity. Finally, a reconnaissance field survey was completed to confirm existing conditions on January 13, 2020. All archival materials examined for this analysis are included in Appendix F. A brief summary of the cultural setting in Section 4.4.1, Existing Conditions, provides the context for the assessment of cultural resource significance according to the CRHR. The CRHR is a list of important cultural and historic properties in California maintained by the Office of Historic Preservation. The State Historic Preservation

Officer determines what resources are eligible for the CRHR and should be added to this register. The register is a matter of public record. Some municipalities also maintain local registers of historical resources. The Native American Heritage Commission (NAHC) maintains the California Sacred Lands File and generally recommends that other tribes within the agency's jurisdiction or project geographic area be contacted for information regarding sacred lands and other resources of tribal concern. The regulatory framework requiring the evaluation of known or anticipated important cultural resources within the FMP area is provided in Section 4.4.3, Relevant Plans, Policies, and Ordinances, followed by impact analysis and mitigation measures, as needed, to reduce significant impacts resulting from implementation of the FMP.

4.4.1 Existing Conditions

This section describes the general cultural, historic, and archaeological existing conditions as well as the specific existing cultural, historic, and archaeological resources in the vicinity of the FMP area and relevant to the FMP.

Overview

The FMP area addressed in this PEIR is located throughout the Sanitation District's service area, which covers an approximately 479-square-mile area within the northwestern and central portions of Orange County. The boundaries of the Sanitation District's service area relative to the county boundaries are shown in Figure 2-1, Project Location, in Chapter 2, Introduction. The service area includes the entirety or portions of municipal boundaries for 20 cities, as well as unincorporated land and four special districts (see Section 2.1.1, Sanitation District History and Governance). Project components are located at the sites of existing Sanitation District facilities, and work primarily would be limited to existing Sanitation District easements. Some construction activity and staging would occur outside Sanitation District easements, in the land use jurisdiction of the various municipalities listed in Section 2.1.1 and on unincorporated land within Orange County.

Cultural Setting

Orange County lies within an area generally characterized as the San Diego Subregion of the Southern Coast Archaeological Region. The subregion extends along the Pacific Coast from Santa Monica Bay to the Mexican border. The subregion includes all of Orange County, southern Los Angeles County, the southwest corner of San Bernardino County, and western Riverside and San Diego Counties.

Evidence for continuous human occupation in the region spans the last 10,000 years. The history of human occupation spans the following chronological time periods: Paleoindian (pre-5500 BC), Archaic (8000 BC–AD 500), Late Prehistoric (AD 500–1750), and Ethnohistoric (post-AD 1750).

Paleoindian (Pre-5500 BC)

Evidence for Paleoindian occupation in the region is sparse; the knowledge of associated cultural patterns is informed by a relatively inconsistent body of data that has been collected from within an area extending from coastal San Diego through the Mojave Desert and beyond. One of the earliest dated archaeological sites in this area (excluding the Channel Islands) derives from SDI-4669/W-12 in La Jolla, San Diego County. A human burial was radiocarbon dated to 9,590–9,920 years before present (Hector 2006). The burial is part of a larger site that contained more than 29 human burials associated with large amounts of groundstone, battered cobbles, and expedient flake tools. In contrast, typical Paleoindian sites include large stemmed projectile points, high proportions of formal lithic tools, and relatively small proportions of groundstone tools.

Warren et al. (2004) claimed that a biface (i.e., stone blades modified on opposing edges) manufacturing tradition present at the Harris site complex (SDI-149) is representative of typical Paleoindian occupation in the Southern California region that possibly dates between 10,365 and 8200 BC (Warren et al. 2004). Termed San Dieguito (Rogers 1945), assemblages at the Harris site, located in the area now occupied by City of Escondido, are distinct from most others in the region because the site has large numbers of finely made stone tools (including projectile points), formal flake tools, and relatively small amounts of processing tools (Warren 1964, 1968).

The large number of finished projectile points and non-projectile blades, along with large numbers of formal flake tools at the Harris site complex, is very different than nearly all other sites throughout the region, regardless of age. Producing finely made stone tools implies that relatively large amounts of time were spent for tool manufacture during this time period.

Archaic (8000 BC–AD 500)

The Archaic pattern is relatively easy to define with sites that consist primarily of processing tools: milling stones, hand stones, battered cobbles, heavy crude scrapers, incipient flake-based tools, and cobble-core reduction. These sites occur in all environments across the region, with little variability in tool composition. Despite enormous amounts of archaeological work at Archaic sites, little change in archaeological findings occurs until the bow and arrow and ceramics are adopted at around AD 500 (Griset 1996; Hale 2009). After the bow is adopted, small arrow points appear in large quantities, and already low amounts of formal flake tools are replaced by increasing amounts of expedient (informal and quickly manufactured) flake tools. Similarly, shaped millingstones and handstones decrease in proportion relative to unshaped groundstone tools (Hale 2009).

In Orange County, the Newport Coast Archaeological Project (Mason 1991) and the Muddy Canyon Archaeological District have provided evidence of middle early Holocene occupation at several archaeological sites in the area. Locally, a well-dated prehistoric habitation site (CA-ORA-1502) dating to the late Archaic period (approximately 750–335 BC) is located within Naval Weapons Station Seal Beach, within the records search area but outside of the FMP area.

Late Prehistoric (AD 500–1750)

The period of time following the Archaic and prior to Ethnohistoric times (AD 1750) is commonly referred to as the Late Prehistoric (Rogers 1945; Wallace 1955; Warren et al. 2004). Rogers (1929) subdivided the last 1,000 years into the Yuman II and III cultures, based on the distribution of ceramics. Despite these regional complexes, each is defined by the addition of arrow points and ceramics and the widespread use of bedrock mortars.

While steatite was commonly the material of choice for vessel production, it was generally replaced near the time of missionization by locally procured clay to produce ceramic vessels. The appearance of mortars and pestles is difficult to place in time because most mortars are on bedrock. Some argue that the Ethnohistoric intensive acorn economy extends as far back as AD 500 (Bean and Shipek 1978). However, there is no substantial evidence that reliance on acorns, and the accompanying use of mortars and pestles, occurred prior to AD 1400. True (1980) argued that acorn processing and ceramic use in the region did not occur until the San Luis Rey pattern emerged after approximately AD 1450. In Orange County, small Cottonwood triangular projectile points are highly diagnostic of this period.

Ethnohistoric (Post-AD 1750)

The Native American inhabitants affiliated with the FMP area would have generally spoken Luiseño-Juaneño (Acjachemen) and the Gabrielino (Kizh) varieties of Takic, which may be assigned to the larger Uto-Aztecan family (Golla 2007). Golla has interpreted the amount of internal diversity within these language-speaking communities to reflect a time span of approximately 2,000 years. The Luiseño-Juaneño and Gabrielino represent the descendants of local Late Prehistoric populations. They are generally considered to have migrated into the area from the Mojave Desert, possibly displacing the prehistoric ancestors of the Yuman-speaking Kumeyaay (Ipai-Tipai) that lived to the south during Ethnohistoric times. The Luiseño-Juaneño shared boundaries with the Gabrielino and Serrano to the west and northwest, the Cahuilla to the east, the Cupeño to the southeast, and the Kumeyaay to the south (Bean and Shipek 1978; Kroeber 1925). Southern Native American tribal groups of the San Diego and southern Imperial region have traditionally spoken Yuman languages, a subgroup of the Hokan Phylum.

The Gabrielino territory included the Los Angeles Basin, the coast of Aliso Creek in Orange County to the south, and Topanga Canyon in the north; the four southern Channel Islands; and watersheds of the Los Angeles, San Gabriel, and Santa Ana Rivers. At the time of European contact, the Gabrielino were actively involved in trade using shell and beads as currency. The Gabrielino produced pipes, ornaments, cooking implements, inlay work, and basketry. Dwellings were constructed of tule mats on a framework of poles, but size and shape have not been recorded (Kroeber 1925). Basketry and steatite vessels were used rather than ceramics until near the end of the mission period in the nineteenth century (Garcia et al. 2011).

The Juaneño (Acjachemen) territory was bounded to the north by Aliso Creek, the east by the crest of the Santa Ana Mountains, the south by San Onofre Creek, and west by the Pacific Ocean (Kroeber 1925). Ethnographic, linguistic, and archaeological evidence indicate that Juaneño and Luiseño are one cultural/tribal group. There is no existing record of the Juaneño population during the pre-contact period. Records indicated that approximately 1,300 individuals culturally affiliated with the Juaneño resided at Mission San Juan Capistrano in the year 1800 (Engelhardt 1922). The mission death register shows as many as 4,000 native burials in the mission cemetery (White 1963). It is clear from that the arrival of the Spanish decimated Native peoples through disease and changed living conditions (Bean and Shipek 1978).

The tribes of the region were organized into patrilineal clans or bands centered on a chief, composed of 25 to 30 people (Kroeber 1925), each of which had their own territorial land or range where food and other resources were collected at different locations throughout the year (Sparkman 1908). The title of chief was heritable along family lines. Inter-band conflict was most common over trespassing.

Acorns were the staple food of the Native American inhabitants of this region during the Ethnohistoric period (Sparkman 1908). Of the six or more oak species within this traditional territory, the most desirable of these was the black oak, due to its ease of processing, protein content, and digestibility. Acorns were stored in granaries to be removed and used as needed. The acorns were generally processed into flour using a mortar and pestle. Other edible and medicinal plants of common use included wild plums, choke cherries, Christmas berry, gooseberry, elderberry, willow, Juncus grass, buckwheat, lemonade berry, sugar bush, sage scrub, currents, wild grapes, prickly pear, watercress, wild oats, and other plants. More arid plants such as yucca, agave, mesquite, chia, bird-claw fern, Datura, yerba santa, Ephedra, and cholla were also of common use by some Juaneño and Gabrielino populations. A number of mammals were commonly eaten. Game animals included black-tailed deer, antelope, rabbits, hares, birds, ground squirrels, woodrats, bears, mountain lions, bobcats, coyotes, and others. In lesser numbers, reptiles and amphibians may have been consumed. Fish and marine resources provided some portion of many tribal communities' food sources, though most notably those nearest the coast. Shellfish would have been procured and transported inland from three primary environments, including the sandy open coast, bay and lagoon, and rocky open coast.

Historic Period (Post-AD 1542)

European activity in the region began as early as AD 1542, when Juan Rodríguez Cabrillo landed in San Diego Bay. Sebastián Vizcaíno returned in 1602, and it is possible that there were subsequent contacts that went unrecorded. These brief encounters made the local native people aware of the existence of other cultures that were technologically more complex than their own. Epidemic diseases may also have been introduced into the region at an early date, either by direct contacts with the infrequent European visitors or through waves of diffusion emanating from native peoples farther to the east or south. Father Juan Crespí, a member of the 1769 Spanish Portolá expedition, authored the first written account of interaction between Europeans and the indigenous population in the region that makes up Orange County today. It is possible, but as yet unproven, that the precipitous demographic decline of native peoples had already begun prior to the arrival of Gaspar de Portolá and Junípero Serra in 1769.

Spanish colonial settlement was initiated in 1769, when multiple expeditions arrived in San Diego by land and sea, and then continued northward through the coastal plain toward Monterey. A military presidio and a mission were soon firmly established at San Diego, despite violent resistance to them from a coalition of native communities in 1776. Mission San Juan Capistrano was established this same year. Private ranchos subsequently established by Spanish and Mexican soldiers, as well as other non-natives, appropriated much of the remaining coastal or near-coastal locations (Pourade 1960–1967).

Mexico's separation from the Spanish empire in 1821 and the secularization of the California missions in the 1830s caused further disruptions to native populations. Some former mission neophytes were absorbed into the work forces on the ranchos, while others drifted toward the urban centers at San Diego and Los Angeles or moved to the eastern portions of the county where they were able to join still largely autonomous native communities. United States conquest and annexation, together with the gold rush in Northern California, brought many additional outsiders into the region. Development during the following decades was fitful, undergoing cycles of boom and bust. With rising populations in the nineteenth century throughout the Southern California region, there were increased demands for important commodities such as salt.

4.4.2 Records Search

On November 20 and December 12, 2019, a cultural resources records search was conducted through the California Historical Resources Information System database at the SCCIC at California State University, Fullerton (Appendix F). The records search provided information on all documented cultural resources and previous archaeological investigations within 0.25 miles of the FMP area. Resources consulted during the records search included the National Register of Historic Places (NRHP), CRHR, California Historical Landmarks, California Points of Historical Interest, and the California State Historic Resources Inventory.

The purposes of the records search were to (1) determine whether known cultural resources have been recorded within or adjacent to the FMP area, (2) assess the likelihood for unrecorded cultural resources to be present based on historical references and the distribution of nearby sites, (3) develop a context for the identification and preliminary evaluation of cultural resources that could be impacted by the FMP, and (4) develop a sensitivity analysis based on the records search results.

Previous Cultural Resources Investigations

Based upon the records search conducted at the SCCIC, 548 cultural resource studies have been completed within the 0.25-mile records search radius. Of the 548 previous studies, 115 of these studies were within the current FMP area. The remaining 433 reports were conducted outside of the FMP area and are listed in Appendix F. The 115 reports that intersect with the FMP area are listed in Appendix F (Table F-1). Following are brief narrative descriptions of four projects especially pertinent to the proposed FMP.

OR-00801: Phase II Archaeological Studies, Prado Basin and the Lower Santa Ana River, Orange County, California

This report was prepared for the U.S. Army Corps of Engineers by Paul E. Langenwalter and James Brock with ECOS Management Criteria Inc. in 1985 while under contract with the Los Angeles District of the U.S. Army Corps of Engineers. The purpose of this study was to develop a documented body of information to be used in planning management strategies for the resources in their project area. The project was deemed necessary because of the expectation that increased flood control protection along the Santa Ana River would be needed. The project area includes the Prado Basin, Santa Ana River channel extending from Prado Dam to the Pacific Ocean, the Oak Street Drain in Corona, and Santiago Creek below the Villa Park Dam. Overall, the report identified 23 prehistoric sites (7 eligible for NRHP) and 27 historic sites (1 already listed in the NRHP, 21 eligible, and 5 not eligible).

OR-02256: Cultural Resource Assessments for Orange County Sanitation District, Orange County, California

This project was conducted by Archaeological Resource Management Corporation for Environmental Science Associates in 1999. The purpose of the study was to evaluate the potential impacts to cultural resources as a result of future improvements to Sanitation District facilities (Demcak 1999). For the 1999 project, the Sanitation District study area included approximately 340 square miles, encompassing 23 cities and portions of unincorporated county lands. The majority of the Sanitation District projects occurred in areas that have creeks, rivers, marshes, or embayments that attracted prehistoric populations. The data for this study was based on the record search data and other previous reports, and did not include a field survey because the projects were all located within streets or other disturbed contexts. The previous FMP project included 23 different project areas. The study provided a list of the Sanitation District's proposed work areas and a tiered probability for impacting buried deposits within those areas. Areas of Very High Probability (three project areas) were recommended to receive pre-project field surveys, testing mitigation with a Native American monitor, and full monitoring during construction. The lower tiers included one High Probability Project Area (full-time monitoring recommended), 15 Moderate Probability Project Areas (part-time monitoring recommended), and four Low Probability Project Areas (no monitoring). Areas of Very High Probability included the Santa Ana Interceptor Project Area located along the Santa Ana River adjacent to the Yorba Regional Park in Yorba Linda, the Gisler-Red Hill System Improvements A and B located along Red Hill Boulevard near the Interstate 5 in Tustin, and the Warner Avenue Relief Project Area along Warner and Los Patos Avenues in Huntington Beach southeast of Sunset Beach.

OR-04087: Environmental Impact Report/Tier 1 Environmental Impact Statement for the Groundwater Replenishment System, Orange County, California

This EIR/Tier 1 environmental impact statement (EIS) was completed in 1998 and was created for the Groundwater Replenishment System for the joint efforts of Orange County Water District and the Sanitation District. The program would take secondary treated wastewater, clean it, and allow it to be used for groundwater recharge via injection into a seawater intrusion barrier and for landscape irrigation. The EIR/Tier 1 EIS was prepared in order to disclose the potential environmental impacts of the Groundwater Replenishment System. The impact area was along the Santa Ana River channel, with the installation of 13 miles of 78-inch pipeline, as well as pump stations. The EIS included only data from a record search. The EIS ultimately identified only seven prehistoric sites,

one State Historic Landmark, and one historic structure within the project area. The EIR/Tier 1 EIS found that this project would not adversely affect any cultural resources, and only paleontological mitigation measures were proposed.

OR-04266: Cultural Resources Reconnaissance for the Groundwater Replenishment System, Orange County, California

This cultural resource reconnaissance was conducted for the Groundwater Replenishment System in 2000 by RMW Paleo Associates. The cultural resources inventory was done for a proposed linear project of 25 miles in length and an additional 50-acre area. The report included survey and record search information (Bissel 2000). The areas of interest were along the Santa Ana River primarily. Bissel identified 13 previously recorded prehistoric archaeological sites, one historic adobe building, and one historic railroad segment within or near the project area. In addition, a prehistoric site and two historic residences were identified. Bissel noted many of the sites discussed in his report had been destroyed prior to modern regulations. The resource inventory concluded that the area immediately around the river was not as sensitive as the bluff areas adjacent to the channel, especially in the southern portion.

Existing Cultural Resources within the FMP Area

Based upon the records search conducted at the SCCIC, 407 previously recorded cultural resources were recorded within the 0.25-mile records search radius (Appendix F, Table F-1); however, only 11 are within the FMP area (Table 4.4-1). Some 395 resources are located within the 0.25-mile buffer, but are not within the FMP area, consisting of 350 historic resources (Appendix F, Table F-2) and 45 prehistoric resources (Appendix F, Table F-3).

A total of 10 cultural resources intersect with or lie in close proximity to the FMP area (see Table 4.4-1). These comprise three prehistoric cultural resources and eight historic cultural resources. The three prehistoric resources include two shell middens (CA-ORA-61 and -1352) and a habitation site that also contains a shell midden (CA-ORA-1502). Sites CA-ORA-61 and -1352 are likely destroyed, while site CA-ORA-1502 is considered a significant resource with a high probability of containing intact, substantive cultural deposits, including human remains.

The seven historic resources consist of a variety of buildings representing the broad patterns of development of Orange County. The resources include the Naval Weapons Station Seal Beach Historic District (P-30-179859) and associated facilities (P-30-17649), one railroad segment (P-30-176763), industrial petroleum processing buildings (P-30-176801), a historic maintenance yard (P-30-176802), a single-family residence (P-30-17715), and a Sanitation District Historic District within Plant 1 (P-30-177661) (Taylor 2018a).

Table 4.4-1. Previously Recorded Cultural Resources Within the FMP Area

Primary Number	Trinomial	Resource Name	Type	Resource Description	FMP Intersect	CRHP/NRHP Status
P-30-000061	CA-ORA-000061	NELSON #22	Site	This site was recorded as a small amount of a prehistoric shell midden with a frame house erected historically on site.	X-24 and 5-68	Not Evaluated
P-30-001352	CA-ORA-001352	BIXBY RANCH SITE	Site	This site was recorded as a small shell midden in 1979, and has since been destroyed.	3-68	Not Evaluated
P-30-001502	CA-ORA-001502	NWSSB-1	Site	This site consists of human burials, shell midden, and groundstone artifacts, located on Naval Weapons Station Seal Beach property.	3-68	Eligible

Table 4.4-1. Previously Recorded Cultural Resources Within the FMP Area

Primary Number	Trinomial	Resource Name	Type	Resource Description	FMP Intersect	CRHP/NRHP Status
P-30-176491		Seal Beach Naval Weapons Station Underground Utilities	Building	This resource is a poured concrete utility shed with chain-link door and perimeter.	3-61 and 3-67	Not Eligible
P-30-176763		Segment of Pacific Electric Railway	Structure	Segment of Pacific Electric Railway's Santa Ana-Huntington Beach-Balboa Line, later subsumed into Southern Pacific. No original rail components from the 1909 completion remain, though it occupies the same route.	X-078	Not Eligible
P-30-176801		C L Passmore	Building	Two industrial stucco-sided buildings constructed circa 1946, related to the petroleum industry.	X-078	Not Eligible
P-30-176802		Resources & Development Management Department	Building	Six industrial buildings constructed circa 1920 as part of the support yard for the County of Orange Highway Department.	X-078	Not Eligible
P-30-177151		1072 Concord St	Building	A single-family ranch-style home with batten board siding and brick veneer.	X-026	Not Eligible
P-30-177661		Orange County Sanitation District Reclamation Plant No. 1	District	Sanitation District Plant 1 Historic District is comprised of 16 buildings associated with Orange County Sanitation District Reclamation Plant No. 1 built between 1957 and 1971.	X-006, X-015, X-017, X -018,X-038, X-039, X-040, X-043,X-044, X-048, X-049, X-077, X-076, X-078, X-079, X-093, and PI-126	Not Eligible
P-30-179859		Naval Weapons Station	District	Naval Weapons Station Seal Beach Historic District comprises a total of 185 contributing and 247 non-contributing buildings and structures.	3-68 and 3-67	Not Eligible

Prehistoric Resources in the FMP Area

P-30-000061 (CA-ORA-61)

Documentation of CA-ORA-61 is scant and restricted to a single paragraph description of unknown age. According to N.C. Nelson, the site consists of a shell midden of unknown cultural or temporal affiliation. It is briefly described by Nelson as containing a small amount of shell midden at the base of a bluff on the edge of a marsh. Nelson questions the origins of the shell midden as he notes the one-time presence of a historic house on the site. No additional documentation is available so it remains unknown whether the shell midden dates to prehistoric or historic times. The site is likely completely destroyed, as it is mapped beneath Pacific Coast Highway. Project X-024, Rocky Point Pump Station Rehabilitation, and 5-68, Newport Beach Pump Station Odor Control Improvements, directly intersect the northern portion of the recorded boundary of this resource.

P-30-001352 (CA-ORA-1352)

Also known as the Bixby Ranch Site, CA-ORA-1352 is described as a prehistoric shell midden measuring roughly 200 meters × 50 meters. The site was originally recorded in 1972 by David Van Horn and was reported to consist of Chione and oyster shell with no other artifact classes observed. Subsurface testing at the site in 1980 failed to identify subsurface deposits; instead the cultural material was interpreted as redeposited fill (Davy 1997). URS agreed with this finding in 2010.

Subsequent surveys (Love 2002; Stewart 2010) indicated that the area has since been developed into a commercial office building and that the site is no longer extant. Because CA-ORA-1352 was determined to be road fill associated with the construction of the Interstate 405 and was subsequently destroyed by the development of an office building, this site need not be considered during project-related activities. Project 3-68, Los Alamitos Sub-Trunk Extension, directly bisects the recorded boundary of this resource.

P-30-001502 (CA-ORA-1502)

This site was originally recorded in 1999 by Mooney & Associates staff. The site was described as a prehistoric habitation site consisting of an extensive shell, bone, and artifact scatter, with human remains. At that time, Dr. Judy Suchey, Orange County Coroners' Office, identified human remains including skull, maxilla, mandible, humerus, and other fragments spread across the surface of the site in two different loci. The recorders noted the construction of an Orange County Flood Control Channel disturbed the site.

The site was monitored during the construction of a health center and parking lot associated with the Coast Metro Center. Recovered artifacts from this monitoring effort included flaked stoke and groundstone and a perforated stone disk.

In 2000 the site was tested by the U.S. Navy, Naval Weapons Station Seal Beach. These efforts included systematic surface collection, shovel test pits, test units, and trenching. This resulted in an expansion of the surface boundaries of the site, yet failed to provide a conclusive depth of the cultural deposits. Two radiocarbon dates were obtained from shell specimens. The first dated to 355 BC/2305 BP from a specimen recovered from 80 to 90 centimeters below ground surface and the second yielded a date of 750 BC/2700 BP from a specimen recovered from 120 to 130 centimeters below ground surface. The site was recommended eligible for listing on the NRHP under Criterion D.

The site was relocated in 2010 by Sarah Mattiussi and Dustin Kay of URS and appeared to be in good condition. As it is located along the edge of the Navy station, access to the site is restricted, and no additional work was completed at that time.

Based on the artifact assemblage and chronometric data, CA-ORA-1502 is a significant habitation site dating to the Archaic period. Although the site has been previously disturbed, it is likely to contain intact deposits. Project 3-68, Los Alamitos Sub-Trunk Extension, intersects the western boundary of the site, running north–south.

Historic Built Environment Resources in the FMP Area

A total of 330 historic built environment resources were identified during the records search (Appendix F, Table F-2), but only eight intersect the FMP area (Table 4.4-1). Seven resources were found ineligible for listing in the NRHP or the CRHR, and one (P-30-179859) was originally listed in the NRHP, but in 2007 the district was re-evaluated and, as a result, it was determined ineligible for listing in the NRHP or CRHR and subsequently removed from both lists.

Regarding the remaining 321 historic built environment resources that fall within the 0.25-mile buffer, all are at least 100 feet away from a project site. The majority of the proposed FMP is comprised of underground pipe replacement, rehabilitation, and/or maintenance, with the remaining components including aboveground pump stations and replacement or rehabilitation of facilities and equipment at Plant 1 and Plant 2. The pump stations are sufficiently compact that they would not alter the surroundings or landscape. Similarly, both plants are sufficiently far enough away from any historic built environment resources that the proposed FMP would not result in an indirect impact.

Historic built environment resources intersecting FMP areas are individually described below.

P-30-176491

This site is a group of Naval Weapons Station Seal Beach utility structures that vary in size and placement. The site component within the FMP area is a poured concrete utility shed with three walls and a chain-link gated perimeter and 4th wall. The building was recorded as part of the Naval Weapons Station in 1992 by Kathleen Crawford of Ogden Environmental and Energy Services. The structure was built circa 1945. Utility structures do not generally meet the criteria for listing on the NRHP either as individual structures or as contributors to the historic district. This site has been determined as not eligible for the NRHP, the CRHR, or local register through survey-level evaluation. Projects 3-67, Seal Beach Pump Station Replacement, and 3-68, Los Alamitos Sub-Trunk Extension, directly intersect the western boundary of this resource.

P-30-176763

This resource consists of a short segment of the Pacific Electric Railway's Santa Ana-Huntington Beach-Balboa line. This component was originally recorded by Richard Shepard in 2005. The original construction for this segment began in 1907 and was completed in 1909. This line has been used continuously since, though the line was changed from passenger to freight in 1922. The freight line was later subsumed by Southern Pacific. The line has been in continuous use since then and as such, has undergone regular maintenance and replacement, and currently exhibits no original components. As such, the site lacks integrity of materials, setting, and feeling, and has been determined as not eligible for the NRHP, CRHR, or local register through survey evaluation (Taniguchi 2004). Project X-078, Air Jumper Additions and Rehabilitation, intersects with the recorded boundary of this resource, but would not call for any ground disturbance.

P-30-176801 (HRI 152781)

This resource consists of at least four historic industrial buildings, and was recorded in 2004 by Christine Taniguchi of Michael Brandman Associates. The two main buildings were built circa 1946 and were used in industrial petroleum processing by the General Petroleum Corporation of California. Building 1 has a rectangular plan with a hipped roof and stucco walls. Building 2 was built in the 1920s and was originally used as an office for the building materials company that owned the site prior to the petroleum processor. Although retaining integrity, the buildings (as a single site) have been determined as not eligible for the NRHP, CRHR, or local register through survey evaluation. Project X-078, Air Jumper Additions and Rehabilitation, intersects with the recorded boundary of this resource.

P-30-176802 (HRI 152779)

This resource is an industrial/maintenance yard complex used by the County of Orange for the Highway Department and consists of six buildings and the County of Orange Agriculture Department (one building). This resource was originally recorded in 2004 by Christine Taniguchi. The six buildings include a tune-up shop and car wash; a garage and storage; a blacksmith and welding shop; an office; a parts and vehicle repair building; a paint, body, and tire shop; an auto and tire storage building; and a warehouse. The construction dates to the 1920s and consists primarily of wood frames with corrugated metal exterior walls and roofs. In addition to the six older buildings, three modern buildings occupy the space. These younger buildings are not associated with the historic complex. This site has been determined as not eligible for the NRHP, CRHR, or local register through survey evaluation. Project X-078, Air Jumper Additions and Rehabilitation, intersects with the recorded boundary of this resource, but does not call for any ground disturbance.

P-30-177151

This resource is a single-family property constructed in 1964 in the single-story ranch style with a U-shaped plan. It was originally recorded by Carrie Chasteen of Parsons in 2010 as part of the Interstate 405 improvement project (Chasteen 2010). This resource has a gabled roof with exposed rafter tails and is clad in composition shingles with diamond paned sliding windows at the front. This site has been determined as not eligible for the NRHP, CRHR, or local register through survey evaluation. Project X-026, College Avenue Force Main Rehabilitation, intersects with the recorded boundary of this resource.

P-30-177661

The resource is a historic period district associated with Plant 1. This site was originally recorded by C. Taylor of ESA in 2017. The district is comprised of 16 buildings, structures, and features constructed between 1957 and 1971 all located within the present day boundary of the Plant 1 facility (Taylor 2018a). Of the 16 historic buildings within the district, only one (the Old Operations Control Building built in 1962) demonstrates architectural merit for further consideration as a historical resource under CEQA. Overall, the district is recommended not eligible for the NRHP, CRHR, or local designation through survey-level evaluation. Many of the FMP projects are planned within this plant, including X-006, X-015, X-017, X-018, X-038, X-039, X-043, X-044, X-048, X-049, X-077, X-079, X-092, X-093, and PI-126.

P-30-179859

This resource is the Naval Weapons Station Seal Beach Historic District and encompasses the entire installation. This historic district consists of 185 contributing elements and 247 noncontributing elements. The district was recorded in 1995 and initially recommended eligible for the NRHP. An NRHP Nomination Form was completed at that time by Kathleen Crawford of Ogden Environmental & Energy Services. The site has a period of significance during 1940–1946 for its role in military history. None of the buildings or structures were considered significant individually at that time. When it was originally found eligible for listing on the NRHP, the district was automatically added to the CRHR. The district was re-evaluated in 2007 and determined not eligible for either the NRHP or CRHR. Further correspondence between the State Historic Preservation Officer, SCCIC, Naval Weapons Station Seal Beach cultural resources staff, and consultants dating to 2014 reaffirms the district's status as not eligible. Projects 3-68, Los Alamitos Sub-Trunk Extension, and 3-67, Seal Beach Pump Station Replacement, intersect with the western portion of the recorded boundary of this resource.

4.4.3 Relevant Plans, Policies, and Ordinances

State Regulations

Under the provisions of CEQA, including the CEQA Statute (California Public Resources Code [PRC], Sections 21083.2 and 21084.1), the CEQA Guidelines (CEQA Guidelines) (14 CCR 15064.5), and PRC Section 5024.1 (14 CCR 4850 et seq.), properties expected to be directly or indirectly affected by a proposed project must be evaluated for CRHR eligibility (PRC Section 5024.1).

The purpose of the CRHR is to maintain listings of the state's historical resources and to indicate which properties are to be protected, to the extent prudent and feasible, from material impairment and substantial adverse change. The term "historical resources" includes a resource listed in or determined to be eligible for listing in the CRHR; a resource included in a local register of historical resources; and any object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be historically significant (14 CCR 15064.5[a]). The criteria for listing properties in the CRHR were developed in accordance with previously established criteria developed for listing in the federal NRHP. The California Office of Historic Preservation (OHP 1995, p. 2) regards "any physical evidence of human activities over 45 years old" as meriting recordation and evaluation.

California Register of Historic Resources

A cultural resource is considered "historically significant" under CEQA if the resource meets one or more of the criteria for listing on the CRHR. The CRHR was designed to be used by state and local agencies, private groups, and citizens to identify existing cultural resources within the state and to indicate which of those resources should be protected, to the extent prudent and feasible, from substantial adverse change. The following criteria have been established for the CRHR. A resource is considered significant if it:

- Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
- Is 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.

In addition to meeting one or more of the above criteria, historical resources eligible for listing in the California Register must retain enough of their historic character or appearance to be able to convey the reasons for their significance. Such integrity is evaluated in regard to the retention of location, design, setting, materials, workmanship, feeling, and association.

Under CEQA, if an archaeological site is not a historical resource but meets the definition of a "unique archaeological resource" as defined in PRC Section 21083.2, then it should be treated in accordance with the provisions of that section. A unique archaeological resource is defined as follows:

- 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 that 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
  - Is directly associated with a scientifically recognized important prehistoric or historic event or person

Resources that neither meet any of these criteria for listing in the CRHR nor qualify as a unique archaeological resource under PRC Section 21083.2 are viewed as not significant. Under CEQA, "A non-unique archaeological resource need be given no further consideration, other than the simple recording of its existence by the lead agency if it so elects" (PRC Section 21083.2[h]).

Impacts that adversely alter the significance of a resource listed in or eligible for listing in the CRHR are considered a significant effect on the environment. Impacts to historical resources from a proposed project are thus considered significant if the project (1) physically destroys or damages all or part of a resource; (2) changes the character of the use of the resource or physical feature within the setting of the resource, which contributes to its significance; or (3) introduces visual, atmospheric, or audible elements that diminish the integrity of significant features of the resource

California Environmental Quality Act

As described further, the following CEQA Statute (PRC Section 21000 et seq.) and Guidelines (14 CCR 15000 et seq.) are of relevance to the analysis of archaeological, historic, and Tribal Cultural Resources (TCRs):

- PRC Section 21083.2(g) defines unique archaeological resource.
- PRC Section 21084.1 and CEQA Guidelines Section 15064.5(a) define historical resources. In addition, CEQA Guidelines Section 15064.5(b) defines the phrase "substantial adverse change in the significance of an historical resource"; it also defines the circumstances when a project would materially impair the significance of a historical resource.
- PRC Section 21074(a) defines "Tribal Cultural Resources."
- PRC Section 5097.98 and CEQA Guidelines Section 15064.5(e) set forth standards and steps to be employed following the accidental discovery of human remains in any location other than a dedicated ceremony.
- PRC Sections 21083.2(b) and 21083.2(c) and CEQA Guidelines Section 15126.4 provide information regarding the mitigation framework for archaeological and historic resources, including examples of preservation-in-place mitigation measures. Preservation in place is the preferred manner of mitigating impacts to significant archaeological sites because it maintains the relationship between artifacts and the archaeological context and may also help avoid conflict with religious or cultural values of groups associated with the archaeological site(s).

More specifically, under CEQA, a project may have a significant effect on the environment if it may cause "a substantial adverse change in the significance of an historical resource" (PRC Section 21084.1; 14 CCR 15064.5[b]). If a site is listed or eligible for listing in the CRHR, or included in a local register of historic resources, or identified as significant in a historical resources survey (meeting the requirements of PRC Section 5024.1[q]), it is a historical resource and is presumed to be historically or culturally significant for purposes of CEQA (PRC Section 21084.1; 14 CCR 15064.5[a]). The lead agency is not precluded from determining that a resource is a historical resource even if it does not fall within this presumption (PRC Section 21084.1; 14 CCR 15064.5[a]).

A "substantial adverse change in the significance of an historical resource" reflecting a significant effect under CEQA means "physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired" (14 CCR 15064.5[b][1]; PRC Section 5020.1[q]). In turn, the significance of a historical resource is materially impaired when a project does any of the following:

(1) 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

(2) 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 PRC or its identification in an historical resources survey meeting the requirements of Section 5024.1(g) of the PRC, 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

(3) 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 (14 CCR 15064.5[b][2]).

Pursuant to these sections, the CEQA inquiry begins with evaluating whether a project site contains any historical resources, then evaluates whether that project will cause a substantial adverse change in the significance of a historical resource such that the resource's historical significance is materially impaired.

If it can be demonstrated that a project will cause damage to a unique archaeological resource, the lead agency may require reasonable efforts be made to permit any or all of these resources to be preserved in place or left in an undisturbed state. To the extent that they cannot be left undisturbed, mitigation measures are required (PRC Sections 21083.2[a]–[c]).

Section 21083.2(g) defines a unique archaeological resource as 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:

1. Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.
2. Has a special and particular quality such as being the oldest of its type or the best available example of its type.
3. Is directly associated with a scientifically recognized important prehistoric or historic event or person (PRC Section 21083.2[g]).

Impacts on nonunique archaeological resources are generally not considered a significant environmental impact (PRC Section 21083.2[a]; 14 CCR 15064.5[c][4]). However, if a nonunique archaeological resource qualifies as a TCR (PRC Sections 21074[c] and 21083.2[h]), further consideration of significant impacts is required.

CEQA Guidelines Section 15064.5 assigns special importance to human remains and specifies procedures to be used when Native American remains are discovered. As described below, these procedures are detailed in PRC Section 5097.98.

California Health and Safety Code Section 7050.5

California law protects Native American burials, skeletal remains, and associated grave goods, regardless of their antiquity, and provides for the sensitive treatment and disposition of those remains. California Health and Safety Code Section 7050.5 requires that if human remains are discovered in any place other than a dedicated cemetery, no further disturbance or excavation of the site or nearby area reasonably suspected to contain human remains shall occur until the county coroner has examined the remains (Section 7050.5[b]). PRC Section 5097.98 also outlines the process to be followed in the event that remains are discovered. If the coroner determines or has reason to believe the remains are those of a Native American, the coroner must contact NAHC within 24 hours (Section 7050.5[c]). NAHC will notify the most likely descendant. With the permission of the landowner, the most likely descendant may inspect the site of discovery. The inspection must be completed within 48 hours of notification of the most likely descendant by NAHC. The most likely descendant may recommend means of treating or disposing of, with appropriate dignity, the human remains and items associated with Native Americans.

California Public Resources Code, Section 5097.98

PRC Section 5097.98 addresses the disposition of Native American burials in archaeological sites and protects such remains from disturbance, vandalism, or inadvertent destruction; establishes procedures to be implemented if Native American skeletal remains are discovered during construction of a project; and establishes the NAHC to resolve disputes regarding the disposition of such remains. It has been incorporated into Section 15064.5(e) of the CEQA Guidelines. The proposed FMP would be required to comply with Section 5097.98 of the PRC should any unknown human remains be discovered during site disturbance.

California Public Resources Code, Sections 5097.5 and 30244

PRC Section 5097.5 prohibits "knowing and willful" removal, destruction, injury, defacement, and excavation upon any historic or prehistoric ruins, burial grounds, or archaeological or vertebrate paleontological site situated on public lands (lands under state, county, city, district, or public authority ownership or jurisdiction, or the ownership or jurisdiction of a public corporation), except where the agency with jurisdiction has granted express permission. Section 30244 of the PRC requires reasonable mitigation for impacts on archaeological or paleontological resources that occur as a result of development on public lands.

California Government Code Section 65303

California Government Code Section 65303 states that the General Plan may include any other elements or address any other subjects which, in the judgment of the legislative body, relate to the physical development of the county or city.

Local Regulations

County of Orange policies relating to cultural resources were originally adopted by the Orange County Board of Supervisors in 1973 with guidelines for resource management instituted in 1974 and 1976. The board established a Cultural/Scientific Resources Task Force that partnered with the Natural History Foundation of Orange County and the Pacific Coast Archaeological Society to set forth guidelines, policy, and recommended procedures for treatment of cultural resources within the county's boundaries. The County of Orange regulations were intended to parallel existing federal and state requirements and were adopted by the board as county policy (Resolutions 77-866 and 77-991) in 1977.

In addition, the Resources Element of the County of Orange General Plan includes an inventory of county-wide resources, including cultural resources. None of the cultural resources included in the Resources Element's inventory are located in the FMP area.

City of Fountain Valley General Plan

There are no policies regarding cultural resources in the City of Fountain Valley General Plan.

City of Huntington Beach General Plan

Huntington Beach's Historical and Cultural Element is an optional element conforming to California Government Code Section 65303 and has the same legal status as any of the mandatory elements. In addition, other state requirements pertaining to the mandatory elements, such as internal consistency, also apply to the optional element. This element outlines the overall City of Huntington Beach goals as they relate to historical and cultural resources within the City and identifies the policies and objectives that the City will follow to meet those goals.

The City of Huntington Beach maintains an inventory of potentially historic properties. This inventory is periodically updated and is used to assist the City with managing its historic preservation goals. The determination of historical significance is consistent with the State of California Office of Historic Preservation's guidance as outlined in Instructions for Recording Historic Resources and the Department of the Interior's National Park Service Bulletin 24 Guidelines for Local Surveys: A Basis for Preservation Planning.

The City does not currently have official criteria for local listing to the City of Huntington Beach Historic Landmarks. Therefore, the City uses the CRHR criteria as a basis for local significance. During this process each of the criteria are customized to relate to the local history of Huntington Beach.

Finally, the City does not have a Historic Preservation Ordinance or other requirements or guidelines that would help to preserve or protect the City's historic landmarks. Furthermore, the City does not currently have a process or procedure to fully mitigate impacts to historical resources that are vulnerable to redevelopment within the City.

City of Newport Beach General Plan

The Natural Resources Element of the City of Newport Beach's General Plan (City of Newport Beach 2006) discusses visual resources and identifies specific areas that contribute to the visual resources of Newport Beach. More specifically, Newport Beach's habitat areas, coastal canyons, and gullies in the eastern portion of the city are identified as locations offering significant views of Newport Beach. The Natural Resources Element contains several

policies related to visual resources. Those that would be applicable to the proposed FMP are listed below (City of Newport Beach 2006):

Goal

HR 2 Identification and protection of important archeological and paleontological resources within the City.

Policies

HR 2.1 **New Development Activities.** Require that, in accordance with CEQA, new development protect and preserve paleontological and archaeological resources from destruction and avoid and mitigate impacts to such resources. Through planning policies and permit conditions, ensure the preservation of significant archeological and paleontological resources and require that the impact caused by any development be mitigated in accordance with CEQA. *(Imp 11.1)*

HR 2.2 **Grading and Excavation Activities.** Maintain sources of information regarding paleontological and archeological sites and the names and addresses of responsible organizations and qualified individuals, who can analyze, classify, record, and preserve paleontological or archeological findings. Require a qualified paleontologist/archeologist to monitor all grading and/or excavation where there is a potential to affect cultural, archeological or paleontological resources. If these resources are found, the applicant shall implement the recommendations of the paleontologist/archeologist, subject to the approval of the City Planning Department. *(Imp 11.1)*

HR 2.3 **Cultural Organizations.** Notify cultural organizations, including Native American organizations, of proposed developments that have the potential to adversely impact cultural resources. Allow representatives of such groups to monitor grading and/or excavation of development sites. *(Imp 11.1)*

HR 2.4 **Paleontological or Archaeological Materials.** Require new development to donate scientifically valuable paleontological or archaeological materials to a responsible public or private institution with a suitable repository, located within Newport Beach, or Orange County, whenever possible. *(Imp 11.1)*

4.4.4 Thresholds of Significance

The significance criteria used to evaluate the proposed FMP's impacts to cultural resources are based on Appendix G of the CEQA Guidelines. As stated in the July 2019 Initial Study (Appendix A to this PEIR), potential impacts associated with disturbance of human remains would be less than significant. Therefore, this topic is not further analyzed in this PEIR. Based on the remaining thresholds, a significant impact related to cultural resources would occur if the project would:

1. Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5.
2. Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5.

Methodology

This evaluation is based on a records search conducted at the SCCIC for the FMP in November and December 2019, as well as information from previous reports, soil maps, and a reconnaissance survey. Analysis of the records

and literature search results allowed Dudek cultural staff to make a series of observations regarding prehistoric and early historic land use of the FMP area across Orange County. A number of factors were considered, including proximity to known cultural resources (archaeological sites and isolates and historic built environment resources), proximity to water, soil and landform type, and previous disturbances and development.

FMP facilities were examined on aerial photographs and satellite images. This analysis showed the current level of development surrounding the FMP facilities and adjacent property. In general, those areas that are completely paved or landscaped are unlikely to have cultural resources on the surface. Maintenance activities at FMP facilities located adjacent to undeveloped land were considered more likely to encounter cultural resources. For historic resources, review of aerial photos and satellite images showed the current level of development surrounding the FMP facilities and adjacent property, in addition to assisting with age determinations and tracking changes to linear FMP facilities over time. The aerials available for this research spanned from 1939 to 2020, and were accessed via NETR Online (www.historicaerials.com) and Google Earth to determine if the facilities and surrounding area were developed before or after the resource was recorded. In some cases, these aerial maps show that the resource has been completely destroyed or overlain by construction of the facility or adjacent development.

Dudek Archaeologists Jessica Colston and Ted Roberts conducted the reconnaissance survey on January 13, 2020. The survey focused on areas identified during the records search and aerial image examination thought to have a higher potential for encountering archaeological deposits during FMP project activities. The purpose of the reconnaissance survey was to verify assumptions regarding archaeological sensitivity using survey methodology.

Sensitivity Analysis

A sensitivity analysis of the FMP area was conducted based on results of the records search, review of maps and aerials, and the reconnaissance survey. Figures 4.4-1 through 4.4-9 identify the FMP project sites with nearby culturally sensitive areas, which would require monitoring during FMP project activities.

4.4.5 Impacts Analysis

1. Would the project cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5?

Less-than-Significant Impact with Mitigation Incorporated. Eleven previously recorded resources intersect the FMP area (Table 4.4-1). Eight of these resources are historical built environment resources and none qualify as a historical resource as defined under CEQA Guidelines. One prehistoric archaeological site, CA-ORA-1502, recorded primarily on Naval Weapons Station Seal Beach, qualifies as a historical resource under CEQA because it is eligible for listing in the CRHR. The portion of CA-ORA-1502 that intersects the FMP area is likely to have been destroyed, as it lies under a major roadway with underground utilities.

The proposed FMP would involve disturbance of the ground surface, including possible vegetation clearing, grading, trenching, and other activities. These activities would be confined to a limited amount of ground disturbance and would be restricted primarily to existing utility corridors and disturbed areas. Given the characteristics of the proposed FMP activities, the potential for intact, significant archaeological deposits that could qualify as historical resources to be present in the FMP area is considered low, except near prehistoric archaeological site CA-ORA-1502. Nevertheless, there is the potential to discover significant archaeological materials and deposits during FMP project activities near CA-ORA-1502 and other areas identified as sensitive for archaeological resources (Figures 4.4-1 through 4.4-9 depict areas where FMP

project activities may encounter cultural resources). Therefore, the proposed FMP could have potentially significant impacts to a historical resource.

Implementation of **Mitigation Measure (MM) CUL-1** through **MM-CUL-3** would reduce impacts to historical resources to a level below significance.

2. Would the proposed project cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5?

Less-than-Significant Impact with Mitigation Incorporated. As described in Section 4.4.2, a records search, review of historic and modern maps and aerials, and a reconnaissance survey were conducted to assess impacts to cultural resources. These investigations identified three prehistoric archaeological resources and eight historic built environment resources intersecting the FMP area. Of the three prehistoric archaeological sites, one (CA-ORA-1502) is eligible for listing in the CRHR, and FMP project activities may encounter significant archaeological deposits associated with this resource. None of the historic built environment resources are considered significant or eligible for listing in the CRHR. None of these resources is known to have significant archaeological deposits within the FMP area. However, there is the potential to uncover significant archaeological deposits during FMP activities at some locations. In addition to FMP project activities near CA-ORA-1502, the sensitivity analysis identified other areas where archaeological resources may be encountered during FMP activities (Figures 4.4-1 through 4.4-9).

The proposed FMP would involve disturbance of the ground surface, including possible vegetation clearing, grading, trenching, and other activities. These activities would be confined to a limited amount of ground disturbance and would be restricted primarily to existing utility corridors and disturbed areas. Given the characteristics of the various project areas, the potential for intact, unknown, subsurface archaeological resource to be present in the FMP area is considered low, except near prehistoric archaeological site CA-ORA-1502. However, in the unexpected event that ground-disturbing FMP project activities unearth intact or significant archaeological materials, a potentially significant impact could result.

Implementation of **MM-CUL-1** through **MM-CUL-3** would reduce impacts to archaeological resources to a level below significance.

4.4.6 Mitigation Measures

The following mitigation measures would reduce impacts to a level below significance:

MM-CUL-1 Prior to start of ground-disturbing activities, the qualified archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for archaeology (or an archaeologist working under the direct supervision of the qualified archaeologist) shall be retained by the Orange County Sanitation District (Sanitation District) and 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. The Sanitation District's contractor shall ensure that construction personnel are made available for and attend the training and retain documentation demonstrating attendance.

MM-CUL-2 Archaeological monitoring shall be conducted for ground-disturbing activities at Reclamation Plant No. 1, Treatment Plant No. 2, the Seal Beach Pump Station Replacement (3-67), and Los Alamitos Sub-Trunk Extension project (3-68) in Seal Beach. Archaeological monitoring shall be conducted for ground-disturbing activities associated with Newport Beach Pump Station Odor Control Improvements (5-68) only as they intersect with ground-disturbing activities at the 15th Street Pump Station Rehabilitation (X-022), Lido Pump Station Rehabilitation (X-023), Rocky Point Pump Station Rehabilitation(X-024), and A Street Pump Station Rehabilitation (X-041). Archaeological monitoring shall be conducted for ground-disturbing activities associated with high cultural sensitivity portions of the Tustin-Orange Interceptor Sewer at Reach 17 Rehabilitation (X-065), Tustin-Orange Interceptor Sewer at Reach 18 Rehabilitation (X-066), Crystal Cove Pumping Station Upgrade and Rehabilitation (5-66), DAFT Demolition (X-043), Hoover-Western Sub-Trunks Sewer Rehabilitation (X-067/X-085), Edinger/Springdale Trunk Sewer Rehabilitation (X-071), Substation and Warehouse Replacement at Plant 2 (P2-126), Operations and Maintenance Complex at Plant 2 (P2-138). 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 ground-disturbing activities, the materials being excavated (native versus artificial fill soils and older versus younger soils), and the depth of excavation. The frequency of the monitoring shall be determined by the qualified archaeologist and in coordination with the Sanitation District. In the event that archaeological resources are unearthed during ground-disturbing activities, the archaeological monitor shall be empowered to halt or redirect ground-disturbing activities away from the vicinity of the discovery until the Sanitation District and a qualified archaeologist have evaluated the discovery and determined appropriate treatment (as prescribed in **MM-CUL-3**). The archaeological monitor shall keep 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 the Sanitation District, the South Central Coastal Information Center, and any Native American tribe that requests a copy.

MM-CUL-3 In the event of the unanticipated discovery of archaeological materials during ground-disturbing activities associated with the proposed Facilities Master Plan, the Orange County Sanitation District (Sanitation District) shall immediately cease all work activities in the area (within 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 the Sanitation District 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, in accordance with the Advisory Council on Historic Preservation's 2009 Section 106 Archaeology Guidance, shall be prepared and implemented by the qualified archaeologist in consultation with the Sanitation District. The Archaeological Resources Treatment Plan will provide for the adequate recovery of the scientifically consequential information contained in the archaeological resource. The Sanitation District shall consult with appropriate Native American representatives in determining treatment for prehistoric or Native American resources. The treatment options after data recovery efforts occur may include returning the resource to the appropriate tribe

or donation of the resource to a repository identified by the tribe. If preservation in place is not an option or re-deposition on site is not an option, the resource will be curated at an archaeological curation facility (compliant with standards established in 36 CFR 79, Sections 9, 10, and 11).

4.4.7 Level of Significance After Mitigation

Implementation of **MM-CUL-1** through **MM-CUL-3** would mitigate impacts to cultural resources. Impacts would be less than significant with mitigation incorporated.

4.4.8 Cumulative Impacts

The cumulative impacts analysis for cultural resources evaluates whether impacts of the proposed FMP, when taken as a whole, substantially diminish the number of historic or archaeological resources within the same or similar context or property type. As discussed throughout this section, the proposed FMP could have potentially significant impacts to unknown cultural resources, and mitigation would be required to reduce adverse impacts to less than significant levels. It is anticipated that cultural resources that are potentially affected by related projects would also be subject to the same requirements of CEQA as the proposed FMP and mitigate for their impacts, if applicable. The determinations of significance would be made on a case-by-case basis, and the effects of cumulative development on cultural resources would be mitigated to the extent feasible in accordance with CEQA and other applicable legal requirements. Therefore, the proposed FMP would not contribute to a cumulatively considerable impact associated with cultural resources due to the fact that all impacts to cultural resources can be mitigated to a less-than-significant level. With implementation of **MM-CUL-1** through **MM-CUL-3**, impacts to cultural resources would not be cumulatively considerable.

4.4.9 Impact Summary

Table 4.4-2 summarizes the impacts for the FMP projects assessed at the project level at Plant 1, Plant 2, joint plant projects, and collection system projects under each threshold analyzed in this PEIR. This table also includes specific FMPs that have been analyzed at the program level, due to the geospatial nature of the cultural resource analysis.

Table 4.4-2. Summary of FMP Project Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
Would the proposed project cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5?					
Plant 1					
P1-126	Primary Clarifiers Replacements and Improvements	Replace	Significant	MM-CUL-1 MM-CUL-2 MM-CUL-3	Less than Significant
X-006*	Waste Side-Stream Pump Station 1 Upgrade	Rehab	Significant	MM-CUL-1 MM-CUL-2 MM-CUL-3	Less than Significant
X-015*	Trickling Filters Rehabilitation	Rehab	Significant	MM-CUL-1	Less than Significant

Table 4.4-2. Summary of FMP Project Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
				MM-CUL-2 MM-CUL-3	
X-017*	Primary Clarifiers 6–37	Rehab	Significant	MM-CUL-1 MM-CUL-2 MM-CUL-3	Less than Significant
X-018*	Activated Sludge (AS) 2 Rehabilitation	Rehab	Significant	MM-CUL-1 MM-CUL-2 MM-CUL-3	Less than Significant
X-038*	City Water Pump Station Rehabilitation	Rehab	Significant	MM-CUL-1 MM-CUL-2 MM-CUL-3	Less than Significant
X-039*	Plant Water Pump Station Rehabilitation	Rehab	Significant	MM-CUL-1 MM-CUL-2 MM-CUL-3	Less than Significant
X-043*	DAFT Demolition	Misc. (Demo)	Significant	MM-CUL-1 MM-CUL-2 MM-CUL-3	Less than Significant
X-049*	Activated Sludge (AS) 1 Clarifier and RAS Pump Station Rehabilitation	Rehab	Significant	MM-CUL-1 MM-CUL-2 MM-CUL-3	Less than Significant
X-093	Administrative Facilities and Power Building 3A Demolition	Misc. (Demo)	Significant	MM-CUL-1 MM-CUL-2 MM-CUL-3	Less than Significant
X-092	Standby Generator Feeders for Plant 1 Secondary Systems	Misc.	Less than Significant	—	Less than Significant
X-048	Activated Sludge (AS)-1 Aeration Basin and Blower Rehabilitation	Rehab	Significant	MM-CUL-1 MM-CUL-2 MM-CUL-3	Less than Significant
P1-135	Digester Ferric Piping Replacement	Replace	Less than Significant	—	Less than Significant
X-077	Switchgear Replacement at Central Generation	Replace	Significant	MM-CUL-1 MM-CUL-2 MM-CUL-3	Less than Significant
X-079*	Primary Scrubber Rehabilitation	Rehab	Significant	MM-CUL-1 MM-CUL-2 MM-CUL-3	Less than Significant
X-090	Network, Telecommunications, and Service Relocation at Plant 1	Misc.	Less than Significant	—	Less than Significant
Plant 2					
P2-126	Substation and Warehouse Replacement at Plant 2	Misc.	Significant	MM-CUL-1 MM-CUL-2 MM-CUL-3	Less than Significant
P2-138	Operations and Maintenance Complex at Plant 2	Replace	Significant	MM-CUL-1	Less than Significant

Table 4.4-2. Summary of FMP Project Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
				MM-CUL-2 MM-CUL-3	
X-050	Activated Sludge (AS) Aeration Basin	Rehab	Less than Significant	—	Less than Significant
X-032	Truck Loading Facility Rehabilitation	Rehab	Less than Significant	—	Less than Significant
X-054	Waste Side-Stream Pump Station C Rehabilitation	Rehab	Less than Significant	—	Less than Significant
X-034	Sodium Bisulfite Station Replacement and Bleach Station Demolition	Replace	Less than Significant	—	Less than Significant
Joint Plant Projects					
J-98	Plantwide Miscellaneous Electrical Power Distribution System Improvements	Replace	Less than Significant	—	Less than Significant
J-120	Plantwide Miscellaneous Process Control Systems Upgrades	Replace	Less than Significant	—	Less than Significant
J-133	Laboratory Rehabilitation or Replacement at Plant 1	Rehab	Less than Significant	—	Less than Significant
X-057	Plantwide Miscellaneous Yard Structures Rehabilitation or Replacement	Misc.	Less than Significant	—	Less than Significant
X-058	Plantwide Miscellaneous Yard Piping Replacement	Replace	Less than Significant	—	Less than Significant
X-059	Plantwide Miscellaneous Tunnels Rehabilitation	Rehab	Less than Significant	—	Less than Significant
J-121	UPS System Upgrades	Replace	Less than Significant	—	Less than Significant
X-044	Steve Anderson Lift Station Rehabilitation	Rehab	Less than Significant	—	Less than Significant
Collection System Projects					
3-68*	Los Alamitos Sub-Trunk Extension	Misc.	Significant	MM-CUL-1 MM-CUL-2 MM-CUL-3	Less than Significant
5-68	Newport Beach Pump Station Odor Control Improvements	Misc.	Less than Significant	MM-CUL-1 MM-CUL-2 MM-CUL-3	Less than Significant
X-024*	Rocky Point Pump Station Rehabilitation	Rehab	Less than Significant	MM-CUL-1 MM-CUL-2 MM-CUL-3	Less than Significant
X-026*	College Avenue Force Main Rehabilitation	Rehab	Less than Significant	MM-CUL-1 MM-CUL-2 MM-CUL-3	Less than Significant
X-040*	College Avenue Pump Station Replacement	Replace	Less than Significant	MM-CUL-1 MM-CUL-2 MM-CUL-3	Less than Significant

Table 4.4-2. Summary of FMP Project Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
X-076	Santa Ana Trunk Sewer Rehabilitation Phase II	Rehab	Significant	MM-CUL-1 MM-CUL-2 MM-CUL-3	Less than Significant
X-078*	Air Jumper Additions and Rehabilitation	Rehab	Less than Significant	MM-CUL-1 MM-CUL-2 MM-CUL-3	Less than Significant
X-082	North Trunk Improvement Project	Replace	Less than Significant	—	Less than Significant
X-060	Newhope Placentia Chemical Dosing Station	Misc.	Less than Significant	—	Less than Significant
11-33	Edinger Pumping Station Replacement	Replace	Less than Significant	—	Less than Significant
X-063	South Santa Ana River Interceptor Connector Rehabilitation	Rehab	Less than Significant	—	Less than Significant
2-73	Yorba Linda Pump Station Abandonment	Misc.	Less than Significant	—	Less than Significant
3-67	Seal Beach Pump Station Replacement	Replace	Less than Significant	—	Less than Significant
2-49	Taft Branch Sewer Improvements	Replace	Less than Significant	—	Less than Significant
X-083	Greenville–Sullivan Sewer Relief Project	Replace	Less than Significant	—	Less than Significant
Would the project cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5?					
Plant 1					
P1-126	Primary Clarifiers Replacements and Improvements	Replace	Significant	MM-CUL-2 MM-CUL-3	Less than Significant
X-006*	Waste Side-Stream Pump Station 1 Upgrade	Rehab	Significant	MM-CUL-2 MM-CUL-3	Less than Significant
X-015*	Trickling Filters Rehabilitation	Rehab	Significant	MM-CUL-2 MM-CUL-3	Less than Significant
X-017*	Primary Clarifiers 6–37	Rehab	Significant	MM-CUL-2 MM-CUL-3	Less than Significant
X-018*	Activated Sludge (AS) 2 Rehabilitation	Rehab	Significant	MM-CUL-2 MM-CUL-3	Less than Significant
X-038*	City Water Pump Station Rehabilitation	Rehab	Significant	MM-CUL-2 MM-CUL-3	Less than Significant
X-039*	Plant Water Pump Station Rehabilitation	Rehab	Significant	MM-CUL-2 MM-CUL-3	Less than Significant
X-043*	DAFT Demolition	Misc. (Demo)	Significant	MM-CUL-2 MM-CUL-3	Less than Significant

Table 4.4-2. Summary of FMP Project Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
X-049*	Activated Sludge (AS) 1 Clarifier and RAS Pump Station Rehabilitation	Rehab	Significant	MM-CUL-2 MM-CUL-3	Less than Significant
X-093	Administrative Facilities and Power Building 3A Demolition	Misc. (Demo)	Significant	MM-CUL-2 MM-CUL-3	Less than Significant
X-092	Standby Generator Feeders for Plant 1 Secondary Systems	Misc.	Less than Significant	—	Less than Significant
X-048	Activated Sludge (AS)-1 Aeration Basin and Blower Rehabilitation	Rehab	Significant	MM-CUL-2 MM-CUL-3	Less than Significant
P1-135	Digester Ferric Piping Replacement	Replace	Less than Significant	—	Less than Significant
X-077	Switchgear Replacement at Central Generation	Replace	Significant	MM-CUL-2 MM-CUL-3	Less than Significant
X-079*	Primary Scrubber Rehabilitation	Rehab	Significant	MM-CUL-2 MM-CUL-3	Less than Significant
X-090	Network, Telecommunications, and Service Relocation at Plant 1	Misc.	Less than Significant	—	Less than Significant
Plant 2					
P2-126	Substation and Warehouse Replacement at Plant 2	Misc.	Significant	MM-CUL-1 MM-CUL-2 MM-CUL-3	Less than Significant
P2-138	Operations and Maintenance Complex at Plant 2	Replace	Significant	MM-CUL-1 MM-CUL-2 MM-CUL-3	Less than Significant
X-050	Activated Sludge (AS) Aeration Basin	Rehab	Less than Significant	—	Less than Significant
X-032	Truck Loading Facility Rehabilitation	Rehab	Less than Significant	—	Less than Significant
X-054	Waste Side-Stream Pump Station C Rehabilitation	Rehab	Less than Significant	—	Less than Significant
X-034	Sodium Bisulfite Station Replacement and Bleach Station Demolition	Replace	Less than Significant	—	Less than Significant
Joint Plant Projects					
J-98	Plantwide Miscellaneous Electrical Power Distribution System Improvements	Replace	Less than Significant	—	Less than Significant
J-120	Plantwide Miscellaneous Process Control Systems Upgrades	Replace	Less than Significant	—	Less than Significant
J-133	Laboratory Rehabilitation or Replacement at Plant 1	Rehab	Less than Significant	—	Less than Significant
X-057	Plantwide Miscellaneous Yard Structures Rehabilitation or Replacement	Misc.	Less than Significant	—	Less than Significant
X-058	Plantwide Miscellaneous Yard Piping Replacement	Replace	Less than Significant	—	Less than Significant

Table 4.4-2. Summary of FMP Project Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
X-059	Plantwide Miscellaneous Tunnels Rehabilitation	Rehab	Less than Significant	—	Less than Significant
J-121	UPS System Upgrades	Replace	Less than Significant	—	Less than Significant
X-044	Steve Anderson Lift Station Rehabilitation	Rehab	Less than Significant	—	Less than Significant
Collection System Projects					
3-68*	Los Alamitos Sub-Trunk Extension	Misc.	Significant	MM-CUL-2 MM-CUL-3	Less than Significant
5-68	Newport Beach Pump Station Odor Control Improvements	Misc.	Significant	MM-CUL-2 MM-CUL-3	Less than Significant
X-024*	Rocky Point Pump Station Rehabilitation	Rehab	Significant	MM-CUL-2 MM-CUL-3	Less than Significant
X-026*	College Avenue Force Main Rehabilitation	Rehab	Significant	MM-CUL-2 MM-CUL-3	Less than Significant
X-040*	College Avenue Pump Station Replacement	Replace	Significant	MM-CUL-2 MM-CUL-3	Less than Significant
X-076	Santa Ana Trunk Sewer Rehabilitation Phase II	Rehab	Significant	MM-CUL-2 MM-CUL-3	Less than Significant
X-078*	Air Jumper Additions and Rehabilitation	Rehab	Significant	MM-CUL-2 MM-CUL-3	Less than Significant
X-082	North Trunk Improvement Project	Replace	Less than Significant	—	Less than Significant
X-060	Newhope Placentia Chemical Dosing Station	Misc.	Less than Significant	—	Less than Significant
11-33	Edinger Pumping Station Replacement	Replace	Less than Significant	—	Less than Significant
X-063	South Santa Ana River Interceptor Connector Rehabilitation	Rehab	Less than Significant	—	Less than Significant
2-73	Yorba Linda Pump Station Abandonment	Misc.	Less than Significant	—	Less than Significant
3-67	Seal Beach Pump Station Replacement	Replace	Less than Significant	—	Less than Significant
2-49	Taft Branch Sewer Improvements	Replace	Less than Significant	—	Less than Significant
X-083	Greenville–Sullivan Sewer Relief Project	Replace	Less than Significant	—	Less than Significant

Notes: DAFT = dissolved air flotation thickeners; RAS = return activated sludge; UPS = uninterruptible power system.
* Denotes program-level analysis.

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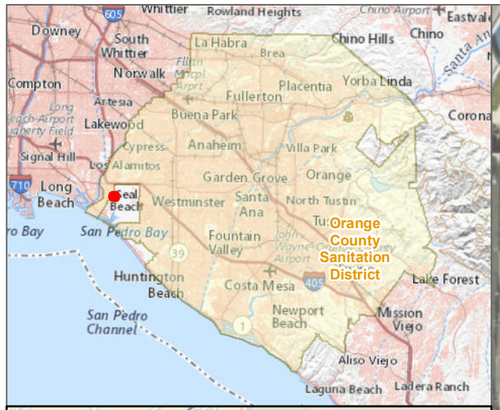

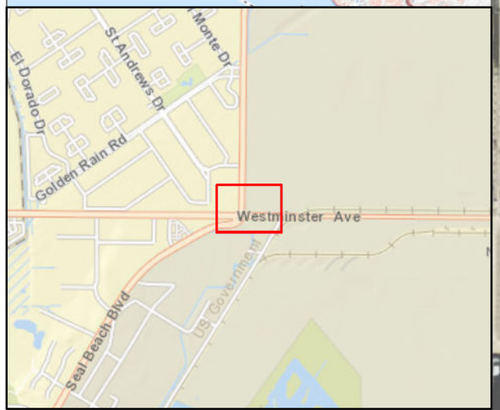

OCSD Sewer

Work Area

SOURCE: Port of Long Beach 2017 - Maxar 2019; USGS 2020

DUDEK

0 50 100 Feet

FIGURE 4.4-1

Mitigation Monitoring - Project Number 3-67

Sanitation District Facilities Master Plan PEIR

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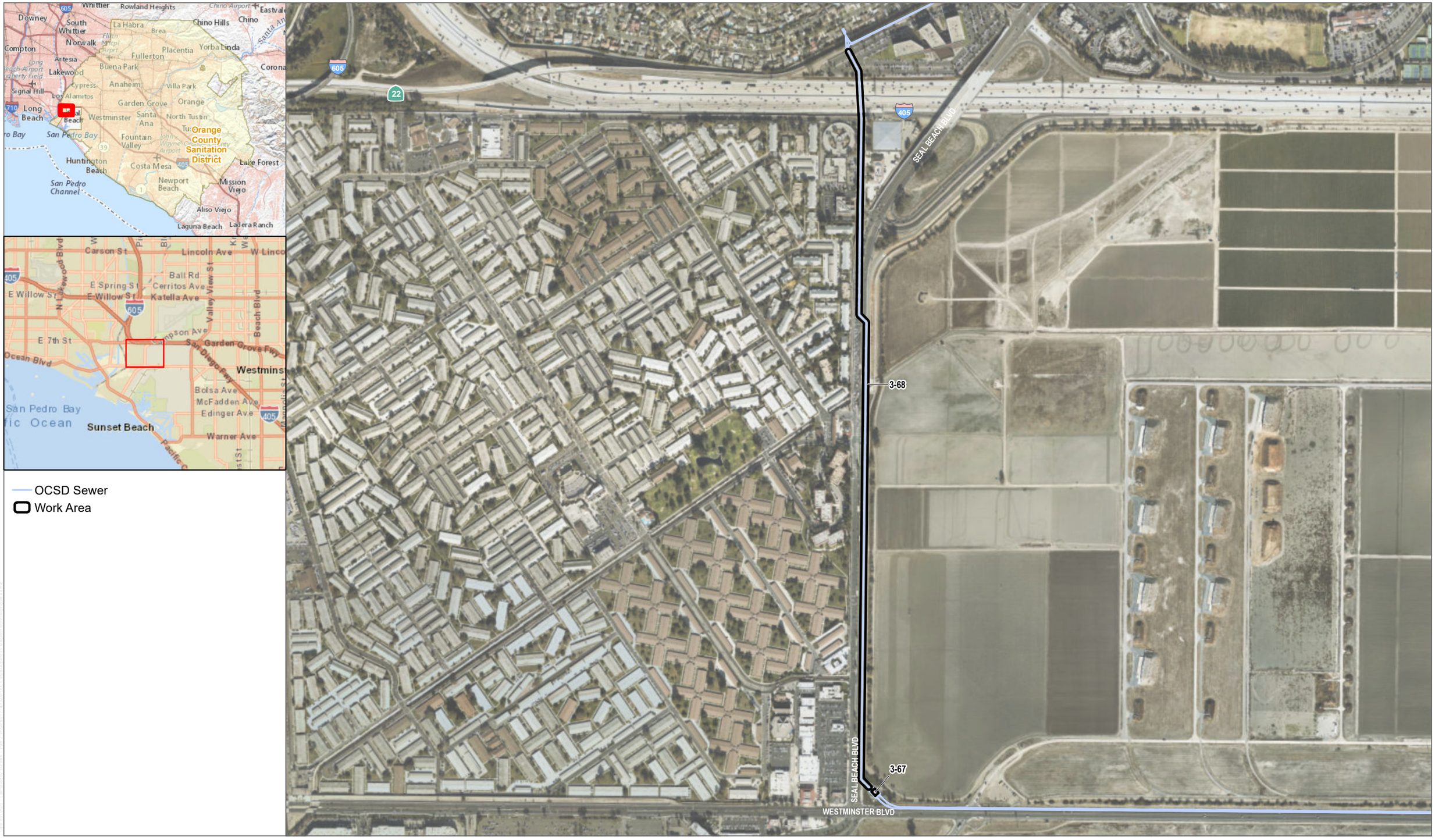

SOURCE: Port of Long Beach 2017 - Maxar 2019; USGS 2020

DUDEK

0 335 670 Feet

FIGURE 4.4-2

Mitigation Monitoring - Project Number 3-68

Sanitation District Facilities Master Plan PEIR

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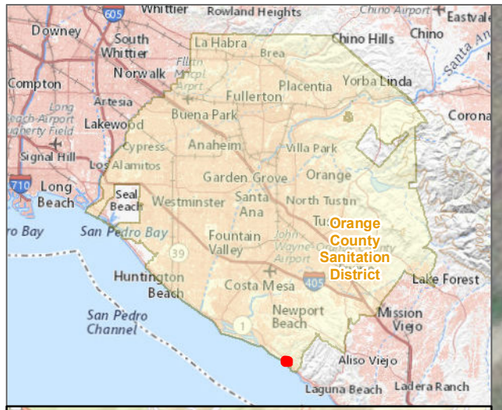

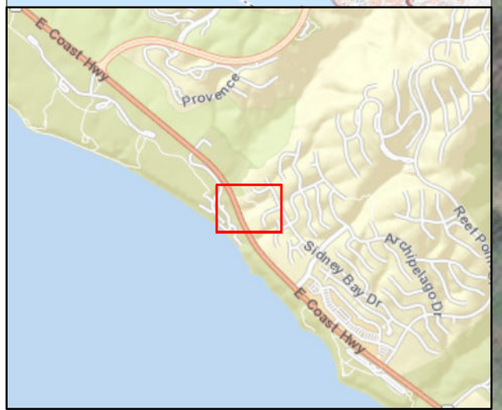

OCSD Sewer

Work Area

SOURCE: Port of Long Beach 2017 - Maxar 2019; USGS 2020

DUDEK

0 50 100 Feet

FIGURE 4.4-3

Mitigation Monitoring - Project Number 5-66

Sanitation District Facilities Master Plan PEIR

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SOURCE: Port of Long Beach 2017 - Maxar 2019; USGS 2020

DUDEK

0 420 840 Feet

FIGURE 4.4-4

Mitigation Monitoring - Project Numbers 58, X-022, X-023, X-024, X-041

Sanitation District Facilities Master Plan PEIR

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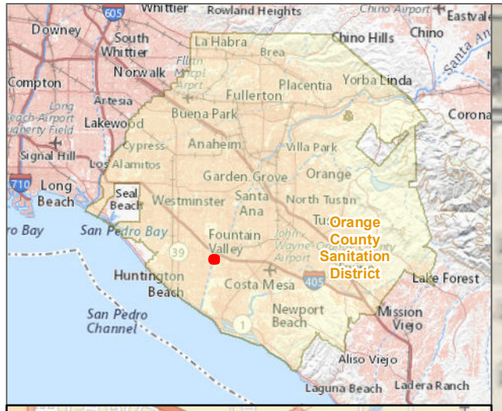

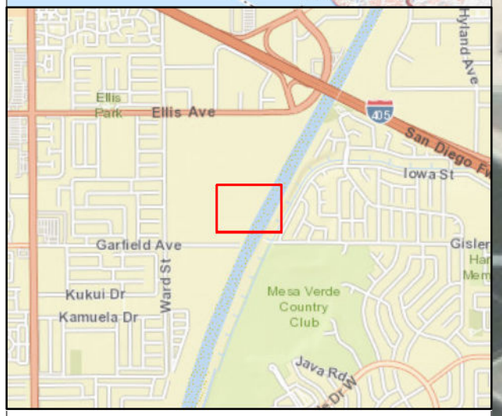

OCSD Sewer

Work Area

SOURCE: Port of Long Beach 2017 - Maxar 2019; USGS 2020

DUDEK

0 50 100 Feet

FIGURE 4.4-5

Mitigation Monitoring - Project Number X-043

Sanitation District Facilities Master Plan PEIR

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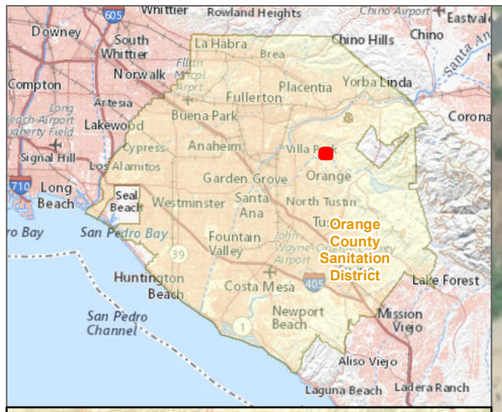

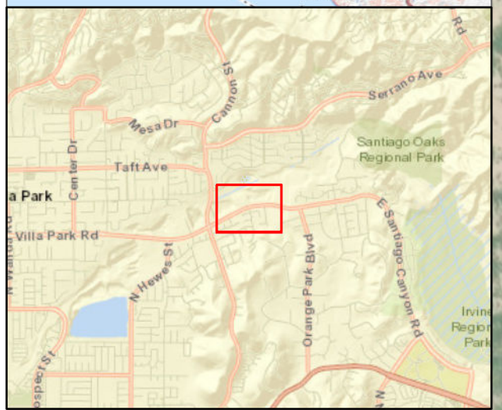

OCSD Sewer
Work Area

SOURCE: Port of Long Beach 2017 - Maxar 2019; USGS 2020

DUDEK

0 100 200 Feet

FIGURE 4.4-6

Mitigation Monitoring - Project Number X-065

Sanitation District Facilities Master Plan PEIR

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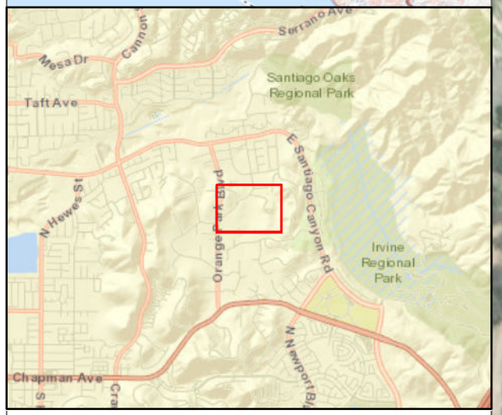

OCSD Sewer
Work Area

SOURCE: Port of Long Beach 2017 - Maxar 2019; USGS 2020

DUDEK

0 100 200 Feet

FIGURE 4.4-7

Mitigation Monitoring - Project Number X-066

Sanitation District Facilities Master Plan PEIR

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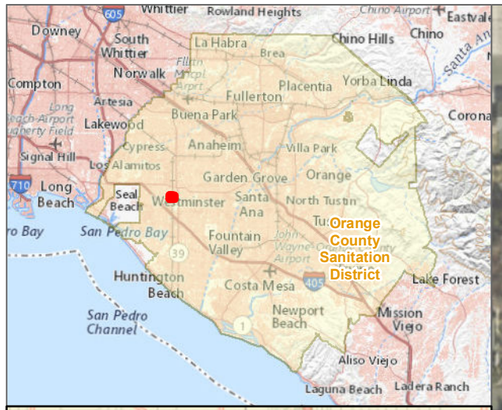

OCSD Sewer

Work Area

SOURCE: Port of Long Beach 2017 - Maxar 2019; USGS 2020

DUDEK

0 75 150 Feet

FIGURE 4.4-8

Mitigation Monitoring - Project Numbers X-067, X-085

Sanitation District Facilities Master Plan PEIR

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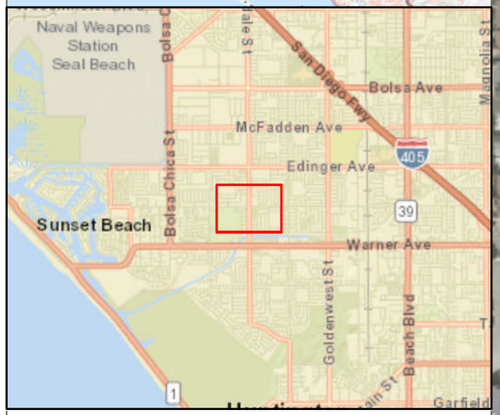

OCSD Sewer
Work Area

SOURCE: Port of Long Beach 2017 - Maxar 2019; USGS 2020

DUDEK 0 165 330 Feet

FIGURE 4.4-9

Mitigation Monitoring - Project Number X-071

Sanitation District Facilities Master Plan PEIR

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4.5 Energy

This section describes the existing setting related to energy, identifies associated regulatory requirements, evaluates potential energy impacts, and identifies mitigation measures, if required, related to implementation of the proposed Facilities Master Plan (FMP).

4.5.1 Existing Conditions

4.5.1.1 Electricity

According to the U.S. Energy Information Administration, California used approximately 255,224 gigawatt hours of electricity in 2018 (EIA 2020a). Electricity usage in California for different land uses varies substantially by the types of uses in a building, type of construction materials used in a building, and the efficiency of all electricity-consuming devices within a building. Due to the state's energy efficiency building standards and efficiency and conservation programs, California's electricity use per capita in the residential sector is lower than any other state except Hawaii (EIA 2020b).

Southern California Edison (SCE) provides electricity to Reclamation Plant No. 1 (Plant 1) and Treatment Plant No. 2 (Plant 2) and the majority of Orange County. SCE, a subsidiary of Edison International, serves approximately 180 cities in 11 counties across central and Southern California. SCE administers various energy efficiency and conservation programs that may be available to residents, businesses, and other organizations in Orange County. According to the California Public Utilities Commission (CPUC), approximately 84 billion kilowatt-hours (kWh) of electricity were used in SCE's service area in 2017. Demand forecasts anticipate that approximately 75 billion kWh of electricity will be used in SCE's service area in 2020 (CPUC 2018).

The California Renewables Portfolio Standard (RPS) Program establishes a goal for California to increase the amount of electricity generated from renewable energy resources to 20% by 2010 and to 33% by 2020. Recent legislation revised the current RPS target for California to obtain 50% of total retail electricity sales from renewable sources by 2030, with interim targets of 40% by 2024, and 45% by 2027 (CPUC 2016). SCE receives electric power from a variety of sources. According to SCE's power content label for 2018, 36% of SCE's power came from eligible renewable energy sources in 2017, including biomass/waste, geothermal, small hydroelectric, solar, and wind sources (SCE 2019).

Within Orange County, annual nonresidential electricity use is approximately 13 billion kWh per year, while residential electricity use is approximately 7 billion kWh per year, as reported by the state's Energy Consumption Data Management System for 2018 (CEC 2020a).

4.5.1.2 Natural Gas

According to the U.S. Energy Information Administration, California used approximately 2,136,907 million cubic feet of natural gas in 2018 (EIA 2020c). The majority of California's natural gas customers are residential and small commercial customers (core customers). These customers account for approximately 35% of the natural gas delivered by California utilities (CPUC 2020). Large consumers, such as electric generators and industrial customers (noncore customers), account for approximately 65% of the natural gas delivered by California utilities (CPUC 2020). CPUC regulates California natural gas rates and natural gas services, including in-state transportation over transmission and distribution pipeline systems, storage, procurement, metering, and billing. Most of the natural gas

used in California comes from out-of-state natural gas basins. Biogas (e.g. from wastewater treatment facilities or dairy farms) is just beginning to be delivered into the gas utility pipeline systems, and the state has been encouraging its development (CPUC 2020).

The Southern California Gas Company (SoCalGas) provides Plant 1 and Plant 2 and the greater Orange County area with natural gas service. SoCalGas's service territory encompasses approximately 20,000 square miles and more than 500 communities. In the California Energy Demand mid-energy demand scenario, natural gas demand is projected to have an annual growth rate of 0.03% in SoCalGas's service territory. As of 2017, approximately 7,206 million therms[1] were used in SoCalGas's service area per year. By 2020, natural gas demand is anticipated to be approximately 7,876 million therms per year in SoCalGas's service area (CEC 2017). The total capacity of natural gas available to SoCalGas in 2020 is estimated to be 3.8 billion cubic feet per day. In 2024, the total capacity available is also estimated to be 3.8 billion cubic feet per day[2] (California Gas and Electric Utilities 2018). This amount is approximately equivalent to 3.88 billion thousand British thermal units (kBTU) per day or 38.8 million therms per day.

Within Orange County, annual non-residential natural gas use is approximately 236 million therms per year, while residential natural gas use is approximately 339 million therms per year, as reported by the state's Energy Consumption Data Management System for 2018 (CEC 2020b).

4.5.1.3 Petroleum

According to the U.S. Energy Information Administration, California used approximately 681 million barrels of petroleum in 2018, with the majority (584 million barrels) used for the transportation sector (EIA 2020d). This total annual consumption equates to a daily use of approximately 1.9 million barrels of petroleum. There are 42 U.S. gallons in a barrel, so California consumes approximately 78.4 million gallons of petroleum per day, adding up to an annual consumption of 29 billion gallons of petroleum. In California, petroleum fuels refined from crude oil are the dominant source of energy for transportation sources. Petroleum usage in California includes petroleum products such as motor gasoline, distillate fuel, liquefied petroleum gases, and jet fuel. California has implemented policies to improve vehicle efficiency and to support use of alternative transportation, which are described in Section 4.5.2.

4.5.2 Relevant Plans, Policies, and Ordinances

Federal

Federal Energy Policy and Conservation Act

In 1975, Congress enacted the Federal Energy Policy and Conservation Act, which established the first fuel economy standards for on-road motor vehicles in the United States. Pursuant to the act, the National Highway Traffic Safety Administration is responsible for establishing additional vehicle standards. In 2012, new fuel economy standards for passenger cars and light trucks were approved for model years 2017 through 2021 (77 FR 62624–63200). Fuel economy is determined based on each manufacturer's average fuel economy for the fleet of vehicles available for sale in the United States.

1 One Therm is equal to 100,000 BTU or 100 kBTU.
2 One cubic foot of natural gas has approximately 1,020 BTUs of natural gas or 1.02 kBTUs of natural gas.

Intermodal Surface Transportation Efficiency Act of 1991

The Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991 promoted the development of intermodal transportation systems to maximize mobility and address national and local interests in air quality and energy. The ISTEA contained factors for metropolitan planning organizations to address in developing transportation plans and programs, including some energy-related factors. To meet the new ISTEA requirements, metropolitan planning organizations adopted policies defining the social, economic, energy, and environmental values guiding transportation decisions.

Transportation Equity Act for the 21st Century

The Transportation Equity Act for the 21st Century was signed into law in 1998 and builds on the initiatives established in the ISTEA legislation (previously discussed). The act authorizes highway, highway safety, transit, and other efficient surface transportation programs. The act continues the program structure established for highways and transit under the ISTEA, such as flexibility in the use of funds, emphasis on measures to improve the environment, and focus on a strong planning process as the foundation of transportation decisions. The act also provides for investment in research and its application to maximize the performance of the transportation system through, for example, deployment of intelligent transportation systems to help improve operations and management of transportation systems and vehicle safety.

Energy Independence and Security Act of 2007

On December 19, 2007, the Energy Independence and Security Act of 2007 (EISA) was signed into law. In addition to setting increased Corporate Average Fuel Economy standards for motor vehicles, the EISA includes the following other provisions related to energy efficiency:

- Renewable Fuel Standard (RFS) (Section 202)
- Appliance and Lighting Efficiency Standards (Sections 301–325)
- Building Energy Efficiency (Sections 411–441)

This federal legislation requires ever-increasing levels of renewable fuels (the RFS) to replace petroleum (EPA 2017). The U.S. Environmental Protection Agency (EPA) is responsible for developing and implementing regulations to ensure that transportation fuel sold in the United States contains a minimum volume of renewable fuel. The RFS program regulations were developed in collaboration with refiners, renewable fuel producers, and many other stakeholders.

The RFS program was created under the Energy Policy Act of 2005 and established the first renewable fuel volume mandate in the United States. As required under the act, the original RFS program (RFS1) required 7.5 billion gallons of renewable fuel to be blended into gasoline by 2012. Under the EISA, the RFS program was expanded in several key ways that lay the foundation for achieving significant reductions in greenhouse gas (GHG) emissions from the use of renewable fuels, reducing imported petroleum, and encouraging the development and expansion of the renewable fuels sector in the United States. The updated program is referred to as RFS2 and includes the following:

- EISA expanded the RFS program to include diesel, in addition to gasoline.
- EISA increased the volume of renewable fuel required to be blended into transportation fuel from 9 billion gallons in 2008 to 36 billion gallons by 2022.

- EISA established new categories of renewable fuel and set separate volume requirements for each one.
- EISA required the EPA to apply lifecycle GHG performance threshold standards to ensure that each category of renewable fuel emits fewer GHGs than the petroleum fuel it replaces.

Additional provisions of the EISA address energy savings in government and public institutions, research for alternative energy, additional research in carbon capture, international energy programs, and the creation of "green" jobs.

State

Warren-Alquist Act

The California legislature passed the Warren-Alquist Act in 1974. The Warren-Alquist Act created the California Energy Commission (CEC). The legislation also incorporated the following three key provisions designed to address the demand side of the energy equation:

- It directed the CEC to formulate and adopt the nation's first energy conservation standards for buildings constructed and appliances sold in California.
- The act removed the responsibility of electricity demand forecasting from the utilities, which had a financial interest in high-demand projections, and transferred it to a more impartial CEC.
- The CEC was directed to embark on an ambitious research and development program, with a particular focus on fostering what were characterized as non-conventional energy sources.

State of California Energy Action Plan

The CEC and CPUC approved the first State of California Energy Action Plan in 2003. The plan established shared goals and specific actions to ensure that adequate, reliable, and reasonably priced electrical power and natural gas supplies are provided, and identified policies, strategies, and actions that are cost-effective and environmentally sound for California's consumers and taxpayers. In 2005, a second Energy Action Plan was adopted by the CEC and CPUC to reflect various policy changes and actions of the prior 2 years.

At the beginning of 2008, the CEC and CPUC determined that it was not necessary or productive to prepare a new energy action plan. This determination was based, in part, on a finding that the state's energy policies have been significantly influenced by the passage of Assembly Bill (AB) 32, the California Global Warming Solutions Act of 2006 (discussed below). Rather than produce a new energy action plan, the CEC and CPUC prepared an update that examines the state's ongoing actions in the context of global climate change.

Senate Bills 1078 (2002), 107 (2006), X1-2 (2011), 350 (2015) and 100 (2018)

Senate Bill (SB) 1078 established the California RPS Program and required that a retail seller of electricity purchase a specified minimum percentage of electricity generated by eligible renewable energy resources as defined in any given year, culminating in a 20% standard by December 31, 2017. These retail sellers include electrical corporations, community choice aggregators, and electric service providers. The bill relatedly required the CEC to certify eligible renewable energy resources, to design and implement an accounting system to verify compliance with the RPS by retail sellers, and to allocate and award supplemental energy payments to cover above-market costs of renewable energy.

SB 107 (2006) accelerated the RPS established by SB 1078 by requiring that 20% of electricity retail sales be served by renewable energy resources by 2010 (not 2017). Additionally, SB X1-2 (2011) required all California utilities to generate 33% of their electricity from eligible renewable energy resources by 2020. Specifically, SB X1-2 sets a three-stage compliance period: by December 31, 2013, 20% of electricity had to come from renewables; by December 31, 2016, 25% of electricity had to come from renewables; and by December 31, 2020, 33% will be required to come from renewables.

SB 350 (2015) expanded the RPS by requiring retail seller and publicly owned utilities to procure 50% of their electricity from eligible renewable energy resources by 2030, with interim goals of 40% by 2024 and 45% by 2027.

SB 100 (2018) accelerated and expanded the standards set forth in SB 350 by establishing that 44% of the total electricity sold to retail customers in California per year by December 31, 2024; 52% by December 31, 2027; and 60% by December 31, 2030 be secured from qualifying renewable energy sources. SB 100 also states that it is the policy of the state that eligible renewable energy resources and zero-carbon resources supply 100% of the retail sales of electricity to California. This bill requires that the achievement of 100% zero-carbon electricity does not increase carbon emissions elsewhere in the western grid. Additionally, 100% zero-carbon electricity cannot be achieved through resource shuffling.

Consequently, utility energy generation from nonrenewable resources is expected to be reduced based on implementation of the RPS requirements described above. The proposed FMP's reliance on nonrenewable energy sources would be reduced accordingly.

Assembly Bill 1007 (2005)

Assembly Bill (AB) 1007 (2005) required the CEC to prepare a statewide plan to increase the use of alternative fuels in California (State Alternative Fuels Plan). The CEC prepared the plan in partnership with the California Air Resources Board (CARB) and in consultation with other state agencies, plus federal and local agencies. The State Alternative Fuels Plan assessed various alternative fuels and developed fuel portfolios to meet California's goals to reduce petroleum consumption, increase alternative fuels use, reduce GHG emissions, and increase in-state production of biofuels without causing a significant degradation of public health and environmental quality.

Assembly Bill 32 (2006) and Senate Bill 32 (2016)

In 2006, the state legislature enacted AB 32, the California Global Warming Solutions Act of 2006. AB 32 requires California to reduce its GHG emissions to 1990 levels by 2020. In 2016, the Legislature enacted SB 32, which extended the horizon year of the state's codified GHG reduction planning targets from 2020 to 2030, requiring California to reduce its GHG emissions to 40% below 1990 levels by 2030. In accordance with AB 32 and SB 32, CARB prepares scoping plans to guide the development of statewide policies and regulations for the reduction of GHG emissions. Many of the policy and regulatory concepts identified in the scoping plans focused on increasing energy efficiencies, using renewable resources, and reducing the consumption of petroleum-based fuels (such as gasoline and diesel). As such, the state's GHG emissions reduction planning framework creates co-benefits for energy-related resources.

California Building Standards

Part 6 of Title 24 of the California Code of Regulations was established in 1978 and serves to enhance and regulate California's building standards. Part 6 establishes energy efficiency standards for residential and nonresidential

buildings constructed in California to reduce energy demand and consumption. Part 6 is updated periodically to incorporate and consider new energy efficiency technologies and methodologies. The current Title 24 standards are the 2019 Title 24 Building Energy Efficiency Standards, which became effective January 1, 2020. In general, single-family residences built to the 2019 standards are anticipated to use approximately 7% less energy (due to energy efficiency measures) than those built to the 2016 standards; if rooftop solar electricity generation is factored in, single-family residences built under the 2019 standards will use approximately 53% less energy than those under the 2016 standards (CEC 2018a). Nonresidential buildings built to the 2019 standards are anticipated to use an estimated 30% less energy than those built to the 2016 standards (CEC 2018a).

Title 24 also includes Part 11, California's Green Building Standards (CALGreen). CALGreen establishes minimum mandatory standards as well as voluntary standards pertaining to the planning and design of sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and interior air quality. The 2019 CALGreen standards are the current applicable standards. For nonresidential projects, some of the key mandatory CALGreen 2019 standards involve requirements related to bicycle parking, designated parking for clean air vehicles, electric vehicle (EV) charging stations, shade trees, water conserving plumbing fixtures and fittings, outdoor potable water use in landscaped areas, recycled water supply systems, construction waste management, excavated soil and land clearing debris, and commissioning (24 CCR Part 11).

Integrated Energy Policy Report

The CEC is responsible for preparing integrated energy policy reports that identify emerging trends related to energy supply, demand, and conservation; public health and safety; and maintenance of a healthy economy. The CEC's 2018 Integrated Energy Policy Report discusses the state's policy goals of decarbonizing buildings, doubling energy efficiency savings, and increasing flexibility in the electricity grid system to integrate more renewable energy (CEC 2018b). Specifically for the decarbonizing of building energy, the goal would be achieved by designing future commercial and residential buildings to have their energy sourced almost entirely from electricity in place of natural gas. Regarding the increase in renewable energy flexibility, the goal would be achieved through increases in energy storage capacity within the state, increases in energy efficiency, and adjusting energy use to the time of day when the most amount of renewable energy is being generated. Over time these policies and trends would serve to reduce the FMP's GHG emissions profile and energy consumption as they are implemented.

State Vehicle Standards

In response to the transportation sector accounting for more than half of California's carbon dioxide (CO_2) emissions, AB 1493 was enacted in 2002. AB 1493 required CARB to set GHG emissions standards for passenger vehicles, light-duty trucks, and other vehicles determined by the state board to be vehicles whose primary use is noncommercial personal transportation in the state. The bill required that CARB set GHG emissions standards for motor vehicles manufactured in 2009 and all subsequent model years. The 2009–2012 standards resulted in a reduction in approximately 22% of GHG emissions compared to emissions from the 2002 fleet, and the 2013–2016 standards resulted in a reduction of approximately 30% compared to the 2002 fleet.

In 2012, CARB approved a new emissions-control program for model years 2017 through 2025. The program combines the control of smog, soot, and global-warming gases with requirements for greater numbers of zero-emissions vehicles into a single package of standards called Advanced Clean Cars. By 2025, when the rules would be fully implemented, new automobiles would emit 40% fewer global-warming gases and 75% fewer smog-forming emissions (CARB 2020a). However, the EPA and National Highway Traffic Safety Administration

published the Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule, which revokes California's authority to set its own GHG emissions standards and set zero-emission vehicle mandates in California. Since California and 22 other states, as well as the District of Columbia and four cities, filed suit against the EPA and a petition for reconsideration of the rule, the effect of the SAFE Rule on the Advanced Clean Cars program is still to be determined pending the ruling of ongoing litigation.

Although the focus of the state's vehicle standards is on the reduction of air pollutants and GHG emissions, one co-benefit of implementation of these standards is a reduced demand for petroleum-based fuels.

Sustainable Communities Strategy

The Sustainable Communities and Climate Protection Act of 2008, or SB 375, coordinates land use planning, regional transportation plans, and funding priorities to help California meet its GHG emissions reduction mandates established in AB 32. As codified in California Government Code Section 65080, SB 375 requires metropolitan planning organizations to include a sustainable communities strategy in their regional transportation plan. The main focus of the sustainable communities strategy is to plan for growth in a fashion that will ultimately reduce GHG emissions, but the strategy is also part of a bigger effort to address other development issues, including transit and vehicle miles traveled, which influence the consumption of petroleum-based fuels.

Local

As described in Section 4.7 (Greenhouse Gas Emissions), the Cities of Fullerton, Huntington Beach, La Habra, and Santa Ana, where components of the FMP are located, have adopted GHG emission reduction plans, such as a Climate Action Plan (CAP), which include energy consumption reduction measures.[3] See Section 4.7 for summaries of these local plans.

4.5.3 Thresholds of Significance

4.5.3.1 Significance Criteria

The significance criteria used to evaluate the proposed FMP's impacts to energy are based on Appendix G of the CEQA Guidelines. According to Appendix G, a significant impact related to energy would occur if the project would:

1. Result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.
2. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

[3] The City of Irvine (where projects 7-65 and 7-66 are partially located) is in the process of developing a CAP; however, no draft is available at the time of writing. The City of Anaheim adopted a municipal Greenhouse Gas Reduction Plan: Sustainable Electric & Water Initiatives in July 2015; however, it only applies to the Anaheim Public Utilities Department and therefore is not applicable to the FMP. The Cities of Aliso Viejo, Laguna Beach, Laguna Woods, Mission Viejo, and San Clemente in Orange County have also adopted GHG emission reduction plans; however, the FMP would not include components located within those cities.

4.5.3.2 Approach and Methodology

Construction

Electricity

The amount of electricity used during FMP project construction would be minimal because typical demand would stem from electrically powered hand tools. Temporary electric power typically used for as-needed lighting and electronic equipment (such as computers inside temporary construction trailers and heating, ventilation, and air conditioning), and potentially on-site water supply, during construction is anticipated to be minimal for the FMP projects. The majority of the energy used during construction would be from petroleum.[4] As such, construction electricity demand is qualitatively addressed.

Natural Gas

Natural gas is not anticipated to be required during construction of the FMP projects. Fuels used for construction would primarily consist of diesel and gasoline, which are discussed under the subsection Petroleum, below. Any minor amounts of natural gas that may be consumed as a result of project construction would be temporary and negligible[5]; therefore, construction natural gas demand is qualitatively addressed.

Petroleum

Potential impacts were assessed for off-road equipment and on-road vehicle trips during construction, as provided by the California Emissions Estimator Model (CalEEMod) outputs (Appendix D). Fuel consumption from construction equipment and vehicle trips is estimated by converting the total CO_2 emissions anticipated to be generated by construction of each project to gallons using conversion factors for CO_2 to gallons of gasoline or diesel. The conversion factor for gasoline is 8.78 kilograms per metric ton (MT) CO_2 per gallon, and the conversion factor for diesel is 10.21 kilograms per MT CO_2 per gallon (The Climate Registry 2018). Heavy-duty construction equipment associated with construction activities, vendor trucks, and haul trucks are assumed to use diesel fuel. Worker vehicles are assumed to be gasoline fueled. All details for construction criteria air pollutant emissions modeling discussed in Section 4.2, Air Quality, specifically Section 4.2.3.2, Approach and Methodology (Construction), are also applicable for the estimation of construction-related energy consumption. As such, see Section 4.2.3.2 for a discussion of construction emissions calculation methodology and assumptions used in the energy analysis.

Operation

The FMP projects would rehabilitate, replace, or abandon existing facilities that are currently subject to ongoing operations and maintenance activity. Accordingly, the projects addressed in this program environmental impact report (PEIR) do not propose appreciable changes to regular operations and maintenance activity by Orange County Sanitation District (Sanitation District) personnel. Therefore, potential operational energy consumption is qualitatively evaluated.

[4] The construction energy analysis is based on CalEEMod default values, which assume that all off-road construction equipment is diesel, and no electricity demand is assumed during construction.

[5] The construction energy analysis is based on CalEEMod default values, which assume that all off-road construction equipment is diesel, and no natural gas demand is assumed during construction.

4.5.4 Impacts Analysis

1. Would the project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

Less-than-Significant Impact. Project energy consumption, including use of electricity, natural gas, and petroleum during construction and operation are assessed below.

Construction

Electricity. Temporary electric power for as-necessary lighting and electronic equipment and to convey water for fugitive dust control (if provided using an on-site water source versus a water truck) would be provided by SCE. The amount of electricity used during construction would be minimal because typical demand would stem from electrically powered hand tools. The electricity demand at any given time would vary throughout the construction period based on the construction activities being performed and would cease upon completion of construction. When not in use, electric equipment would be powered off so as to avoid unnecessary energy consumption. The electricity used for construction activities would be temporary and minimal; it would be within the supply and infrastructure service capabilities of SCE; and it would not require additional local or regional capacity. While electricity demand during construction is anticipated to be minimal, the FMP's peak energy consumptions are anticipated to be sufficiently served by existing supply from SCE. The electricity used for construction activities would be temporary and minimal; therefore, FMP project construction would not result in wasteful, inefficient, or unnecessary consumption of electricity.

Natural Gas. Natural gas is not anticipated to be required during construction of the FMP projects. Fuels used for construction would primarily consist of diesel and gasoline, which are discussed under the subsection "Petroleum." Peak energy demand specifically applies to electricity; because natural gas (and petroleum) are liquid, these energy resources do not have the same constraints as electricity supply. Nonetheless, any use of natural gas is anticipated to be sufficiently served by existing supply from SoCalGas and would not require additional local or regional capacity. Any minor amounts of natural gas that may be consumed[6] as a result of project construction would be temporary and negligible and would not have an adverse effect; therefore, FMP project construction would not result in wasteful, inefficient, or unnecessary consumption of natural gas.

Petroleum. Heavy-duty equipment associated with construction would rely on diesel fuel, as would vendor trucks involved in delivery of materials to the FMP project sites, and haul trucks exporting demolition material or other materials off site. Construction workers would travel to and from the FMP project sites throughout the duration of construction. It is assumed in this analysis that construction workers would travel in gasoline-powered light-duty vehicles. Appendix D lists the assumed equipment usage and vehicle trips for construction of each project.

Fuel consumption from construction equipment was estimated by converting the total carbon dioxide (CO_2) emissions from each construction phase to gallons using the conversion factors for CO_2 to gallons of gasoline or diesel. Construction is estimated to occur intermittently from 2021 to 2040 based on the

[6] While no natural gas is anticipated to be used during construction as construction equipment is typically diesel-fueled, the possibility of natural gas use is acknowledged in the event a natural gas-fueled piece of equipment is used or a natural gas-fueled hot water boiler is used for pipe relining. However, as noted previously, all equipment was assumed to be diesel-fueled in CalEEMod.

construction phasing schedule. The conversion factor for gasoline is 8.78 kilograms per MT CO_2 per gallon, and the conversion factor for diesel is 10.21 kilograms per MT CO_2 per gallon (The Climate Registry 2018).

The estimated diesel fuel usage from construction equipment, haul trucks, and vendor trucks, as well as estimated gasoline fuel usage from worker vehicles, is shown in Tables 4.5-1, 4.5-2, 4.5-3, 4.5-4, and 4.5-5 for Plant 1, Plant 2, joint plant, collection system, and the entire FMP, respectively.

Table 4.5-1 presents estimated petroleum demand generated during construction of Plant 1 projects.

Table 4.5-1. Plant 1 Construction Petroleum Demand

Project	Off-Road Equipment (diesel)	Haul Trucks (diesel)	Vendor Trucks (diesel)	Worker Vehicles (gasoline)
	Gallons			
P1-126 Primary Clarifiers Replacements and Improvements	161,424	1,957	2,524	11,029
X-093 Administrative Facilities and Power Building 3A Demolition	14,575	823	256	930
X-092 Standby Generator Feeders for Plant 1 Secondary Systems	15,440	0	479	1,423
X-048 Activated Sludge (AS)-1 Aeration Basin and Blower Rehabilitation	78,176	89	1,864	5,838
P1-135 Digester Ferric Piping Replacement	10,412	1,340	306	790
X-077 Switchgear Replacement at Central Generation	849	14	11	45
X-017 Primary Clarifiers 6–37	61,652	14	1,707	4,203
X-038 City Water Pump Station Rehabilitation	5,664	13	141	373
P1-127 Central Generation Rehabilitation	37,400	13	332	1,869
X-049 Activated Sludge (AS)-1 Clarifier and RAS Pump Station Rehabilitation	69,440	13	1,034	3,341
X-015 Trickling Filters Rehabilitation	69,160	240	797	3,274
X-006 Waste Side-Stream Pump Station 1 Upgrade	16,144	7	140	822
X-079 Primary Scrubber Rehabilitation	31,220	240	425	1,579
X-039 Plant Water Pump Station Rehabilitation	3,384	13	93	241
X-018 Activated Sludge (AS) 2 Rehabilitation	55,306	13	844	4,175
X-043 DAFT Demolition	17,366	1,975	65	639
X-090 Network, Telecommunications, and Service Relocation at Plant 1	5,074	0	241	669
Total	**652,686**	**6,764**	**11,259**	**41,240**

Notes: RAS = return activated sludge; DAFT = dissolved air flotation thickeners.

Table 4.5-2 presents estimated petroleum demand generated during construction of Plant 2 projects.

Table 4.5-2. Plant 2 Construction Petroleum Demand

Project	Off-Road Equipment (diesel)	Haul Trucks (diesel)	Vendor Trucks (diesel)	Worker Vehicles (gasoline)
	Gallons			
P2-126 Substation and Warehouse Replacement at Plant 2	306,030	944	7,070	20,988
X-050 Activated Sludge (AS) Aeration Basin	61,357	308	872	4,255
X-032 Truck Loading Facility Rehabilitation	22,455	14	433	1,553
X-054 Waste Side-Stream Pump Station C Rehabilitation	12,926	14	191	959
X-034 Sodium Bisulfite Station Replacement and Bleach Station Demolition	13,279	103	336	1,063
P2-138 Operations and Maintenance Complex at Plant 2	108,408	1,259	1,534	6,007
X-007 Waste Side-Stream Pump Station 2A Upgrade	29,805	270	431	1,672
P2-119 Central Generation Rehabilitation	52,481	88	660	2,732
X-036 City Water Pump Station Rehabilitation	6,008	34	185	382
X-037 Plant Water Pump Station and 12 kV Distribution Center A Demolition	4,775	201	67	150
X-052 Activated Sludge (AS) RAS/WAS/PEPS/Vaporizers Rehabilitation	27,560	13	656	1,648
X-030 Headworks Rehabilitation	57,451	13	1,265	2,930
X-031 Trickling Filter Solids-Contact Rehabilitation	198,821	7	2,012	9,424
X-014 Trickling Filter Solids-Contact Odor Control	33,124	0	1,418	1,477
Total	**934,480**	**3,268**	**17,130**	**55,240**

Notes: RAS = return activated sludge; PEPS = Primary Effluent Pump Station.

Table 4.5-3 presents estimated petroleum demand generated during construction of joint plant projects.

Table 4.5-3. Joint Plant Construction Petroleum Demand

Project	Off-Road Equipment (diesel)	Haul Trucks (diesel)	Vendor Trucks (diesel)	Worker Vehicles (gasoline)
	Gallons			
J-98 Plantwide Miscellaneous Electrical Power Distribution System Improvements	1,475	0	61	66
J-120 Plantwide Miscellaneous Process Control Systems Upgrades	1,474	0	59	58
J-133 Laboratory Rehabilitation or Replacement at Plant 1	130	7	14	10
X-057 Plantwide Miscellaneous Yard Structures Rehabilitation or Replacement, X-058 Plantwide Miscellaneous Yard Piping Replacement, X-059 Plantwide Miscellaneous Tunnels Rehabilitation	3,496	1	73	170
J-121 UPS System Upgrades	234	0	19	12
X-044 Steve Anderson Lift Station Rehabilitation	179	0	7	10
Total	**6,988**	**8**	**233**	**326**

Note: UPS = uninterruptible power system.

Table 4.5-4 presents estimated petroleum demand generated during construction of collection system projects.

Table 4.5-4. Collection System Construction Petroleum Demand

Project	Off-Road Equipment (diesel)	Haul Trucks (diesel)	Vendor Trucks (diesel)	Worker Vehicles (gasoline)
	Gallons			
5-68 Newport Beach Pump Station Odor Control Improvements	31,960	0	552	2,667
X-076 Santa Ana Trunk Sewer Rehabilitation Phase II	49,153	0	1,375	2,222
X-082 North Trunk Improvement Project	16,537	573	606	1,406
X-060 Newhope Placentia Chemical Dosing Station	10,844	28	295	902
11-33 Edinger Pumping Station Replacement	51,303	41	770	3,207
X-063 South Santa Ana River Interceptor Connector Rehabilitation	12,323	217	557	816
2-73 Yorba Linda Pump Station Abandonment	23,810	154	460	1,282

Table 4.5-4. Collection System Construction Petroleum Demand

Project	Off-Road Equipment (diesel)	Haul Trucks (diesel)	Vendor Trucks (diesel)	Worker Vehicles (gasoline)
	Gallons			
3-67 Seal Beach Pump Station Replacement	16,911	74	301	996
2-49 Taft Branch Sewer Improvements	22,775	942	969	1,609
X-083 Greenville–Sullivan Sewer Relief Project	37,723	1,861	1,569	2,976
7-66 Sunflower and Red Hill Interceptor Rehab/Repair	13,964	0	407	742
7-65 Gisler–Red Hill Interceptor Rehabilitation	13,964	0	407	742
7-68 MacArthur Dual Force Main Improvements	22,191	352	861	1,326
X-078 Air Jumper Additions and Rehabilitation	11,485	0	254	704
X-026 College Avenue Force Main Rehabilitation	10,286	341	393	552
X-071 Edinger/Springdale Trunk Sewer Rehabilitation	22,191	352	861	1,326
X-065 Tustin–Orange Interceptor Sewer at Reach 17 Rehabilitation	10,286	341	393	552
3-68 Los Alamitos Sub-Trunk Extension	4,430	2,525	41	279
X-067 (X-085) Hoover–Western Sub-Trunks Sewer Rehabilitation	22,191	352	861	1,326
X-066 Tustin–Orange Interceptor Sewer at Reach 18 Rehabilitation	10,286	341	393	552
X-061 Imperial Highway Relief Interceptor Rehabilitation	22,191	352	861	1,326
X-068 North Trunk Rehabilitation	10,286	341	393	552
7-67 Main Street Pump Station Replacement and Force Main Rehabilitation	10,896	15	383	655
X-023 Lido Pump Station Rehabilitation	10,896	15	383	655
X-084 Tustin Avenue Sewer Relief	10,286	341	393	552
X-086 Santa Ana River Sewer Relief	34,212	2,002	1,417	1,818
X-022 15th Street Pump Station Rehabilitation	10,896	15	383	655
X-040 College Avenue Pump Station Replacement	23,888	13	328	1,267
11-34 Slater Avenue Pump Station Rehabilitation	10,896	15	383	655
7-64 Main Street Pump Station Rehabilitation	10,896	15	383	655

Table 4.5-4. Collection System Construction Petroleum Demand

Project	Off-Road Equipment (diesel)	Haul Trucks (diesel)	Vendor Trucks (diesel)	Worker Vehicles (gasoline)
	Gallons			
7-63 MacArthur Pump Station Rehabilitation	42,321	370	1,054	1,737
X-024 Rocky Point Pump Station Rehabilitation	23,888	13	328	1,267
X-041 A Street Pump Station Rehabilitation	10,896	15	383	655
5-66 Crystal Cove Pumping Station Upgrade and Rehabilitation	10,896	15	383	655
X-025 Bitter Point Pump Station Rehabilitation	23,888	13	328	1,267
Total	**681,845**	**12,044**	**20,108**	**40,555**

Table 4.5-5 presents estimated petroleum demand during construction of the entire FMP, including the Plant 1, Plant 2, joint plant, and collection system projects.

Table 4.5-5. Total FMP Construction Petroleum Demand

Project	Off-Road Equipment (diesel)	Haul Trucks (diesel)	Vendor Trucks (diesel)	Worker Vehicles (gasoline)
	Gallons			
Plant 1	652,686	6,764	11,259	41,240
Plant 2	934,480	3,268	17,130	55,240
Joint Plant	6,988	8	233	326
Collection System	681,845	12,044	20,108	40,555
Total	**2,275,999**	**22,084**	**48,730**	**137,361**

Note: FMP = Facilities Master Plan.

In summary, construction of the FMP over 19 years is conservatively anticipated to consume 137,361 gallons of gasoline and 2,346,813 gallons of diesel. Averaged over 19 years, it is anticipated that the FMP would consume on average 7,230 gallons of gasoline and 123,516 gallons of diesel per year.

For disclosure only, by comparison, California as a whole consumes approximately 29 billion gallons of petroleum per year. Countywide total petroleum use by on-road vehicles only (i.e., not including construction off-road equipment) is expected to be 1.4 billion gallons per year in 2020 (CARB 2020b). Based on these assumptions, the FMP would require a fraction of the petroleum that would be consumed in California and countywide over the course of the construction period. Therefore, impacts to energy resources during construction would be less than significant.

Operation

The FMP projects would rehabilitate, replace, or abandon existing facilities that are currently subject to ongoing operations and maintenance activity. Accordingly, the FMP projects addressed in this PEIR do not propose appreciable changes to regular operations and maintenance activity by Sanitation District personnel. Therefore, operation of the FMP projects are not anticipated to generate an increase in energy demand, as further described below.

When replacing or rehabilitating facilities, the Sanitation District uses energy efficient devices as available. For example, when replacing equipment, the Sanitation District installs energy efficient motors, which in addition to reducing energy consumption, also save costs over time. In addition, when installing larger pumps, the Sanitation District uses variable frequency drives or soft start controls to avoid a large inrush current of starting a large motor.

Plant 1 includes various replacement and rehabilitation projects, with only one project (X-090) including construction of a structure. X-090, Network, Telecommunications, and Server Relocation at Plant 1, includes construction of an approximately 200-square-foot utility building to house Sanitation District network, telecommunications, and servers, which would not result in typical building energy usage.

Similar to Plant 1, Plant 2 includes various replacement and rehabilitation projects, with only P2-126 and P2-138 including structural replacements. For P2-126, Substation and Warehouse Replacement at Plant 2, the existing 21,000-square-foot warehouse would be demolished and reconstructed in a new location, which is anticipated to be larger (approximately 30,100 square feet) as some outdoor storage may be moved to indoor storage. While the new warehouse would be larger in size, it is not anticipated to generate substantially greater electricity or natural gas use. P2-126 also includes replacement of a SCE substation and replacement of a service center (approximately 3,100 square feet), both of which are anticipated to be approximately the same size as the existing structures and would not result in a net increase in operational energy use as these structures because they will primarily house electrical systems and equipment. P2-138, Operations and Maintenance Complex at Plant 2, would demolish the existing building and guard shack totaling 36,680 square feet and construct a new building (35,700 square feet) and new guard shack (200 square feet). Overall, the new structures would be slightly less square footage than the existing structures and would increase building energy efficiency as a result of complying with current building code (2019 Title 24 Building Energy Efficiency Standards at a minimum).[7]

The joint plant projects primarily consist of improvements of plantwide electrical and control systems; however, J-133 would result in a new structure. For J-133, Laboratory Rehabilitation or Replacement at Plant 1, the existing 40,000-square-foot laboratory building located at Plant 1 would be rehabilitated or replaced. The replacement J-133 building would be the same size, but since it would be built consistent with current building codes, including the latest Title 24 building energy efficiency standards applicable at the time of development, it is anticipated to be more energy efficient than the existing building.

[7] As an historical example, from the 2008 to the 2013 Title 24 standards, it was estimated that buildings constructed in accordance with the 2013 standards would use 25% less energy for lighting, heating, cooling, ventilation, and water heating than the 2008 standards (CEC 2012). From the 2013 to the 2016 Title 24 Standards, in general, nonresidential buildings built to the 2016 standards will use an estimated 5% less energy than those built to the 2013 standards (CEC 2015). From the 2016 to the 2019 Title 24 Standards, in general, nonresidential buildings built to the 2019 standards are anticipated to use an estimated 30% less energy than those built to the 2016 standards (CEC 2018a). Accordingly, it has been demonstrated that over time, the Title 24 standard updates have continuously improved energy efficiency in new construction.

For the collection system projects, which primarily consist of replacement or rehabilitation of pipelines and pump stations, once the replacement or rehabilitation is complete, no new routine operational activity or associated GHG maintenance emissions would occur. Minor maintenance would occur consistent with existing conditions. X-060, Newhope Placentia Chemical Dosing Station, includes removal of an existing pump station and construction of a new chemical dosing station at the abandoned pump station site. The chemical dosing station is anticipated to be small (less than 100 square feet) and would not consume energy typical of building operation since it would be used primarily to house the chemicals.

As previously mentioned, no projects under the FMP are anticipated to require additional Sanitation District personnel. To the extent feasible, replacement and rehabilitation projects would assist in improving energy efficiency. As with construction, project operation is not anticipated to have an effect on peak or base demand for electricity or base demand for natural gas, would be sufficiently served by existing supply from SCE (electricity) and SoCalGas (natural gas), would not have an effect on local or regional energy supplies or require additional capacity.[8] Therefore, FMP operation would not result in wasteful, inefficient, or unnecessary consumption of energy resources and impacts to energy resources during operations would be less than significant.

As discussed above, construction of FMP projects would not result in a wasteful, inefficient, or unnecessary use of energy. In addition, the FMP projects would not result in a net increase in operational energy use and instead, would potentially improve energy efficiency at replacement buildings. Therefore, impacts would be less than significant.

2. Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

Less-than-Significant Impact. For this analysis of energy impacts, all FMP components are assessed together.

Part 6 of Title 24 of the California Code of Regulations establishes energy efficiency standards for residential and nonresidential buildings constructed in California to reduce energy demand and consumption. Part 6 is updated periodically (every 3 years) to incorporate and consider new energy efficiency technologies and methodologies. Title 24 also includes Part 11, CALGreen. CALGreen institutes mandatory minimum environmental performance standards for all ground-up, new construction of commercial and state-owned buildings. The FMP projects that include replacement structures would meet all applicable Title 24 and CALGreen standards to reduce energy demand and increase energy efficiency. In addition, the FMP projects would be required to comply with all applicable rules and regulations presented in Section 4.5.2.

Additionally, as discussed in Section 4.7 (Greenhouse Gas Emissions), the FMP projects would not conflict with the various local plans that would reduce energy use, including the City of Fullerton CAP, the City of Huntington Beach Greenhouse Gas Reduction Program, the City of La Habra CAP, and the City of Santa Ana CAP. Overall, the FMP would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency; therefore, impacts during construction and operation of the FMP would be less than significant.

[8] Electricity and natural gas infrastructure is typically expanded in response to increasing demand, and system expansion and improvements by SCE and SoCal Gas occur as needed. Because the FMP is not anticipated to use substantial amounts of electricity or natural gas, no effect on local supply or infrastructure would occur.

4.5.5 Mitigation Measures

The FMP projects addressed in this PEIR are not anticipated to result in significant impacts related to energy, so no mitigation measures are warranted.

4.5.6 Level of Significance After Mitigation

No mitigation measures are proposed, and energy impacts would be less than significant without mitigation.

4.5.7 Cumulative Impacts

Cumulative projects that could exacerbate the proposed FMP's impacts include any projects that could result in wasteful, inefficient, or unnecessary use of energy. However, the FMP would not result in wasteful, inefficient, or unnecessary use of energy during proposed construction activities. Additionally, the FMP is not anticipated to result in a net increase in operational energy use, and replacement buildings are anticipated to improve energy efficiency. Therefore, cumulative impacts to energy use would be less than cumulatively considerable. No mitigation is required.

4.5.8 Impact Summary

Table 4.5-6 summarizes the impacts for the FMP projects assessed at the project level at Plant 1, Plant 2, joint plant projects, and collection system projects under each threshold analyzed in this PEIR.

Energy consumption resulting from FMP implementation should be considered on the whole instead of at an individual project level, as evaluated in Section 4.5.4. Accordingly, the overall impact determination for each energy threshold, as evaluated for the entire FMP, is applied to all project-level components in Table 4.5-6.

Table 4.5-6. Summary of FMP Project Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
Would the project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?					
Plant 1					
P1-126	Primary Clarifiers Replacements and Improvements	Replace	Less than Significant	—	Less than Significant
X-093	Administrative Facilities and Power Building 3A Demolition	Misc. (Demo)	Less than Significant	—	Less than Significant
X-092	Standby Generator Feeders for Plant 1 Secondary Systems	Misc.	Less than Significant	—	Less than Significant
X-048	Activated Sludge (AS)-1 Aeration Basin and Blower Rehabilitation	Rehab	Less than Significant	—	Less than Significant
P1-135	Digester Ferric Piping Replacement	Replace	Less than Significant	—	Less than Significant

Table 4.5-6. Summary of FMP Project Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
X-077	Switchgear Replacement at Central Generation	Replace	Less than Significant	—	Less than Significant
X-090	Network, Telecommunications, and Service Relocation at Plant 1	Misc.	Less than Significant	—	Less than Significant
Plant 2					
P2-126	Substation and Warehouse Replacement at Plant 2	Misc.	Less than Significant	—	Less than Significant
X-050	Activated Sludge (AS) Aeration Basin	Rehab	Less than Significant	—	Less than Significant
X-032	Truck Loading Facility Rehabilitation	Rehab	Less than Significant	—	Less than Significant
X-054	Waste Side-Stream Pump Station C Rehabilitation	Rehab	Less than Significant	—	Less than Significant
X-034	Sodium Bisulfite Station Replacement and Bleach Station Demolition	Replace	Less than Significant	—	Less than Significant
P2-138	Operations and Maintenance Complex at Plant 2	Replace	Less than Significant	—	Less than Significant
Joint Plant Projects					
J-98	Plantwide Miscellaneous Electrical Power Distribution System Improvements	Replace	Less than Significant	—	Less than Significant
J-120	Plantwide Miscellaneous Process Control Systems Upgrades	Replace	Less than Significant	—	Less than Significant
J-133	Laboratory Rehabilitation or Replacement at Plant 1	Rehab	Less than Significant	—	Less than Significant
X-057	Plantwide Miscellaneous Yard Structures Rehabilitation or Replacement	Misc.	Less than Significant	—	Less than Significant
X-058	Plantwide Miscellaneous Yard Piping Replacement	Replace	Less than Significant	—	Less than Significant
X-059	Plantwide Miscellaneous Tunnels Rehabilitation	Rehab	Less than Significant	—	Less than Significant
J-121	UPS System Upgrades	Replace	Less than Significant	—	Less than Significant
X-044	Steve Anderson Lift Station Rehabilitation	Rehab	Less than Significant	—	Less than Significant
Collection System Projects					
5-68	Newport Beach Pump Station Odor Control Improvements	Misc.	Less than Significant	—	Less than Significant
X-076	Santa Ana Trunk Sewer Rehabilitation Phase II	Rehab	Less than Significant	—	Less than Significant
X-082	North Trunk Improvement Project	Replace	Less than Significant	—	Less than Significant
X-060	Newhope Placentia Chemical Dosing Station	Misc.	Less than Significant	—	Less than Significant

Table 4.5-6. Summary of FMP Project Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
11-33	Edinger Pumping Station Replacement	Replace	Less than Significant	—	Less than Significant
X-063	South Santa Ana River Interceptor Connector Rehabilitation	Rehab	Less than Significant	—	Less than Significant
2-73	Yorba Linda Pump Station Abandonment	Misc.	Less than Significant	—	Less than Significant
3-67	Seal Beach Pump Station Replacement	Replace	Less than Significant	—	Less than Significant
2-49	Taft Branch Sewer Improvements	Replace	Less than Significant	—	Less than Significant
X-083	Greenville–Sullivan Sewer Relief Project	Replace	Less than Significant	—	Less than Significant
Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?					
Plant 1					
P1-126	Primary Clarifiers Replacements and Improvements	Replace	Less than Significant	—	Less than Significant
X-093	Administrative Facilities and Power Building 3A Demolition	Misc. (Demo)	Less than Significant	—	Less than Significant
X-092	Standby Generator Feeders for Plant 1 Secondary Systems	Misc.	Less than Significant	—	Less than Significant
X-048	Activated Sludge (AS)-1 Aeration Basin and Blower Rehabilitation	Rehab	Less than Significant	—	Less than Significant
P1-135	Digester Ferric Piping Replacement	Replace	Less than Significant	—	Less than Significant
X-077	Switchgear Replacement at Central Generation	Replace	Less than Significant	—	Less than Significant
X-090	Network, Telecommunications, and Service Relocation at Plant 1	Misc.	Less than Significant	—	Less than Significant
Plant 2					
P2-126	Substation and Warehouse Replacement at Plant 2	Misc.	Less than Significant	—	Less than Significant
X-050	Activated Sludge (AS) Aeration Basin	Rehab	Less than Significant	—	Less than Significant
X-032	Truck Loading Facility Rehabilitation	Rehab	Less than Significant	—	Less than Significant
X-054	Waste Side-Stream Pump Station C Rehabilitation	Rehab	Less than Significant	—	Less than Significant
X-034	Sodium Bisulfite Station Replacement and Bleach Station Demolition	Replace	Less than Significant	—	Less than Significant
P2-138	Operations and Maintenance Complex at Plant 2	Replace	Less than Significant	—	Less than Significant

Table 4.5-6. Summary of FMP Project Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
Joint Plant Projects					
J-98	Plantwide Miscellaneous Electrical Power Distribution System Improvements	Replace	Less than Significant	—	Less than Significant
J-120	Plantwide Miscellaneous Process Control Systems Upgrades	Replace	Less than Significant	—	Less than Significant
J-133	Laboratory Rehabilitation or Replacement at Plant 1	Rehab	Less than Significant	—	Less than Significant
X-057	Plantwide Miscellaneous Yard Structures Rehabilitation or Replacement	Misc.	Less than Significant	—	Less than Significant
X-058	Plantwide Miscellaneous Yard Piping Replacement	Replace	Less than Significant	—	Less than Significant
X-059	Plantwide Miscellaneous Tunnels Rehabilitation	Rehab	Less than Significant	—	Less than Significant
J-121	UPS System Upgrades	Replace	Less than Significant	—	Less than Significant
X-044	Steve Anderson Lift Station Rehabilitation	Rehab	Less than Significant	—	Less than Significant
Collection System Projects					
5-68	Newport Beach Pump Station Odor Control Improvements	Misc.	Less than Significant	—	Less than Significant
X-076	Santa Ana Trunk Sewer Rehabilitation Phase II	Rehab	Less than Significant	—	Less than Significant
X-082	North Trunk Improvement Project	Replace	Less than Significant	—	Less than Significant
X-060	Newhope Placentia Chemical Dosing Station	Misc.	Less than Significant	—	Less than Significant
11-33	Edinger Pumping Station Replacement	Replace	Less than Significant	—	Less than Significant
X-063	South Santa Ana River Interceptor Connector Rehabilitation	Rehab	Less than Significant	—	Less than Significant
2-73	Yorba Linda Pump Station Abandonment	Misc.	Less than Significant	—	Less than Significant
3-67	Seal Beach Pump Station Replacement	Replace	Less than Significant	—	Less than Significant
2-49	Taft Branch Sewer Improvements	Replace	Less than Significant	—	Less than Significant
X-083	Greenville–Sullivan Sewer Relief Project	Replace	Less than Significant	—	Less than Significant

Note: UPS = uninterruptible power system.

4.5.9 References

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4.6 Geology and Soils

This section describes the existing geologic and soil conditions in the Facilities Master Plan (FMP) area, describes the associated regulatory requirements, and evaluates the potential impacts related to geology and soils as a result of implementing the FMP projects.

4.6.1 Existing Conditions

Regional Geologic Setting

The geologic setting of Orange County is varied and complex. Orange County lies within the Peninsular Ranges Geologic Province, one of 11 such provinces that compose California. The Orange County portion of the Peninsular Ranges is composed of a western basin area of very low relief, rimmed by mountainous and hilly terrain (CDMG 1976). The Orange County Sanitation District (Sanitation District) service area lies predominantly on a flat-lying to gently sloping alluvial plain at elevations lower than 300 feet. Several low-lying mesas interrupt the plain along the northern coast. The geologic basin, where most of the urban development has occurred, is bordered on the south and southwest by the Pacific Ocean, and on the north, east, and southeast by the Puente Hills, Santa Ana Mountains, and San Joaquin Hills, respectively. Mountainous and hilly areas comprise approximately two-thirds of the total area of Orange County.

Geologic Units and Soils

Geologic units underlying the Sanitation District's service area predominately consist of Quaternary-aged (Holocene and Pleistocene) alluvium, generally consisting of consolidated to unconsolidated sand, silt, and gravel. However, hilly portions of the Sanitation District service area are also underlain by Pliocene, Miocene, Oligocene, and Eocene aged marine rocks. Volcanic rocks are also locally present (USGS 2019a, 2019b). Surficial soils underlying the Sanitation District service area consist predominantly of Yolo loam, which is composed of well-drained, permeable, soft loams that occur on gently sloping alluvial fans (University of California College of Agriculture 1951). In addition, since the FMP project sites are predominately developed, artificial fill is expected to be present throughout the area.

According to surficial geological mapping of Dibblee and Ehrenspeck (2001a, 2001b) at a 1:24,000 scale, and Saucedo et al. (2003) and Morton and Miller (2006) at 1:100,000 scale, the following geological units are present within the FMP area (from youngest to oldest): Holocene (less than 11,700 years ago) alluvium and gravels (map units Qya, Qa, and Qg), very young eolian deposits (map unit Qe), young alluvial fan deposits (map units Qyf_a, Qyf_{sa}), very young wash deposits (map unit Qw_a), and very young estuarine deposits (map unit Qes); Pleistocene (approximately 2.58 million years ago to 11,700 years ago) old shallow marine deposits (map unit Qom), La Habra Formation (map unit Qlhc), old paralic deposits (map unit Qop), old paralic deposits overlain by alluvial fan deposits (map unit Qopf), and old alluvial fan deposits (map unit Qof); early Pliocene to late Miocene (approximately 3.6 to 7 million years ago) Siltstone Member of the Capistrano Formation (map unit Tcs); and the late to middle to Miocene Monterey Formation (map unit Tm). Paleontological sensitivities of these geological units are detailed in Table 4.6-1.

Table 4.6-1. Geological Ages and Paleontological Sensitivities of Mapped Geological Units Within the FMP Area

Geological Unit	Map Unit(s)	Geological Epoch and Age (mya)	Paleontological Sensitivity*
Alluvium and Gravels	Qa, Qya, Qg	Holocene (<0.0117)	Low on the surface increasing to high at depth
Very Young Eolian Deposits	Qe	Holocene (<0.0117)	Low on the surface increasing to high at depth
Young Alluvial Fan Deposits	Qyfa, Qyfsa	Holocene (<0.0117)	Low on the surface increasing to high at depth
Very Young Wash Deposits	Qwa	Holocene (<0.0117)	Low on the surface increasing to high at depth
Very Young Estuarine Deposits	Qes	Holocene (<0.0117)	Low on the surface increasing to high at depth
Old Shallow Marine Deposits	Qom	Pleistocene (approximately 2.58–0.0117)	High
La Habra Formation	Qlhc	Pleistocene (approximately 2.58–0.0117)	High
Old Paralic Deposits	Qop	Pleistocene (approximately 2.58–0.0117)	High
Old Paralic Deposits Overlain by Alluvial Fan Deposits	Qopf	Pleistocene (approximately 2.58–0.0117)	High
Old Alluvial Fan Deposits	Qof	Pleistocene (approximately 2.58–0.0117)	High
Capistrano Formation (Siltstone Member)	Tcs	Early Pliocene to Late Miocene (approximately 3.6–7 mya)	High
Monterey Formation	Tm	Late to Middle Miocene (approximately 5.33–15.97 mya)	High

Notes: mya = million years ago.
* Per the Society of Vertebrate Paleontology guidelines (SVP 2010).

4.6.2 Relevant Plans, Policies, and Ordinances

Federal

Clean Water Act

Increasing public awareness and concern for controlling water pollution led to enactment of the federal Water Pollution Control Act Amendments of 1972. As amended in 1977, this law became commonly known as the Clean Water Act (CWA) (33 USC 1251 et seq.). The objective of the CWA is to restore and maintain the chemical, physical, and biological integrity of the nation's waters. The CWA established basic guidelines for regulating discharges of pollutants into waters of the United States. The CWA requires that states adopt water quality standards to protect public health, enhance the quality of water resources, and ensure implementation of the CWA.

State

National Pollution Discharge Elimination System

Direct discharges of pollutants into waters of the United States are not allowed, except in accordance with the National Pollutant Discharge Elimination System (NPDES) program, established in Section 402 of the CWA. A stormwater pollution prevention plan (SWPPP) prepared in compliance with an NPDES permit describes erosion and sediment controls, runoff water quality monitoring, means of waste disposal, implementation of approved local plans, control of post-construction sediment and erosion control measures and maintenance responsibilities, and non-stormwater management controls. Construction activities associated with routine maintenance, repairs, and upgrading existing linear underground pipelines are typically exempt from SWPPP requirements. Dischargers are also required to inspect construction sites before and after storms to identify stormwater discharge from construction activity, and to identify and implement water quality controls where necessary.

California Environmental Quality Act

Paleontological resources are afforded protection by the California Environmental Quality Act (CEQA), specifically in Section VII(f) of CEQA Guidelines Appendix G, the Environmental Checklist Form, which addresses the potential for adverse impacts to "unique paleontological resource[s] or site[s] or … unique geological feature[s]." This provision covers fossils of signal importance (e.g., remains of species or genera new to science, or fossils exhibiting features not previously recognized for a given animal group) and localities that yield fossils significant in their abundance, diversity, preservation, and so forth. Further, CEQA provides that, generally, a resource will be considered "historically significant" if it has yielded or may be likely to yield information important in prehistory (PRC 15064.5 [a][3][D]). Paleontological resources fall within this category. California Public Resources Code Chapter 1.7 Sections 5097.5 and 30244 also regulate removal of paleontological resources from state lands, define unauthorized removal of fossil resources as a misdemeanor, and require mitigation of disturbed sites.

Local

No local/regional regulations pertaining to geology and soils would apply to the FMP projects.

NPDES Program

The County of Orange (County) NPDES Program enforces state-mandated water quality regulations that apply to construction projects throughout Orange County. These regulations are intended to minimize pollutants and runoff from construction sites and completed project sites. The County has established requirements that owners, developers, contractors, and builders must meet at each stage of the project development process to achieve compliance. These NPDES requirements have been integrated into the proposed FMP's application/permit approval process and construction site inspection system. These requirements include the following:

- Non-exempt projects must prepare and submit a project-specific water quality management plan prior to the issuance of any grading or building permit. The water quality management plan describes the permanent, post-construction best management practices (BMPs) that will be constructed or used on the site and maintained during the life of that project.
- An erosion and sediment control plan (ESCP) must be submitted with each set of grading and building plans submitted for plan check. The ESCP describes the appropriate BMPs that will be used throughout the construction (grading and building) phase.

- NPDES inspections will be conducted on all construction sites to ensure that appropriate BMPs are kept in place throughout the construction phase. The frequency of these inspections is regulated by a state-mandated schedule for the wet and dry seasons.
- After construction has been completed, property owners are responsible for the ongoing operation and maintenance of all structural and non-structural water quality BMPs on their property, and may be required to obtain a 12-month post-construction inspection of treatment control BMPs.

Drainage Area Management Plan

In 2003, the Orange County Flood Control District and incorporated cities enacted the Drainage Area Management Plan (DAMP) (County of Orange 2003) to serve as a guiding framework document for a series of model programs, local implementation plans, and watershed implementation plans aimed at enhancing water quality throughout Orange County. The current DAMP describes the agreements, structures, and programs that do the following (County of Orange et al. 2006):

- Provide the framework for the program management activities and plan development.
- Provide the legal authority for prohibiting unpermitted discharges into the storm drain system and for requiring BMPs in new development and significant redevelopment.
- Improve existing municipal pollution prevention and removal BMPs to further reduce the number of pollutants entering the storm drain system.
- Ensure that all new development and significant redevelopment incorporates appropriate site design, source control, and treatment control BMPs to address specific water quality issues.
- Ensure that construction sites implement control practices that address control of construction-related pollutant discharges, including erosion and sediment control and on-site hazardous materials and waste management.
- Identify impacted receiving waters and produce environmental quality information to direct management activities, including prioritization of pollutants to support the development of specific controls to address these problems.

City of Fountain Valley General Plan

The Conservation Element of the City of Fountain Valley General Plan describes the geology and soils within the municipality and includes the following goals and policies (City of Fountain Valley 1995):

Goal

5.3 Minimal soil erosion.

Policy

5.3.1 Reduce soil erosion from wind and water.

City of Huntington Beach General Plan

The Natural and Environmental Hazards Element of the City of Huntington Beach General Plan addresses geologic and seismic hazards, but does not address erosion (City of Huntington Beach 2017a). Similarly, the Environmental Resources and Conservation Element of the General Plan addresses coastal erosion, but does not address erosion

throughout Orange County (City of Huntington Beach 2017b). As a result, no goals or policies related to soil erosion are included in the General Plan.

City of Newport Beach General Plan

The Safety Element of the City of Newport Beach General Plan addresses geologic and seismic hazards, including erosion of coastal features. Similarly, the Natural Resource Element of the General Plan contains policies to reduce erosion of natural resources. The General Plan contains the following relevant policies (City of Newport Beach 2006):

Goal

S 3 Protection of people and property from the adverse effects of coastal erosion.

Policy

S 3.11 **New Development Impact on Coastal Erosion.** Require that applications for new development with the potential to be impacted or impact coastal erosion include slope stability analyses and erosion rate estimates provided by a licensed Certified Engineering Geologist or Geotechnical Engineer.

Goal

NR 4 Maintenance of water quality standards through compliance with the total maximum daily loads (TMDLs) standards.

NR 4.4 **Erosion Minimization.** Require grading/erosion control plans with structural BMPs that prevent or minimize erosion during and after construction for development on steep slopes, graded, or disturbed areas.

4.6.3 Thresholds of Significance

The significance criteria used to evaluate the FMP's impacts to geology and soils are based on Appendix G of the CEQA Guidelines. Through the analysis in the Initial Study (provided as Appendix A), it was determined that the FMP projects would not:

- Have a substantial adverse effect relative to surface rupture, strong ground shaking, seismic-related ground failure, including liquefaction, and landslides.
- Become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse.
- Be located on expansive soils, creating substantial direct or indirect risks to life or property.
- Use septic tanks or alternative waste water disposal systems.

Accordingly, these issues are not further analyzed in this program environmental impact report (PEIR). Based on the remaining thresholds, a significant impact related to geology and soils would occur if the project would:

1. Result in substantial soil erosion or the loss of topsoil.
2. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

4.6.4 Impacts Analysis

1.. Would the project result in substantial soil erosion or the loss of topsoil?

Construction

Less-than-Significant Impact. Implementation of the proposed FMP would involve a variety of construction methods that would occur over a 20-year planning period. General construction activities would include installation of new structures, structural rehabilitation, interior pipeline lining, potential pipe removal, manhole repair or replacement, and manhole removal with associated demolition. Construction methods would include temporary aboveground sewer bypassing, open-trench excavation for new sewer extensions or replacement, shoring, dewatering, and potential microtunneling and jack and bore methods for installation at sensitive crossings (e.g., busy intersections, railroad spurs, freeways, or flood control channels). These construction activities and methods could result in temporary, short-term impacts related to soil erosion and possible off-site sedimentation of downstream drainages, creeks, the Santa Ana River, and ultimately the Pacific Ocean. FMP projects that would result in ground-disturbing activities in excess of 1 acre, including pipeline rehabilitation projects that cumulatively disturb 1 acre or more of land, would be required to implement a SWPPP in accordance with Construction General Permit requirements to mitigate construction-related sedimentation and siltation impacts. Due to the discontinuous nature and timeline of the FMP projects (over a 20-year span), a new SWPPP would be required for each of these projects.

All FMP projects would be completed in accordance with the County's NPDES Program and associated ESCP. The ESCP would require that all sediment from areas disturbed by construction activities be retained on site using an effective combination of erosion and sediment control BMPs to reduce off-site sedimentation to the maximum extent practicable. In addition, depending on the size and priority of the project, additional erosion control methods may be required. (See Section 4.9, Hydrology and Water Quality for additional information).

For projects requiring less than 1 acre of ground disturbance (i.e., a SWPPP is not required under the Construction General Permit) and located in municipalities lacking requirements for completion of erosion control plans, construction-related erosion could result in potentially significant impacts. However, ground-disturbance activities in these areas would be required to implement a Sanitation District Stormwater Pollution Control Plan in accordance with Sanitation District standard practices. (See Section 4.9, Hydrology and Water Quality for additional information). Implementation of the Stormwater Pollution Control Plan would ensure that standard construction BMPs are included to address sedimentation and erosion from construction activities, consistent with the County's NPDES Program and DAMP. These BMPs, when coupled with state, County, and city construction guidelines, including the County's ESCP, local erosion control plans, and SWPPPs, would reduce soil erosion and loss during construction, and impacts would be less than significant.

Operations

Less-than-Significant Impact. Ongoing activities related to operation and maintenance of FMP facilities would include routine maintenance, cleaning sewer lines and manholes, visual inspections, closed-circuit television and camera inspection, flow monitoring, as needed repairs, and chemical dosing for odor and corrosion control. The frequency of maintenance of activities would vary by facility and be based on

information obtained from ongoing monitoring activities. Operation and maintenance activities generally require confined-space entry and can be completed with minimal disruption to surrounding areas.

Corrective maintenance could potentially include the repair or replacement of failed pumps, pipe segments, and manholes; replacement of manhole covers; and root cutting and root foaming with herbicide. Additionally, chemicals, such as magnesium hydroxide, hydrogen peroxide, sodium hydroxide, and ferrous chloride, might be added directly to trunk sewers and at various facilities within Reclamation Plant No. 1 (Plant 1) and Treatment Plant No. 2 (Plant 2), as needed, to control odor and corrosion. However, corrective actions are not expected to result in substantial ground-disturbing activities. In addition, operations and maintenance activities are not expected to change from the activities that are currently ongoing in the system.

As such, long-term operation of the FMP projects would not result in substantial soil erosion or loss of topsoil, since the majority of the FMP project sites would be covered by structures and paving, and the remaining portions of the sites would remain unchanged from existing conditions. No exposed areas subject to erosion would be created or affected by proposed FMP projects. In addition, the majority of the area surrounding FMP project sites is completely developed and would not be susceptible to indirect erosional processes (e.g., uncontrolled runoff) caused by the projects. Therefore, impacts would be less than significant related to erosion or loss of topsoil, and no mitigation is required.

2. Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Less-than-Significant Impact with Mitigation Incorporated. No paleontological resources are documented within the FMP area and a 0.33-mile-radius buffer. However, paleontological resources are known from fossil localities in proximity to the FMP area (McLeod 2019; Appendix H). Shallow excavations within mapped areas of low paleontological resources sensitivity (e.g., younger, Holocene-age Quaternary alluvium) are unlikely to uncover any significant paleontological resources. However, sedimentary deposits mapped as moderate to high paleontological resources sensitivity may be impacted at an unknown depth below native topsoil, artificial fill, or younger Quaternary alluvium; therefore, ground-disturbing pipeline, pump station, or equipment replacement activities within these areas may encounter important and unique paleontological resources. Thus, potential ground-disturbing activities allowed under the Sanitation District's FMP where moderate to high paleontological resource sensitivity geological units occur could result in a potentially significant paleontological resource impact. Refer to Figure 4.6-1, Paleontological Sensitivity, for the location of areas with moderate to high paleontological sensitivity. The paleontological resources sensitivity map (Figure 4.6-1) for the FMP area is based on published geological mapping (Morton and Miller 2006) and paleontological sensitivity categories set forth in the County of Orange Archaeological/Paleontological Curation: Final Guidelines, Procedures, and Policies (Eisentraut and Cooper 2002; Rivin and Sutton 2010). For those areas requiring mitigation (e.g., areas of moderate and high paleontological sensitivity), **Mitigation Measure (MM) GEO-1** would be required (Figure 4.6-1). An area of no paleontological resource sensitivity would require no mitigation. Therefore, impacts would be less than significant with mitigation incorporated.

4.6.5 Mitigation Measures

MM-GEO-1 **Paleontological Resources.** Prior to commencement of any ground-disturbing activity in areas of moderate to high paleontological sensitivity, the Orange County Sanitation District shall retain a qualified paleontologist per the 2010 Society of Vertebrate Paleontology guidelines. The paleontologist shall prepare a paleontological resources impact mitigation program for the project that reduces all impacts to less than significant. The paleontological resources impact mitigation program shall be consistent with the Society of Vertebrate Paleontology guidelines and shall include: requirements for preconstruction meeting attendance and worker environmental awareness training, where monitoring is required within the project area based on construction plans and/or geotechnical reports; procedures for adequate paleontological monitoring and discoveries treatment; and paleontological methods (including sediment sampling for microvertebrate fossils), reporting, and collections management. The qualified paleontologist shall attend the preconstruction meeting, and a paleontological monitor under the direction of the qualified paleontologist shall be on site during initial ground-disturbing activities in areas of previously undisturbed moderate and/or high paleontological resources sensitivity. In the event that paleontological resources (e.g., fossils) are unearthed, the paleontological monitor shall temporarily halt and/or divert ground-disturbing activity to allow recovery of paleontological resources. The area of discovery shall be roped off with a 50-foot-radius buffer. Once documentation and collection of the find is completed, the paleontological monitor shall allow ground-disturbing activities to recommence in the area of the find.

4.6.6 Level of Significance After Mitigation

Implemention of BMPs would ensure effective control of incidental releases of sediment into the environment during construction activities, such that impacts would be less than significant. In addition, incorporation of a paleontological resources impact mitigation program and associated paleontological monitoring of ground disturbance in moderate and/or high paleontological resources sensitivity, as outlined in **MM-GEO-1**, would ensure that impacts to scientifically significant paleontological resources would be less than significant after mitigation.

4.6.7 Cumulative Impacts

Potential cumulative impacts on geology and soils would result from FMP projects that collectively could contribute to substantial, regional erosion. To reduce potential cumulative impacts related to erosion, all FMP projects would be required to adhere to all relevant local construction guidelines, including the County's NPDES Program, DAMP, and municipal erosion control plans. In addition, FMP projects that would result in land disturbance activities in exceedance of 1 acre or more would be required to adhere to BMPs per the most recent version of the Construction General Permit to prevent substantial on- and off-site erosion. FMP projects involving ground disturbance less than 1 acre would incorporate Sanitation District standard practices to minimize erosion. Therefore, a potential cumulative impact related to site-specific geology and soils, such as soil erosion, would not occur. Similarly, potential paleontological cumulative impacts would be reduced through implementation of **MM-GEO-1** and a paleontological resources impact mitigation program and paleontological monitoring of individual projects where ground-disturbing activities would impact geological units with moderate to high paleontological sensitivity.

As a result, the FMP projects, in combination with other cumulative projects, would not contribute to a significant cumulative impact associated with geology and soils.

4.6.8 Impact Summary

Table 4.6-2 summarizes the impacts for the FMP projects assessed at the project level at Plant 1, Plant 2, joint plant projects, and collection system projects under each threshold analyzed in this PEIR.

Table 4.6-2. Summary of FMP Project Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
Would the project result in substantial soil erosion or the loss of topsoil?					
Plant 1					
P1-126	Primary Clarifiers Replacements and Improvements	Replace	Less than Significant	—	Less than Significant
X-093	Administrative Facilities and Power Building 3A Demolition	Misc. (Demo)	Less than Significant	—	Less than Significant
X-092	Standby Generator Feeders for Plant 1 Secondary Systems	Misc.	Less than Significant	—	Less than Significant
X-048	Activated Sludge (AS)-1 Aeration Basin and Blower Rehabilitation	Rehab	Less than Significant	—	Less than Significant
P1-135	Digester Ferric Piping Replacement	Replace	Less than Significant	—	Less than Significant
X-077	Switchgear Replacement at Central Generation	Replace	Less than Significant	—	Less than Significant
X-090	Network, Telecommunications, and Service Relocation at Plant 1	Misc.	Less than Significant	—	Less than Significant
Plant 2					
P2-126	Substation and Warehouse Replacement at Plant 2	Misc.	Less than Significant	—	Less than Significant
P2-138	Operations and Maintenance Complex at Plant 2	Replace	Less than Significant	—	Less than Significant
X-050	Activated Sludge (AS) Aeration Basin	Rehab	Less than Significant	—	Less than Significant
X-032	Truck Loading Facility Rehabilitation	Rehab	Less than Significant	—	Less than Significant
X-054	Waste Side-Stream Pump Station C Rehabilitation	Rehab	Less than Significant	—	Less than Significant
X-034	Sodium Bisulfite Station Replacement and Bleach Station Demolition	Replace	Less than Significant	—	Less than Significant
Joint Plant Projects					
J-98	Plantwide Miscellaneous Electrical Power Distribution System Improvements	Replace	Less than Significant	—	Less than Significant
J-120	Plantwide Miscellaneous Process Control Systems Upgrades	Replace	Less than Significant	—	Less than Significant

Table 4.6-2. Summary of FMP Project Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
J-133	Laboratory Rehabilitation or Replacement at Plant 1	Rehab	Less than Significant	—	Less than Significant
X-057	Plantwide Miscellaneous Yard Structures Rehabilitation or Replacement	Misc.	Less than Significant	—	Less than Significant
X-058	Plantwide Miscellaneous Yard Piping Replacement	Replace	Less than Significant	—	Less than Significant
X-059	Plantwide Miscellaneous Tunnels Rehabilitation	Rehab	Less than Significant	—	Less than Significant
J-121	UPS System Upgrades	Replace	Less than Significant	—	Less than Significant
X-044	Steve Anderson Lift Station Rehabilitation	Rehab	Less than Significant	—	Less than Significant
Collection System Projects					
5-68	Newport Beach Pump Station Odor Control Improvements	Misc.	Less than Significant	—	Less than Significant
X-076	Santa Ana Trunk Sewer Rehabilitation Phase II	Rehab	Less than Significant	—	Less than Significant
X-082	North Trunk Improvement Project	Replace	Less than Significant	—	Less than Significant
X-060	Newhope Placentia Chemical Dosing Station	Misc.	Less than Significant	—	Less than Significant
11-33	Edinger Pumping Station Replacement	Replace	Less than Significant	—	Less than Significant
X-063	South Santa Ana River Interceptor Connector Rehabilitation	Rehab	Less than Significant	—	Less than Significant
2-73	Yorba Linda Pump Station Abandonment	Misc.	Less than Significant	—	Less than Significant
3-67	Seal Beach Pump Station Replacement	Replace	Less than Significant	—	Less than Significant
2-49	Taft Branch Sewer Improvements	Replace	Less than Significant	—	Less than Significant
X-083	Greenville–Sullivan Sewer Relief Project	Replace	Less than Significant	—	Less than Significant
Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?					
Plant 1					
P1-126	Primary Clarifiers Replacements and Improvements	Replace	Less than Significant	—	Less than Significant
X-093	Administrative Facilities and Power Building 3A Demolition	Misc. (Demo)	Less than Significant	—	Less than Significant
X-092	Standby Generator Feeders for Plant 1 Secondary Systems	Misc.	Less than Significant	—	Less than Significant

Table 4.6-2. Summary of FMP Project Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
X-048	Activated Sludge (AS)-1 Aeration Basin and Blower Rehabilitation	Rehab	Less than Significant	—	Less than Significant
P1-135	Digester Ferric Piping Replacement	Replace	Less than Significant	—	Less than Significant
X-077	Switchgear Replacement at Central Generation	Replace	Less than Significant	—	Less than Significant
X-090	Network, Telecommunications, and Service Relocation at Plant 1	Misc.	Less than Significant	—	Less than Significant
Plant 2					
P2-126	Substation and Warehouse Replacement at Plant 2	Misc.	Less than Significant	—	Less than Significant
P2-138	Operations and Maintenance Complex at Plant 2	Replace	Less than Significant	—	Less than Significant
X-050	Activated Sludge (AS) Aeration Basin	Rehab	Less than Significant	—	Less than Significant
X-032	Truck Loading Facility Rehabilitation	Rehab	Less than Significant	—	Less than Significant
X-054	Waste Side-Stream Pump Station C Rehabilitation	Rehab	Less than Significant	—	Less than Significant
X-034	Sodium Bisulfite Station Replacement and Bleach Station Demolition	Replace	Less than Significant	—	Less than Significant
Joint Plant Projects					
J-98	Plantwide Miscellaneous Electrical Power Distribution System Improvements	Replace	Less than Significant	—	Less than Significant
J-120	Plantwide Miscellaneous Process Control Systems Upgrades	Replace	Less than Significant	—	Less than Significant
J-133	Laboratory Rehabilitation or Replacement at Plant 1	Rehab	Less than Significant	—	Less than Significant
X-057	Plantwide Miscellaneous Yard Structures Rehabilitation or Replacement	Misc.	Less than Significant	—	Less than Significant
X-058	Plantwide Miscellaneous Yard Piping Replacement	Replace	Less than Significant	—	Less than Significant
X-059	Plantwide Miscellaneous Tunnels Rehabilitation	Rehab	Less than Significant	—	Less than Significant
J-121	UPS System Upgrades	Replace	Less than Significant	—	Less than Significant
X-044	Steve Anderson Lift Station Rehabilitation	Rehab	Less than Significant	—	Less than Significant
Collection System Projects					
5-68	Newport Beach Pump Station Odor Control Improvements	Misc.	Significant	MM-GEO-1	Less than Significant
X-076	Santa Ana Trunk Sewer Rehabilitation Phase II	Rehab	Less than Significant	—	Less than Significant

Table 4.6-2. Summary of FMP Project Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
X-082	North Trunk Improvement Project	Replace	Significant	MM-GEO-1	Less than Significant
X-060	Newhope Placentia Chemical Dosing Station	Misc.	Less than Significant	—	Less than Significant
11-33	Edinger Pumping Station Replacement	Replace	Less than Significant	—	Less than Significant
X-063	South Santa Ana River Interceptor Connector Rehabilitation	Rehab	Less than Significant	—	Less than Significant
2-73	Yorba Linda Pump Station Abandonment	Misc.	Less than Significant	—	Less than Significant
3-67	Seal Beach Pump Station Replacement	Replace	Less than Significant	—	Less than Significant
2-49	Taft Branch Sewer Improvements	Replace	Significant	MM-GEO-1	Less than Significant
X-083	Greenville–Sullivan Sewer Relief Project	Replace	Less than Significant	—	Less than Significant

Note: UPS = uninterruptible power system.

4.6.9 References

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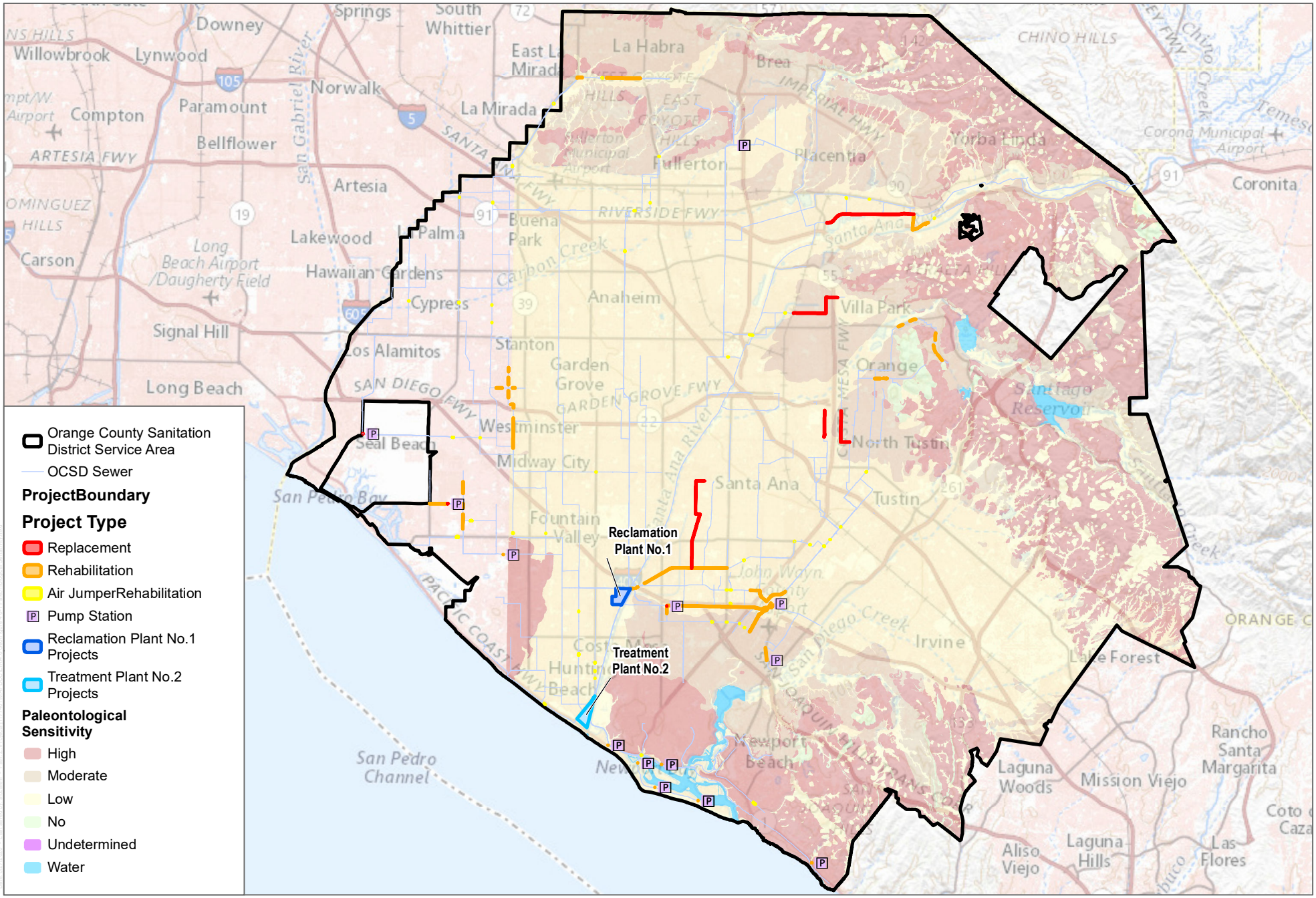

SOURCE: California Geological Survey

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FIGURE 4.6-1

Paleontological Sensitivity

Sanitation District Facilities Master Plan PEIR

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4.7 Greenhouse Gas Emissions

This section describes the existing conditions related to greenhouse gas (GHG) emissions, identifies associated regulatory requirements, evaluates potential GHG emissions impacts, and identifies mitigation measures related to implementation of the proposed Facilities Master Plan (FMP).

4.7.1 Existing Conditions

4.7.1.1 Climate Change Overview

Climate change refers to any significant change in measures of climate, such as temperature, precipitation, or wind patterns, lasting for an extended period of time (decades or longer). The Earth's temperature depends on the balance between energy entering and leaving the planet's system. Many factors, both natural and human, can cause changes in Earth's energy balance, including variations in the sun's energy reaching Earth, changes in the reflectivity of Earth's atmosphere and surface, and changes in the greenhouse effect, which affects the amount of heat retained by Earth's atmosphere (EPA 2017a).

The greenhouse effect is the trapping and build-up of heat in the atmosphere (troposphere) near the Earth's surface. The greenhouse effect traps heat in the troposphere through a threefold process as follows: short-wave radiation emitted by the Sun is absorbed by the Earth, the Earth emits a portion of this energy in the form of long-wave radiation, and GHGs in the upper atmosphere absorb this long-wave radiation and emit it into space and toward the Earth. The greenhouse effect is a natural process that contributes to regulating the Earth's temperature and creates a pleasant, livable environment on the Earth. Human activities that emit additional GHGs to the atmosphere increase the amount of infrared radiation that gets absorbed before escaping into space, thus enhancing the greenhouse effect and causing the Earth's surface temperature to rise.

The scientific record of the Earth's climate shows that the climate system varies naturally over a wide range of time scales and that, in general, climate changes prior to the Industrial Revolution in the 1700s can be explained by natural causes, such as changes in solar energy, volcanic eruptions, and natural changes in GHG concentrations. Recent climate changes, in particular the warming observed over the past century, however, cannot be explained by natural causes alone. Rather, it is extremely likely that human activities have been the dominant cause of that warming since the mid-twentieth century and is the most significant driver of observed climate change (IPCC 2013; EPA 2017a). Human influence on the climate system is evident from the increasing GHG concentrations in the atmosphere, positive radiative forcing, observed warming, and improved understanding of the climate system (IPCC 2013). The atmospheric concentrations of GHGs have increased to levels unprecedented in the last 800,000 years, primarily from fossil fuel emissions and secondarily from emissions associated with land use changes (IPCC 2013). Continued emissions of GHGs will cause further warming and changes in all components of the climate system.

4.7.1.2 Greenhouse Gases

A GHG is any gas that absorbs infrared radiation in the atmosphere; in other words, GHGs trap heat in the atmosphere. As defined in California Health and Safety Code Section 38505(g), for purposes of administering many of the state's primary GHG emissions reduction programs, GHGs include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF_6), and nitrogen

trifluoride (NF_3) (see also 14 CCR 15364.5).[1] Some GHGs, such as CO_2, CH_4, and N_2O, are emitted into the atmosphere through natural processes and human activities. Of these gases, CO_2 and CH_4 are emitted in the greatest quantities from human activities. Manufactured GHGs, which have a much greater heat-absorption potential than CO_2, include fluorinated gases, such as HFCs, PFCs, and SF_6, which are associated with certain industrial products and processes. The following paragraphs provide a summary of the most common GHGs and their sources.[2]

Carbon Dioxide. CO_2 is a naturally occurring gas and a by-product of human activities and is the principal anthropogenic GHG that affects the Earth's radiative balance. Natural sources of CO_2 include respiration of bacteria, plants, animals, and fungus; evaporation from oceans; volcanic out-gassing; and decomposition of dead organic matter. Human activities that generate CO_2 are from the combustion of fuels such as coal, oil, natural gas, and wood and changes in land use.

Methane. CH_4 is produced through both natural and human activities. CH_4 is a flammable gas and is the main component of natural gas. Methane is produced through anaerobic (without oxygen) decomposition of waste in landfills, flooded rice fields, animal digestion, decomposition of animal wastes, production and distribution of natural gas and petroleum, coal production, and incomplete fossil fuel combustion.

Nitrous Oxide. N_2O is produced through natural and human activities, mainly through agricultural activities and natural biological processes, although fuel burning and other processes also create N_2O. Sources of N_2O include soil cultivation practices (microbial processes in soil and water), especially the use of commercial and organic fertilizers, manure management, industrial processes (such as in nitric acid production, nylon production, and fossil-fuel-fired power plants), vehicle emissions, and using N_2O as a propellant (such as in rockets, racecars, and aerosol sprays).

Fluorinated Gases. Fluorinated gases (also referred to as F-gases) are synthetic powerful GHGs emitted from many industrial processes. Fluorinated gases are commonly used as substitutes for stratospheric ozone-depleting substances (e.g., CFCs, hydrochlorofluorocarbons [HCFCs], and halons). The most prevalent fluorinated gases include the following:

- **Hydrofluorocarbons:** HFCs are compounds containing only hydrogen, fluorine, and carbon atoms. HFCs are synthetic chemicals used as alternatives to ozone-depleting substances in serving many industrial, commercial, and personal needs. HFCs are emitted as by-products of industrial processes and are used in manufacturing.
- **Perfluorocarbons:** PFCs are a group of human-made chemicals composed of carbon and fluorine only. These chemicals were introduced as alternatives, with HFCs, to the ozone depleting substances. The two main sources of PFCs are primary aluminum production and semiconductor manufacturing. Since PFCs have stable molecular structures and do not break down through the chemical processes in the lower atmosphere, these chemicals have long lifetimes, ranging between 10,000 and 50,000 years.

[1] Climate forcing substances include GHGs and other substances such as black carbon and aerosols. This discussion focuses on the seven GHGs identified in the California Health and Safety Code Section 38505, because impacts associated with other climate forcing substances are not evaluated herein.

[2] The descriptions of GHGs are summarized from the Intergovernmental Panel on Climate Change's Second Assessment Report and Fourth Assessment Report (IPCC 1995, 2007), the California Air Resources Board's Glossary of Terms Used in GHG Inventories (CARB 2018), and the U.S. Environmental Protection Agency's Glossary of Climate Change Terms (EPA 2016).

- **Sulfur Hexafluoride:** SF_6 is a colorless gas soluble in alcohol and ether and slightly soluble in water. SF_6 is used for insulation in electric power transmission and distribution equipment, semiconductor manufacturing, the magnesium industry, and as a tracer gas for leak detection.
- **Nitrogen Trifluoride:** NF_3 is used in the manufacture of a variety of electronics, including semiconductors and flat panel displays.

Chlorofluorocarbons. CFCs are synthetic chemicals that have been used as cleaning solvents, refrigerants, and aerosol propellants. CFCs are chemically unreactive in the lower atmosphere (troposphere) and the production of CFCs was prohibited in 1987 due to the chemical destruction of stratospheric O_3.

Hydrochlorofluorocarbons. HCFCs are a large group of compounds, whose structure is very close to that of CFCs—containing hydrogen, fluorine, chlorine, and carbon atoms—but including one or more hydrogen atoms. Like HFCs, HCFCs are used in refrigerants and propellants. HCFCs were also used in place of CFCs for some applications; however, their use in general is being phased out.

Black Carbon. Black carbon is a component of fine particulate matter, which has been identified as a leading environmental risk factor for premature death. It is produced from the incomplete combustion of fossil fuels and biomass burning, particularly from older diesel engines and forest fires. Black carbon warms the atmosphere by absorbing solar radiation, influences cloud formation, and darkens the surface of snow and ice, which accelerates heat absorption and melting. Black carbon is a short-lived species that varies spatially, which makes it difficult to quantify the global warming potential. Diesel particulate matter emissions are a major source of black carbon and are toxic air contaminants that have been regulated and controlled in California for several decades to protect public health. In relation to declining diesel particulate matter from the California Air Resources Board's (CARB's) regulations pertaining to diesel engines, diesel fuels, and burning activities, CARB estimates that annual black carbon emissions in California have reduced by 70% between 1990 and 2010, with 95% control expected by 2020 (CARB 2014).

Water Vapor. The primary source of water vapor is evaporation from the ocean, with additional vapor generated by sublimation (change from solid to gas) from ice and snow, evaporation from other water bodies, and transpiration from plant leaves. Water vapor is the most important, abundant, and variable GHG in the atmosphere and maintains a climate necessary for life.

Ozone. Tropospheric O_3, which is created by photochemical reactions involving gases from both natural sources and human activities, acts as a GHG. Stratospheric O_3, which is created by the interaction between solar ultraviolet radiation and molecular oxygen (O_2), plays a decisive role in the stratospheric radiative balance. Depletion of stratospheric O_3, due to chemical reactions that may be enhanced by climate change, results in an increased ground-level flux of ultraviolet-B radiation.

Aerosols. Aerosols are suspensions of particulate matter in a gas emitted into the air through burning biomass (plant material) and fossil fuels. Aerosols can warm the atmosphere by absorbing and emitting heat and can cool the atmosphere by reflecting light.

4.7.1.3 Global Warming Potential

Gases in the atmosphere can contribute to climate change both directly and indirectly. Direct effects occur when the gas itself absorbs radiation. Indirect radiative forcing occurs when chemical transformations of the substance produce other GHGs, when a gas influences the atmospheric lifetimes of other gases, and/or when a gas affects

atmospheric processes that alter the radiative balance of the Earth (e.g., affect cloud formation or albedo) (EPA 2020). The Intergovernmental Panel on Climate Change (IPCC) developed the global warming potential (GWP) concept to compare the ability of each GHG to trap heat in the atmosphere relative to another gas. The GWP of a GHG is defined as the ratio of the time-integrated radiative forcing from the instantaneous release of 1 kilogram of a trace substance relative to that of 1 kilogram of a reference gas (IPCC 2014). The reference gas used is CO_2; therefore, GWP-weighted emissions are measured in metric tons of CO_2 equivalent (MT CO_2e).

The current version of the California Emissions Estimator Model (CalEEMod) (Version 2016.3.2) assumes that the GWP for CH_4 is 25 (so emissions of 1 MT of CH_4 are equivalent to emissions of 25 MT of CO_2), and the GWP for N_2O is 298, based on the IPCC's Fourth Assessment Report (IPCC 2007). The GWP values identified in CalEEMod were applied to the FMP projects.

4.7.1.4 Sources of Greenhouse Gas Emissions

Per the U.S. Environmental Protection Agency (EPA) Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2018 (EPA 2020), total United States GHG emissions were approximately 6,676.6 million metric tons (MMT) CO_2e in 2018 (EPA 2020). The primary GHG emitted by human activities in the United States was CO_2, which represented approximately 81.3% of total GHG emissions (5,428.1 MMT CO_2e). The largest source of CO_2, and of overall GHG emissions, was fossil-fuel combustion, which accounted for approximately 92.8% of CO_2 emissions in 2018 (5,031.8 MMT CO_2e). Relative to 1990, gross United States GHG emissions in 2018 are higher by 3.7%, down from a high of 15.2% above 1990 levels in 2007. GHG emissions decreased from 2017 to 2018 by 2.9% (188.4 MMT CO_2e) and overall, net emissions in 2018 were 10.2% below 2005 levels (EPA 2020).

According to California's 2000–2017 GHG emissions inventory (2019 edition), California emitted 424 MMT CO_2e in 2017, including emissions resulting from out-of-state electrical generation (CARB 2019). The sources of GHG emissions in California include transportation, industry, electric power production from both in-state and out-of-state sources, residential and commercial activities, agriculture, high GWP substances, and recycling and waste. The California GHG emission source categories and their relative contributions in 2017 are presented in Table 4.7-1.

Table 4.7-1. Greenhouse Gas Emissions Sources in California

Source Category	Annual GHG Emissions (MMT CO_2e)	Percent of Total[a]
Transportation	169.86	40%
Industrial	89.40	21%
Electric power[b]	62.39	15%
Agriculture	32.42	8%
Residential	26.00	6%
Commercial	15.14	4%
High global-warming potential substances	19.99	5%
Recycling and waste	8.89	2%
Total	**424.10**	**100%**

Source: CARB 2019.
Notes: GHG = greenhouse gas; MMT CO_2e = million metric tons of carbon dioxide equivalent per year.
Emissions reflect the 2017 California GHG inventory.
[a] Percentage of total has been rounded, and total may not sum due to rounding.
[b] Includes emissions associated with imported electricity, which account for 26.28 MMT CO_2e annually.

Between 2000 and 2017, per-capita GHG emissions in California have dropped from a peak of 14.1 MT per person in 2001 to 10.7 MT per person in 2017, representing a 24% decrease. In addition, total GHG emissions in 2017 were approximately 5 MMT CO_2e less than 2016 emissions (CARB 2019).

As explained in more detail in Section 4.7.2, the Cities of Fullerton, Huntington Beach, La Habra, and Santa Ana, where FMP components are located, have adopted GHG emission reduction plans, such as a Climate Action Plan (CAP), which include local GHG emission inventories. The GHG inventories for these cities for their selected inventory year are as follows: 1,711,836 MT CO_2e for the City of Fullerton in 2009 (City of Fullerton 2012), 1,432,540 MT CO_2e for the City of Huntington Beach in 2012 (City of Huntington Beach 2017), 284,089 MT CO_2e for the City of La Habra in 2010 (City of La Habra 2014), and 1,959,431 for the City of Santa Ana in 2008 (City of Santa Ana 2015).

4.7.1.5 Potential Effects of Climate Change

Globally, climate change has the potential to affect numerous environmental resources through uncertain impacts related to future air temperatures and precipitation patterns. The 2014 IPCC Synthesis Report (IPCC 2014) indicated that warming of the climate system is unequivocal, and since the 1950s, many of the observed changes are unprecedented over decades to millennia. Signs that global climate change has occurred include warming of the atmosphere and ocean, diminished amounts of snow and ice, rising sea levels, and ocean acidification (IPCC 2014).

In California, climate change impacts have the potential to affect sea-level rise, agriculture, snowpack and water supply, forestry, wildfire risk, public health, frequency of severe weather events, and electricity demand and supply. The primary effect of global climate change has been a rise in average global tropospheric temperature. Reflecting the long-term warming trend since pre-industrial times, observed global mean surface temperature for the decade 2006–2015 was 0.87°C (likely between 0.75°C and 0.99°C) higher than the average over the 1850–1900 period (IPCC 2018). Scientific modeling predicts that continued emissions of GHGs at or above current rates would induce more extreme climate changes during the twenty-first century than were observed during the twentieth century. Human activities are estimated to have caused approximately 1.0°C (1.8°F) of global warming above pre-industrial levels, with a likely range of 0.8°C to 1.2°C (1.4°F to 2.2°F) (IPCC 2018). Global warming is likely to reach 1.5°C (2.7°F) between 2030 and 2052 if it continues to increase at the current rate (IPCC 2018).

Although climate change is driven by global atmospheric conditions, climate change impacts are felt locally. A scientific consensus confirms that climate change is already affecting California. The Office of Environmental Health Hazard Assessment identified various indicators of climate change in California, which are scientifically based measurements that track trends in various aspects of climate change. Many indicators reveal discernible evidence that climate change is occurring in California and is having significant, measurable impacts in the state. Changes in the state's climate have been observed including an increase in annual average air temperature with record warmth from 2012 to 2016, more frequent extreme heat events, more extreme drought, a decline in winter chill, an increase in cooling degree days and a decrease in heating degree days, and an increase in variability of statewide precipitation (OEHHA 2018).

Warming temperatures and changing precipitation patterns have altered California's physical systems—the ocean, lakes, rivers and snowpack—upon which the state depends. Winter snowpack and spring snowmelt runoff from the Sierra Nevada and southern Cascade Mountains provide approximately one-third of the state's annual water supply. Impacts of climate on physical systems have been observed such as high variability of snow-water content (i.e., amount of water stored in snowpack), decrease in spring snowmelt runoff, glacier change (loss in area), rise in sea levels, increase in average lake water temperature and coastal ocean temperature, and a decrease in dissolved oxygen in coastal waters (OEHHA 2018).

Impacts of climate change on biological systems, including humans, wildlife, and vegetation, have also been observed including climate change impacts on terrestrial, marine, and freshwater ecosystems. As with global observations, species responses include those consistent with warming: elevational or latitudinal shifts in range, changes in the timing of key plant and animal life cycle events, and changes in the abundance of species and in community composition. Humans are better able to adapt to a changing climate than plants and animals in natural ecosystems. Nevertheless, climate change poses a threat to public health as warming temperatures and changes in precipitation can affect vector-borne pathogen transmission and disease patterns in California as well as the variability of heat-related deaths and illnesses. In addition, since 1950, the area burned by wildfires each year has been increasing.

The California Natural Resources Agency (CNRA) has released four California Climate Change Assessments (2006, 2009, 2012, and 2018), which have addressed the following: acceleration of warming across the state, more intense and frequent heat waves, greater riverine flows, accelerating sea level rise, more intense and frequent drought, more severe and frequent wildfires, more severe storms and extreme weather events, shrinking snowpack and less overall precipitation, and ocean acidification, hypoxia, and warming. To address local and regional governments' need for information to support action in their communities, the Fourth Assessment (CNRA 2018a) includes reports for nine regions of the state, including the Los Angeles Region, which includes Orange County where the FMP projects are located. Key projected climate changes for the Los Angeles Region include the following (CNRA 2018a):

- Continued future warming over the Los Angeles region. Across the region, average maximum temperatures are projected to increase around 4°F to 5°F by the mid-century, and 5°F to 8°F by the late-century.
- Extreme temperatures are also expected to increase. The hottest day of the year may be up to 10°F warmer for many locations across the Los Angeles region by the late century under certain model scenarios. The number of extremely hot days is also expected to increase across the region.
- Despite small changes in average precipitation, dry and wet extremes are both expected to increase. By the late twenty-first century, the wettest day of the year is expected to increase across most of the Los Angeles region, with some locations experiencing 25% to 30% increases under certain model scenarios. Increased frequency and severity of atmospheric river events are also projected to occur for this region.
- Sea levels are projected to continue to rise in the future, but there is a large range based on emissions scenario and uncertainty in feedbacks in the climate system. Roughly 1 feet to 2 feet of sea level rise is projected by the mid-century, and the most extreme projections lead to 8 feet to 10 feet of sea level rise by the end of the century.
- Projections indicate that wildfire may increase over southern California, but there remains uncertainty in quantifying future changes of burned area over the Los Angeles region.

4.7.2 Relevant Plans, Policies, and Ordinances

International

United Nations Framework Convention on Climate Change, Kyoto Protocol, and Paris Agreement

In 1992, numerous countries joined an international treaty—the United Nations Framework Convention on Climate Change (UNFCCC)—as a framework for international cooperation to combat climate change by limiting average global temperature increases and the resulting climate change, and coping with associated impacts. Currently, there are 197 Parties (196 States and 1 regional economic integration organization) in the UNFCCC (UNFCCC 2019).

By 1995, countries launched negotiations to strengthen the global response to climate change, and, 2 years later, adopted the Kyoto Protocol, which was the first international agreement to regulate GHG emissions. The Kyoto Protocol legally binds developed country Parties to emission reduction targets. The Protocol's first commitment period started in 2008 and ended in 2012. The second commitment period began on January 1, 2013, and will end in 2020. More than 160 countries signed the Kyoto Protocol (UNFCCC 2019). In 2001, President George W. Bush indicated that he would not submit the treaty to the U.S. Senate for ratification, which effectively ended the United States' involvement in the Kyoto Protocol.

The 2015 Paris Agreement, adopted in Paris on December 12, 2015, marks the latest step in the evolution of the United Nations' climate change regime and builds on the work undertaken under the UNFCCC. The Paris Agreement charts a new course in the global effort to combat climate change. The Paris Agreement's central aim is to strengthen the global response to the threat of climate change by keeping a global temperature rise this century well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5°C (UNFCCC 2019). The Paris Agreement also aims to strengthen the ability of countries to deal with the impacts of climate change. The Paris Agreement requires all Parties to put forward their best efforts through nationally determined contributions and to strengthen these efforts in the years ahead.

The Paris Agreement entered into force on November 4, 2016, 30 days after the date on which at least 55 Parties to the UNFCCC, accounting in total for at least an estimated 55% of the total global GHG emissions, deposited their instruments of ratification, acceptance, approval or accession with the Depositary (UNFCCC 2019). On November 4, 2019, the Trump Administration gave formal notice of intention to withdraw from the Paris Agreement; however, withdrawal becomes effective one year after notification (in November 2020).

Federal

Massachusetts v. EPA

In *Massachusetts v. EPA* (April 2007), the U.S. Supreme Court directed the EPA administrator to determine whether GHG emissions from new motor vehicles cause or contribute to air pollution that may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision. In December 2009, the administrator signed a final rule with the following two distinct findings regarding GHGs under Section 202(a) of the federal Clean Air Act:

- The administrator found that elevated concentrations of GHGs—CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6—in the atmosphere threaten the public health and welfare of current and future generations. This is the "endangerment finding."
- The administrator further found the combined emissions of GHGs—CO_2, CH_4, N_2O, and HFCs—from new motor vehicles and new motor vehicle engines contribute to the GHG air pollution that endangers public health and welfare. This is the "cause or contribute finding."

These two findings were necessary to establish the foundation for regulation of GHGs from new motor vehicles as air pollutants under the Clean Air Act.

Energy Independence and Security Act of 2007

The Energy Independence and Security Act of 2007 (December 2007), among other key measures, would do the following, which would aid in the reduction of national GHG emissions (EPA 2007):

- Increase the supply of alternative fuel sources by setting a mandatory Renewable Fuel Standard requiring fuel producers to use at least 36 billion gallons of biofuel in 2022.
- Set a target of 35 miles per gallon for the combined fleet of cars and light trucks by model year 2020, and directs National Highway Traffic Safety Administration (NHTSA) to establish a fuel economy program for medium- and heavy-duty trucks and create a separate fuel economy standard for work trucks.
- Prescribe or revise standards affecting regional efficiency for heating and cooling products and procedures for new or amended standards, energy conservation, energy-efficiency labeling for consumer electronic products, residential boiler efficiency, electric motor efficiency, and home appliances.

Federal Vehicle Standards

In response to the U.S. Supreme Court ruling previously discussed, the Bush Administration issued Executive Order (EO) 13432 in 2007 directing the EPA, the Department of Transportation, and the Department of Energy to establish regulations that reduce GHG emissions from motor vehicles, non-road vehicles, and non-road engines by 2008. In 2009, the NHTSA issued a final rule regulating fuel efficiency and GHG emissions from cars and light-duty trucks for model year 2011, and in 2010, the EPA and NHTSA issued a final rule regulating cars and light-duty trucks for model years 2012–2016 (75 FR 25324–25728).

In 2010, President Barack Obama issued a memorandum directing the Department of Transportation, Department of Energy, EPA, and NHTSA to establish additional standards regarding fuel efficiency and GHG reduction, clean fuels, and advanced vehicle infrastructure. In response to this directive, EPA and NHTSA proposed stringent, coordinated federal GHG and fuel economy standards for model years 2017–2025 light-duty vehicles. The proposed standards projected to achieve 163 grams per mile of CO_2 in model year 2025, on an average industry fleet-wide basis, which is equivalent to 54.5 miles per gallon if this level were achieved solely through fuel efficiency. The final rule was adopted in 2012 for model years 2017–2021 (77 FR 62624–63200). On January 12, 2017, the EPA finalized its decision to maintain the current GHG emissions standards for model years 2022–2025 cars and light trucks (EPA 2017b).

In addition to the regulations applicable to cars and light-duty trucks described above, in 2011, the EPA and NHTSA announced fuel economy and GHG standards for medium- and heavy-duty trucks for model years 2014–2018 (76 FR 57106–57513). The standards for CO_2 emissions and fuel consumption are tailored to three main vehicle categories: combination tractors, heavy-duty pickup trucks and vans, and vocational vehicles. According to the EPA, this regulatory program will reduce GHG emissions and fuel consumption for the affected vehicles by 6%–23% over the 2010 baselines.

In August 2016, the EPA and NHTSA announced the adoption of the phase two program related to the fuel economy and GHG standards for medium- and heavy-duty trucks. The phase two program will apply to vehicles with model year 2018 through 2027 for certain trailers, and model years 2021 through 2027 for semi-trucks, large pickup trucks, vans, and all types and sizes of buses and work trucks. The final standards are expected to lower CO_2 emissions by approximately 1.1 billion MT and reduce oil consumption by up to 2 billion barrels over the lifetime of the vehicles sold under the program (EPA and NHTSA 2016).

In August 2018, EPA and NHTSA proposed to amend certain fuel economy and GHG standards for passenger cars and light trucks and establish new standards for model years 2021 through 2026. Compared to maintaining the post-2020 standards now in place, the 2018 proposal would increase U.S. fuel consumption by about half a million barrels per day (2%–3% of total daily consumption, according to the Energy Information Administration) and would impact the global climate by 3/1000th of one degree Celsius by 2100 (EPA and NHTSA 2018). California and other states have stated their intent to challenge federal actions that would delay or eliminate GHG reduction measures and have committed to cooperating with other countries to implement global climate change initiatives.

On September 27, 2019, the EPA and NHTSA published the Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule Part One: One National Program (84 FR 51310), which became effective November 26, 2019. The Part One Rule revokes California's authority to set its own GHG emissions standards and set zero-emission vehicle mandates in California. On March 31, 2020, the EPA and NHTSA issued the Part Two Rule, which will go into effect 60 days after being published in the Federal Register. The Part Two Rule sets CO_2 emissions standards and corporate average fuel economy standards for passenger vehicles and light-duty trucks for model years 2021 through 2026. This issue is evolving as California and 22 other states, as well as the District of Columbia and four cities, filed suit against the EPA and a petition for reconsideration of the rule on November 26, 2019. The litigation is not expected to be resolved for at least several months.

Clean Power Plan and New Source Performance Standards for Electric Generating Units

On October 23, 2015, EPA published a final rule (effective December 22, 2015) establishing the Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units (80 FR 64510–64660), also known as the Clean Power Plan. These guidelines prescribe how states must develop plans to reduce GHG emissions from existing fossil-fuel-fired electric generating units. The guidelines establish CO_2 emission performance rates representing the best system of emission reduction for two subcategories of existing fossil-fuel-fired electric generating units: (1) fossil-fuel-fired electric utility steam-generating units, and (2) stationary combustion turbines. Concurrently, the EPA published a final rule (effective October 23, 2015) establishing Standards of Performance for Greenhouse Gas Emissions from New, Modified, and Reconstructed Stationary Sources: Electric Utility Generating Units (80 FR 64661–65120). The rule prescribes CO_2 emission standards for newly constructed, modified, and reconstructed affected fossil-fuel-fired electric utility generating units. The U.S. Supreme Court stayed implementation of the Clean Power Plan pending resolution of several lawsuits.

State

The statewide GHG emissions regulatory framework is summarized below by category: state climate change targets, building energy, renewable energy and energy procurement, mobile sources, solid waste, water, and other state regulations and goals. The following text describes EOs, legislation, regulations, and other plans and policies that would directly or indirectly reduce GHG emissions and/or address climate change issues.

State Climate Change Targets

The state has taken a number of actions to address climate change. These include EOs, legislation, and CARB plans and requirements. These are summarized below.

EO S-3-05. EO S-3-05 (June 2005) established the following statewide goals: GHG emissions should be reduced to 2000 levels by 2010, GHG emissions should be reduced to 1990 levels by 2020, and GHG emissions should be reduced to 80% below 1990 levels by 2050.

Assembly Bill (AB) 32. In furtherance of the goals established in EO S-3-05, the legislature enacted AB 32. The bill is referred to as the California Global Warming Solutions Act of 2006 (September 27, 2006). AB 32 provided initial direction on creating a comprehensive multiyear program to limit California's GHG emissions at 1990 levels by 2020 and initiate the transformations required to achieve the state's long-range climate objectives.

CARB's 2007 Statewide Limit. In 2007, in accordance with California Health and Safety Code, Section 38550, CARB approved a statewide limit on the GHG emissions level for year 2020 consistent with the determined 1990 baseline (427 MMT CO_2e).

CARB's Climate Change Scoping Plan. One specific requirement of AB 32 is for CARB to prepare a scoping plan for achieving the maximum technologically feasible and cost-effective GHG emission reductions by 2020 (Health and Safety Code, Section 38561[a]), and to update the plan at least once every 5 years. In 2008, CARB approved the first scoping plan. The Climate Change Scoping Plan: A Framework for Change (Scoping Plan) included a mix of recommended strategies that combined direct regulations, market-based approaches, voluntary measures, policies, and other emission reduction programs calculated to meet the 2020 statewide GHG emission limit and initiate the transformations needed to achieve the state's long-range climate objectives. The key elements of the Scoping Plan include the following (CARB 2008):

1. Expanding and strengthening existing energy efficiency programs as well as building and appliance standards.
2. Achieving a statewide renewable energy mix of 33%.
3. Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system and caps sources contributing 85% of California's GHG emissions.
4. Establishing targets for transportation-related GHG emissions for regions throughout California, and pursuing policies and incentives to achieve those targets.
5. Adopting and implementing measures pursuant to existing state laws and policies, including California's clean car standards, goods movement measures, and the Low Carbon Fuel Standard (LCFS) (17 CCR, Section 95480 et seq.).
6. Creating targeted fees, including a public goods charge on water use, fees on high GWP gases, and a fee to fund the administrative costs of the State of California's long-term commitment to AB 32 implementation.

The Scoping Plan also identified local governments as essential partners in achieving California's goals to reduce GHG emissions because they have broad influence and, in some cases, exclusive authority over activities that contribute to significant direct and indirect GHG emissions through their planning and permitting processes, local ordinances, outreach and education efforts, and municipal operations. Specifically, the Scoping Plan encouraged local governments to adopt a reduction goal for municipal operations and for community emissions to reduce GHGs by approximately 15% from then levels (2008) by 2020. Many local governments developed community-scale local GHG reduction plans based on this Scoping Plan recommendation.

In 2014, CARB approved the first update to the Scoping Plan. The First Update to the Climate Change Scoping Plan: Building on the Framework (First Update) defined the state's GHG emission reduction priorities for the next 5 years and laid the groundwork to start the transition to the post-2020 goals set forth in EO S-3-05 and EO B-16-2012. The First Update concluded that California is on track to meet the 2020 target but recommended a 2030 mid-term GHG reduction target be established to ensure a continuum of action to reduce emissions (CARB 2014). The First Update recommended a mix of technologies in key economic sectors to reduce emissions through 2050 including energy demand reduction through efficiency and activity changes; large-scale electrification of on-road vehicles, buildings, and industrial machinery; decarbonizing electricity and fuel supplies;

and the rapid market penetration of efficient and clean energy technologies. As part of the First Update, CARB recalculated the state's 1990 emissions level, using more recent GWPs identified by the IPCC, from 427 MMT CO_2e to 431 MMT CO_2e (CARB 2014).

In 2015, as directed by EO B-30-15, CARB began working on an update to the Scoping Plan to incorporate the 2030 target of 40% below 1990 levels by 2030 to keep California on its trajectory toward meeting or exceeding the long-term goal of reducing GHG emissions to 80% below 1990 levels by 2050 as set forth in EO S-3-05. The governor called on California to pursue a new and ambitious set of strategies, in line with the five climate change pillars from his inaugural address, to reduce GHG emissions and prepare for the unavoidable impacts of climate change. In the summer of 2016, the legislature affirmed the importance of addressing climate change through passage of SB 32 (Chapter 249, Statutes of 2016).

In December 2017, CARB adopted the 2017 Climate Change Scoping Plan Update (2030 Scoping Plan) (CARB 2017). The 2030 Scoping Plan builds on the successful framework established in the initial Scoping Plan and First Update, while identifying new, technologically feasible and cost-effective strategies that will serve as the framework to achieve the 2030 GHG target and define the state's climate change priorities to 2030 and beyond. The strategies' known commitments include implementing renewable energy and energy efficiency (including the mandates of SB 350), increased stringency of the LCFS, measures identified in the Mobile Source and Freight Strategies, measures identified in the proposed Short-Lived Climate Pollutant Plan, and increased stringency of SB 375 targets. To fill the gap in additional reductions needed to achieve the 2030 target, it recommends continuing the cap-and-trade program and a measure to reduce GHGs from refineries by 20%.

CARB's Regulations for the Mandatory Reporting of Greenhouse Gas Emissions. CARB's Regulation for the Mandatory Reporting of Greenhouse Gas Emissions (17 CCR 95100–95157) incorporated by reference certain requirements that EPA promulgated in its Final Rule on Mandatory Reporting of Greenhouse Gases (Title 40, CFR, Part 98). Specifically, Section 95100(c) of the Mandatory Reporting Regulation incorporated those requirements that EPA promulgated in the Federal Register on October 30, 2009; July 12, 2010; September 22, 2010; October 28, 2010; November 30, 2010; December 17, 2010; and April 25, 2011. In general, entities subject to the Mandatory Reporting Regulation that emit over 10,000 MT CO_2e per year are required to report annual GHGs through the California Electronic GHG Reporting Tool. Certain sectors, such as refineries and cement plants, are required to report regardless of emission levels. Entities that emit more than the 25,000 MT CO_2e per-year threshold are required to have their GHG emission report verified by a CARB-accredited third party.

EO B-18-12. EO B-18-12 (April 2012) directed state agencies, departments, and other entities under the governor's executive authority to take action to reduce entity-wide GHG emissions by at least 10% by 2015 and 20% by 2020, as measured against a 2010 baseline. EO B-18-12 also established goals for existing state buildings for reducing grid-based energy purchases and water use.

SB 605 and SB 1383. SB 605 (2014) requires CARB to complete a comprehensive strategy to reduce emissions of short-lived climate pollutants in the state, and SB 1383 (2016) requires CARB to approve and implement that strategy by January 1, 2018. SB 1383 also establishes specific targets for the reduction of short-lived climate pollutants (40% below 2013 levels by 2030 for CH_4 and HFCs, and 50% below 2013 levels by 2030 for anthropogenic black carbon), and provides direction for reductions from dairy and livestock operations and landfills. Accordingly, and as mentioned above, CARB adopted its Short-Lived Climate Pollutant Reduction Strategy in March 2017. The Short-Lived Climate Pollutant Reduction Strategy establishes a framework for the statewide reduction of emissions of black carbon, CH_4, and fluorinated gases.

EO B-30-15. EO B-30-15 (April 2015) identified an interim GHG reduction target in support of targets previously identified under EO S-3-05 and AB 32. EO B-30-15 set an interim target goal of reducing GHG emissions to 40% below 1990 levels by 2030 to keep California on its trajectory toward meeting or exceeding the long-term goal of reducing GHG emissions to 80% below 1990 levels by 2050 as set forth in EO S-3-05. To facilitate achieving this goal, EO B-30-15 called for CARB to update the Scoping Plan to express the 2030 target in terms of MMT CO_2e. The EO also called for state agencies to continue to develop and implement GHG emission reduction programs in support of the reduction targets.

Senate Bill (SB) 32 and AB 197. SB 32 and AB 197 (enacted in 2016) are companion bills. SB 32 codified the 2030 emissions reduction goal of EO B-30-15 by requiring CARB to ensure that statewide GHG emissions are reduced to 40% below 1990 levels by 2030. AB 197 established the Joint Legislative Committee on Climate Change Policies, consisting of at least three members of the Senate and three members of the Assembly, in order to provide ongoing oversight over implementation of the state's climate policies. AB 197 also added two members of the Legislature to the CARB Board as nonvoting members; requires CARB to make available and update (at least annually via its website) emissions data for GHGs, criteria air pollutants, and TACs from reporting facilities; and requires CARB to identify specific information for GHG emissions reduction measures when updating the Scoping Plan.

EO B-55-18. EO B-55-18 (September 2018) establishes a new statewide goal "to achieve carbon neutrality as soon as possible, and no later than 2045, and achieve and maintain net negative emissions thereafter." This EO directs CARB to "work with relevant state agencies to ensure future Scoping Plans identify and recommend measures to achieve the carbon neutrality goal."

Building Energy

Title 24, Part 6. Title 24 of the California Code of Regulations was established in 1978 and serves to enhance and regulate California's building standards. While not initially promulgated to reduce GHG emissions, Part 6 of Title 24 specifically established Building Energy Efficiency Standards that are designed to ensure new and existing buildings in California achieve energy efficiency and preserve outdoor and indoor environmental quality. These energy efficiency standards are reviewed every few years by the Building Standards Commission and the California Energy Commission (CEC) (and revised if necessary) (California Public Resources Code, Section 25402[b][1]). The regulations receive input from members of industry, as well as the public, with the goal of "reducing of wasteful, uneconomic, inefficient, or unnecessary consumption of energy" (California Public Resources Code, Section 25402). These regulations are carefully scrutinized and analyzed for technological and economic feasibility (California Public Resources Code, Section 25402[d]) and cost effectiveness (California Public Resources Code, Sections 25402[b][2] and [b][3]). As a result, these standards save energy, increase electricity supply reliability, increase indoor comfort, avoid the need to construct new power plants, and help preserve the environment.

The 2019 Title 24 standards are the currently applicable building energy efficiency standards, and became effective on January 1, 2020. The 2019 Title 24 Building Energy Efficiency Standards will further reduce energy used and associated GHG emissions compared to prior standards. In general, single-family residences built to the 2019 standards are anticipated to use approximately 7% less energy due to energy efficiency measures than those built to the 2016 standards; once rooftop solar electricity generation is factored in, single-family residences built under the 2019 standards will use approximately 53% less energy than those under the 2016 standards (CEC 2018). Nonresidential buildings built to the 2019 standards are anticipated to use an estimated 30% less energy than those built to the 2016 standards (CEC 2018).

Title 24, Part 11. In addition to the CEC's efforts, in 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (Part 11 of Title 24) is commonly referred to as California's Green Building Standards (CALGreen), and establishes minimum mandatory standards and voluntary standards pertaining to the planning and design of sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and interior air quality. The CALGreen standards took effect in January 2011 and instituted mandatory minimum environmental performance standards for all ground-up, new construction of commercial, low-rise residential and state-owned buildings and schools and hospitals. The 2019 CALGreen standards are the current applicable standards. For nonresidential projects, some of the key mandatory CALGreen 2019 standards involve requirements related to bicycle parking, designated parking for clean air vehicles, electric vehicle (EV) charging stations, shade trees, water-conserving plumbing fixtures and fittings, outdoor potable water use in landscaped areas, recycled water supply systems, construction waste management, excavated soil and land clearing debris, and commissioning (24 CCR Part 11).

The CALGreen standards also include voluntary efficiency measures that are provided at two tiers and implemented at the discretion of local agencies and applicants. CALGreen's Tier 1 standards call for a 15% improvement in energy requirements, stricter water conservation, 65% diversion of construction and demolition waste, 10% recycled content in building materials, 20% permeable paving, 20% cement reduction, and cool/solar-reflective roofs. CALGreen's more rigorous Tier 2 standards call for a 30% improvement in energy requirements, stricter water conservation, 80% diversion of construction and demolition waste, 15% recycled content in building materials, 30% permeable paving, 25% cement reduction, and cool/solar-reflective roofs.

Title 20. Title 20 of the California Code of Regulations requires manufacturers of appliances to meet state and federal standards for energy and water efficiency. The CEC certifies an appliance based on a manufacturer's demonstration that the appliance meets the standards. New appliances regulated under Title 20 include refrigerators, refrigerator-freezers, and freezers; room air conditioners and room air-conditioning heat pumps; central air conditioners; spot air conditioners; vented gas space heaters; gas pool heaters; plumbing fittings and plumbing fixtures; fluorescent lamp ballasts; lamps; emergency lighting; traffic signal modules; dishwaters; clothes washers and dryers; cooking products; electric motors; low-voltage dry-type distribution transformers; power supplies; televisions and consumer audio and video equipment; and battery charger systems.

SB 1. SB 1 (August 2006, "Go Solar California" or "Million Solar Roofs") established a $3 billion rebate program to support the goal of the state to install rooftop solar energy systems with a generation capacity of 3,000 megawatts through 2016. The goals included establishing solar energy systems as a viable mainstream option for both homes and businesses within 10 years of adoption, and placing solar energy systems on 50% of new homes within 13 years of adoption.

AB 1470 (Solar Water Heating). This bill established the Solar Water Heating and Efficiency Act of 2007. The bill includes findings and declarations of the legislature relating to the promotion of solar water heating systems and other technologies that reduce natural gas demand.

Renewable Energy and Energy Procurement

SB 1078. SB 1078 (September 2002) established the Renewables Portfolio Standard (RPS) program, which required an annual increase in renewable generation by the utilities equivalent to at least 1% of sales, with an aggregate goal of 20% by 2017. This goal was subsequently accelerated, requiring utilities to obtain 20% of their power from renewable sources by 2010 (EO S-14-08 and EO S-21-09).

SB 1368. SB 1368 (September 2006) required the CEC to develop and adopt regulations for GHG emission performance standards for the long-term procurement of electricity by local publicly owned utilities.

AB 1109. Enacted in 2007, AB 1109 required the CEC to adopt minimum energy efficiency standards for general-purpose lighting, to reduce electricity consumption by 50% for indoor residential lighting and 25% for indoor commercial lighting.

EO S-14-08. EO S-14-08 (November 2008) focused on the contribution of renewable energy sources to meet the electrical needs of California while reducing the GHG emissions from the electrical sector. This EO required that all retail suppliers of electricity in California serve 33% of their load with renewable energy by 2020.

EO S-21-09 and SB X1-2. EO S-21-09 (September 2009) directed CARB to adopt a regulation consistent with the goal of EO S-14-08 by July 31, 2010. On September 23, 2010, CARB initially approved regulations to implement a Renewable Electricity Standard. However, this regulation was not finalized because of subsequent legislation (SB X1-2, Simitian, Statutes of 2011) signed by Governor Brown in April 2011.

SB X1-2 expanded the RPS by establishing a renewable energy target of 20% of the total electricity sold to retail customers in California per year by December 31, 2013, and 33% by December 31, 2020, and in subsequent years. Under the bill, a renewable electrical generation facility is one that uses biomass, solar thermal, photovoltaic, wind, geothermal, fuel cells using renewable fuels, small hydroelectric generation (30 megawatts or less), digester gas, municipal solid waste conversion, landfill gas, ocean wave, ocean thermal, or tidal current, and that meets other specified requirements with respect to its location. SB X1-2 applies to all electricity retailers in the state including publicly owned utilities, investor-owned utilities, electricity service providers, and community choice aggregators.

SB 350. SB 350 (October 2015, Clean Energy and Pollution Reduction Act) further expanded the RPS by establishing a goal of 50% of the total electricity sold to retail customers in California per year by December 31, 2030. In addition, SB 350 included the goal to double the energy efficiency savings in electricity and natural gas final end uses (e.g., heating, cooling, lighting, or class of energy uses on which an energy-efficiency program is focused) of retail customers through energy conservation and efficiency. The bill also requires the California Public Utilities Commission, in consultation with the CEC, to establish efficiency targets for electrical and gas corporations consistent with this goal. Regarding mobile sources, as one of its elements, SB 350 establishes a statewide policy for widespread electrification of the transportation sector, recognizing that such electrification is required for achievement of the state's 2030 and 2050 reduction targets (see California Public Utilities Code, Section 740.12).

SB 100. SB 100 (2018) increased the standards set forth in SB 350 establishing that 44% of the total electricity sold to retail customers in California per year by December 31, 2024; 52% by December 31, 2027; and 60% by December 31, 2030, be secured from qualifying renewable energy sources. SB 100 states that it is the policy of the state that eligible renewable energy resources and zero-carbon resources supply 100% of the retail sales of electricity to California. This bill requires that the achievement of 100% zero-carbon electricity resources do not increase the carbon emissions elsewhere in the western grid and that the achievement not be achieved through resource shuffling.

Mobile Sources

State Vehicle Standards (AB 1493 and EO B-16-12). AB 1493 (July 2002) was enacted in a response to the transportation sector accounting for more than half of California's CO_2 emissions. AB 1493 required CARB to set GHG emission standards for passenger vehicles, light-duty trucks, and other vehicles determined by the state board

to be vehicles that are primarily used for noncommercial personal transportation in the state. The bill required that CARB set GHG emission standards for motor vehicles manufactured in 2009 and all subsequent model years. CARB adopted the standards in September 2004. EO B-16-12 (March 2012) required that state entities under the governor's direction and control support and facilitate the rapid commercialization of zero-emissions vehicles. It ordered CARB, CEC, California Public Utilities Commission, and other relevant agencies to work with the Plug-in Electric Vehicle Collaborative and the California Fuel Cell Partnership to establish benchmarks to help achieve benchmark goals by 2015, 2020, and 2025. On a statewide basis, EO B-16-12 established a target reduction of GHG emissions from the transportation sector equaling 80% less than 1990 levels by 2050. This directive did not apply to vehicles that have special performance requirements necessary for the protection of the public safety and welfare. As explained under the "Federal Vehicle Standards" description above, EPA and NHTSA approved the SAFE Vehicles Rule Part One and Two, which revoked California's authority to set its own GHG emissions standards and set zero-emission vehicle mandates in California. As the EPA rule is the subject of pending legal challenges, and CARB has not issued GHG adjustment factors for EMFAC, this analysis continues to utilize the best available information at this time, as set forth in EMFAC.

Heavy Duty Diesel. CARB adopted the final Heavy Duty Truck and Bus Regulation, Title 13, Division 3, Chapter 1, Section 2025, on December 31, 2014, to reduce particulate matter and NO_x emissions from heavy-duty diesel vehicles. The rule requires particulate matter filters be applied to newer heavier trucks and buses by January 1, 2012, with older vehicles required to comply by January 1, 2015. The rule will require nearly all diesel trucks and buses to be compliant with the 2010 model year engine requirement by January 1, 2023. CARB also adopted an Airborne Toxic Control Measure to limit idling of diesel-fueled commercial vehicles on December 12, 2013. This rule requires diesel-fueled vehicles with gross vehicle weights greater than 10,000 pounds to idle no more than 5 minutes at any location (13 CCR 2485).

EO S-1-07. EO S-1-07 (January 2007, implementing regulation adopted in April 2009) sets a declining LCFS for GHG emissions measured in CO_2e grams per unit of fuel energy sold in California. The target of the LCFS is to reduce the carbon intensity of California passenger vehicle fuels by at least 10% by 2020 (17 CCR 95480 et seq.). The carbon intensity measures the amount of GHG emissions in the lifecycle of a fuel, including extraction/feedstock production, processing, transportation, and final consumption, per unit of energy delivered.

SB 375. SB 375 (September 2008) addresses GHG emissions associated with the transportation sector through regional transportation and sustainability plans. SB 375 requires CARB to adopt regional GHG reduction targets for the automobile and light-truck sector for 2020 and 2035 and to update those targets every 8 years. SB 375 requires each of the state's 18 regional metropolitan planning organizations to prepare a Sustainable Communities Strategy (SCS) as part of their Regional Transportation Plan (RTP) that will achieve the GHG reduction targets set by CARB. If a metropolitan planning organization is unable to devise an SCS to achieve the GHG reduction target, the metropolitan planning organization must prepare an alternative planning strategy demonstrating how the GHG reduction target would be achieved through alternative development patterns, infrastructure, or additional transportation measures or policies.

Pursuant to Government Code, Section 65080(b)(2)(K), a SCS does not (1) regulate the use of land; (2) supersede the land use authority of cities and counties; or (3) require that a city's or county's land use policies and regulations, including those in a general plan, be consistent with it. Nonetheless, SB 375 makes regional and local planning agencies responsible for developing those strategies as part of the federally required metropolitan transportation planning process and the state-mandated housing element process.

In September 2010, CARB adopted the first SB 375 targets for the regional metropolitan planning organizations. The targets for the Southern California Association of Governments (SCAG) are an 8% reduction in emissions per capita by 2020 and a 13% reduction by 2035. Achieving these goals through adoption of an SCS is the responsibility of the metropolitan planning organizations. SCAG adopted its first RTP/SCS in April 2012. The plan quantified a 9% reduction by 2020 and a 16% reduction by 2035 (SCAG 2012). In June 2012, CARB accepted SCAG's quantification of GHG reductions and its determination the SCS, if implemented, would achieve SCAG targets. On April 4, 2016, the SCAG Regional Council adopted the 2016 RTP/SCS, which builds upon the progress made in the 2012 RTP/SCS. The updated RTP/SCS quantified an 8% reduction by 2020 and an 18% reduction by 2030 (SCAG 2016). In June 2016, CARB accepted SCAG's quantification of GHG reductions and its determination that the SCS, if implemented, would achieve SCAG targets.

Advanced Clean Cars Program and Zero-Emissions Vehicle Program. The Advanced Clean Cars Program (January 2012) is a new emissions-control program for model years 2015 through 2025. The program combines the control of smog- and soot-causing pollutants and GHG emissions into a single coordinated package. The package includes elements to reduce smog-forming pollution, reduce GHG emissions, promote clean cars, and provide the fuels for clean cars (CARB 2012). To improve air quality, CARB has implemented new emission standards to reduce smog-forming emissions beginning with 2015 model year vehicles. It is estimated that in 2025, cars will emit 75% less smog-forming pollution than the average new car sold today. To reduce GHG emissions, CARB, in conjunction with the EPA and the NHTSA, adopted new GHG standards for model year 2017 to 2025 vehicles; the new standards are estimated to reduce GHG emissions by 34% in 2025. The Zero-Emissions Vehicle Program will act as the focused technology of the Advanced Clean Cars Program by requiring manufacturers to produce increasing numbers of zero-emissions vehicles and plug-in hybrid electric vehicles in the 2018 to 2025 model years.

AB 1236. AB 1236 (October 2015) required a city, county, or city and county to approve an application for the installation of EV charging stations, as defined, through the issuance of specified permits, unless the city or county makes specified written findings based upon substantial evidence in the record that the proposed installation would have a specific, adverse impact upon the public health or safety, and there is no feasible method to satisfactorily mitigate or avoid the specific, adverse impact. The bill provided for appeal of that decision to the planning commission, as specified. The bill provided that the implementation of consistent statewide standards to achieve the timely and cost-effective installation of EV charging stations is a matter of statewide concern. The bill required EV charging stations to meet specified standards. The bill required a city, county, or city and county with a population of 200,000 or more residents to adopt an ordinance, by September 30, 2016, that created an expedited and streamlined permitting process for EV charging stations, as specified. The bill also required a city, county, or city and county with a population of less than 200,000 residents to adopt this ordinance by September 30, 2017.

Solid Waste

AB 939, AB 341, and AB 1826. In 1989, AB 939, known as the Integrated Waste Management Act (California Public Resources Code, Sections 40000 et seq.), was passed because of the increase in waste stream and the decrease in landfill capacity. The statute established the California Integrated Waste Management Board, which oversees a disposal reporting system. AB 939 mandated a reduction of waste being disposed where jurisdictions were required to meet diversion goals of all solid waste through source reduction, recycling, and composting activities of 25% by 1995 and 50% by the year 2000.

AB 341 (Chapter 476, Statutes of 2011) amended the California Integrated Waste Management Act of 1989 to include a provision declaring that it is the policy goal of the state that not less than 75% of solid waste generated be source-reduced, recycled, or composted by the year 2020, and annually thereafter. In addition, AB 341 required

the California Department of Resources Recycling and Recovery (CalRecycle) to develop strategies to achieve the state's policy goal. CalRecycle conducted several general stakeholder workshops and several focused workshops and in August 2015 published a discussion document titled AB 341 Report to the Legislature, which identifies five priority strategies that CalRecycle believes would assist the state in reaching the 75% goal by 2020, legislative and regulatory recommendations, and an evaluation of program effectiveness (CalRecycle 2012).

AB 1826 (Chapter 727, Statutes of 2014, effective 2016) requires businesses to recycle their organic waste (i.e., food waste, green waste, landscape and pruning waste, nonhazardous wood waste, and food-soiled paper waste that is mixed in with food waste) depending on the amount of waste they generate per week. This law also requires local jurisdictions across the state to implement an organic waste recycling program to divert organic waste generated by businesses, including multifamily residential dwellings that consist of five or more units. The minimum threshold of organic waste generation by businesses decreases over time, which means an increasingly greater proportion of the commercial sector will be required to comply.

Water

EO B-29-15. In response to the ongoing drought in California, EO B-29-15 (April 2015) set a goal of achieving a statewide reduction in potable urban water usage of 25% relative to water use in 2013. The term of the EO extended through February 28, 2016, although many of the directives have become permanent water-efficiency standards and requirements. The EO includes specific directives that set strict limits on water usage in the state. In response to EO B-29-15, the California Department of Water Resources has modified and adopted a revised version of the Model Water Efficient Landscape Ordinance that, among other changes, significantly increases the requirements for landscape water use efficiency and broadens its applicability to include new development projects with smaller landscape areas.

EO B-37-16. Issued May 2016, EO B-37-16 directed the State Water Resources Control Board (SWRCB) to adjust emergency water conservation regulations through the end of January 2017 to reflect differing water supply conditions across the state. The SWRCB also developed a proposal to achieve a mandatory reduction of potable urban water usage that builds off the mandatory 25% reduction called for in EO B-29-15. The SWRCB and Department of Water Resources will develop new, permanent water use targets that build upon the existing state law requirements that the state achieve 20% reduction in urban water usage by 2020. EO B-37-16 also specifies that the SWRCB permanently prohibit water-wasting practices such as hosing off sidewalks, driveways, and other hardscapes; washing automobiles with hoses not equipped with a shut-off nozzle; using non-recirculated water in a fountain or other decorative water feature; watering lawns in a manner that causes runoff, or within 48 hours after measurable precipitation; and irrigating ornamental turf on public street medians.

Other State Actions

Senate Bill 97. SB 97 (August 2007) directed the Governor's Office of Planning and Research to develop guidelines under the California Environmental Quality Act (CEQA) for the mitigation of GHG emissions. In 2008, the Office of Planning and Research issued a technical advisory as interim guidance regarding the analysis of GHG emissions in CEQA documents. The advisory indicated that the lead agency should identify and estimate a project's GHG emissions, including those associated with vehicular traffic, energy consumption, water usage, and construction activities (OPR 2008). The advisory further recommended that the lead agency determine significance of the impacts and impose all mitigation measures necessary to reduce GHG emissions to a level that is less than significant. CNRA adopted the CEQA Guidelines amendments in December 2009, which became effective in March 2010.

Under the amended CEQA Guidelines, a lead agency has the discretion to determine whether to use a quantitative or qualitative analysis or apply performance standards to determine the significance of GHG emissions resulting from a particular project (14 CCR 15064.4[a]). The CEQA Guidelines require a lead agency to consider the extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions (14 CCR 15064.4[b]). The CEQA Guidelines also allow a lead agency to consider feasible means of mitigating the significant effects of GHG emissions, including reductions in emissions through the implementation of project features or off-site measures. The adopted amendments do not establish a GHG emission threshold, but instead allow a lead agency to develop, adopt, and apply its own thresholds of significance or those developed by other agencies or experts. CNRA also acknowledges that a lead agency may consider compliance with regulations or requirements implementing AB 32 in determining the significance of a project's GHG emissions (CNRA 2009a).

With respect to GHG emissions, the CEQA Guidelines state in Section 15064.4(a) that lead agencies should "make a good faith effort, to the extent possible on scientific and factual data, to describe, calculate or estimate" GHG emissions. The CEQA Guidelines note that an agency may identify emissions by either selecting a "model or methodology" to quantify the emissions or by relying on "qualitative analysis or other performance-based standards" (14 CCR 15064.4[a]). Section 15064.4(b) states that the lead agency should consider the following when assessing the significance of impacts from GHG emissions on the environment: (1) the extent a project may increase or reduce GHG emissions as compared to the existing environmental setting; (2) whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project; and (3) the extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions (14 CCR 15064.4[b]).

EO S-13-08. EO S-13-08 (November 2008) is intended to hasten California's response to the impacts of global climate change, particularly sea-level rise. Therefore, the EO directs state agencies to take specified actions to assess and plan for such impacts. The final 2009 California Climate Adaptation Strategy report was issued in December 2009 (CNRA 2009b), and an update, Safeguarding California: Reducing Climate Risk, followed in July 2014 (CNRA 2014). To assess the state's vulnerability, the report summarizes key climate change impacts to the state for the following areas: agriculture, biodiversity and habitat, emergency management, energy, forestry, ocean and coastal ecosystems and resources, public health, transportation, and water. Issuance of the Safeguarding California: Implementation Action Plans followed in March 2016 (CNRA 2016). In January 2018, the CNRA released the Safeguarding California Plan: 2018 Update, which communicates current and needed actions that state government should take to build climate change resiliency (CNRA 2018b).

Local

South Coast Air Quality Management District

Air districts typically act in an advisory capacity to local governments in establishing the framework for environmental review of air pollution impacts under CEQA. This may include recommendations regarding significance thresholds, analytical tools to estimate emissions and assess impacts, and mitigations for potentially significant impacts. Although air districts will also address some of these issues on a project-specific basis as responsible agencies, they may provide general guidance to local governments on these issues (SCAQMD 2008). As discussed in Section 4.7.3, Thresholds of Significance (below), the South Coast Air Quality Management District (SCAQMD) has recommended numeric CEQA significance thresholds for GHG emissions for lead agencies to use in assessing GHG impacts of residential, commercial, industrial, and mixed-use development projects; however, these thresholds were not adopted.

Southern California Association of Governments

SB 375 requires metropolitan planning organizations to prepare and include an SCS in their RTP. The SCAG Regional Council adopted the 2012 RTP/SCS in April 2012 (SCAG 2012), and the 2016–2040 RTP/SCS (2016 RTP/SCS) was adopted in April 2016. Both the 2012 and 2016 RTP/SCSs establish a development pattern for the region that, when integrated with the transportation network and other policies and measures, would reduce GHG emissions from transportation (excluding goods movement). Specifically, the 2012 RTP/SCS links the goals of sustaining mobility with the goals of fostering economic development; enhancing the environment; reducing energy consumption; promoting transportation-friendly development patterns; and encouraging all residents affected by socioeconomic, geographic, and commercial limitations to be provided with fair access. The 2012 and 2016 RTP/SCSs do not require that local general plans, specific plans, or zoning be consistent with it but provide incentives for consistency for governments and developers.

SCAG has developed Connect SoCal, the 2020–2045 RTP/SCS, which is a long-range visioning plan that balances future mobility and housing needs with economic, environmental and public health goals. Connect SoCal charts a path toward a more mobile, sustainable and prosperous region by making connections between transportation networks, between planning strategies and between the people whose collaboration can improve the quality of life for Southern Californians. Connect SoCal embodies a collective vision for the region's future and is developed with input from local governments, county transportation commissions, tribal governments, non-profit organizations, businesses and local stakeholders within the Counties of Imperial, Los Angeles, Orange, Riverside, San Bernardino and Ventura. The Proposed Final Connect SoCal and its Proposed Final Program Environmental Impact Report is available; however, it has not been adopted by the regional council at this time.

Local Climate Action Plans and GHG Reduction Programs

The Cities of Fullerton, Huntington Beach, La Habra, and Santa Ana, where FMP components are located, have adopted GHG emission reduction plans, such as a CAP, which are summarized below.[3] The City of Irvine (where projects 7-65 and 7-66 are partially located) is in the process of developing a CAP; however, no draft is available at the time of writing. The City of Anaheim adopted a municipal Greenhouse Gas Reduction Plan: Sustainable Electric & Water Initiatives in July 2015; however, it only applies to the Anaheim Public Utilities Department and therefore, is not applicable to the FMP.

City of Fullerton

The City of Fullerton adopted the Fullerton CAP as part of The Fullerton Plan EIR (City of Fullerton 2012), which is a long-range plan to reduce GHG emissions from municipal operations and community activities within the City, and would also help the City adapt to effects of climate change. The City committed to reducing its GHG emissions by 15% below 2009 levels by 2020, consistent with AB 32 and state 2020 GHG emission reduction goals. Additionally, the CAP includes strategies aimed at reducing GHG emissions generated within the City. The four reduction strategies are as follows (City of Fullerton 2012):

- **Transportation and Mobility Strategy:** Promote a balanced transportation system that promotes the use of public transportation and bicycles, reduces congestion, and helps encourage residents to engage in healthy and active lifestyles.
- **Energy Use and Conservation Strategy:** Reduce the carbon footprint of municipal operations to serve as a leader for the community and support the construction of buildings that are energy efficient and incorporate clean, renewable energy sources.

[3] The Cities of Aliso Viejo, Laguna Beach, Laguna Woods, Mission Viejo, and San Clemente in Orange County have also adopted GHG emission reduction plans; however, the FMP projects would not be located within those cities.

- **Water Use and Efficiency Strategy:** Conserve and protect water resources and promote efficiency through public education.
- **Solid Waste Reduction and Recycling Strategy:** Manage solid waste generation and diversion in order to achieve a zero-waste future.

Each of the strategies recommends measures and actions, including the GHG reduction potential if the performance criteria are met. The City's CAP is qualified under CEQA Guidelines Section 15183.5(b), Tiering and Streamlining the Analysis of GHG Emissions. When determining whether a proposed project is consistent with the CAP, one should consider the consistency of the discretionary project (magnitude and location of growth) with The Fullerton Plan's year 2030 growth projections, which are the basis of the GHG emissions inventory projects. If the project is consistent with The Fullerton Plan projections, the project is consistent with the CAP.

City of Huntington Beach

The City of Huntington Beach adopted a Greenhouse Gas Reduction Program (GGRP) as part of its General Plan Update in 2017. The GGRP is the City of Huntington Beach's comprehensive approach to reduce emissions of GHGs within the community, which establishes Huntington Beach's existing, projected, and target levels of GHG emissions and identifies how the City can achieve target levels through an extensive set of strategies, emphasizing actions that are voluntary, economically viable, consistent with community character, and advance the priorities of Huntington Beach residents, businesses, and visitors. Huntington Beach's efforts to reduce GHG emissions are linked to a series of state-level regulations and guidance and the GGRP allows the City of Huntington Beach to maintain consistency with state-level actions at the local level. The GGRP meets the six requirements of CEQA Guidelines Section 15183.5(b), allowing it to serve as a Qualified GHG Reduction Strategy for the City of Huntington Beach.

Policy ERC-5A in the General Plan directs Huntington Beach to reduce its total GHG emissions to 15% below 2005 levels by 2020, and 53.33% below the 2020 target by 2040, placing the community on a trajectory to match the state's long-term GHG reduction goals. These reduction goals are consistent with the statewide targets for GHG reduction efforts. This GGRP contains a suite of strategies capable of reducing Huntington Beach's GHG emissions to levels at or below the ones specified in Policy ERC-5A. The City identified 42 GHG reduction strategies, 36 of which have measurable GHG reduction benefits. The other six strategies do not directly lead to measurable reductions, but are supportive of other GHG reduction strategies and provide other benefits to the community. The strategies are divided into the following nine categories: (1) land use, (2) transportation, (3) alternative fuels, (4) renewable energy, (5) energy efficiency, (6) off-road equipment, (7) water and wastewater, (8) resource management, (9) community awareness.

City of La Habra

The City adopted a CAP in January 2014. The CAP was designed under the premise that the City and the community it represents are uniquely capable of addressing emissions associated with sources under the City's jurisdiction. The City's CAP acts as a plan to ensure reduction efforts are consistent with the AB 32 2020 target and that the City will be providing GHG reductions locally that will complement state efforts to reduce GHG emissions. One of the goals of the City of La Habra's CAP is to allow programmatic level review and mitigation of GHG emissions that allows streamlining of CEQA review for subsequent development projects; as such, the CAP framework is designed to fulfill the requirements identified in CEQA Guidelines Section 15183.5(b).

City of Santa Ana

The City of Santa Ana adopted its CAP in December 2015. The CAP includes goals and measures that help move the City of Santa Ana towards becoming a more sustainable City for future generations while mitigating the City's impacts on the environment. Many of the strategies and measures that will be implemented as part of the CAP aim to reinvest in the community through benefits such as improved air quality, reduced energy and water use, reduced traffic congestion, and other environmental improvements. The CAP includes emission reduction targets of 15% below 2008 by 2020 and 30% below 2008 levels by 2035. The City of Santa Ana CAP does not include a project-level GHG emission reduction target or a tiering mechanism to use for CEQA analyses.

4.7.3 Thresholds of Significance

4.7.3.1 Significance Criteria

The significance criteria used to evaluate the FMP's impacts to GHG emissions are based on CEQA Guidelines Appendix G. According to Appendix G, a significant impact related to GHG emissions would occur if the project would:

1. Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.
2. Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.

Global climate change is a cumulative impact; a project participates in this potential impact through its incremental contribution combined with the cumulative increase of all other sources of GHGs. There are currently no established thresholds for assessing whether the GHG emissions of a project, such as the proposed FMP, would be considered a cumulatively considerable contribution to global climate change; however, all reasonable efforts should be made to minimize a project's contribution to global climate change. In addition, while GHG impacts are recognized exclusively as cumulative impacts (CAPCOA 2008), GHG emissions impacts must also be evaluated at a project level under CEQA.

The CEQA Guidelines do not prescribe specific methodologies for performing an assessment, do not establish specific thresholds of significance, and do not mandate specific mitigation measures. Rather, the CEQA Guidelines emphasize the lead agency's discretion to determine the appropriate methodologies and thresholds of significance consistent with the manner in which other impact areas are handled in CEQA (CNRA 2009a). The State of California has not adopted emission-based thresholds for GHG emissions under CEQA. The Governor's Office of Planning and Research's Technical Advisory, titled Discussion Draft CEQA and Climate Change Advisory (OPR 2018), states that:

> [N]either the CEQA statute nor the CEQA Guidelines prescribe thresholds of significance or particular methodologies for performing an impact analysis. This is left to lead agency judgment and discretion, based upon factual data and guidance from regulatory agencies and other sources where available and applicable. Even in the absence of clearly defined thresholds for GHG emissions, such emissions must be disclosed and mitigated to the extent feasible whenever the lead agency determines that the project contributes to a significant, cumulative climate change impact.

Furthermore, the advisory document indicates that "in the absence of regulatory standards for GHG emissions or other scientific data to clearly define what constitutes a 'significant impact,' individual lead agencies may undertake a project-by-project analysis, consistent with available guidance and current CEQA practice." Section 15064.7(c) of the CEQA Guidelines specifies that "when adopting thresholds of significance, a lead agency may consider

thresholds of significance previously adopted or recommended by other public agencies, or recommended by experts, provided the decision of the lead agency to adopt such thresholds is supported by substantial evidence."

In October 2008, the SCAQMD proposed recommended numeric CEQA significance thresholds for GHG emissions for lead agencies to use in assessing GHG impacts of residential and commercial development projects as presented in its Draft Guidance Document – Interim CEQA Greenhouse Gas (GHG) Significance Threshold (SCAQMD 2008). This guidance document, which builds on the previous guidance prepared by the California Air Pollution Control Officers Association, explored various approaches for establishing a significance threshold for GHG emissions. The draft interim CEQA thresholds guidance document was not adopted or approved by the Governing Board. However, in December 2008, the SCAQMD adopted an interim 10,000 MT CO_2e per-year screening level threshold for stationary source/industrial projects for which the SCAQMD is the lead agency (see SCAQMD Resolution No. 08-35, December 5, 2008).

The SCAQMD formed a GHG CEQA Significance Threshold Working Group to work with SCAQMD staff on developing GHG CEQA significance thresholds until statewide significance thresholds or guidelines are established. From December 2008 to September 2010, the SCAQMD hosted working group meetings and revised the draft threshold proposal several times, although it did not officially provide these proposals in a subsequent document. The SCAQMD has continued to consider adoption of significance thresholds for residential and general land use development projects. The most recent proposal, issued in September 2010, uses the following tiered approach to evaluate potential GHG impacts from various uses (SCAQMD 2010):

Tier 1 Determine if CEQA categorical exemptions are applicable. If not, move to Tier 2.

Tier 2 Consider whether or not the proposed project is consistent with a locally adopted GHG reduction plan that has gone through public hearing and CEQA review, that has an approved inventory, includes monitoring, etc. If not, move to Tier 3.

Tier 3 Consider whether the project generates GHG emissions in excess of screening thresholds for individual land uses. The 10,000 MT CO_2e per year threshold for industrial uses would be recommended for use by all lead agencies. Under option 1, separate screening thresholds are proposed for residential projects (3,500 MT CO_2e per year), commercial projects (1,400 MT CO_2e per year), and mixed-use projects (3,000 MT CO_2e per year). Under option 2, a single numerical screening threshold of 3,000 MT CO_2e per year would be used for all non-industrial projects. If the project generates emissions in excess of the applicable screening threshold, move to Tier 4.

Tier 4 Consider whether the project generates GHG emissions in excess of applicable performance standards for the project service population (population plus employment). The efficiency targets were established based on the goal of AB 32 to reduce statewide GHG emissions to 1990 levels by 2020. The 2020 efficiency targets are 4.8 MT CO_2e per service population per year (MT CO_2e/SP/year) for project level analyses and 6.6 MT CO_2e/SP/year for plan level analyses. The 2035 efficiency targets are 3.0 MT CO_2e/SP/year for project level analyses and 4.1 MT CO_2e/SP/year for plan level analyses. If the project generates emissions in excess of the applicable efficiency targets, move to Tier 5.

Tier 5 Consider the implementation of CEQA mitigation (including the purchase of GHG offsets) to reduce the project efficiency target to Tier 4 levels.

To determine the FMP's potential to generate GHG emissions that would have a significant impact on the environment, the FMP project's GHG emissions were estimated and then compared to the non-industrial land project quantitative threshold of 3,000 MT CO_2e per year. Per the SCAQMD guidance, construction emissions should be amortized over the operational life of the FMP, which is assumed to be 30 years (SCAQMD 2008). The operational life of the FMP projects are generally anticipated to be greater than 30 years; however, the Orange County Sanitation District (Sanitation District) continues to upgrade, rehabilitate, and replace facilities prior to reaching full anticipated operational life to ensure provision of reliable service to the Sanitation District's service area. Therefore, the 30-year operational life assumption is appropriate and conservative for many projects.

In addition, the FMP was evaluated for its potential to conflict with various GHG emission reduction plans including local GHG reduction plans and CAPs, CARB's Scoping Plan, SCAG's RTP/SCS, and statewide 2030 and 2050 GHG reduction targets identified in SB 32 and EO S-3-05.

4.7.3.2 Approach and Methodology

Construction

CalEEMod Version 2016.3.2 was used to estimate emissions generated during construction of each project modeled. For Reclamation Plant No. 1 (Plant 1), all project-level projects (7 projects) and all program-level project (10 projects) were modeled, for a total of 17 model runs. For Treatment Plant No. 2 (Plant 2), all project-level projects (5 projects) and all program-level project (10 projects) were modeled, for a total of 15 model runs. For the joint plant projects, all project-level projects (eight projects) were modeled resulting in a total of six model runs. X-057, X-058, and X-059 were modeled in one run because they are essentially one project; there are no program-level joint plant projects.

For the collection system, all project-level projects (10 projects) were modeled. For the program-level collection system projects, a representative project approach was applied to provide a conservative analysis of collection system projects without modeling each project. The program activities were grouped by type of activity (e.g., pipeline replacement and pump station rehabilitation), and representative projects were identified that would represent the greatest anticipated intensity of daily and annual construction. Construction specifications for each activity would vary depending on the subject site characteristics, improvement needs, and type of proposed rehabilitation or replacement; however, construction activities within the same category are not expected to differ substantially. Because several of the proposed activities address similar issues, the proposed solutions (such as rehabilitation or replacement) include similar procedures, many of which are techniques the Sanitation District has historically used to resolve similar issues, such as aging infrastructure. A total of 9 representative projects were modeled that represent 25 program-level projects, resulting in a total of 19 collection system model runs. For the representative projects, the total estimated GHG emissions from the representative project modeled was apportioned to the year(s) construction would occur based on the estimated percent of construction that would occur in each year.[4] A summary of the representative projects modeled is as follows:

- **Air Jumpers.** X-078 Air Jumper Additions and Rehabilitation was modeled as 1 air jumper addition project; however, there are 56 air jumper rehabilitation projects. Construction of a maximum of 2 air jumpers could

[4] For example, a modeled representative project results in a total of 300 MT CO_2e over the total construction duration. A project it represents would be constructed during 2 months in 2025 (20% of the construction duration) and 8 months in 2026 (80% of the construction duration). Accordingly, it was assumed that 60 MT CO_2e would occur in 2025 (20% of the representative project construction emissions) and 240 MT CO_2e would occur in 2026 (80% of the representative project construction emissions).

occur in 1 day. The 56 air jumper projects are assumed to be completed over 10 years (from May 2023 to April 2033), ranging from 3 to 6 projects each year.

- **Pipeline Replacement – Open Trench (Cut and Cover) Method**. X-066 Tustin-Orange Interceptor Sewer at Reach 18 Rehabilitation was selected to represent pipeline replacement activity using traditional open-trench construction techniques. The following pipeline replacement projects are represented by X-066: X-026 College Avenue Force Main Rehabilitation, X-065 Tustin-Orange Interceptor Sewer at Reach 17 Rehabilitation, X-068 North Trunk Rehabilitation, and X-084 Tustin Avenue Sewer Relief. X-066 involves 3,819 linear feet of pipeline replacement, and all projects represented by it would require less total linear feet in total (ranging from 615 linear feet to 1,742 linear feet), but are anticipated to require the same level of daily construction activity (i.e., approximately 100 feet per day).
- **Pipeline Replacement – Open Trench (Unique Project)**. X-086 Santa Ana River Sewer Relief includes open-trench pipeline replacement similar to X-066; however, it requires replacement of approximately 14,270 linear feet. While the daily activity (i.e., approximately 100 feet per day) is anticipated to be the same as the pipeline replacement representative projects, the longer duration of construction would result in greater total emissions; therefore, X-086 was modeled separately.
- **Pipeline Replacement – Microtunneling**. One pipeline replacement project, 3-68 Los Alamitos Sub-Trunk Extension, was identified as using the microtunneling construction technique rather than open trench. Accordingly, 3-68 was modeled separately.
- **Pipeline Relining**. Pipeline relining involves less construction intensity (i.e., approximately 200 feet per day) than pipeline replacement and was therefore modeled separately. 7-65 Gisler-Red Hill Interceptor Rehabilitation was selected to represent pipeline relining because it is the longest pipeline reline project (approximately 13,249 linear feet), which also represents 7-66 Sunflower and Red Hill Interceptor Rehab/Repair.
- **Pipeline Replacement and Pipeline Relining**. Some pipeline rehabilitation projects include both pipeline replacement and pipeline relining per the needs of different segments in the pipelines. X-071 Edinger/Springdale Trunk Sewer Rehabilitation was selected to represent pipeline replacement and relining activities because it involves the greatest length of pipeline replaced (approximately 5,264 linear feet) and pipeline relined (approximately 5,750 linear feet), which represents the following projects: 7-68 MacArthur Dual Force Main Improvements, X-067 (X-085) Hoover-Western Sub-Trunks Sewer Rehabilitation, and X-061 Imperial Highway Relief Interceptor Rehabilitation.
- **Pump Station Rehabilitation**. X-040 College Avenue Pump Station Replacement was identified to represent a typical pump station rehabilitation project, which represents X-024 Rocky Point Pump Station Rehabilitation and X-025 Bitter Point Pump Station Rehabilitation. X-040, X-024, and X-025 are all very similar; however, X-040 was selected to represent pump station rehabilitation because it includes additional minor structural repair.
- **Pump Station Rehabilitation and Pipeline Replacement**. One pump station project, 7-63 MacArthur Pump Station Rehabilitation, also included replacement of two adjacent forcemains and was modeled separately.
- **Pump Station Rehabilitation and Pipeline Relining**. Seven projects were identified as pump station rehabilitation and relining of adjacent pipelines. 7-67 Main Street Pump Station Replacement and Force Main Rehabilitation was selected to represent this combined activity because it involves the greatest length of pipeline relining (approximately 6,000 linear feet); the pump station rehabilitation component is anticipated to be relatively the same across projects. The following projects are represented by the 7-67 model run: X-023 Lido Pump Station Rehabilitation, 11-34 Slater Avenue Pump Station Rehabilitation, 7-

64 Main Street Pump Station Rehabilitation, X-022 15th Street Pump Station Rehabilitation, X-041 A Street Pump Station Rehabilitation, and 5-66 Crystal Cove Pumping Station Upgrade and Rehabilitation.

A total of 57 model runs were conducted to represent 75 projects; however, note that X-078 Air Jumper Additions and Rehabilitation involves 56 separate additions or rehabilitations of air jumpers across the Sanitation District service area. A construction assumptions scenario was developed for each of the 57 projects modeled based on the best available project information at this time. Key construction assumptions include phase types, phase timing and duration, off-road equipment use (type, quantify, and hours of operation per day), number of vehicle trips (haul trucks, vendor trucks, and worker vehicles) and trip distance, ground-disturbance acreage, amount of demolition debris, paving area, and square footage to be painted. See Appendix D for construction assumption details.

The selected phase type and duration were based on the best available information including the 2017 FMP and/or project descriptions provided by the Sanitation District. Phase timing and sequencing was considered where two or more phases overlap, the maximum daily emissions was estimated and presented in this analysis.

Off-road equipment emissions were estimated in CalEEMod based on the type of equipment, the number of pieces of each equipment, and the hours of operation. CalEEMod default values for equipment horsepower and load factor were applied; in a few instances, the horsepower was modified to reflect the specific equipment anticipated to be used to more accurately estimate potential emissions.[5] For most project model runs, the equipment was assumed to be in operation for 8 hours per day, which is the anticipated maximum daily use; in reality, it is anticipated that equipment would be used for less than 8 hours a day when considering mandated worker breaks and that equipment would only be operated when needed. This analysis is therefore conservative. Internal combustion engines used by construction equipment would result in GHG emissions, specifically CO_2 and CH_4.

Emissions from vehicle trips are estimated in CalEEMod based on the number of trips, the trip distance, and emission factors for the vehicle category. Regarding the vehicle categories, and consistent with CalEEMod default values, worker trips are assumed to be passenger vehicles and light-duty trucks, vendor truck trips are assumed to be a mix of medium- and heavy-heavy duty trucks, and haul truck trips are heavy-heavy duty trucks. Haul truck trips were estimated based on the amount of material that needed to be exported off site to a disposal site. All haul trucks were assumed to have a capacity or 16 cubic yards or 20 tons, and would travel 20 miles per each one-way trip. Frank R. Bowerman Landfill (11002 Bee Canyon Access Road, Irvine, California 92602) is located 19 miles from Plant 1 (10844 Ellis Avenue, Fountain Valley, California 92708) and Orange County Hazardous Waste (17121 Nichols Lane, Huntington Beach, California 92647) is located 5 miles from Plant 1; therefore, the 20-mile one-way distance for haul trucks is anticipated to be conservative. In general, the number of needed project workers were estimated based on the number of pieces of equipment and assuming that each piece of equipment would require 1.25 workers in accordance with CalEEMod guidance (CAPCOA 2017). Vendor trucks are anticipated to be minimal because the anticipated construction activities do not require large quantities of building material, if any; however, vendor truck trips were added to phases where material delivery is anticipated or water trucks may be needed. CalEEMod default values for worker trip length (14.7 miles) and vendor truck trip length (6.9 miles) were applied (CAPCOA 2017). Each worker, vendor, and haul truck was estimated to result in two one-way trips. As with equipment, internal combustion engines used by vehicles would result in GHG emissions, specifically CO_2 and CH_4.

[5] For example, for P2-138, the crushing/processing equipment was assumed to be 415 horsepower to reflect a larger crusher than CalEEMod default values assume (i.e., 85 horsepower).

For Plant 1, Plant 2, and the joint plant projects, one or more of the following phases are anticipated for each project, which are further described below: demolition, site preparation, structural rehabilitation, building construction, paving, architectural coating, electrical/instrumentation, and/or testing.

- **Demolition**. Demolition may include removal of structures or asphalt pavement, or removal of equipment for replacement. For each project, the amount of demolition debris was estimated based on best available information such as square footage of the demolition structure/area and type of material (e.g., concrete, asphalt, metal, plastic, and lumber) to ensure that associated emissions were captured. Emission sources associated with demolition include off-road equipment operation and vehicle trips including workers and haul trucks exporting demolition material.
- **Site Preparation**. Since these projects are within the plant boundaries, they are located on developed site conditions and typical site preparation activities such as clearing and grubbing of vegetation and grading are not anticipated. Instead, few projects included site preparation that would entail removing existing asphalt to build a new building where the existing asphalt is located, or adding new asphalt pavement and/or dirt (e.g., grading) over the location of a structure that was demolished during the project. Emission sources associated with site preparation include off-road equipment operation and vehicle trips including workers and haul trucks exporting material.
- **Structural Rehabilitation**. Structural rehabilitation would include concrete structural repair and/or plastic lining/coating needed to maintain or improve the structural integrity of the existing structure. Emission sources associated with structural rehabilitation include off-road equipment operation and vehicle trips including workers vendor trucks delivering material.
- **Building Construction**. In most cases, building construction would include physical construction of structures such as the foundation, structures, and buildings. In some cases, building construction would only include the installation of new equipment. Emission sources associated with building construction include off-road equipment operation and vehicle trips including workers and vendor trucks delivering material.
- **Paving**. Paving, which involves the laying of asphalt or concrete, would occur on projects that require replacing removed pavement or minor repaving activities. Emission sources associated with paving include off-road equipment operation and worker and vendor vehicle trips.
- **Architectural Coating**. Architectural coating would occur on projects that would include building or rehabilitation of structures that would need to be painted on the interior and/or exterior. Architectural coating may also occur on projects that included new asphalt that would need striping or other transportation signage coatings. Emission sources associated with architectural coating include off-road equipment operation, as well as worker and vendor vehicle trips.
- **Electrical/Instrumentation**. Electrical or electrical and instrumentation phases include installing the electrical and instrumentation components associated with new equipment. Emission sources associated with testing include off-road equipment operation and worker vehicle trips.
- **Testing**. Testing occurs on many projects and includes the testing of the repaired or replaced equipment or facility. Emission sources associated with testing include off-road equipment operation and worker vehicle trips.

For the collection system projects, one or more of the following phases are anticipated for each project, which are further described below: pipeline installation, pipeline lining, manhole rehabilitation, demolition, site preparation, structural rehabilitation, building construction, paving, architectural coating, and/or testing.

- **Pipeline Installation.** For replacement pipeline projects, pipeline installation would be accomplished through open-trench construction (except for microtunneling Project 3-68). Pipeline installation is assumed to include trenching, excavation of fill, removal and replacement of the pipeline, and backfill and compaction. The pipeline installation phase was modeled as a "grading" phase to capture dust generated during trenching and excavation. In general, it was assumed that 100 feet per day of pipeline would be installed based on previous pipeline replacement projects. The area of disturbance was calculated based on the total length of the pipeline, the width of the largest pipeline, and additional area to both sides of the pipeline. Emission sources associated with pipeline installation include off-road equipment operation, vehicle trips including workers and haul trucks exporting material, and dust generated by disturbing earth.
- **Pipeline Lining**. Pipeline lining would happen when pipes do not need to be replaced but internal deficiencies (e.g., corroded or cracked pipe) need to be repaired. In general, it was assumed that 200 feet per day of pipeline would be lined based on previous pipeline lining projects. During pipeline lining, no aboveground disturbance would occur. Emission sources associated with pipeline lining include off-road equipment operation and vehicle trips including workers.
- **Manhole Rehabilitation.** Manhole rehabilitation would occur during some of the pipeline projects to repair or rehabilitate manholes along the pipeline.
- **Demolition.** Similar to the plant projects, demolition would occur when a structure would need to be removed and/or equipment would be replaced. The demolition phase would typically occur during the pump station rehabilitation projects. Demolition of existing structures could occur at the end after the new structure, such as a pump station, is built. Emission sources associated with demolition include off-road equipment operation and vehicle trips including workers and haul trucks exporting demolition material.
- **Site Preparation.** As with the plant projects, site preparation activities are anticipated to be minor since these improvements are planned to take place on previously developed sites. Emission sources associated with site preparation include off-road equipment operation and vehicle trips including workers and haul trucks exporting material.
- **Structural Rehabilitation.** Pump station or air jumpers may need concrete repair and/or plastic lining/coating to maintain or improve the structural integrity of the existing structure. Emission sources associated with structural rehabilitation include off-road equipment operation and vehicle trips including workers vendor trucks delivering material.
- **Building Construction.** In some cases, building construction would include physical construction of structures (usually pump stations), including construction of the foundation, structures, and buildings. In other cases, building construction would only include the installation of new equipment (e.g., pumps). Emission sources associated with building construction include off-road equipment operation and vehicle trips including workers and vendor trucks delivering material.
- **Paving.** Paving would occur for every pipeline replacement project and was assumed to occur daily to re-pave the active areas each day to ensure no trench would be left open, as well as after pipeline installation is complete to provide a smooth, final pavement. For pipeline replacement projects, the number of acres to be paved was calculated based on the total length of the pipeline, the width of the largest pipeline, and additional area on both sides of the pipeline. Emission sources associated with site preparation include off-road equipment operation and worker and vendor vehicle trips.

- **Architectural Coating.** For collection system projects, the majority of the architectural coating would include transportation striping and signage. GHG emission sources associated with architectural coating include off-road equipment operation and worker and vendor vehicle trips.
- **Testing.** Testing includes the testing of the repaired or replaced equipment or facility. The testing phase is anticipated to be relatively standard and would include either a generator set or no equipment and a maximum of three workers (six worker trips). Emission sources associated with testing include off-road equipment operation and worker vehicle trips.

Typical equipment by construction phase is presented in Table 4.7-2. It is important to note that not all projects include all phases of construction and each phase does not necessarily include all of the equipment listed.

Table 4.7-2. Typical Equipment

Construction Phase	Equipment
Plant 1 and Plant 2	
Demolition	Cranes Crushing/processing equipment Excavators Forklifts Generator sets Pumps Rubber-tired dozers Tractors/loaders/backhoes
Site Preparation	Excavators Graders Rubber-tired dozers Tractors/loaders/backhoes
Structural Rehabilitation	Aerial lifts Air compressors Cement and mortar mixers Generator sets Pumps
Building Construction	Aerial lifts Cement and mortar mixers Cranes Forklifts Generator sets Pumps Tractors/loaders/backhoes Welders
Paving	Pavers Paving equipment Rollers
Architectural Coating	Air compressors
Electrical/Instrumentation	Generator sets
Testing	Generator sets

Table 4.7-2. Typical Equipment

Construction Phase	Equipment
Joint Plant Projects	
Demolition	Cranes Excavators Pumps Tractors/loaders/backhoes
Site Preparation	Graders Rubber-tired dozers Tractors/loaders/backhoes
Structural Rehabilitation	Air compressors Cement and mortar mixers Generator sets Pumps
Building Construction	Aerial lifts Cranes Cement and mortar mixers Forklifts Pumps Tractors/loaders/backhoes Welders
Paving	Pavers Paving equipment Rollers
Architectural Coating	Air compressors
Electrical	Generator sets
Testing	Generator sets
Collection System Projects	
Pipeline Installation	Concrete/industrial saws Excavators Forklifts Pumps Tractors/loaders/backhoes
Pipeline Lining	Generator sets Pumps
Manhole Rehabilitation	Air compressors Generator sets
Demolition	Aerial lifts Cranes Excavators Forklifts Pumps Rubber-tired dozers Tractors/loaders/backhoes
Site Preparation	Cement and mortar mixers Generator sets Pumps Tractors/loaders/backhoes Rubber-tired dozers

Table 4.7-2. Typical Equipment

Construction Phase	Equipment
Structural Rehabilitation	Air compressors Cement and mortar mixers Generator sets Pumps
Building Construction	Aerial lifts Air compressors Cement and mortar mixers Cranes Forklifts Generator sets Pumps Tractors/loaders/backhoes Welders
Paving	Pavers Paving equipment Rollers
Architectural Coating	Air compressors
Testing	Generator sets

Operation

The FMP projects would rehabilitate, replace, or abandon existing facilities that are currently subject to ongoing operations and maintenance activity. Accordingly, the FMP projects addressed in this program environmental impact report (PEIR) do not propose appreciable changes to regular operations and maintenance activity by Sanitation District personnel. Therefore, potential operational GHG emissions are qualitatively evaluated.

4.7.4 Impacts Analysis

1. Would the project generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?

Less-than-Significant Impact. Project generation of GHG emissions during construction and operation is assessed in the following analysis.

Construction

Construction of the FMP projects would result in GHG emissions, which are primarily created by off-road construction equipment and on-road vehicles (haul trucks, vendor trucks, and worker vehicles). The SCAQMD Draft Guidance Document – Interim CEQA Greenhouse Gas (GHG) Significance Threshold (SCAQMD 2008) recommends that, "construction emissions be amortized over a 30-year project lifetime, so that GHG reduction measures will address construction GHG emissions as part of the operational GHG reduction strategies." Because the FMP projects are not anticipated to generate a net increase in operational GHG emissions, the total construction GHG emissions were calculated, amortized over 30 years, and then compared with the GHG significance threshold of 3,000 MT CO_2e per year.

CalEEMod was used to calculate the annual GHG emissions based on the construction scenario described in Section 4.7.3.2, Approach and Methodology (Construction Emissions). Construction of the project is assumed to take place over approximately 19 years. On-site sources of GHG emissions include off-road equipment and off-site sources including haul trucks, vendor trucks, and worker vehicles. Tables 4.7-3, 4.7-4, 4.7-5, 4.7-6, and 4.7-7 present construction emissions for the project from on-site and off-site emission sources for Plant 1, Plant 2, joint plant projects, collection system, and the entire project, respectively.

Table 4.7-3 presents estimated construction GHG emissions generated during construction of Plant 1 projects.

Table 4.7-3. Plant 1 Estimated Annual Construction GHG Emissions

Project	CO_2	CH_4	N_2O	CO_2e
	Metric Tons per Year			
2023				
P1-135 Digester Ferric Piping Replacement	129.88	0.03	0.00	130.52
Combined Total	*129.88*	*0.03*	*0.00*	*130.52*
2024				
P1-126 Primary Clarifiers Replacements and Improvements	380.85	0.09	0.00	383.01
X-090 Network, Telecommunications, and Service Relocation	60.13	0.02	0.00	60.55
Combined Total	*440.98*	*0.11*	*0.00*	*443.56*
2025				
P1-126 Primary Clarifiers Replacements and Improvements	547.93	0.07	0.00	549.63
X-093 Administrative Facilities and Power Building 3A Demolition	38.48	0.01	0.00	38.76
X-077 Switchgear Replacement at Central Generation	9.32	0.00	0.00	9.34
Combined Total	*595.73*	*0.08*	*0.00*	*597.73*
2026				
P1-126 Primary Clarifiers Replacements and Improvements	436.32	0.07	0.00	438.00
X-093 Administrative Facilities and Power Building 3A Demolition	129.51	0.03	0.00	130.21
X-092 Standby Generator Feeders for Plant 1 Secondary Systems	87.07	0.02	0.00	87.48
Combined Total	*652.90*	*0.12*	*0.00*	*655.69*
2027				
P1-126 Primary Clarifiers Replacements and Improvements	379.83	0.06	0.00	381.23
X-092 Standby Generator Feeders for Plant 1 Secondary Systems	87.96	0.01	0.00	88.31
X-048 Activated Sludge (AS)-1 Aeration Basin and Blower Rehabilitation	229.11	0.07	0.00	230.84
Combined Total	*696.90*	*0.14*	*0.00*	*700.38*

Table 4.7-3. Plant 1 Estimated Annual Construction GHG Emissions

Project	CO_2	CH_4	N_2O	CO_2e
	Metric Tons per Year			
2028				
P1-126 Primary Clarifiers Replacements and Improvements	45.78	0.01	0.00	45.83
X-048 Activated Sludge (AS)-1 Aeration Basin and Blower Rehabilitation	396.93	0.04	0.00	397.96
Combined Total	*442.71*	*0.05*	*0.00*	*443.79*
2029				
X-017 Plant 1 Primary Clarifiers 6-31	137.32	0.02	0.00	137.93
X-048 Activated Sludge (AS)-1 Aeration Basin and Blower Rehabilitation	174.32	0.01	0.00	174.50
Combined Total	*311.64*	*0.03*	*0.00*	*312.43*
2030				
X-017 Plant 1 Primary Clarifiers 6-31	174.09	0.01	0.00	174.23
X-048 Activated Sludge (AS)-1 Aeration Basin and Blower Rehabilitation	67.75	0.00	0.00	67.81
Combined Total	*241.84*	*0.01*	*0.00*	*242.04*
2031				
P1-127 Central Generation Rehabilitation	33.02	0.00	0.00	33.05
X-017 Plant 1 Primary Clarifiers 6-31	253.69	0.01	0.00	253.90
X-038 City Water Pump Station Rehabilitation	34.19	0.00	0.00	34.22
X-048 Activated Sludge (AS)-1 Aeration Basin and Blower Rehabilitation	1.26	0.00	0.00	1.26
Combined Total	*322.16*	*0.01*	*0.00*	*322.43*
2032				
P1-127 Central Generation Rehabilitation	348.98	0.01	0.00	349.27
X-017 Plant 1 Primary Clarifiers 6-31	118.17	0.00	0.00	118.26
X-038 City Water Pump Station Rehabilitation	28.50	0.00	0.00	28.52
X-043 Dissolved Air Flotation Thickener (DAFT) Demolition	203.71	0.01	0.00	203.94
X-049 Activated Sludge (AS)-1 Clarifier and RAS Pump Station Rehabilitation	62.39	0.00	0.00	62.45
Combined Total	*761.75*	*0.02*	*0.00*	*762.44*
2033				
P1-127 Central Generation Rehabilitation	19.61	0.00	0.00	19.62
X-017 Plant 1 Primary Clarifiers 6-31	0.67	0.00	0.00	0.67
X-049 Activated Sludge (AS)-1 Clarifier and RAS Pump Station Rehabilitation	400.29	0.01	0.00	400.61
Combined Total	*420.57*	*0.01*	*0.00*	*420.90*

Table 4.7-3. Plant 1 Estimated Annual Construction GHG Emissions

Project	CO_2	CH_4	N_2O	CO_2e
	Metric Tons per Year			
2034				
X-015 Trickling Filters Rehabilitation	267.75	0.01	0.00	267.98
X-049 Activated Sludge (AS)-1 Clarifier and RAS Pump Station Rehabilitation	285.89	0.01	0.00	286.11
Combined Total	*553.64*	*0.02*	*0.00*	*554.09*
2035				
X-006 Waste Side-Stream Pump Station 1 Upgrade	65.02	0.00	0.00	65.07
X-015 Trickling Filters Rehabilitation	369.52	0.01	0.00	369.82
Combined Total	*434.54*	*0.01*	*0.00*	*434.89*
2036				
X-006 Waste Side-Stream Pump Station 1 Upgrade	108.38	0.00	0.00	108.46
X-015 Trickling Filters Rehabilitation	107.44	0.00	0.00	107.52
X-039 Plant Water Pump Station Rehabilitation	29.62	0.00	0.00	29.64
X-079 Primary Scrubber Rehabilitation	287.40	0.01	0.00	287.63
Combined Total	*532.84*	*0.01*	*0.00*	*533.25*
2037				
X-018 Activated Sludge (AS) 2 Rehabilitation	230.57	0.01	0.00	230.75
X-039 Plant Water Pump Station Rehabilitation	8.13	0.00	0.00	8.14
X-079 Primary Scrubber Rehabilitation	52.02	0.00	0.00	52.06
Combined Total	*290.72*	*0.01*	*0.00*	*290.95*
2038				
X-018 Activated Sludge (AS) 2 Rehabilitation	267.86	0.01	0.00	268.10
Combined Total	*267.86*	*0.01*	*0.00*	*268.10*
2039				
X-018 Activated Sludge (AS) 2 Rehabilitation	111.27	0.00	0.00	111.35
Combined Total	*111.27*	*0.00*	*0.00*	*111.35*
Total				
Total For All Years of Construction	**7,083.95**	**0.65**	**0.00**	**7,100.41**

Notes: GHG = greenhouse gas; CO_2 = carbon dioxide; CH_4 = methane; N_2O = nitrous oxide; CO_2e = carbon dioxide equivalent; RAS = return activated sludge.
See Appendix D for complete results.

As shown in Table 4.7-3, total estimated GHG emissions generated during construction of Plant 1 projects is approximately 7,100 MT CO_2e.

Table 4.7-4 presents estimated construction GHG emissions generated during construction of Plant 2 projects.

Table 4.7-4. Plant 2 Estimated Annual Construction GHG Emissions

Project	CO_2	CH_4	N_2O	CO_2e
	Metric Tons per Year			
2021				
P2-138 Operations and Maintenance Complex at Plant 2	737.27	0.11	0.00	740.01
Combined Total	*737.27*	*0.11*	*0.00*	*740.01*
2022				
P2-138 Operations and Maintenance Complex at Plant 2	450.84	0.07	0.00	452.59
P2-126 Substation and Warehouse Replacement at Plant 2	399.73	0.05	0.00	401.06
Combined Total	*850.57*	*0.12*	*0.00*	*853.65*
2023				
P2-126 Substation and Warehouse Replacement at Plant 2	1,282.62	0.15	0.00	1,286.48
Combined Total	*1,282.62*	*0.15*	*0.00*	*1,286.48*
2024				
P2-126 Substation and Warehouse Replacement at Plant 2	1,434.88	0.16	0.00	1,438.90
X-050 Activated Sludge (AS) Aeration Basin	75.94	0.01	0.00	76.25
Combined Total	*1,510.82*	*0.17*	*0.00*	*1,515.15*
2025				
P2-126 Substation and Warehouse Replacement at Plant 2	273.43	0.05	0.00	274.70
X-050 Activated Sludge (AS) Aeration Basin	422.26	0.03	0.00	423.03
Combined Total	*695.69*	*0.08*	*0.00*	*697.73*
2026				
X-032 Truck Loading Facility Rehabilitation	68.10	0.01	0.00	68.47
X-050 Activated Sludge (AS) Aeration Basin	145.07	0.02	0.00	145.57
X-054 Waste Side-Stream Pump Station C Rehabilitation	74.82	0.01	0.00	75.12
Combined Total	*287.99*	*0.04*	*0.00*	*289.16*
2027				
X-032 Truck Loading Facility Rehabilitation	179.25	0.02	0.00	179.81
X-034 Sodium Bisulfite Station Replacement and Bleach Station Demolition	143.02	0.03	0.00	143.86

Table 4.7-4. Plant 2 Estimated Annual Construction GHG Emissions

Project	CO_2	CH_4	N_2O	CO_2e
	Metric Tons per Year			
X-050 Activated Sludge (AS) Aeration Basin	32.58	0.00	0.00	32.61
X-054 Waste Side-Stream Pump Station C Rehabilitation	67.66	0.01	0.00	67.82
Combined Total	*422.51*	*0.06*	*0.00*	*424.10*
2028				
X-034 Sodium Bisulfite Station Replacement and Bleach Station Demolition	6.38	0.00	0.00	6.39
Combined Total	*6.38*	*0.00*	*0.00*	*6.39*
2031				
P2-119 Central Generation Rehabilitation	18.47	0.00	0.00	18.49
X-007 Waste Side-stream Pump Station 2A Upgrade	205.27	0.02	0.00	205.73
X-036 City Water Pump Station Rehabilitation	23.70	0.00	0.00	23.73
Combined Total	*247.44*	*0.02*	*0.00*	*247.95*
2032				
P2-119 Central Generation Rehabilitation	510.06	0.02	0.00	510.50
X-007 Waste Side-stream Pump Station 2A Upgrade	303.29	0.05	0.00	304.44
X-036 City Water Pump Station Rehabilitation	43.18	0.00	0.00	43.22
X-037 Plant Water Pump Station and 12 kV Distribution Center A Demolition	52.82	0.00	0.00	52.88
Combined Total	*909.35*	*0.07*	*0.00*	*911.04*
2033				
P2-119 Central Generation Rehabilitation	38.91	0.00	0.00	38.94
X-007 Waste Side-stream Pump Station 2A Upgrade	86.85	0.01	0.00	87.06
Combined Total	*125.76*	*0.01*	*0.00*	*126.00*
2036				
X-014 Trickling Filter Solids-Contact Odor Control	365.65	0.01	0.00	365.94
X-030 Headworks Rehabilitation	82.60	0.00	0.00	82.67
X-052 Activated Sludge (AS) RAS/WAS/PEPS/Vaporizers Rehabilitation	125.78	0.00	0.00	125.89
Combined Total	*574.03*	*0.01*	*0.00*	*574.50*

Table 4.7-4. Plant 2 Estimated Annual Construction GHG Emissions

Project	CO_2	CH_4	N_2O	CO_2e
	Metric Tons per Year			
2037				
X-030 Headworks Rehabilitation	218.87	0.01	0.00	219.06
X-031 Trickling Filter Solids-Contact Rehabilitation	465.71	0.02	0.00	466.10
X-052 Activated Sludge (AS) RAS/WAS/PEPS/Vaporizers Rehabilitation	176.91	0.01	0.00	177.04
Combined Total	*861.49*	*0.04*	*0.00*	*862.20*
2038				
X-030 Headworks Rehabilitation	293.42	0.01	0.00	293.66
X-031 Trickling Filter Solids-Contact Rehabilitation	582.17	0.02	0.00	582.63
Combined Total	*875.59*	*0.03*	*0.00*	*876.29*
2039				
X-030 Headworks Rehabilitation	29.81	0.00	0.00	29.83
X-031 Trickling Filter Solids-Contact Rehabilitation	586.97	0.02	0.00	587.44
Combined Total	*616.78*	*0.02*	*0.00*	*617.27*
2040				
X-031 Trickling Filter Solids-Contact Rehabilitation	498.47	0.02	0.00	498.84
Combined Total	*498.47*	*0.02*	*0.00*	*498.84*
Total				
Total For All Years of Construction	**10,502.76**	**0.95**	**0.00**	**10,526.76**

Notes: GHG = greenhouse gas; CO_2 = carbon dioxide; CH_4 = methane; N_2O = nitrous oxide; CO_2e = carbon dioxide equivalent; RAS = return activated sludge; PEPS = Primary Effluent Pump Station.
See Appendix D for complete results.

As shown in Table 4.7-4, total estimated GHG emissions generated during construction of Plant 2 projects is approximately 10,527 MT CO_2e.

Table 4.7-5 presents estimated construction GHG emissions generated during construction of the joint plant projects.

Table 4.7-5. Joint Plant Projects Estimated Annual Construction GHG Emissions

Project	CO_2	CH_4	N_2O	CO_2e
	Metric Tons per Year			
2021				
J-98 Plantwide Miscellaneous Electrical Power Distribution System Improvements (Replacement)	271.42	0.01	0.00	271.76
Combined Total	*271.42*	*0.01*	*0.00*	*271.76*

Table 4.7-5. Joint Plant Projects Estimated Annual Construction GHG Emissions

Project	CO_2	CH_4	N_2O	CO_2e
	Metric Tons per Year			
2022				
J-98 Plantwide Miscellaneous Electrical Power Distribution System Improvements (Replacement)	320.11	0.02	0.00	320.49
Combined Total	*320.11*	*0.02*	*0.00*	*320.49*
2023				
J-98 Plantwide Miscellaneous Electrical Power Distribution System Improvements (Replacement)	319.21	0.01	0.00	319.56
Combined Total	*319.21*	*0.01*	*0.00*	*319.56*
2024				
J-98 Plantwide Miscellaneous Electrical Power Distribution System Improvements (Replacement)	321.04	0.01	0.00	321.37
J-120 Plantwide Miscellaneous Process Control Systems Upgrades	80.87	0.00	0.00	80.95
J-133 Laboratory Rehabilitation at Plant 1	45.02	0.01	0.00	45.34
Combined Total	*446.93*	*0.02*	*0.00*	*447.66*
2025				
J-98 Plantwide Miscellaneous Electrical Power Distribution System Improvements (Replacement)	319.22	0.01	0.00	319.52
J-120 Plantwide Miscellaneous Process Control Systems Upgrades	319.22	0.01	0.00	319.52
J-133 Laboratory Rehabilitation at Plant 1	115.65	0.03	0.00	116.30
X-057 (Yard Structures), X-058 (Yard Piping), X-059 (Tunnels) Plantwide Miscellaneous Rehabilitation and Replacement	444.37	0.03	0.00	445.21
Combined Total	*1,198.46*	*0.08*	*0.00*	*1,200.55*
2026				
J-98 Plantwide Miscellaneous Electrical Power Distribution System Improvements (Replacement)	51.29	0.00	0.00	51.33
J-120 Plantwide Miscellaneous Process Control Systems Upgrades	318.71	0.01	0.00	319.01
X-057 (Yard Structures), X-058 (Yard Piping), X-059 (Tunnels) Plantwide Miscellaneous Rehabilitation and Replacement	582.79	0.02	0.00	583.41
Combined Total	*952.79*	*0.03*	*0.00*	*953.75*

Table 4.7-5. Joint Plant Projects Estimated Annual Construction GHG Emissions

Project	CO_2	CH_4	N_2O	CO_2e
	Metric Tons per Year			
2027				
J-120 Plantwide Miscellaneous Process Control Systems Upgrades	318.26	0.01	0.00	318.56
J-121 Plantwide Miscellaneous Process Control Systems Upgrades	153.50	0.01	0.00	153.65
X-057 (Yard Structures), X-058 (Yard Piping), X-059 (Tunnels) Plantwide Miscellaneous Rehabilitation and Replacement	581.83	0.02	0.00	582.45
Combined Total	*1,053.59*	*0.04*	*0.00*	*1,054.66*
2028				
J-120 Plantwide Miscellaneous Process Control Systems Upgrades	316.65	0.01	0.00	316.95
J-121 Plantwide Miscellaneous Process Control Systems Upgrades	111.10	0.01	0.00	111.21
X-057 (Yard Structures), X-058 (Yard Piping), X-059 (Tunnels) Plantwide Miscellaneous Rehabilitation and Replacement	578.76	0.02	0.00	579.38
Combined Total	*1,006.51*	*0.04*	*0.00*	*1,007.54*
2029				
J-120 Plantwide Miscellaneous Process Control Systems Upgrades	237.23	0.01	0.00	237.45
X-057 (Yard Structures), X-058 (Yard Piping), X-059 (Tunnels) Plantwide Miscellaneous Rehabilitation and Replacement	580.26	0.02	0.00	580.87
Combined Total	*817.49*	*0.03*	*0.00*	*818.32*
2030				
J-121 Plantwide Miscellaneous Process Control Systems Upgrades	166.19	0.01	0.00	166.31
X-057 (Yard Structures), X-058 (Yard Piping), X-059 (Tunnels) Plantwide Miscellaneous Rehabilitation and Replacement	579.61	0.02	0.00	580.09
Combined Total	*745.80*	*0.03*	*0.00*	*746.40*
2031				
J-121 Plantwide Miscellaneous Process Control Systems Upgrades	165.99	0.01	0.00	166.11
X-057 (Yard Structures), X-058 (Yard Piping), X-059 (Tunnels) Plantwide Miscellaneous Rehabilitation and Replacement	330.09	0.01	0.00	330.34
Combined Total	*496.08*	*0.02*	*0.00*	*496.45*

Table 4.7-5. Joint Plant Projects Estimated Annual Construction GHG Emissions

Project	CO_2	CH_4	N_2O	CO_2e
	Metric Tons per Year			
2032				
J-121 Plantwide Miscellaneous Process Control Systems Upgrades	166.46	0.01	0.00	166.59
X-057 (Yard Structures), X-058 (Yard Piping), X-059 (Tunnels) Plantwide Miscellaneous Rehabilitation and Replacement	63.24	0.00	0.00	63.28
Combined Total	*229.70*	*0.01*	*0.00*	*229.87*
2033				
J-121 Plantwide Miscellaneous Process Control Systems Upgrades	13.33	0.00	0.00	13.34
Combined Total	*13.33*	*0.00*	*0.00*	*13.34*
2035				
X-044 Steve Anderson Lift Station Rehabilitation	136.34	0.00	0.00	136.46
Combined Total	*136.34*	*0.00*	*0.00*	*136.46*
2036				
X-044 Steve Anderson Lift Station Rehabilitation	59.46	0.00	0.00	59.50
Combined Total	*59.46*	*0.00*	*0.00*	*59.50*
Total				
Total For All Years of Construction	**8,067.22**	**0.34**	**0.00**	**8,076.31**

Notes: GHG = greenhouse gas; CO_2 = carbon dioxide; CH_4 = methane; N_2O = nitrous oxide; CO_2e = carbon dioxide equivalent.
See Appendix D for complete results.

As shown in Table 4.7-5, total estimated GHG emissions generated during construction of joint plant projects is approximately 8,076 MT CO_2e.

Table 4.7-6 presents estimated construction GHG emissions generated during construction of the collection system projects.

Table 4.7-6. Collection System Estimated Annual Construction GHG Emissions

Project	CO_2	CH_4	N_2O	CO_2e
	Metric Tons per Year			
2021				
7-66 Sunflower and Red Hill Interceptor Rehab/Repair	6.78	0.00	0.00	6.78
5-68 Newport Beach Pump Station Odor Control Improvements	128.85	0.01	0.00	129.16
Combined Total	*135.63*	*0.01*	*0.00*	*135.94*

Table 4.7-6. Collection System Estimated Annual Construction GHG Emissions

Project	CO_2	CH_4	N_2O	CO_2e
	Metric Tons per Year			
2022				
7-68 MacArthur Dual Force Main Improvements	25.04	0.00	0.00	25.07
5-68 Newport Beach Pump Station Odor Control Improvements	226.52	0.02	0.00	227.06
7-65 Gisler – Red Hill Interceptor Rehabilitation	146.47	0.01	0.00	146.65
7-67 Main Street P5 Force Main Rehabilitation	102.34	0.01	0.00	102.56
Combined Total	*500.37*	*0.04*	*0.00*	*501.34*
2023				
X-078 Air Jumper Additions and Rehabilitation	6.75	0	0	6.76
7-68 MacArthur Dual Force Main Improvements	225.39	0.01	0.00	225.60
7-65 Gisler – Red Hill Interceptor Rehabilitation	6.78	0.00	0.00	6.78
7-67 Main Street P5 Force Main Rehabilitation	18.73	0.00	0.00	18.75
X-076 Santa Ana Trunk Sewer Rehabilitation Phase II	79.64	0.00	0.00	79.72
Combined Total	*337.29*	*0.01*	*0.00*	*337.61*
2024				
X-078 Air Jumper Additions and Rehabilitation	13.50	0.00	0.00	13.52
2-73 Yorba Linda Pump Station Abandonment	164.81	0.04	0.00	165.85
X-060 Newhope Placentia Chemical Dosing Station	121.93	0.02	0.00	122.37
X-076 Santa Ana Trunk Sewer Rehabilitation Phase II	449.03	0.02	0.00	449.50
X-082 North Trunk Improvement Project	170.57	0.03	0.00	171.32
Combined Total	*919.84*	*0.11*	*0.00*	*922.56*
2025				
X-078 Air Jumper Additions and Rehabilitation	13.50	0.00	0.00	13.52
2-73 Yorba Linda Pump Station Abandonment	95.81	0.02	0.00	96.24
X-076 Santa Ana Trunk Sewer Rehabilitation Phase II	6.73	0.00	0.00	6.74
X-082 North Trunk Improvement Project	22.65	0.00	0.00	22.67
X-083 Greenville–Sullivan Sewer Relief Project	339.49	0.06	0.00	341.04
Combined Total	*478.18*	*0.08*	*0.00*	*480.21*

Table 4.7-6. Collection System Estimated Annual Construction GHG Emissions

Project	CO_2	CH_4	N_2O	CO_2e
	Metric Tons per Year			
2026				
X-078 Air Jumper Additions and Rehabilitation	13.50	0.00	0.00	13.52
11-33 Edinger Pumping Station Replacement	42.01	0.01	0.00	42.23
X-083 Greenville–Sullivan Sewer Relief Project	106.81	0.02	0.00	107.22
Combined Total	*162.32*	*0.03*	*0.00*	*162.97*
2027				
X-078 Air Jumper Additions and Rehabilitation	13.50	0.00	0.00	13.52
11-33 Edinger Pumping Station Replacement	391.95	0.04	0.00	393.03
X-026 College Avenue Force Main Rehabilitation	93.89	0.00	0.00	93.98
Combined Total	*499.34*	*0.04*	*0.00*	*500.53*
2028				
X-078 Air Jumper Additions and Rehabilitation	13.50	0.00	0.00	13.52
11-33 Edinger Pumping Station Replacement	125.65	0.01	0.00	125.87
X-026 College Avenue Force Main Rehabilitation	23.47	0.00	0.00	23.50
2-49 Taft Branch (City of Orange) Sewer Upsize	266.17	0.05	0.00	267.38
Combined Total	*428.79*	*0.06*	*0.00*	*430.27*
2029				
X-078 Air Jumper Additions and Rehabilitation	11.25	0.00	0.00	11.27
X-063 South Santa Ana River Interceptor Connector Rehabilitation	140.89	0.02	0.00	141.41
Combined Total	*152.14*	*0.02*	*0.00*	*152.68*
2030				
X-078 Air Jumper Additions and Rehabilitation	11.25	0.00	0.00	11.27
X-071 Edinger / Springdale Trunk Sewer Rehabilitation	135.67	0.01	0.00	135.81
Combined Total	*146.92*	*0.01*	*0.00*	*147.08*
2031				
X-078 Air Jumper Additions and Rehabilitation	11.25	0.00	0.00	11.27
X-071 Edinger / Springdale Trunk Sewer Rehabilitation	114.76	0.00	0.00	114.86

Table 4.7-6. Collection System Estimated Annual Construction GHG Emissions

Project	CO_2	CH_4	N_2O	CO_2e
	Metric Tons per Year			
7-63 MacArthur Pump Station Rehabilitation	114.65	0.00	0.00	114.77
X-065 Tustin-Orange Interceptor Sewer at Reach 17 Rehabilitation	9.78	0.00	0.00	9.79
X-023 Lido Pump Station Rehabilitation	52.97	0.00	0.00	53.07
11-34 Slater Avenue Pump Station Rehabilitation	37.25	0.00	0.00	37.33
7-64 Main Street Pump Station Rehabilitation	20.18	0.00	0.00	20.22
Combined Total	*360.84*	*0.00*	*0.00*	*361.31*
2032				
X-078 Air Jumper Additions and Rehabilitation	11.25	0.00	0.00	11.27
7-63 MacArthur Pump Station Rehabilitation	346.53	0.01	0.00	346.88
X-065 Tustin-Orange Interceptor Sewer at Reach 17 Rehabilitation	107.58	0.00	0.00	107.69
X-023 Lido Pump Station Rehabilitation	68.10	0.01	0.00	68.24
11-34 Slater Avenue Pump Station Rehabilitation	55.88	0.00	0.00	55.99
7-64 Main Street Pump Station Rehabilitation	60.54	0.01	0.00	60.66
Combined Total	*649.88*	*0.03*	*0.00*	*650.73*
2033				
X-078 Air Jumper Additions and Rehabilitation	6.75	0.00	0.00	6.76
3-67 Seal Beach Pump Station Replacement	184.88	0.01	0.00	185.05
X-084 Tustin Avenue Sewer Relief	117.36	0.00	0.00	117.48
11-34 Slater Avenue Pump Station Rehabilitation	27.94	0.00	0.00	27.99
7-64 Main Street Pump Station Rehabilitation	40.36	0.00	0.00	40.44
Combined Total	*377.29*	*0.01*	*0.00*	*377.72*
2034				
3-67 Seal Beach Pump Station Replacement	0.19	0.00	0.00	0.19
X-066 Tustin-Orange Interceptor Sewer at Reach 18 Rehabilitation	117.36	0.00	0.00	117.48
X-086 Santa Ana River Sewer Relief	174.11	0.01	0.00	174.30
X-067 (X-085) Hoover-Western Sub-Trunks Sewer Rehabilitation	195.65	0.01	0.00	195.84
Combined Total	*487.31*	*0.02*	*0.00*	*487.81*

Table 4.7-6. Collection System Estimated Annual Construction GHG Emissions

Project	CO_2	CH_4	N_2O	CO_2e
	Metric Tons per Year			
2035				
X-086 Santa Ana River Sewer Relief	226.06	0.01	0.00	226.28
X-067 (X-085) Hoover-Western Sub-Trunks Sewer Rehabilitation	54.78	0.00	0.00	54.83
Combined Total	*280.84*	*0.01*	*0.00*	*281.11*
2036				
X-040 College Ave Pump Station Replacement	65.84	0.00	0.00	65.89
X-061 Imperial Highway Relief Interceptor Rehabilitation	27.83	0.00	0.00	27.85
X-022 15th Street Pump Station Rehabilitation	27.94	0.00	0.00	27.99
X-041 A Street Pump Station Rehabilitation	24.21	0.00	0.00	24.26
X-024 Rocky Point Pump Station Rehabilitation	51.66	0.00	0.00	51.70
Combined Total	*197.48*	*0.00*	*0.00*	*197.69*
2037				
X-040 College Ave Pump Station Replacement	192.45	0.01	0.00	192.60
X-061 Imperial Highway Relief Interceptor Rehabilitation	222.60	0.01	0.00	222.82
X-068 North Trunk Rehabilitation	117.36	0.00	0.00	117.48
X-022 15th Street Pump Station Rehabilitation	93.13	0.01	0.00	93.32
X-041 A Street Pump Station Rehabilitation	96.86	0.01	0.00	97.05
5-66 Crystal Cove Pumping Station Upgrade and Rehabilitation	103.77	0.01	0.00	103.98
X-024 Rocky Point Pump Station Rehabilitation	206.63	0.01	0.00	206.79
X-025 Bitter Point Pump Station Rehabilitation	189.41	0.01	0.00	189.56
Combined Total	*1,222.21*	*0.07*	*0.00*	*1,223.60*
2038				
5-66 Crystal Cove Pumping Station Upgrade and Rehabilitation	17.30	0.00	0.00	17.33
X-025 Bitter Point Pump Station Rehabilitation	68.88	0.00	0.00	68.93
Combined Total	*86.18*	*0.00*	*0.00*	*86.26*
Total				
Total For All Years of Construction	**7,422.85**	**0.55**	**0.00**	**7,437.42**

Notes: GHG = greenhouse gas; CO_2 = carbon dioxide; CH_4 = methane; N_2O = nitrous oxide; CO_2e = carbon dioxide equivalent. See Appendix D for complete results.

As shown in Table 4.7-6, total estimated GHG emissions generated during construction of collection system projects is approximately 7,437 MT CO_2e.

Table 4.7-7 presents estimated construction GHG emissions generated during construction of the entire project in each year, including the Plant 1, Plant 2, joint plant, and collection system projects.

Table 4.7-7. Combined Projects Estimated Annual Construction GHG Emissions

Project	CO_2	CH_4	N_2O	CO_2e
	Metric Tons per Year			
2021				
Plant 1	0.00	0.00	0.00	0.00
Plant 2	737.27	0.11	0.00	740.01
Joint Plant	271.42	0.01	0.00	271.76
Collection System	135.63	0.01	0.00	135.94
Combined Total	*1,144.32*	*0.13*	*0.00*	*1,147.71*
2022				
Plant 1	0.00	0.00	0.00	0.00
Plant 2	850.57	0.12	0.00	853.65
Joint Plant	320.11	0.02	0.00	320.49
Collection System	500.37	0.04	0.00	501.34
Combined Total	*1,671.05*	*0.18*	*0.00*	*1,675.48*
2023				
Plant 1	129.88	0.03	0.00	130.52
Plant 2	1,282.62	0.15	0.00	1,286.48
Joint Plant	319.21	0.01	0.00	319.56
Collection System	337.29	0.01	0.00	337.61
Combined Total	*2,069.00*	*0.20*	*0.00*	*2,074.17*
2024				
Plant 1	412.91	0.10	0.00	415.43
Plant 2	1,510.82	0.17	0.00	1,515.15
Joint Plant	446.93	0.02	0.00	447.66
Collection System	919.84	0.11	0.00	922.56
Combined Total	*3,318.57*	*0.41*	*0.00*	*3,328.93*
2025				
Plant 1	559.13	0.08	0.00	561.10
Plant 2	695.69	0.08	0.00	697.73
Joint Plant	1,198.46	0.08	0.00	1,200.55
Collection System	478.18	0.08	0.00	480.21
Combined Total	*2,968.06*	*0.32*	*0.00*	*2,976.22*
2026				
Plant 1	621.85	0.12	0.00	624.62
Plant 2	287.99	0.04	0.00	289.16
Joint Plant	952.79	0.03	0.00	953.75
Collection System	162.32	0.03	0.00	162.97
Combined Total	*2,056.00*	*0.22*	*0.00*	*2,061.57*

Table 4.7-7. Combined Projects Estimated Annual Construction GHG Emissions

Project	CO_2	CH_4	N_2O	CO_2e
	Metric Tons per Year			
2027				
Plant 1	670.98	0.13	0.00	674.43
Plant 2	422.51	0.06	0.00	424.10
Joint Plant	1,053.59	0.04	0.00	1,054.66
Collection System	499.34	0.04	0.00	500.53
Combined Total	*2,672.34*	*0.28*	*0.00*	*2,679.67*
2028				
Plant 1	440.37	0.05	0.00	441.44
Plant 2	6.38	0.00	0.00	6.39
Joint Plant	1,006.51	0.04	0.00	1,007.54
Collection System	428.79	0.06	0.00	430.27
Combined Total	*1,884.39*	*0.15*	*0.00*	*1,887.99*
2029				
Plant 1	311.64	0.03	0.00	312.43
Plant 2	0.00	0.00	0.00	0.00
Joint Plant	817.49	0.03	0.00	818.32
Collection System	152.14	0.02	0.00	152.68
Combined Total	*1,281.27*	*0.08*	*0.00*	*1,283.43*
2030				
Plant 1	241.84	0.01	0.00	242.04
Plant 2	0.00	0.00	0.00	0.00
Joint Plant	745.80	0.03	0.00	746.40
Collection System	146.92	0.01	0.00	147.08
Combined Total	*1,134.56*	*0.05*	*0.00*	*1,135.52*
2031				
Plant 1	322.16	0.01	0.00	322.43
Plant 2	247.44	0.02	0.00	247.95
Joint Plant	496.08	0.02	0.00	496.45
Collection System	360.84	0.00	0.00	361.31
Combined Total	*1,426.52*	*0.05*	*0.00*	*1,428.14*
2032				
Plant 1	761.75	0.02	0.00	762.44
Plant 2	909.35	0.07	0.00	911.04
Joint Plant	229.70	0.01	0.00	229.87
Collection System	649.88	0.03	0.00	650.73
Combined Total	*2,550.68*	*0.13*	*0.00*	*2,554.08*
2033				
Plant 1	420.57	0.01	0.00	420.90
Plant 2	125.76	0.01	0.00	126.00
Joint Plant	13.33	0.00	0.00	13.34

Table 4.7-7. Combined Projects Estimated Annual Construction GHG Emissions

Project	CO_2	CH_4	N_2O	CO_2e
	Metric Tons per Year			
Collection System	377.29	0.01	0.00	377.72
Combined Total	*936.95*	*0.03*	*0.00*	*937.96*
2034				
Plant 1	553.64	0.02	0.00	554.09
Plant 2	0.00	0.00	0.00	0.00
Joint Plant	0.00	0.00	0.00	0.00
Collection System	487.31	0.02	0.00	487.81
Combined Total	*1,040.95*	*0.04*	*0.00*	*1,041.90*
2035				
Plant 1	434.54	0.01	0.00	434.89
Plant 2	0.00	0.00	0.00	0.00
Joint Plant	136.34	0.00	0.00	136.46
Collection System	280.84	0.01	0.00	281.11
Combined Total	*851.72*	*0.02*	*0.00*	*852.46*
2036				
Plant 1	532.84	0.01	0.00	533.25
Plant 2	574.03	0.01	0.00	574.50
Joint Plant	59.46	0.00	0.00	59.50
Collection System	197.48	0.00	0.00	197.69
Combined Total	*1,363.81*	*0.02*	*0.00*	*1,364.94*
2037				
Plant 1	290.72	0.01	0.00	290.95
Plant 2	861.49	0.04	0.00	862.20
Joint Plant	0.00	0.00	0.00	0.00
Collection System	1,222.21	0.07	0.00	1,223.60
Combined Total	*2,374.42*	*0.12*	*0.00*	*2,376.75*
2038				
Plant 1	267.86	0.01	0.00	268.10
Plant 2	875.59	0.03	0.00	876.29
Joint Plant	0.00	0.00	0.00	0.00
Collection System	86.18	0.00	0.00	86.26
Combined Total	*1,229.63*	*0.04*	*0.00*	*1,230.65*
2039				
Plant 1	111.27	0.00	0.00	111.35
Plant 2	616.78	0.02	0.00	617.27
Joint Plant	0.00	0.00	0.00	0.00
Collection System	0.00	0.00	0.00	0.00
Combined Total	*728.05*	*0.02*	*0.00*	*728.62*
2040				
Plant 1	0.00	0.00	0.00	0.00
Plant 2	498.47	0.02	0.00	498.84

Table 4.7-7. Combined Projects Estimated Annual Construction GHG Emissions

Project	CO_2	CH_4	N_2O	CO_2e
	Metric Tons per Year			
Joint Plant	0.00	0.00	0.00	0.00
Collection System	0.00	0.00	0.00	0.00
Combined Total	*498.47*	*0.02*	*0.00*	*498.84*
Total				
Total For All Years of Construction	**33,200.76**	**2.51**	**0.00**	**33,265.03**
Amortized Over 30 Years				**1,108.83**
GHG Emissions Threshold				*3,000*
Threshold Exceeded?				**No**

Notes: GHG = greenhouse gas; CO_2 = carbon dioxide; CH_4 = methane; N_2O = nitrous oxide; CO_2e = carbon dioxide equivalent.
See Appendix D for complete results.

As shown in Table 4.7-7, the estimated total GHG emissions during construction of the entire project would total approximately 33,265 MT CO_2e over the assumed 19-year construction period. Estimated project-generated construction emissions amortized over 30 years would be approximately 1,109 MT CO_2e per year, which would not exceed the recommended SCAQMD threshold of 3,000 MT CO_2e per year. As noted earlier, the expected lifetime of the FMP projects is anticipated to be greater than 30 years; however, 30 years is an appropriate assumption as many facilities are replaced prior to reaching full anticipated lifetime to maintain reliable service. Nonetheless, because the project would be buildout over a 19-year time period, assuming a lifetime of 19 years, estimated amortized project-generated construction emissions amortized would be approximately 1,751 MT CO_2e per year, which is also below the 3,000 MT CO_2e per year threshold.

Because there is no separate GHG threshold for construction, the evaluation of significance should consider project operation. However, as explained below, the project is not anticipated to result in a net increase in operational GHG emissions. The impact determination is therefore based on the GHG emissions presented in Table 4.7-7 and, as shown, amortized construction emissions over 30 years would not exceed the recommended SCAQMD threshold of 3,000 MT CO_2e per year.

Operation

For land use development projects, typical GHG emissions that may be generated are associated with area sources (landscape maintenance equipment), energy (natural gas and electricity), mobile sources (vehicles), solid waste, water and wastewater, and potentially stationary sources. The FMP projects would rehabilitate, replace, or abandon existing facilities that are currently subject to ongoing operations and maintenance activity. Accordingly, the projects addressed in this PEIR do not propose appreciable changes to regular operations and maintenance activity by Sanitation District personnel. Accordingly, operation of the FMP projects is not anticipated to generate an increase in GHG emissions from area, energy, mobile, solid waste, water/wastewater, or stationary sources, as further described below.

Plant 1 includes various replacement and rehabilitation projects, with only one project (X-090) including construction of a structure. X-090, Network, Telecommunications, and Server Relocation at Plant 1, includes the construction of an approximately 200-square-foot utility building to house Sanitation District network, telecommunications, and servers, which would not result in typical building GHG emissions such as electricity, water supply, and solid waste.

Similar to Plant 1, Plant 2 includes various replacement and rehabilitation projects, with only P2-126 and P2-138 including structural replacements. For P2-126, Substation and Warehouse Replacement at Plant 2, the existing 21,000-square-foot warehouse would be demolished and reconstructed in a new location, which is anticipated to be larger (approximately 30,100 square feet) as some outdoor storage may be moved to indoor storage. While the new warehouse would be larger in size, it is not anticipated to generate substantially greater electricity, natural gas, or water use and is anticipated to have increased energy efficiency compared to the existing building. P2-126 also includes replacement of a Southern California Edison substation and replacement of a service center (approximately 3,100 square feet), both of which are anticipated to be approximately the same size as the existing structures and would not result in a net increase in operational GHG emissions at these structures because they will primarily house electrical systems and equipment. P2-138, Operations and Maintenance Complex at Plant 2, would demolish the existing building and guard shack totaling 36,680 square feet and construct a new building (35,700 square feet) and new guard shack (200 square feet). Overall, the new structures would be slightly less square footage than the existing structures and would increase in building energy efficiency; therefore, this project would not result in an increase in GHG emissions.

The Joint Plant projects primarily consist of improvements of plantwide electrical and control systems; however, J-133 would result in a new structure. For J-133, Laboratory Rehabilitation or Replacement at Plant 1, the existing 40,000-square-foot laboratory building located at Plant 1 would be rehabilitated or replaced; however, for modeling purposes, it was assumed to be replaced by a new 40,000-square-foot laboratory building. The replacement J-133 building would be the same size, but since it would be built consistent with current building codes, including the 2019 Title 24 building energy efficiency standards, it is anticipated to be more energy efficient than the existing building.

For the collection system projects, which primarily consist of replacement or rehabilitation of pipelines and pump stations, once the replacement or rehabilitation is complete, no routine operational activity[6] or associated GHG emissions would occur. X-060, Newhope Placentia Chemical Dosing Station, includes removal of an existing pump station and construction of a new chemical dosing station at the abandoned pump station site. The chemical dosing station is anticipated to be small (less than 100 square feet) and would not generate GHG emissions typical of building operation since it will primarily house chemicals.

As previously mentioned, no projects under the FMP are anticipated to require additional Sanitation District personnel. To the extent feasible, replacement and rehabilitation projects would assist in improving energy efficiency, which would reduce energy-related (electricity and natural gas) GHG emissions. Therefore, implementation of the project is not anticipated to generate an increase in operational GHG emissions compared to existing conditions and may reduce energy-related GHG emissions.

Summary

As discussed under construction and shown in Table 4.7-7, amortized project-generated construction emissions would not exceed the recommended 3,000 MT CO_2e per year SCAQMD threshold, and the project would not result in a net increase in operational GHG emissions. Therefore, GHG emissions impacts would be less than significant.

[6] Maintenance may occur for collection system projects; however, maintenance activities would be infrequent and would not represent a routine daily activity that would be a source of long-term GHG emissions.

2. Would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs?

Less-than-Significant Impact. The FMP's potential to conflict with an applicable plan, policy, or regulation is analyzed below.

Project Consistency with Local Greenhouse Gas Emission Reduction Plans

As explained previously, the FMP includes components that are within cities that have adopted GHG emission reduction plans, such as CAPs. The focus of GHG emission reduction plans is on long-term sources of GHG emissions rather than short-term construction. In addition, GHG reduction measures are primarily aimed at new and existing land use development and local-level municipal operations and are generally not applicable to utilities or projects undertaken by the Sanitation District. The Sanitation District understands the importance of consistency with the goals and policies identified within local jurisdictions' general plans and other local ordinances/plans, such as GHG reduction plans and CAPs; however, per California Government Code Section 53091, the Sanitation District, as a wastewater treatment facility, is exempt from local building ordinances. As part of standard practice, the Sanitation District would coordinate with local jurisdictions to the extent feasible during proposed FMP implementation to avoid and/or minimize potential impacts from the proposed FMP. The proposed FMP is intended to maintain, repair, and improve existing infrastructure, as necessary, to ensure the reliability of the Sanitation District's water conveyance and treatment system. Overall, the proposed FMP, which is a maintenance program, is not anticipated to conflict with any applicable land use plans, policies, or regulations of local agencies. Nonetheless, for disclosure, the FMP's potential to conflict with local adopted GHG reduction plans is evaluated below.

City of Fullerton

The City of Fullerton's 2012 CAP identifies a series of climate action strategies that guide the City in four focus areas: transportation and mobile strategy, energy and conservation strategy, water use and efficiency strategy, and solid waste and recycling strategy (City of Fullerton 2012). However, the measures outlined in the CAP are not directly applicable to individual projects and mainly are intended for the City to implement.

FMP project components located within the City of Fullerton include 2-73, X-060, and X-078. 2-73 involves abandonment of the Yorba Linda Pump Station and downstream forcemain and the related X-060 will add a chemical dosing station at the site of the abandoned Yorba Linda Pump Station. X-078 involves air jumper addition or rehabilitation. Implementation of the FMP projects within the City of Fullerton would not conflict with the CAP transportation/mobility, energy, water, and solid waste GHG emission reduction strategies as they would involve temporary construction activity and would not result in long-term, operational GHG emissions that are typical of land use development projects. In addition, consistency with the City of Fullerton's CAP can be determined if the FMP is consistent with The Fullerton Plan's year 2030 growth projections. Because the project would not result in growth within the City, the FMP would be consistent with the growth projections. As such, the FMP would not conflict with the City of Fullerton's CAP.

City of Huntington Beach

The City of Huntington Beach GGRP includes GHG reduction strategies grouped into nine categories: (1) land use, (2) transportation, (3) alternative fuels, (4) renewable energy, (5) energy efficiency, (6) off-road

equipment, (7) water and wastewater, (8) resource management, and (9) community awareness. Specifically, the renewable energy grouping includes a strategy to expand the number of solar energy systems on new and existing nonresidential buildings and a strategy to transition to zero-net-energy buildings for all new construction in support of state mandates, and energy efficiency strategies include nonresidential retrofits and electrification. The off-road equipment strategies include alternative fuel construction equipment (hybrid-electric, natural gas, and biodiesel). Strategies related to transportation and alternative-fueled vehicles would not apply to the FMP because there would be no operation net increase in Sanitation District staff or associated vehicle trips.

FMP project components located within the City of Huntington Beach[7] include 11-33, 11-34, J-121, P2-126, P2-138, X-007, X-032, X-036, X-037, X-050, X-054, X-071, and X-078. Projects 11-33 and 11-34 involve pump station replacement, X-036 involves pump station rehabilitation, X-037 involves pump station demolition, X-007 involves waste side-stream pump station upgrades, and X-054 involves waste side=stream pump station rehabilitation. Project X-032 involves rehabilitation of an existing truck loading facility, X-050 includes rehabilitation of the Plant 2 activated sludge aeration basin, X-071 involves truck sewer rehabilitation, X-078 involves air jumper addition or rehabilitation, and J-121 involves uninterruptible power system (UPS) system upgrades. P2-126 involves substation, service center, and warehouse replacement, and P2-138 involves an operations and maintenance complex at Plant 2; both include replacement buildings or smaller structural enclosures.

Projects 11-33, 11-34, J-121, X-007, X-032, X-036, X-037, X-050, X-054, X-071, and X-078 do not include new structures or long-term operational GHG emissions; however, all would result in temporary construction GHG emissions. The City's off-road GHG reduction strategies include the use of hybrid and alternative fuel construction equipment for large projects. To the extent hybrid-electric, natural gas, and biodiesel equipment becomes more readily available in construction fleets, the Sanitation District will use such equipment for construction activities. Projects P2-126 and P2-138 would replace existing buildings and structures with buildings and structures of equal or similar size, which would be more energy efficient than the existing buildings and structures. As explained under the qualitative operational emissions analysis, neither P2-126 nor P2-138 are anticipated to result in a substantial increase on operational activity and associated GHG emissions. Accordingly, the P2-126 and P2-138 would not conflict with the City of Huntington Beach's GGRP strategies related to energy. Overall, the FMP is not anticipated to conflict with the City of Huntington Beach's GGRP.

City of La Habra

The City of La Habra's 2016 CAP includes various GHG emission reduction measures related to transportation (vehicle miles traveled [VMT] reduction, alternative fuels, and bicycle infrastructure), energy (energy efficiency for new development and retrofits, and renewable energy), area source (electric landscape equipment, tree planting, and urban heat island reduction), water (water use reduction and water efficiency), and solid waste (waste diversion, landfill energy, and waste education).

FMP project components located within the City of La Habra include X-061 and X-078. X-061 includes replacing and rehabilitating sewer pipe along Imperial Highway and X-078 involves air jumper addition or rehabilitation. Both X-061 and X-078 involve temporary construction activity and would not represent a long-term source of GHG emissions that would conflict with the City of La Habra's CAP. In addition, the City of La Habra's GHG emission reduction measures would not apply as they are focused on typical land use

[7] The following projects are located within the unincorporated area of Huntington Beach and therefore, are not within the City of Huntington Beach's jurisdiction: P2-119, X-014, X-030, X-031, X-034, and X-052.

development. To demonstrate consistency with the City of La Habra's CAP, projects would have to incorporate measures that address the following broad categories of GHG emissions sources: electricity use and use of fossil-fuel based generation for heating, water use, and mobiles sources. Because the FMP projects within the City of La Habra's city limits would not result in electricity, heating, or water demand or generate mobile source emissions, no reductions would be necessary. As such, the FMP would not conflict with the City of La Habra's CAP.

City of Santa Ana

The City of Santa Ana's 2015 CAP includes reduction measures focused on transportation, land use, energy, solid waste, water, and wastewater. Regarding transportation and land use, the City of Santa Ana's CAP includes measures related to development of local retail nodes, placement of residential nodes near retail and employment, traffic signal synchronization, end of trip facilities, safe routes to school, bike/pedestrian/transit connectivity, bike sharing, and municipal operations. Energy measures include Property Assessed Clean Energy financing, solar photovoltaic, weatherization, streetlight retrofits, benchmarking and retrocommissioning, Title 24 energy efficiency for commercial and residential, green business challenge, and municipal operations measures. Solid waste, water, and wastewater CAP measures include AB 341 commercial and multifamily recycling, food waste digestion, rainwater harvesting, and turf removal.

FMP project components located either entirely or within a portion of the City of Santa Ana are 7-66, X-078, X-083, and X-084. Project 7-66 would repair plastic liner failures of the Sunflower and Red Hill interceptors, X-083 includes replacement of pipe with a large-diameter pipe along the Greenville–Sullivan regional sewer, X-084 would replace and upsize approximately pipe to increase the capacity of the West Trunk regional sewer, and X-078 involves air jumper addition or rehabilitation. None of the City of Santa Ana CAP reduction measures would apply to the FMP project components within the City because they would result in temporary GHG emissions generated during construction, but would not result in long-term operational GHG emissions. Accordingly, the FMP would not conflict with the City of Santa Ana's CAP.

Project Consistency with CARB's Scoping Plan

The Scoping Plan (approved by CARB in 2008 and updated in 2014 and 2017) provides a framework for actions to reduce California's GHG emissions and requires CARB and other state agencies to adopt regulations and other initiatives to reduce GHGs. The Scoping Plan is not directly applicable to specific projects, nor is it intended to be used for project-level evaluations.[8] Under the Scoping Plan, however, there are several state regulatory measures aimed at the identification and reduction of GHG emissions. CARB and other state agencies have adopted many of the measures identified in the Scoping Plan. Most of these measures focus on area source emissions (e.g., energy usage, high-GWP GHGs in consumer products) and changes to the vehicle fleet (i.e., hybrid, electric, and more fuel-efficient vehicles) and associated fuels (e.g., LCFS), among others. Accordingly, the Scoping Plan measures focus on reducing long-term operational GHG emissions rather than short-term construction GHG emissions.

The Scoping Plan recommends strategies for implementation at the statewide level to meet the goals of AB 32 and establishes an overall framework for the measures that will be adopted to reduce California's GHG

[8] The Final Statement of Reasons for the amendments to the State CEQA Guidelines reiterates the statement in the Initial Statement of Reasons that "[t]he Scoping Plan may not be appropriate for use in determining the significance of individual projects because it is conceptual at this stage and relies on the future development of regulations to implement the strategies identified in the Scoping Plan" (CNRA 2009a).

emissions. Table 4.7-8 highlights measures that have been, or will be, developed under the Scoping Plan and presents the FMP's consistency with Scoping Plan measures. The FMP would comply with all regulations adopted in furtherance of the Scoping Plan to the extent required by law and to the extent that they are applicable to the FMP.

Table 4.7-8. FMP Consistency with 2008 Scoping Plan GHG Emission Reduction Strategies

Scoping Plan Measure	Measure Number	FMP Consistency
Transportation Sector		
Advanced Clean Cars	T-1	*No conflict.* The FMP would not result in a net increase in operational vehicle trips.
Low Carbon Fuel Standard	T-2	*No conflict.* This is a statewide measure that cannot be implemented by a project applicant or lead agency.
Regional Transportation-Related GHG Targets	T-3	*Not applicable.* The FMP is not related to developing GHG emission reduction targets. The project would not preclude the implementation of this strategy.
Advanced Clean Transit	N/A	*Not applicable.* The FMP would not prevent CARB from implementing this measure.
Last-Mile Delivery	N/A	*Not applicable.* The FMP would not prevent CARB from implementing this measure.
Reduction in VMT	N/A	*Not applicable.* The FMP would not result in a net increase in operational vehicle trips and the project would not prevent CARB from implementing this measure.
Vehicle Efficiency Measures 1. Tire Pressure 2. Fuel Efficiency Tire Program 3. Low-Friction Oil 4. Solar-Reflective Automotive Paint and Window Glazing	T-4	*No conflict.* The FMP would not result in a net increase in operational vehicle trips. In addition, the Project would not prevent CARB from implementing this measure.
Ship Electrification at Ports (Shore Power)	T-5	*Not applicable.* The FMP is not located within a Port district. In addition, the FMP would not prevent CARB from implementing this measure.
Goods Movement Efficiency Measures 1. Port Drayage Trucks 2. Transport Refrigeration Units Cold Storage Prohibition 3. Cargo Handling Equipment, Anti-Idling, Hybrid, Electrification 4. Goods Movement Systemwide Efficiency Improvements 5. Commercial Harbor Craft Maintenance and Design Efficiency 6. Clean Ships 7. Vessel Speed Reduction	T-6	*Not applicable.* The FMP would not prevent CARB from implementing this measure.

Table 4.7-8. FMP Consistency with 2008 Scoping Plan GHG Emission Reduction Strategies

Scoping Plan Measure	Measure Number	FMP Consistency
Heavy-Duty Vehicle GHG Emission Reduction • Tractor-Trailer GHG Regulation • Heavy-Duty Greenhouse Gas Standards for New Vehicle and Engines (Phase I)	T-7	*No conflict.* The FMP would not result in an increase in operational heavy-duty vehicle trips. During construction, heavy-duty truck use would be temporary. In addition, the project would not prevent CARB from implementing this measure.
Medium- and Heavy-Duty Vehicle Hybridization Voucher Incentive Proposed Project	T-8	*No conflict.* The FMP would not result in an increase in operational medium- or heavy-duty vehicle trips. In addition, the FMP would not prevent CARB from implementing this measure.
Medium and Heavy-Duty GHG Phase 2	N/A	*Not applicable.* The FMP would not result in an increase in operational medium- or heavy-duty vehicle trips. The FMP would not prevent CARB from implementing this measure.
High-Speed Rail	T-9	*Not applicable.* The FMP would not prevent CARB from implementing this measure.
Electricity and Natural Gas Sector		
Energy Efficiency Measures (Electricity)	E-1	*No conflict.* The FMP is not anticipated to result in a net increase in operational electricity use. However, the FMP replacement buildings would comply with the current Title 24 Building Energy Efficiency Standards, which is anticipated to improve energy efficiency and reduce electricity use. In addition, the FMP would not prevent CARB from implementing this measure.
Energy Efficiency (Natural Gas)	CR-1	*No conflict.* The FMP is not anticipated to result in a net increase in operational natural gas use. However, the FMP replacement buildings would comply with the current Title 24 Building Energy Efficiency Standards, which is anticipated to improve energy efficiency and reduce natural gas use. In addition, the FMP would not prevent CARB from implementing this measure.
Solar Water Heating (California Solar Initiative Thermal Program)	CR-2	*No conflict.* The majority of the FMP project components do not require hot water and the project replacement buildings are not anticipated to require substantial amounts of hot water to make solar water heating feasible.
Combined Heat and Power	E-2	*Not applicable.* The FMP would not prevent CARB from implementing this measure.
Renewables Portfolio Standard (33% by 2020)	E-3	*No conflict.* The FMP is not anticipated to result in a net increase in operational electricity use. Electricity use during construction is anticipated to be minimal and temporary, but would benefit from Southern California Edison meeting the RPS.

Table 4.7-8. FMP Consistency with 2008 Scoping Plan GHG Emission Reduction Strategies

Scoping Plan Measure	Measure Number	FMP Consistency
Renewables Portfolio Standard (50% by 2050)	N/A	*No conflict.* The FMP is not anticipated to result in a net increase in operational electricity use. Electricity use during construction is anticipated to be minimal and temporary, but would benefit from Southern California Edison meeting the RPS.
SB 1 Million Solar Roofs (California Solar Initiative, New Solar Home Partnership, Public Utility Programs) and Earlier Solar Programs	E-4	*Not applicable.* The FMP would not prevent CARB from implementing this measure. As the majority of the FMP components are for wastewater infrastructure projects, installation of solar would not be feasible.
Water Sector		
Water Use Efficiency	W-1	*No conflict.* The FMP would not prevent CARB from implementing this measure. The FMP includes wastewater infrastructure projects, so water use efficiency is not relevant.
Water Recycling	W-2	*No conflict.* The FMP would not prevent CARB from implementing this measure.
Water System Energy Efficiency	W-3	*No conflict.* The FMP would not prevent CARB from implementing this measure.
Reuse Urban Runoff	W-4	*No conflict.* The FMP would not prevent CARB from implementing this measure.
Renewable Energy Production	W-5	*No conflict.* The FMP would not prevent CARB from implementing this measure. Because the majority of the FMP project components include wastewater infrastructure rehabilitation and replacement, renewable energy production is not feasible.
Green Buildings		
State Green Building Initiative: Leading the Way with State Buildings (Greening New and Existing State Buildings)	GB-1	*No conflict.* The FMP's replacement buildings would be required to be constructed in compliance with state or local green building standards in effect at the time of building construction.
Green Building Standards Code (Greening New Public Schools, Residential and Commercial Buildings)	GB-1	*No conflict.* The FMP's replacement buildings would meet green building standards that are in effect at the time of design and construction.
Beyond Code: Voluntary Programs at the Local Level (Greening New Public Schools, Residential and Commercial Buildings)	GB-1	*No conflict.* The FMP's replacement buildings would meet green building standards that are in effect at the time of design and construction.
Greening Existing Buildings (Greening Existing Homes and Commercial Buildings)	GB-1	*Not applicable.* This is applicable for existing buildings only.
Industry Sector		
Energy Efficiency and Co-Benefits Audits for Large Industrial Sources	I-1	*Not applicable.* The FMP would not prevent CARB from implementing this measure.
Oil and Gas Extraction GHG Emission Reduction	I-2	*Not applicable.* The FMP would not prevent CARB from implementing this measure.

Table 4.7-8. FMP Consistency with 2008 Scoping Plan GHG Emission Reduction Strategies

Scoping Plan Measure	Measure Number	FMP Consistency
Reduce GHG Emissions by 20% in Oil Refinery Sector	N/A	*Not applicable.* The FMP would not prevent CARB from implementing this measure.
GHG Emissions Reduction from Natural Gas Transmission and Distribution	I-3	*Not applicable.* The FMP would not prevent CARB from implementing this measure.
Refinery Flare Recovery Process Improvements	I-4	*Not applicable.* The FMP would not prevent CARB from implementing this measure.
Work with the Local Air Districts to Evaluate Amendments to Their Existing Leak Detection and Repair Rules for Industrial Facilities to Include Methane Leaks	I-5	*Not applicable.* The FMP would not prevent CARB from implementing this measure.
Recycling and Waste Management Sector		
Landfill Methane Control Measure	RW-1	*Not applicable.* The FMP would not prevent CARB from implementing this measure.
Increasing the Efficiency of Landfill Methane Capture	RW-2	*Not applicable.* The FMP would not prevent CARB from implementing this measure.
Mandatory Commercial Recycling	RW-3	*No conflict.* During both construction and operation of the FMP, the FMP would comply with all state regulations related to solid waste generation, storage, and disposal, including the California Integrated Waste Management Act, as amended.
Increase Production and Markets for Compost and Other Organics	RW-3	*Not applicable.* The FMP would not prevent CARB from implementing this measure.
Anaerobic/Aerobic Digestion	RW-3	*Not applicable.* The FMP would not prevent CARB from implementing this measure.
Extended Producer Responsibility	RW-3	*Not applicable.* The FMP would not prevent CARB from implementing this measure.
Environmentally Preferable Purchasing	RW-3	*Not applicable.* The FMP would not prevent CARB from implementing this measure.
Forests Sector		
Sustainable Forest Target	F-1	*Not applicable.* The FMP would not prevent CARB from implementing this measure.
High GWP Gases Sector		
Motor Vehicle Air Conditioning Systems: Reduction of Refrigerant Emissions from Non-Professional Servicing	H-1	*No conflict.* The FMP's employees would be prohibited from performing motor vehicle air conditioning repairs, which would be required to use professional servicing.
SF_6 Limits in Non-Utility and Non-Semiconductor Applications	H-2	*Not applicable.* The FMP would not prevent CARB from implementing this measure.
Reduction of Perfluorocarbons (PFCs) in Semiconductor Manufacturing	H-3	*Not applicable.* The FMP would not prevent CARB from implementing this measure.
Limit High GWP Use in Consumer Products	H-4	*No conflict.* The FMP would not result in an increase in employees or associated consumer product use.

Table 4.7-8. FMP Consistency with 2008 Scoping Plan GHG Emission Reduction Strategies

Scoping Plan Measure	Measure Number	FMP Consistency
Air Conditioning Refrigerant Leak Test During Vehicle Smog Check	H-5	*No conflict*. Motor vehicles driven by the FMP's delivery trucks would comply with the leak test requirements during smog checks.
Stationary Equipment Refrigerant Management Program – Refrigerant Tracking/Reporting/Repair Program	H-6	*Not applicable.* The FMP would not prevent CARB from implementing this measure.
Stationary Equipment Refrigerant Management Program – Specifications for Commercial and Industrial Refrigeration	H-6	*Not applicable.* The FMP would not prevent CARB from implementing this measure.
SF_6 Leak Reduction Gas Insulated Switchgear	H-6	*Not applicable.* The FMP would not prevent CARB from implementing this measure.
40% Reduction in Methane and Hydrofluorocarbon (HFC) Emissions	N/A	*Not applicable.* The FMP would not prevent CARB from implementing this measure.
50% Reduction in Black Carbon Emissions	N/A	*Not applicable.* The FMP would not prevent CARB from implementing this measure.
Agriculture Sector		
Methane Capture at Large Dairies	A-1	*Not applicable.* The FMP would not prevent CARB from implementing this measure.

Notes: GHG = greenhouse gas; CARB = California Air Resources Board; VMT = vehicle miles traveled; SB = Senate Bill; N/A = not applicable; SF_6 = sulfur hexafluoride.

Based on the analysis in Table 4.7-8, the FMP would not conflict with the applicable strategies and measures in the 2008 Scoping Plan.

The 2017 Scoping Plan Update reflects the 2030 target of a 40% reduction below 1990 levels codified by SB 32. Table 4.7-9 evaluates the FMP's potential conflict with the 2017 Scoping Plan recommended actions.

Table 4.7-9. FMP Consistency with 2017 Scoping Plan Climate Change Policies and Measures

Recommend Action Summary	Lead Agencies	FMP Consistency
Implement SB 350 by 2030 • Increase Renewable Portfolio Standard • Establish annual targets for statewide energy efficiency • Reduce GHG emissions in the electricity sector	CPUC, CEC, CARB	*No conflict.* This action is directed towards policymakers and would not be directly applicable to the FMP. Nonetheless, the FMP would improve energy efficiency and reduce electricity-related GHG emissions when replacing older buildings and systems with newer, more efficient buildings and systems.
Implement Mobile Source Strategy (Cleaner Technology and Fuels) • Increase zero emission and plug-in hybrid electric vehicles • Increase GHG stringency on light-duty vehicles beyond Advanced Clean Cars • Medium- and heavy-duty GHG Phase 2 • Innovative Clean Transit	CARB, CalSTA, SGC, CalTrans CEC, OPR, Local agencies	*No conflict.* The FMP would not result in an increase in operational veh trips.

Table 4.7-9. FMP Consistency with 2017 Scoping Plan Climate Change Policies and Measures

Recommend Action Summary	Lead Agencies	FMP Consistency
• Last Mile Delivery • Further reduce VMT through SB 375 and regional Sustainable Communities Strategy		
Increase stringency of SB 375 Sustainable Communities Strategy (2035 targets)	CARB	*No conflict.* This action is directed towards policymakers and would not be directly applicable to the FMP.
Adjust performance measures used to select and design transportation facilities by 2019	CalSTA and SGC, OPR, CARB, GoBiz, IBank, DOF, CTC, Caltrans	*No conflict.* The action is directed towards CARB and Caltrans, and the FMP would not result in an increase in operational vehicle trips.
Develop pricing policies to support low-GHG transportation (e.g. low-emission vehicle zones for heavy duty, road user, parking pricing, transit discounts) by 2019	CalSTA, Caltrans, CTC, OPR/SGC, CARB	*No conflict.* This action is directed towards policymakers and would not be directly applicable to the FMP.
Implement California Sustainable Freight Action Plan	CalSTA, CalEPA, CNRA, CARB, CalTrans, CEC, GoBiz	*No conflict.* The FMP would not result in an increase in operational vehicle trips including trucks.
Adopt a Low Carbon Fuel Standard with a carbon intensity reduction of 18 percent	CARB	*No conflict.* This action is directed towards CARB and would not be directly applicable to the FMP. In addition, the FMP would not result in an increase in operational vehicle trips.
Implement the Short-Lived Climate Pollutant Strategy by 2030	CARB, CalRecycle, CDFA, SWRCB, local air districts	*No conflict.* The FMP would be required to comply with the Short-Lived Climate Pollutant Strategy to the extent it is applicable.
Develop regulations and programs to support organic waste landfill reduction goals in the Short-Lived Climate Pollutant Strategy and SB 1383 by 2019	CARB, CalRecycle, CDFA, SWRCB, local air districts	*No conflict.* This action is not within the purview of the FMP.
Implement the post-2020 Cap-and-Trade Program with declining annual caps	CARB	*No conflict.* The FMP is not subject to the California Cap-and-Trade Program.
Develop Integrated Natural and Working Lands Implementation Plan to secure California's land base as a net carbon sink by 2018	CNRA and departments within, CDFA, CalEPA, CARB	*No conflict.* This action is not within the purview of the FMP. In addition, the FMP components primarily include rehabilitation and replacement of existing facilities and would not result in land use conversion that would reduce carbon storage.
Establish a carbon accounting framework for natural and working lands as described in SB 859 by 2018	CARB	*No conflict.* This action is not within the purview of the FMP.
Implement Forest Carbon Plan	CNRA, CAL FIRE, CalEPA and departments within	*No conflict.* This action is not within the purview of the FMP. In addition, the FMP components are located within developed urban areas and would not affect forested areas.

Table 4.7-9. FMP Consistency with 2017 Scoping Plan Climate Change Policies and Measures

Recommend Action Summary	Lead Agencies	FMP Consistency
Identify and expand funding and financing mechanisms to support GHG reductions across all sectors.	State agencies and local agencies	*No conflict.* This action is not within the purview of the FMP.

Source: CARB 2017.
Notes: CalEPA = California Environmental Protection Agency; CAL FIRE = California Department of Forestry and Fire Protection; CalRecycle = California Department of Resources Recycling and Recovery; CalSTA = California State Transportation Agency; Caltrans = California Department of Transportation; CARB = California Air Resources Board; CDFA = California Department of Food and Agriculture; CEC = California Energy Commission; CNRA = California Natural Resources Agency; CPUC = California Public Utilities Commission; CTC = California Transportation Commission; DOF = Department of Finance; GHG = greenhouse gas; GoBiz = Governor's Office of Business and Economic Development; IBank = California Infrastructure Economic Development Bank; OPR = Governor's Office of Planning and Research; SB = Senate Bill; SGC = Strategic Growth Council.

Based on the analysis in Table 4.7-9, the FMP would not conflict with the applicable climate change policies and measures in the 2017 Scoping Plan.

Project Consistency with SCAG's 2016 RTP/SCS

At the regional level, SCAG has adopted the 2016–2040 RTP/SCS for the purpose of reducing GHG emissions attributable to passenger vehicles within their jurisdictional boundaries (Orange, Imperial, Los Angeles, Riverside, San Bernardino, and Ventura Counties). Although the RTP/SCS does not regulate land use or supersede the exercise of land use authority by SCAG's member jurisdictions (e.g., member cities and counties), the RTP/SCS is a relevant regional reference document for purposes of evaluating the connection of land use and transportation patterns and the corresponding GHG emissions. Note that the Sanitation District is not a member of SCAG. The 2016 RTP/SCS provides broad direction and guidance for future development—encouraging the development of new uses in areas well served by transit and in urban infill areas.

SCAG's 2016 RTP/SCS is a regional growth-management strategy that targets per capita GHG reduction from passenger vehicles and light-duty trucks in the Southern California region pursuant to SB 375. In addition to demonstrating the region's ability to attain and exceed the GHG emission-reduction targets set forth by CARB, the 2016 RTP/SCS outlines a series of actions and strategies for integrating the transportation network with an overall land use pattern that responds to projected growth, housing needs, changing demographics, and transportation demands. Thus, successful implementation of the 2016 RTP/SCS would result in more complete communities with a variety of transportation and housing choices, while reducing automobile use. With regard to individual developments, such as the FMP, the strategies and policies set forth in the 2016 RTP/SCS can be grouped into the following three categories: (1) reduction of vehicle trips and VMT, (2) increased use of alternative fuel vehicles, and (3) improved energy efficiency.

Because the FMP would not result in a net increase in operational vehicle trips, the FMP would not conflict with the 2016 RTP/SCS strategies related to reducing vehicle trips and VMT or use of alternative fuel vehicles. Construction vehicle trips would be temporary. All proposed replacement buildings would comply with the current CALGreen and Title 24 standards, which would improve energy efficiency and reduce energy consumption; therefore, the FMP would be consistent with the 2016 RTP/SCS goal to improve energy efficiency. Overall, the FMP would not conflict with the 2016 RTP/SCS strategies and policies.

Project Consistency with Senate Bill 32 and Executive Order S-3-05

The FMP would not impede the attainment of the GHG reduction goals for 2030 or 2050 identified in SB 32 and EO S-3-05, respectively. EO S-3-05 establishes the following goals: GHG emissions should be reduced to 2000 levels by 2010, to 1990 levels by 2020, and to 80% below 1990 levels by 2050. SB 32 establishes a statewide GHG emissions reduction target whereby CARB, in adopting rules and regulations to achieve the maximum technologically feasible and cost-effective GHG emissions reductions, shall ensure that statewide GHG emissions are reduced to at least 40% below 1990 levels by December 31, 2030. While there are no established protocols or thresholds of significance for that future year analysis, CARB forecasts that compliance with the current Scoping Plan puts the state on a trajectory of meeting these long-term GHG goals, although the specific path to compliance is unknown (CARB 2014).

CARB has expressed optimism with regard to both the 2030 and 2050 goals. It states in the First Update to the Climate Change Scoping Plan that "California is on track to meet the near-term 2020 GHG emissions limit and is well positioned to maintain and continue reductions beyond 2020 as required by AB 32" (CARB 2014). With regard to the 2050 target for reducing GHG emissions to 80% below 1990 levels, the First Update to the Climate Change Scoping Plan states the following (CARB 2014):

> This level of reduction is achievable in California. In fact, if California realizes the expected benefits of existing policy goals (such as 12,000 megawatts of renewable distributed generation by 2020, net zero energy homes after 2020, existing building retrofits under AB 758, and others) it could reduce emissions by 2030 to levels squarely in line with those needed in the developed world and to stay on track to reduce emissions to 80% below 1990 levels by 2050. Additional measures, including locally driven measures and those necessary to meet federal air quality standards in 2032, could lead to even greater emission reductions.

In other words, CARB believes that the state is on a trajectory to meet the 2030 and 2050 GHG reduction targets set forth in AB 32, EO B-30-15, and EO S-3-05. This is confirmed in the 2017 Scoping Plan, which states the following (CARB 2017):

> The Scoping Plan builds upon the successful framework established by the Initial Scoping Plan and First Update, while also identifying new, technologically feasible, and cost-effective strategies to ensure that California meets its GHG reduction targets in a way that promotes and rewards innovation, continues to foster economic growth, and delivers improvements to the environment and public health, including in disadvantaged communities.

The FMP would not interfere with implementation of any of the previously described GHG reduction goals for 2030 or 2050 because the FMP would not exceed the SCAQMD's recommended threshold of 3,000 MT CO_2e per year (SCAQMD 2008). Because the FMP would not exceed the threshold, this analysis provides support for the conclusion that the FMP would not impede the state's trajectory toward the previously described statewide GHG reduction goals for 2030 or 2050. In September 2018, EO B-55-18 was signed, which commits the state to total carbon neutrality by 2045. However, the specific path to compliance for the state in regards to the long-term goals will likely require development of technology or other changes that are not currently known or available.

The FMP's consistency with the state's Scoping Plan would assist in meeting the Sanitation District's contribution to GHG emission reduction targets in California. With respect to future GHG targets under SB 32 and EO S-3-05, CARB has stated its intent to adopt whatever regulations are necessary, beyond the AB 32

horizon year of 2020, to meet the SB 32 40% reduction target by 2030 and the EO S-3-05 80% reduction target by 2050. CARB's statement demonstrates that future regulations will be adopted to continue the trajectory toward meeting these future GHG targets.

Summary

Based on the considerations outlined above, the FMP would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs, and potential impacts would be less than significant.

4.7.5 Mitigation Measures

The FMP addressed in this PEIR is not anticipated to result in significant impacts pursuant to CEQA related to GHG emissions, so no mitigation measures are warranted.

4.7.6 Level of Significance After Mitigation

No mitigation measures are proposed.

4.7.7 Cumulative Impacts

Global climate change is a cumulative impact; a project participates in this potential impact through its incremental contribution combined with the cumulative increase of all other sources of GHGs. As previously discussed in Section 4.7.1, Existing Conditions, GHG emissions inherently contribute to cumulative impacts, and thus, any additional GHG emissions would result in a cumulative impact. As shown in Tables 4.7-7, 4.7-8, and 4.7-9, the FMP would result in GHG emissions that would not exceed the applied threshold and the FMP would not conflict with applicable GHG reduction plans. Therefore, the FMP would result in a less than cumulatively considerable impact. As such, cumulative impacts are considered less than significant.

4.7.8 Impact Summary

Table 4.7-10 summarizes the impacts for the FMP projects assessed at the project level at Plant 1, Plant 2, joint plant projects, and collection system projects under each threshold analyzed in this PEIR.

It is important to note that GHG emissions are a cumulative impact and the total GHG emissions generated from implementation of the FMP should be considered on the whole instead of at an individual project-level, as evaluated in Section 4.7.4. Accordingly, the overall impact determination for each GHG emissions threshold, as evaluated for the entire project, is applied to all FMP project components in Table 4.1-10.

Table 4.7-10. Summary of FMP Project Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
Would the project generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?					
Plant 1					
P1-126	Primary Clarifiers Replacements and Improvements	Replace	Less than Significant	—	Less than Significant
X-093	Administrative Facilities and Power Building 3A Demolition	Misc. (Demo)	Less than Significant	—	Less than Significant
X-092	Standby Generator Feeders for Plant 1 Secondary Systems	Misc.	Less than Significant	—	Less than Significant
X-048	Activated Sludge (AS)-1 Aeration Basin and Blower Rehabilitation	Rehab	Less than Significant	—	Less than Significant
P1-135	Digester Ferric Piping Replacement	Replace	Less than Significant	—	Less than Significant
X-077	Switchgear Replacement at Central Generation	Replace	Less than Significant	—	Less than Significant
X-090	Network, Telecommunications, and Service Relocation at Plant 1	Misc.	Less than Significant	—	Less than Significant
Plant 2					
P2-126	Substation and Warehouse Replacement at Plant 2	Misc.	Less than Significant	—	Less than Significant
P2-138	Operations and Maintenance Complex at Plant 2	Replace	Less than Significant	—	Less than Significant
X-050	Activated Sludge (AS) Aeration Basin	Rehab	Less than Significant	—	Less than Significant
X-032	Truck Loading Facility Rehabilitation	Rehab	Less than Significant	—	Less than Significant
X-054	Waste Side-Stream Pump Station C Rehabilitation	Rehab	Less than Significant	—	Less than Significant
X-034	Sodium Bisulfite Station Replacement and Bleach Station Demolition	Replace	Less than Significant	—	Less than Significant
Joint Plant Projects					
J-98	Plantwide Miscellaneous Electrical Power Distribution System Improvements	Replace	Less than Significant	—	Less than Significant
J-120	Plantwide Miscellaneous Process Control Systems Upgrades	Replace	Less than Significant	—	Less than Significant
J-133	Laboratory Rehabilitation or Replacement at Plant 1	Rehab	Less than Significant	—	Less than Significant
X-057	Plantwide Miscellaneous Yard Structures Rehabilitation or Replacement	Misc.	Less than Significant	—	Less than Significant
X-058	Plantwide Miscellaneous Yard Piping Replacement	Replace	Less than Significant	—	Less than Significant
X-059	Plantwide Miscellaneous Tunnels Rehabilitation	Rehab	Less than Significant	—	Less than Significant

Table 4.7-10. Summary of FMP Project Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
J-121	UPS System Upgrades	Replace	Less than Significant	—	Less than Significant
X-044	Steve Anderson Lift Station Rehabilitation	Rehab	Less than Significant	—	Less than Significant
Collection System Projects					
5-68	Newport Beach Pump Station Odor Control Improvements	Misc.	Less than Significant	—	Less than Significant
X-076	Santa Ana Trunk Sewer Rehabilitation Phase II	Rehab	Less than Significant	—	Less than Significant
X-082	North Trunk Improvement Project	Replace	Less than Significant	—	Less than Significant
X-060	Newhope Placentia Chemical Dosing Station	Misc.	Less than Significant	—	Less than Significant
11-33	Edinger Pumping Station Replacement	Replace	Less than Significant	—	Less than Significant
X-063	South Santa Ana River Interceptor Connector Rehabilitation	Rehab	Less than Significant	—	Less than Significant
2-73	Yorba Linda Pump Station Abandonment	Misc.	Less than Significant	—	Less than Significant
3-67	Seal Beach Pump Station Replacement	Replace	Less than Significant	—	Less than Significant
2-49	Taft Branch Sewer Improvements	Replace	Less than Significant	—	Less than Significant
X-083	Greenville–Sullivan Sewer Relief Project	Replace	Less than Significant	—	Less than Significant
Would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs?					
Plant 1					
P1-126	Primary Clarifiers Replacements and Improvements	Replace	Less than Significant	—	Less than Significant
X-093	Administrative Facilities and Power Building 3A Demolition	Misc. (Demo)	Less than Significant	—	Less than Significant
X-092	Standby Generator Feeders for Plant 1 Secondary Systems	Misc.	Less than Significant	—	Less than Significant
X-048	Activated Sludge (AS)-1 Aeration Basin and Blower Rehabilitation	Rehab	Less than Significant	—	Less than Significant
P1-135	Digester Ferric Piping Replacement	Replace	Less than Significant	—	Less than Significant
X-077	Switchgear Replacement at Central Generation	Replace	Less than Significant	—	Less than Significant
X-090	Network, Telecommunications, and Service Relocation at Plant 1	Misc.	Less than Significant	—	Less than Significant

Table 4.7-10. Summary of FMP Project Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
Plant 2					
P2-126	Substation and Warehouse Replacement at Plant 2	Misc.	Less than Significant	—	Less than Significant
P2-138	Operations and Maintenance Complex at Plant 2	Replace	Less than Significant	—	Less than Significant
X-050	Activated Sludge (AS) Aeration Basin	Rehab	Less than Significant	—	Less than Significant
X-032	Truck Loading Facility Rehabilitation	Rehab	Less than Significant	—	Less than Significant
X-054	Waste Side-Stream Pump Station C Rehabilitation	Rehab	Less than Significant	—	Less than Significant
X-034	Sodium Bisulfite Station Replacement and Bleach Station Demolition	Replace	Less than Significant	—	Less than Significant
Joint Plant Projects					
J-98	Plantwide Miscellaneous Electrical Power Distribution System Improvements	Replace	Less than Significant	—	Less than Significant
J-120	Plantwide Miscellaneous Process Control Systems Upgrades	Replace	Less than Significant	—	Less than Significant
J-133	Laboratory Rehabilitation or Replacement at Plant 1	Rehab	Less than Significant	—	Less than Significant
X-057	Plantwide Miscellaneous Yard Structures Rehabilitation or Replacement	Misc.	Less than Significant	—	Less than Significant
X-058	Plantwide Miscellaneous Yard Piping Replacement	Replace	Less than Significant	—	Less than Significant
X-059	Plantwide Miscellaneous Tunnels Rehabilitation	Rehab	Less than Significant	—	Less than Significant
J-121	UPS System Upgrades	Replace	Less than Significant	—	Less than Significant
X-044	Steve Anderson Lift Station Rehabilitation	Rehab	Less than Significant	—	Less than Significant
Collection System Projects					
5-68	Newport Beach Pump Station Odor Control Improvements	Misc.	Less than Significant	—	Less than Significant
X-076	Santa Ana Trunk Sewer Rehabilitation Phase II	Rehab	Less than Significant	—	Less than Significant
X-082	North Trunk Improvement Project	Replace	Less than Significant	—	Less than Significant
X-060	Newhope Placentia Chemical Dosing Station	Misc.	Less than Significant	—	Less than Significant
11-33	Edinger Pumping Station Replacement	Replace	Less than Significant	—	Less than Significant
X-063	South Santa Ana River Interceptor Connector Rehabilitation	Rehab	Less than Significant	—	Less than Significant

Table 4.7-10. Summary of FMP Project Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
2-73	Yorba Linda Pump Station Abandonment	Misc.	Less than Significant	—	Less than Significant
3-67	Seal Beach Pump Station Replacement	Replace	Less than Significant	—	Less than Significant
2-49	Taft Branch Sewer Improvements	Replace	Less than Significant	—	Less than Significant
X-083	Greenville–Sullivan Sewer Relief Project	Replace	Less than Significant	—	Less than Significant

Note: UPS = uninterruptible power system.

4.7.9 References

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4.8 Hazards and Hazardous Materials

This section describes the existing hazards and hazardous materials conditions of the proposed Orange County Sanitation District (Sanitation District) Facilities Master Plan (FMP), identifies the associated regulatory framework, evaluates potential impacts of the proposed FMP, and identifies mitigation measures to reduce the level of impact associated with implementation of the proposed FMP. The following hazards and hazardous materials topics are examined in this section:

- The potential to create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.
- The potential to create a significant hazard to the public or environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials to the environment.
- The potential to emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 miles of an existing or proposed school.
- The potential for significant hazards to the public or the environment due to the proposed FMP being located on any hazardous materials sites identified under California Government Code Section 65962.5.
- The potential to impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.

As stated in the July 2019 Initial Study (Appendix A to this program environmental impact report [PEIR]), potential impacts associated with safety issues related to airports and aviation and exposure to wildland fires were less than significant. Therefore, these topics are not further analyzed in this PEIR:

- For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, the potential for the project to result in a safety hazard or excessive noise for people residing or working in the project area.
- The potential to expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires.

This PEIR evaluates hazards and hazardous materials for three separate portions of the proposed FMP: Reclamation Plant No. 1 (Plant 1), Treatment Plant No. 2 (Plant 2), and collection system and pump station (collection system) improvements.

Documents Reviewed for Analysis

The analysis for this section is based on information from the following documents:

- 2019 Hazardous Materials Technical Memo for Sanitation District Plant 1 (Appendix G1)
- 2019 Hazardous Materials Technical Memo for Sanitation District Plant 2 (Appendix G2)
- 2019 Hazardous Materials Technical Memo for Orange County Sanitation District Collection System Improvements (Appendix G3)

4.8.1 Existing Conditions

4.8.1.1 Environmental Setting

The proposed FMP projects would be located at various sites throughout the Sanitation District service area, which covers an approximately 479-square-mile area within the northwestern and central portions of Orange County. The service area includes the entirety or portions of municipal boundaries for 20 cities, as well as unincorporated land. The Sanitation District service area is located generally in a flat, low-lying area, with the Chino Hills and Santa Ana Mountains to the northeast and the Pacific Ocean to the southwest. The Santa Ana River transects northeast–southwest through the Sanitation District service area and also separates the Chino Hills from the Santa Ana Mountains. The Sanitation District service area also extends into the San Joaquin Hills to the south.

The site descriptions for Plant 1, Plant 2, and the collection system are described in Section 3.3 of this PEIR.

4.8.1.2 Historical Site Uses

Based on information provided in the hazardous materials technical memos (Appendices G1 and G2), the land now occupied by Plant 1 was previously undeveloped and possibly used as agricultural land until construction of the treatment plant began in 1941 (Sanitation District 2019). Between 1947 and 1977, Plant 1 was improved and developed to cover the current site boundary. Improvements have occurred intermittently through the present. The land now occupied by Plant 2 was previously used for oil and gas exploration, beginning in the 1940s and continuing to some degree until all wells were abandoned between 1977 and 2006. Most of the production wells were located on the northern half of the Plant 2 site; other abandoned dry wells were located within the southern portion of the site. Construction of Plant 2 began in the 1960s, with improvements and expansion occurring intermittently through the present.

Historical use of the entire Sanitation District service area varies greatly over the entire area. In the 1940s, multiple sanitation districts were formally organized, and the Sanitation District began official operations in 1954 (Sanitation District 2019). Improvements and expansion of the service area have occurred intermittently until present day.

4.8.1.3 Previous Environmental Investigations

Available environmental investigations were reviewed for both plants, as listed above in Documents Reviewed for Analysis; these documents are included as Appendices G1 through G3. The following is a summary of the known current or past environmental hazardous waste and/or materials conditions that may affect the proposed FMP, based on the findings of these investigations.

Underground Storage Tanks

Six underground storage tanks (USTs) are currently in use at Plant 1, and six USTs are currently in use at Plant 2. The locations of these USTs is shown on Figures 4.8-1 and 4.8-2, as well as Sanitation District maps included in each of the hazardous materials technical memos (Appendices G1 and G2). In addition to Plant 1 and Plant 2 USTs, Main Street Pump Station has a 5,000-gallon diesel UST located near the southeast corner of the site, south of the generator building. According to the Sanitation District, these documented USTs are true and accurate, and there are no unknown USTs located on Sanitation District facilities.

Asbestos, Lead-Based Paint, and Universal Waste

The Sanitation District has conducted asbestos and lead-based paint surveys for all facilities within the service area. The results of these surveys have been used to create asbestos and lead inventories for all Sanitation District facilities. The inventories identify locations with asbestos-containing materials (ACM) and lead-based paint (LBP) by GIS Structure ID and include a material description and amount of ACM and/or LBP identified . Additionally, some ACM and LBP abatement activities have occurred at Sanitation District facilities. When materials are abated, they are removed from the inventories. Multiple structures in Plant 1, Plant 2, and several pump stations contain ACM and LBP.

Yellow traffic paint and yellow thermoplastic stripes contain lead chromate. The California Department of Transportation phased out use of lead chromate traffic paint and striping between 2000 and 2005. The lead and chromium concentrations in older yellow paint and yellow thermoplastic stripes are high enough to make these materials hazardous wastes when they are removed (Caltrans 2011). Should projects require removal of road surfaces, there may be impacts due to hazardous levels of lead and chromium.

In addition to asbestos and lead, universal wastes may be present. These include, but are not limited to, polychlorinated biphenyls (PCBs), mercury thermometers, and fluorescent light bulbs. Proposed FMP improvement projects may require demolition and rehabilitation of existing structures. Universal wastes, such as fluorescent lamps, mercury thermometers, and batteries that may be present would require collection and off-site disposal prior to demolition. Hazardous wastes, such as spent chemicals or petroleum, may also require collection and off-site disposal prior to demolition and rehabilitation. Additionally, materials that contain PCBs would require proper management prior to demolition and rehabilitation projects.

Existing and Future Hazardous Material Usage

The Sanitation District stores hazardous materials on site that are used for operation of Plant 1, Plant 2, and the pump stations. Reportable quantities of hazardous materials (55 gallons, 500 pounds, or 200 cubic feet) are included in the hazardous materials business plans (HMBPs) which are submitted to the local Certified Unified Program Agency (CUPA) each year. The CUPA for Orange County is the Orange County Health Care Agency, Environmental Health. Each facility that stores reportable quantities of hazardous material is required to have a separate HMBP. The Sanitation District provided the most recent HMBP inventory for review (Appendices G1, G2, and G3). Hazardous materials include, but are not limited to, compressed gasses, diesel fuel, and water treatment chemicals (hydrogen peroxide, sulfuric acid, salts, and flocculants). The Sanitation District is currently phasing out the use of extremely hazardous substances and does not permit new use or inventories of extremely hazardous substances at their facilities. The FMP would not result in the introduction of new extremely hazardous substances or an increase in the amount of extremely hazardous substances currently at Sanitation District locations.

Future chemical use and storage is expected to be similar to current use. Increased volumes of diesel may be stored at Plant 1 to accommodate the larger-capacity generators.

In addition to hazardous chemical storage, hazardous wastes are generated by Sanitation District facilities. Hazardous wastes are generated, stored, manifested, and transported in accordance with federal, state, and local regulations. Acutely hazardous substances have been used on Sanitation District facilities; however, the Sanitation District will not generate additional acutely hazardous waste in future operations.

Hazardous Material Contaminated Sites

California Government Code Section 65962.5 requires the California Environmental Protection Agency to compile a list of hazardous waste and substances sites (Cortese List). While the Cortese List is no longer maintained as a single list, the following databases provide information that meet the Cortese List requirements:

1. List of Hazardous Waste and Substances sites from Department of Toxic Substances Control (DTSC) Envirostor database (Health and Safety Codes 25220, 25242, 25356, and 116395)
2. List of open and active leaking underground storage tank (LUST) Sites by County and Fiscal Year from the State Water Resources Control Board GeoTracker database (Health and Safety Code 25295)
3. List of solid waste disposal sites identified by the State Water Resources Control Board with waste constituents above hazardous waste levels outside the waste management unit (Water Code Section 13273[e] and 14 CCR Section 18051)
4. List of "active" Cease and Desist Orders and Cleanup and Abatement Orders from the State Water Resources Control Board (Water Code Sections 13301 and 13304)
5. List of hazardous waste facilities subject to corrective action pursuant to Section 25187.5 of the Health and Safety Code, identified by DTSC

A search of the above-listed online databases that provide information on Cortese List sites was conducted, as well as other online environmental regulatory databases that provide environmental information on facilities and sites in the State of California (Appendices G1 through G3). In addition to Cortese List sites, there are other hazardous material sites that do not meet the requirements of a Cortese List site but still have hazardous material impacts such that they could exacerbate the risk to workers. For example, some LUST sites can receive low-threat regulatory closure with contamination remaining in place. Should construction occur in these areas exposing the contaminated media (soil, groundwater, or soil vapor), the residual impacts could still impact the proposed FMP (e.g., exposure to construction workers). These are referred to herein as "non-Cortese List hazardous material sites."

Plant 1

An open LUST case was identified on the Plant 1 site. The approximate location is shown on Figure 4.8-1. According to Sanitation District staff, this is the location of the former Fleet Services fuel island, which has been removed. In 2002, a gasoline UST failed a pressure test, resulting in an investigation and removal of the UST from service. A diesel UST in the same area was subsequently removed from surface in 2003. In 2002, a groundwater monitoring well sample nearby the USTs revealed high concentrations of diesel-range and gasoline-range total petroleum hydrocarbons in groundwater; the exact concentrations were not reported. In 2004 the USTs were removed, and stained soil was observed beneath the dispenser islands and near product piping. Impacted soils were removed, tested, and either disposed of off site or used as backfill in the excavation. Soil and soil gas confirmation sampling conducted in 2019 revealed residual concentrations of methyl tert-butyl ether and tert-butyl alcohol, but concentrations were below U.S. Environmental Protection Agency (EPA) Regional Screening Levels. Groundwater monitoring has been ongoing since 2003, with oversight by Orange County Health Care Agency – Environmental Health Department (OCHCA). As this is an open LUST case, it is considered a Cortese List site.

Multiple LUST cases were identified on Plant 1 that received regulatory closure through OCHCA (Appendix G1). While these cleanups are closed, information in the regulatory files were limited, and there is a potential that petroleum and volatile organic compound contamination remain in the areas of the former USTs.

No other Cortese List or non-Cortese List hazardous material sites were identified that could potentially impact the environmental conditions of Plant 1. However, due to historical and ongoing use and storage of chemicals and petroleum products on site, there is a potential for environmental impacts to be exacerbated, especially around sumps, trenches, pipelines, and storage areas.

Plant 2

No Cortese List sites were identified on the Plant 2 site. However, multiple closed LUST cases and UST removals were documented with OCHCA. Of these cases, one voluntary cleanup documents discovery, sampling, and excavation of petroleum-contaminated soils encountered near the Odor Control Facility. Elevated concentrations of total petroleum hydrocarbons were identified (25,100 milligrams per kilogram) prior to excavation. Post-excavation confirmation samples were either never conducted or never reported. The voluntary cleanup case was ultimately terminated due to lack of report submittals. There is a potential that remaining petroleum contamination is present in this area.

Multiple LUST cases were identified on Plant 2 that received regulatory closure through OCHCA and the Regional Water Quality Control Board (RWQCB) (Appendix G2). Other small releases were documented that did not have cleanup cases opened. While these cleanups are closed and other releases minor, there is a potential that petroleum and volatile organic compound contamination remains in these areas.

No other Cortese List or non-Cortese List hazardous material sites were identified that could potentially impact the environmental conditions of Plant 2. However, due to historical and ongoing use and storage of chemicals and petroleum products on site, there is a potential for environmental impacts, especially around sumps, trenches, pipelines, and storage areas.

Collection System

Multiple Cortese and non-Cortese List hazardous material sites were identified that have the potential to impact or exacerbate environmental exposure to workers in the vicinity of the proposed collection system projects. These sites are summarized in Tables 2 and 3 of Appendix G3. They are also shown on Figures 4.8-3A through 4.8-3D of this PEIR. A review of the documented environmental characteristics (e.g., extent of contamination, depth to groundwater, groundwater flow direction) and distance from the proposed collection system projects was conducted to determine if the hazardous material site could increase exposure to workers on proposed collection system projects. It was determined if the site will likely impact (shown in red on Figures 4.8-3A through 4.8-3D) or may possibly impact workers or exacerbate impacts (shown in orange on Figures 4.8-3A through 4.8-3D) at nearby proposed collection system projects.

Additional sites were identified inside the Sanitation District service area within 0.5 miles of the various proposed collection system projects that are not listed in Tables 2 and 3 of Appendix G3. A review of these sites was conducted, and it was determined that, based on the documented environmental characteristics and distance from the proposed collection system projects, these sites do not appear to create a potential environmental impact.

Oil and Gas and Methane Zones

The Sanitation District service area overlaps three active oil/gas well fields: Newport, West Newport, and Richfield. Multiple plugged oil and gas wells are located within the Plant 2 project boundary. One plugged oil well is located within the Plant 1 boundary. These features are shown on Figures 4.8-1 and 4.8-4. A search was conducted for active

oil and gas wells within 0.25 miles of the proposed collection system projects. Multiple active oil and gas wells are located within 0.25 miles of proposed collection system projects as well. Orange County Fire Authority (OCFA) has guidance for mitigation of methane hazards for construction within 100 feet of any active or abandoned oil and gas well. Multiple plugged or idle oil and gas wells are located within 100 feet of the proposed collection system projects. These features are shown on Figures 4.8-5A through 4.8-5D.

Additionally, the Sanitation District service area overlaps methane districts for multiple jurisdictions, including City of Huntington Beach, City of Newport Beach, and City of Yorba Linda. These cities, as well as the OCFA, have established methane safety and mitigation standards for building and construction within these districts. These regulations are discussed further in Section 4.8.2, Relevant Plans, Policies, and Ordinances, and Section 4.8.4, Impact Analysis.

Multiple oil and gas pipelines transect through the Sanitation District service area. Some of these pipelines transect or run parallel to proposed collection system projects. Due to security restrictions, data could not be obtained to produce a custom map of these pipelines with project site features. However, a large-scale map of the pipelines located in Orange County is provided as Attachment C of Appendix G3. An active synthetic gas transmission line runs along the eastern edge of Plant 1, south to Plant 2, and runs along the eastern edge of Plant 2 (Figures 4.8-1 and 4.8-2).

4.8.1.4 Emergency Response

As the Sanitation District service area covers much of Orange County, emergency response will fall under the local jurisdiction within the specific project location. Orange County has an Emergency Operations Center, which is run by the Orange County Sheriff's Department. In the event of an emergency, the Emergency Operations Center is central command responsible for carrying out principles of emergency management and ensuring continuity of operations of Orange County.

Plant 1 is located within the City of Fountain Valley. Emergency Operations are managed by the Fountain Valley Fire Department, whose responsibilities include fires, hazardous material spills, traffic collisions, and other emergency response. Plant 2 is located within the City of Huntington Beach. Huntington Beach Fire Department has an Emergency Management and Homeland Security Division, which are responsible for coordinating the emergency preparedness and response activities for the city. Additionally, Plant 2 is located within a Tsunami Hazard Zone. Evacuation routes for the Tsunami Hazard Zone near Plant 2 include northbound Bushard Street and northbound Brookhurst Street.

4.8.1.5 Schools

Gisler Elementary is located approximately 0.13 miles west of Plant 1. There are no existing or proposed K–12 schools within 0.25 miles of Plant 2. As the proposed collection system projects are located within public right-of-ways and Sanitation District easements throughout the Sanitation District service area, multiple K–12 schools fall within 0.25 miles of a proposed collection system project.

4.8.2 Relevant Plans, Policies, and Ordinances

Several federal, state, and local plans, policies, and regulations control the storage, use, handling, disposal, and transport of hazardous materials and waste in order to protect public health and the environment. Additional regulations exist to protect workers on the job, and still others serve to formulate emergency and evacuation procedures. The regulations applicable to the proposed FMP and the regulatory agencies that provide oversight and enforcement are discussed in this section.

Federal

U.S. Environmental Protection Agency

Title 40 U.S. Code of Federal Regulations, Chapter 1, Subchapter I, Parts 260–265 – Solid Waste Disposal Act/Federal Resource Conservation and Recovery Act of 1976

The Solid Waste Disposal Act, as amended and revised by the Resource Conservation and Recovery Act, establishes requirements for the management of solid wastes (including hazardous wastes), landfills, USTs, and certain medical wastes. The statute also addresses program administration; implementation and delegation to the states; enforcement provisions and responsibilities; and research, training, and grant funding. Provisions are established for the generation, storage, treatment, and disposal of hazardous waste, including requirements addressing generator record keeping, labeling, shipping paper management, placarding, emergency response information, training, and security plans.

Title 40 U.S. Code of Federal Regulations, Chapter 1, Subchapter I, Part 273 – Universal Waste

This regulation governs the collection and management of widely generated waste, including batteries, pesticides, mercury-containing equipment, and bulbs. This regulation streamlines the hazardous waste management standards and ensures that such waste is diverted to the appropriate treatment or recycling facility.

Title 40 U.S. Code of Federal Regulations, Chapter 1, Subchapter D, Part 112 – Oil Pollution Prevention

Oil Pollution Prevention regulations require the preparation of a spill prevention, control, and countermeasure plan if oil is stored in excess of 1,320 gallons in aboveground storage (or if there is a buried capacity of 42,000 gallons). Spill prevention, control, and countermeasure regulations place restrictions on the management of petroleum materials and, therefore, have some bearing on hazardous materials management.

Title 40 U.S. Code of Federal Regulations, Chapter 1, Subchapter C, Part 61 – National Emission Standards for Hazardous Air Pollutants, Subpart M – National Emission Standard for Asbestos

This regulation established National Emission Standards for Hazardous Air Pollutants and names ACM as one of these materials. ACM use, removal, and disposal are regulated by the EPA under this law. In addition, notification of friable ACM removal prior to a proposed demolition project is required by this law.

Title 42 U.S. Code of Federal Regulations, Chapter 116 – Emergency Planning and Community Right-to-Know Act

The Emergency Planning and Community Right-to-Know Act provides for public access to information about chemical hazards. This law and its regulations, included in Title 40 U.S. Code of Federal Regulations, Parts 350–372, establish four types of reporting obligations for facilities storing or managing specified chemicals: emergency planning, emergency release notification, hazardous chemical storage reporting requirements, and toxic chemical release inventory. The EPA maintains a database, termed the Toxic Release Inventory, which includes information on reportable releases to the environment.

Title 15 U.S. Code of Federal Regulations, Chapter 53, Subchapter I, Section 2601 et seq. – Toxic Substances Control Act of 1976

The Toxic Substances Control Act of 1976 empowers the EPA to require reporting, record keeping, and testing, as well as to place restrictions on the use and handling of chemical substances and mixtures. This regulation phased out the use of asbestos and ACM in new building materials and set requirements for the use, handling, and disposal of ACM and LBP waste. As discussed above, the EPA has also established the National Emission Standards for Hazardous Air Pollutants, which govern the use, removal, and disposal of ACM as a hazardous air pollutant, mandate the removal of friable ACM before a building is demolished, and require notification before demolition. In addition to asbestos, ACM, and LBP requirements, this regulation also banned the manufacturing of PCBs and sets standards for the use and disposal of existing PCB-containing equipment or materials.

Regional Screening Levels

The EPA provides regional screening levels (RSLs) for chemical contaminants to provide comparison values for residential and commercial/industrial exposures to soil, air, and tap water (drinking water). RSLs are available on the EPA's website and provide a screening level calculation tool to assist risk assessors, remediation project managers, and others involved with risk assessment and decision making. RSLs are also used when a site is initially investigated to determine if potentially significant levels of contamination are present to warrant further investigation. In California, the DTSC Human and Ecological Risk Office (HERO) incorporated the EPA RSLs into the HERO human health risk assessment. HERO created Human Health Risk Assessment Note 3, which incorporates HERO recommendations and DTSC-modified screening levels based on review of the EPA RSLs. The DTSC-modified screening level should be used in conjunction with the EPA RSLs to evaluate chemical concentrations in environmental media at California sites and facilities.

U.S. Department of Labor, Occupational Safety and Health Administration

Title 29 U.S. Code of Federal Regulations, Part 1926 et seq. – Safety and Health Regulations for Construction

These standards require employee training; personal protective equipment; safety equipment; and written procedures, programs, and plans for ensuring worker safety when working with hazardous materials or in hazardous work environments during construction activities, including renovations and demolition projects and the handling, storage, and use of explosives. These standards also provide rules for the removal and disposal of asbestos, lead, LBP, and other lead materials. Although intended primarily to protect worker health and safety, these requirements also guide general facility safety. This regulation also requires that an engineering survey is prepared prior to demolition.

Title 29 U.S. Code of Federal Regulations, Part 1910 et seq. – Occupational Safety and Health Standards

Under this regulation, facilities that use, store, manufacture, handle, process, or move hazardous materials are required to conduct employee safety training, inventory safety equipment relevant to potential hazards, have knowledge on safety equipment use, prepare an illness prevention program, provide hazardous substance exposure warnings, prepare an emergency response plan, and prepare a fire prevention plan.

U.S. Department of Transportation

Title 49 U.S. Code of Federal Regulations, Part 172, Subchapter C – Shipping Papers

The U.S. Department of Transportation established standards for the transport of hazardous materials and hazardous wastes. The standards include requirements for labeling, packaging, and shipping hazardous materials and hazardous wastes, as well as training requirements for personnel completing shipping papers and manifests.

Federal Response Plan

The Federal Response Plan of 1999, as amended in 2003 (FEMA 2003) is a signed agreement among 27 federal departments and agencies, including the American Red Cross, that (1) provides the mechanism for coordinating delivery of federal assistance and resources to augment efforts of state and local governments overwhelmed by a major disaster or emergency, (2) supports implementation of the Robert T. Stafford Disaster Relief and Emergency Act and individual agency statutory authorities, and (3) supplements other federal emergency operations plans developed to address specific hazards. The Federal Response Plan is implemented in anticipation of a significant event likely to result in a need for federal assistance or in response to an actual event requiring federal assistance under a presidential declaration of a major disaster or emergency.

International Fire Code

The International Fire Code (IFC), created by the International Code Council, is the primary means for authorizing and enforcing procedures and mechanisms to ensure the safe handling and storage of any substance that may pose a threat to public health and safety. The IFC regulates the use, handling, and storage requirements for hazardous materials at fixed facilities. The IFC and the International Building Code use a hazard classification system to determine what measures are required to protect against structural fires. These measures may include construction standards, separations from property lines, and specialized equipment. To ensure that these safety measures are met, IFC employs a permit system based on hazard classification. The IFC is updated every 3 years.

State

California Unified Program for Management of Hazardous Waste and Materials

California Health and Safety Code, Division 20, Chapter 6.11, Sections 25404–25404.9 – Unified Hazardous Waste and Hazardous Materials Management Regulatory Program

Under the California Environmental Protection Agency, the DTSC and Enforcement and Emergency Response Program administer the technical implementation of California's Unified Program, which consolidates the administration, permit, inspection, and enforcement activities of several environmental and emergency management programs at the local level. CUPAs implement the hazardous waste and materials standards. This program was established under the amendments to the California Health and Safety Code made by Senate Bill 1082 in 1994. The following programs make up the Unified Program:

- Aboveground Petroleum Storage Act Program
- Area Plans for Hazardous Materials Emergencies
- California Accidental Release Prevention (CalARP) Program
- Hazardous Materials Release Response Plans and Inventories (HMBPs)

- Hazardous Material Management Plans and Hazardous Material Inventory Statements
- Hazardous Waste Generator and On-Site Hazardous Waste Treatment (Tiered Permitting) Program
- Underground Storage Tank Program

The CUPA for Orange County is the OCHCA.

Title 19 California Code of Regulations, Chapter 2, Subchapter 3, Sections 2729–2734/California Health and Safety Code, Division 20, Chapter 6.95, Sections 25500–25520

This regulation requires the preparation of an HMBP by facility operators. The HMBP identifies the hazards, storage locations, and storage quantities for each hazardous chemical stored on site. The HMBP is submitted to the CUPA for emergency planning purposes. The project site is currently subject to these requirements, and there is an HMBP in place.

Hazardous Waste Management

Title 22 California Code of Regulations, Division 4.5 – Environmental Health Standards for the Management of Hazardous Waste

In the State of California, DTSC regulates hazardous wastes. These regulations establish requirements for the management and disposal of hazardous waste in accordance with the provisions of the California Hazardous Waste Control Act and federal Resource Conservation and Recovery Act. As with federal requirements, waste generators must determine if their wastes are hazardous according to specified characteristics or lists of wastes. Hazardous waste generators must obtain identification numbers; prepare manifests before transporting waste off site; and use only permitted treatment, storage, and disposal facilities. Standards also include requirements for record keeping, reporting, packaging, and labeling. Additionally, while not a federal requirement, California requires that hazardous waste be transported by registered hazardous waste transporters.

In addition, Chapter 31, Waste Minimization, Article 1, Pollution Prevention, and the Hazardous Waste Source Reduction and Management Review of these regulations require that generators of 12,000 kilograms/year of typical, operational hazardous waste evaluate their waste streams every 4 years and, as applicable, select and implement viable source reduction alternatives. This act does not apply to nontypical hazardous waste, including ACM and PCBs, among others.

Title 22 California Health and Safety Code, Division 20, Chapter 6.5 – California Hazardous Waste Control Act of 1972

This legislation created the framework under which hazardous wastes must be managed in California. It provides for the development of a state hazardous waste program (regulated by DTSC) that administers and implements the provisions of the federal Resource Conservation and Recovery Act program. It also provides for the designation of California-only hazardous wastes and development of standards that are equal to or, in some cases, more stringent than, federal requirements. The CUPA is responsible for implementing some elements of the law at the local level.

Human Health Risk Assessment Note 3 – DTSC-Modified Screening Levels

Human Health Risk Assessment Note 3 presents recommended screening levels (derived from the EPA RSLs using DTSC-modified exposure and toxicity factors) for constituents in soil, tap water, and ambient air. The DTSC-modified screening level should be used in conjunction with the EPA RSLs to evaluate chemical concentrations in environmental media at California sites and facilities.

Aboveground and Underground Petroleum Storage Tanks

Title 22 California Health and Safety Code, Division 20, Chapter 6.67, Sections 25270 to 25270.13 – Aboveground Petroleum Storage Act

This law applies if a facility is subject to spill prevention, control, and countermeasure regulations under Title 40 U.S. Code of Federal Regulations, Part 112, or if the facility has 10,000 gallons or more of petroleum in any or combination of aboveground storage tanks and connecting pipes. If a facility exceeds these criteria, it must prepare a spill prevention, control, and countermeasure plan.

Low-Threat Underground Storage Tank Case Closure Policy

This policy applies to petroleum UST sites subject to Chapter 6.7 of the California Health and Safety Code. This policy establishes both general and media-specific criteria. If both the general and applicable media-specific criteria are satisfied, then the LUST case is generally considered to present a low threat to human health, safety, and the environment. This policy recognizes, however, that even if all of the specified criteria in the policy are met, there may be unique attributes of the case or site-specific conditions that increase the risk associated with the residual petroleum constituents. In these cases, the regulatory agency overseeing corrective action at the site must identify the conditions that make case closure under the policy inappropriate.

Regional water boards and local agencies have been directed to review all cases in the petroleum UST cleanup program using the framework provided in this policy. These case reviews shall, at a minimum, include the following for each UST case:

1. Determination of whether or not each UST case meets the criteria in this policy or is otherwise appropriate for closure based on a site-specific analysis.
2. If the case does not satisfy the criteria in this policy or does not present a low-risk based upon a site-specific analysis, impediments to closure shall be identified.
3. Each case review shall be made publicly available on the State Water Resources Control Board's GeoTracker website in a format acceptable to the Executive Director.

Environmental Cleanup Levels

Environmental Screening Levels

Environmental screening levels (ESLs) provide conservative screening levels for over 100 chemicals found at sites with contaminated soil and groundwater. They are intended to help expedite the identification and evaluation of potential environmental concerns at contaminated sites. The ESLs are prepared by the staff of the San Francisco Bay RWQCB. While ESLs are not intended to establish policy or regulation, they can be used as a conservative screening level for sites with contamination. Other agencies in California may elect to use the ESLs; in general, the ESLs could be used at any site in the State of California, provided all stakeholders agree (San Francisco Bay RWQCB 2019). Dudek's recent experience indicates that regulatory agencies statewide use ESLs as regulatory cleanup levels. The ESLs are not generally used at sites where the contamination is solely related to a LUST; those sites are instead subject to the Low-Threat Underground Storage Tank Closure Policy.

California Integrated Waste Management Board

Title 14 California Code of Regulations, Division 7, Chapter 8.2 – Electronic Waste Recovery and Recycling Act of 2003

This regulation sets requirements regarding the use and disposal of hazardous substances in electronics. When discarded, DTSC considers the following materials manufactured before 2006 to be hazardous waste: cathode ray tube devices, liquid-crystal display (LCD) desktop monitors, laptop computers with LCD displays, LCD televisions, plasma televisions, and portable DVD Players with LCD screens.

California Department of Transportation/California Highway Patrol

Title 13 California Code of Regulations, Division 2, Chapter 6

California regulates the transportation of hazardous waste originating or passing through the state. The California Highway Patrol (CHP) and the California Department of Transportation have primary responsibility for enforcing federal and state regulations and responding to hazardous materials transportation emergencies. CHP enforces materials and hazardous waste labeling and packing regulations that prevent leakages and spills of material in transit and provides detailed information to cleanup crews in the event of an incident. Vehicle and equipment inspection, shipment preparation, container identification, and shipping documentation are all part of the responsibility of CHP. CHP conducts regular inspections of licensed transporters to ensure regulatory compliance. The California Department of Transportation has emergency chemical spill identification teams at locations throughout the state. Hazardous waste must be regularly removed from generating sites by licensed hazardous waste transporters. Transported materials must be accompanied by hazardous waste manifests.

Occupational Safety and Health

Title 8 California Code of Regulations – Safety Orders

Under the California Occupational Safety and Health Act of 1973, the California Occupational Safety and Health Administration (Cal/OSHA) is responsible for ensuring safe and healthful working conditions for California workers. Cal/OSHA assumes primary responsibility for developing and enforcing workplace safety regulations in Title 8 of the California Code of Regulations. Cal/OSHA hazardous substances regulations include requirements for safety training, availability of safety equipment, hazardous substance exposure warnings, and emergency action and fire prevention plan preparation. Cal/OSHA also enforces hazard communication program regulations, which contain training and information requirements, including procedures for identifying and labeling hazardous substances. The hazard communication program also requires that material safety data sheets be available to employees and that employee information and training programs be documented.

In Division 1, Chapter 4, Subchapter 4, Construction Safety Orders, construction safety orders are listed and include rules for demolition, excavation, explosives work, working around fumes and vapors, pile driving, vehicle and traffic control, crane operation, scaffolding, fall protection, and fire protection and prevention, among others.

The Cal/OSHA Asbestos and Carcinogen Unit enforces asbestos standards in construction, shipyards, and general industry. This includes identification and removal requirements of asbestos in buildings, as well as health and safety requirements of employees performing work under the Asbestos-In-Construction regulations (8 CCR 1529). Only a Cal/OSHA-Certified Asbestos Consultant can provide asbestos consulting (as defined by the Business and Professions Code, 7180–7189.7, and triggered by the same size and concentration triggers as for registered contractors). These services include building inspection, abatement project design, contract administration, supervision of site surveillance technicians, sample collection, preparation of asbestos management plans, and clearance air monitoring.

Lead-Based Paint

The California Department of Public Health enforces lead laws and regulations related to the prevention of lead poisoning in children, prevention of lead poisoning in occupational workers, accreditation and training for construction-related activities, lead exposure screening and reporting, disclosures, and limitations on the amount of lead found in products. Accredited lead specialists are required to find and abate lead hazards in construction projects and to perform lead-related construction work in an effective and safe manner.

California Dig Law

Title 1, Division 5, Chapter 3.1, Article 2, Section 4216 – Protection of Underground Infrastructure and Regional Notification Center System

Prior to any excavation, the excavator is required to delineate the area to be excavated, so that subsurface utilities can be identified and marked. The excavator will contact the regional notification center at least 2 days but not more than 14 days prior to excavation. The regional notification center will in turn identify and notify all appropriate owners and agencies with subsurface utilities in the area. Excavation will not begin until subsurface utilities are marked.

California Building Standards Commission

Title 24 California Code of Regulations – California Building Standards Code

The California Building Standards Code is a compilation of three types of building standards from three different sources:

- Building standards that have been adopted by state agencies without change from building standards contained in national model codes;
- Building standards that have been adopted and adapted from the national model code standards to meet California conditions; and
- Building standards, authorized by the California legislature, that constitute extensive additions not covered by the model codes that have been adopted to address particular California concerns.

Among other rules, the California Building Standards Code contains requirements regarding the storage and handling of hazardous materials. The chief building official at the local government level (i.e., the city) must inspect and verify compliance with these requirements prior to issuance of an occupancy permit.

California State Fire Marshal

California Emergency Services Act

Under the Emergency Services Act (California Government Code Section 8550 et seq.), the State of California developed an emergency response plan to coordinate emergency services provided by federal, state, and local agencies. Rapid response to incidents involving hazardous materials or hazardous waste is an integral part of the plan, which is administered by the Governor's Office of Emergency Services. The Office of Emergency Services coordinates the responses of other agencies, including the EPA, CHP, RWQCBs, air quality management districts, and county disaster response offices.

California Accidental Release Prevention Program

Similar to the EPA Risk Management Program, the CalARP Program (19 CCR 2735.1 et seq.) regulates facilities that use or store regulated substances, such as toxic or flammable chemicals, in quantities that exceed established thresholds. Under the regulations, industrial facilities that handle hazardous materials above threshold quantities are required to prepare and submit an HMBP to the local CUPA via the California Environmental Reporting System. As part of the HMBP, a facility is further required to specify applicability of other state regulatory programs. The overall purpose of CalARP is to prevent accidental releases of regulated substances and reduce the severity of releases that may occur. The CalARP Program meets the requirements of the EPA Risk Management Program, which was established pursuant to the Clean Air Act amendments.

Local

Hazardous Materials

Orange County Health Care Agency – Environmental Health

The OCHCA is the CUPA designated for the County of Orange by the Secretary for Environmental Protection. The CUPA is the local administrator for hazardous materials, business emergency plans, hazardous waste, USTs, aboveground petroleum storage tanks, and the CalARP Program. Additional information on the CUPA is discussed in this section under the subheading California Unified Program for Management of Hazardous Waste and Materials.

Orange County Codified Ordinance, Section 7-9-146.4 – Waste Management and Hazardous Materials

The County of Orange has specific requirements, in addition to the requirements of each district, for procedures and principles applicable to the use, storage, management, and disposal of hazardous materials. These procedures include disclosure prior to issuance of certificate of occupancy for commercial uses, waste management, and underground storage tanks.

City of Fountain Valley Municipal Code, Chapter 21.16 – General Performance Standards

Plant 1 is located within Fountain Valley. For storage, handing, manufacturing, or processing of hazardous substances (as identified in the comprehensive master list compiled by California Department of Health Services), all businesses must be permitted, submit a hazardous materials response plan, and properly store said hazardous materials in accordance with fire department approval standards.

City of Huntington Beach Municipal Code, Chapter 212.06 – IG, IL, and RT Districts – Development Standards

Regulations for industrial districts (which include Plant 2), include controls and regulations for dust, fumes, and odors; waste disposal discharge; and waste containment, among others. Emissions must comply with all rules established by the EPA, California Air Resources Board, and South Coast Air Quality Management District, or their successor agencies. Waste disposal to waterways must be in compliance with applicable regulations of the State of California Santa Ana RWQCB or their successor agency. Storage and handling of wastes will be practiced to prevent nuisance, health safety, and fire hazards. Hazardous waste shall be stored in a closed container.

Asbestos and Air Quality

South Coast Air Quality Management District, Rule 1403 – Asbestos-Containing Materials

The South Coast Air Quality Management District requires compliance with Rule 1403 for protection from ACM. These compulsory steps include surveys, notification, and proper abatement of ACM prior to renovation or any demolition.

Methane

Orange County Fire Authority, Community Risk Reduction Guideline C-03: Combustible Soil Gas Hazard Mitigation

OCFA has provided guidance for investigation, remediation, and/or mitigation of potentially hazardous concentrations of combustible soil gases associated with construction and occupancy of a structure located within a specified methane risk area.

Huntington Beach Municipal Code Sections 17.04.085, 17.56.100, and 17.56.730: Methane Mitigation Requirements

The City of Huntington Beach has established recommendations and requirements for construction within the established Huntington Beach Methane Districts. Methane safety is managed by the Huntington Beach Fire Department. Requirements include testing and mitigation measures for all proposed construction projects with the potential for subsurface methane. Huntington Beach Fire Department strongly recommends not building structures over or near abandoned oil/gas wells or hydrocarbon-contaminated soil. The Fire Code Official allows construction to occur on or near abandoned oil/gas wells so long as the soils conform to Huntington Beach City Specification No. 431-92.

City of Yorba Linda Building Division Procedure No. 006: Methane Gas Investigation and Mitigation for New or Existing Structures to be Expanded

The City of Yorba Linda has established the methane procedures to provide effective and practical methods of safeguarding persons and property against potential methane gas hazards for both new construction and additions to existing structures on parcels with potential for methane gas exposure.

Newport Beach Municipal Code Chapter 15.55: Methane Overlay Zone

The City of Newport Beach has established methane gas mitigation districts that require property owners to test for and mitigate the presence of methane prior to significant new construction.

Emergency Response

Orange County Codified Ordinance, Title 3, Division 1 – Emergency Services

An emergency management council and emergency management manager are responsible for ensuring development of the Orange County Emergency Plan, which provides effective mobilization of resources in the county, both public and private, to meet conditions constituting a local or state emergency.

Huntington Beach Municipal Code Chapter 8.60 – Emergency Management and Homeland Security

The Office of Emergency Management and Homeland Security is responsible for the preparation and carrying out of plans for the protection of persons and property in the City of Huntington Beach in the event of an emergency. The Huntington Beach Fire Department implements actions of the Office of Emergency Management and Homeland Security.

4.8.3 Thresholds of Significance

The significance criteria used to evaluate the proposed FMP's impacts related to hazards and hazardous materials are based on Appendix G of the California Environmental Quality Act (CEQA) Guidelines. According to Appendix G, a significant impact related to hazards and hazardous materials would occur if the project would:

1. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.
2. 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.
3. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.
4. 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 result, would it create a significant hazard to the public or the environment.
5. 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 or excessive noise for people residing or working in the project area.
6. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.
7. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires.

As stated in the July 2019 Initial Study (Appendix A to this PEIR), potential impacts associated with safety issues related to airports and aviation, and exposure to wildland fires were less than significant. Therefore, these topics are not further analyzed in this PEIR.

This PEIR evaluates hazards and hazardous materials for three separate components of the proposed FMP: Plant 1, Plant 2, and collection system. Under CEQA Guidelines Section 15126.2(a), environmental impact reports should analyze any significant effects of the project that might cause or risk exacerbating impacts by bringing development and people into an affected area. This includes evaluating the direct, indirect, and cumulative environmental impacts of locating development in areas susceptible to environmental conditions.

4.8.4 Impacts Analysis

1. Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Demolition, Rehabilitation, and Construction

Less-than-Significant Impact with Mitigation Incorporated. Hazardous materials that may be used during construction and rehabilitation activities of the proposed FMP (Plant 1, Plant 2, and the collection system) include gasoline, diesel fuel, oil, lubricants, grease, welding gases (e.g., acetylene, oxygen, and argon), solvents, and paints. These materials would be used and stored in designated construction staging areas within the boundaries of the FMP project sites and would be used, transported, handled, and stored in accordance with all applicable federal, state, and local laws and regulations, which are intended to minimize health risk to the public associated with hazardous materials. The use of these materials for their intended purpose would not pose a significant risk to the public or environment. Wastes, both hazardous and non-hazardous, accumulated during demolition, rehabilitation, and construction activities would be handled, documented, and disposed of in accordance with federal, state, and local laws and regulations.

ACM and LBP are documented on both Plant 1 and Plant 2. These specific locations are documented in the asbestos and lead inventories created by the Sanitation District. Additionally, universal wastes (some potentially containing PCBs) may be present in structures scheduled for demolition and rehabilitation. Demolition and rehabilitation of these features may disturb and emit asbestos, lead, PCBs, and other wastes. Additionally, traffic striping on the roads may also contain hazardous levels of lead and chromate. Construction that removes road surfaces may create wastes that contain hazardous levels of chromate and lead. Due to the potential to encounter ACM, LBP, universal wastes, hazardous materials, and PCB-containing items during the demolition, rehabilitation, and construction process, the proposed FMP has the potential to create a significant hazard to the public or the environment through the routine transport or disposal of hazardous materials.

Prior to demolition and rehabilitation activities, the asbestos and LBP inventories would be consulted to verify if ACM or LBP are present in the proposed buildings for demolition and/or rehabilitation. A survey for universal wastes, including PCBs, would also be conducted. In addition, should excavation or road surface removal be required, any yellow traffic striping present would be tested for lead and chrome content prior to excavation or removal activities. Identified hazardous materials would be abated prior to demolition in accordance with **Mitigation Measure (MM) HAZ-1**. Therefore, hazards to the public or the environment through routine transport, use, or disposal of hazardous materials would be less than significant with mitigation incorporated.

Operation

Less-than-Significant Impact. The operational phase of the proposed FMP would not be expected to create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. Hazardous materials used for operation of Plant 1, Plant 2, and the collection system would be in accordance with requirements and recommendations in the Safety Data Sheet and would be managed in accordance with federal, state, and local laws and regulations. The Sanitation District submits HMBPs to the local CUPA as required by local and state law and will continue to update HMBPs as required. In addition, the Sanitation District is beginning to phase out the use of extremely hazardous substances; no new extremely

hazardous substances would be added to hazardous material inventories, nor would the amounts of existing extremely hazardous substances increase at the Sanitation District facilities. The use of these substances would be subject to applicable federal, state, and local health and safety laws and regulations that are intended to minimize health risk to the public associated with hazardous materials. Hazardous wastes which are generated by Sanitation District facilities are generated, stored, manifested, and transported in accordance with federal, state, and local regulations. While the Sanitation District uses extremely hazardous substances, the Sanitation District will not generate additional acutely hazardous substances in standard operations as part of the FMP. Therefore, impacts would be less than significant.

2. Would the project 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?

Demolition, Rehabilitation, and Construction

Less-than-Significant Impact with Mitigation Incorporated. As discussed above, the proposed FMP has the potential to expose the public and the environment to hazards associated with on-site releases of hazardous materials including ACM, LBP, PCB-containing items, and universal wastes (see Section 4.8.4.1). Management of hazardous materials and waste during pre-demolition surveys and abatement activities would be addressed by **MM-HAZ-1**.

Multiple USTs were documented at both Plant 1 and Plant 2, and are shown on Figures 4.8-1 and 4.8-2. One UST is located at Main Street Pump Station, near the southeast corner of the site. According to the Sanitation District, these documented USTs are true and accurate, and there are no other USTs located on Sanitation District facilities. Construction, especially ground-disturbing activities, has the potential to damage nearby USTs and appurtenances. In accordance with best construction practices and local laws, USTs and associated pipelines will be located and identified prior to construction, substantially reducing the potential to damage a UST and release its contents to the environment. Hazardous materials and/or hazardous waste storage areas, including ASTs and USTs, will be avoided during construction in order to prevent accidental upset or release of hazardous materials. Should construction be required in these storage areas, hazardous materials/wastes would be moved or otherwise protected (e.g., secondary containment, bollards, flammable cabinets) or avoided in accordance with best construction practices and federal, state, and local requirements.

Multiple plugged oil and gas wells were identified on the Plant 2 property; one plugged oil and gas well is located on the Plant 1 property; and multiple plugged oil and gas wells are located within 100 feet of the proposed collection system projects. There are also multiple active oil and gas wells located within 0.25 miles of various proposed collection system projects. The presence of these wells creates a potential for subsurface methane gas to be present. Plant 2 is also located in the Huntington Beach Methane District, which requires additional protections for buildings due to the potential for methane intrusion into buildings. The proposed collection system projects overlap multiple methane districts, including those for Huntington Beach, Newport Beach, and Yorba Linda. Methane gas is colorless and odorless. When methane accumulates, it is highly flammable and may cause explosions. It can also displace oxygen in small enclosed areas, such as trenches, excavations, and small structures. Ground-disturbing activities in methane districts and near oil and gas wells could cause a release of methane gas into the environment, and construction over or near a plugged oil and gas well could create a methane intrusion hazard inside buildings. Hazards associated with methane gas will be identified by a methane survey, and methane safety procedures, both jurisdictional and recommended based on the hazards found in the survey, will be followed as outlined in **MM-HAZ-2.** Should oil and gas wells be located within the proposed FMP area such

that they impact construction, rehabilitation, or demolition, wells will be abandoned or re-abandoned as outlined in MM-HAZ-2.

Multiple hazardous material pipelines are located within the Sanitation District service area boundary. Some of the proposed collection line projects may transect or run parallel to these pipelines. California State Law, Title 1, Division 5, Chapter 3.1, Article 2, Section 4216 requires location and delineation of subsurface utilities before any excavation activities. However, private pipelines may not be identified in public utility locate. Damage to these pipelines during ground-disturbing activities could cause a release of hazardous materials to the environment. Prior to excavation activities on proposed collection system projects, MM-HAZ-3 requires the Sanitation District or its contractors to identify potential hazardous material pipelines in the area and take the necessary precautions to avoid damage and release of hazardous materials to the environment.

As described in Section 4.8.1.3, LUSTs and other minor releases of petroleum products have been documented on Plant 1 and Plant 2. While cleanup activities have occurred at multiple locations in response to these releases, residual petroleum and volatile organic compound contamination may remain. Contamination may impact soil, groundwater, and soil vapor. Additionally, current and historical chemical storage and use at Plant 1 and Plant 2, and historical oil drilling activities on Plant 2, may have caused subsurface contamination to soil, groundwater, and soil vapor. Multiple contaminated sites were identified near proposed collection system projects that have caused potential environmental contamination to soils, groundwater, and soil vapor at some of the proposed collection system projects. Excavation in these areas and improper handling and disposal of excavated soils and groundwater could cause a release of hazardous materials to the environment. A Hazards Contingency Plan would be developed according to MM-HAZ-4 that outlines procedures for training, safety, and identification of contaminated media (soil, soil vapor, groundwater) during construction activities. In addition to known contaminated sites, sites are listed on Cortese and non-Cortese List hazardous materials databases on a rolling basis, and new sites may be identified between the date of this PEIR and the actual construction of the proposed FMP. The Hazards Contingency Plan requires training for identification of contamination in soil, soil vapor, or groundwater; therefore, risks associated with previously unidentified contamination would be mitigated as well.

In addition to the potential for environmental contamination on collection system projects, multiple monitoring wells are located within the proposed FMP boundary. These monitoring wells are associated with nearby contaminated sites; the approximate locations of known monitoring wells are shown on Figures 4.8-3A through 4.8-3D. These monitoring wells may be actively monitored as part of cleanup activities associated with the nearby cleanup site. Disturbance of these monitoring wells during construction activities could cause a release of hazardous materials to the environment. Monitoring wells are protected under California Water Code (Division 7, Chapter 10, Article 4) and cannot be damaged or removed without proper permission from the overseeing regulatory agency. In addition to the monitoring wells identified (Appendix G3), other monitoring wells may be installed or located within project boundaries. Any monitoring wells encountered during construction will be managed as described in MM-HAZ-5.

With implementation of MM-HAZ-1 through MM-HAZ-5, any impacts due to potential hazardous materials encountered on site during demolition and construction activities would be less than significant with mitigation incorporated.

Operation

Less-than-Significant Impact with Mitigation Incorporated. Once operational, the proposed FMP would not be expected to 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. The proposed FMP involves continued operation of the existing plants and collection system, with upgrades and improvements. Hazardous materials used for operation of Plant 1, Plant 2, and the collection system would be in accordance with requirements and recommendations in the Safety Data Sheet, and would be managed in accordance with federal, state, and local laws and regulations. The Sanitation District will continue to submit HMBPs to the local CUPA to document reportable quantities of hazardous materials stored on site. The Sanitation District is currently phasing out the use of extremely hazardous substances and does not permit new use or inventories of extremely hazardous substances at their facilities. The FMP would not result in the introduction of new extremely hazardous substances or an increase in the amount of extremely hazardous substances currently at Sanitation District facilities. The use of these substances would be subject to applicable federal, state, and local health and safety laws and regulations that are intended to minimize health risk to the public associated with hazardous materials. Hazardous wastes that are generated by Sanitation District facilities are generated, stored, manifested, and transported in accordance with federal, state, and local regulations. While the Sanitation District uses extremely hazardous substances, the Sanitation District does not anticipate future generation of acutely hazardous waste in standard operations. Future wastes generated would not be considered acutely hazardous.

Buildings constructed on or near abandoned oil wells would be constructed in accordance with applicable laws, rules, and regulations, including OCFA, City of Huntington Beach (Plant 2), City of Fountain Valley (Plant 1), and other local jurisdictions as required for collection system project structures, for protection of potential hazards due to methane. Additionally, as described in **MM-HAZ-2**, a methane survey will be conducted for FMP projects located within methane districts or within 100 feet of an oil and gas well, and a methane safety plan will be developed based on the risks identified in the study. This would include operation of FMP projects within these districts. Therefore, impacts would be less than significant with mitigation incorporated.

3. Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

Construction and Operation

Less-than-Significant Impact with Mitigation Incorporated. Hazardous materials would be transported, handled, stored, and disposed of in accordance with federal, state, and local laws and regulations, as described in the previous analysis sections. Hazardous materials used during construction and operation of the proposed FMP would be stored within proposed FMP boundaries. As required, HMBPs, spill prevention plans, and emergency response plans would be developed as required by state and local regulations. These regulations and requirements provide protection from emissions and releases of hazardous materials to the environment, including nearby schools. Hazardous materials associated with environmental contamination (e.g., from a nearby contaminated site) would be managed by the Hazards Contingency Plan, as described in **MM-HAZ-4**, which would remove the risk of hazardous emissions to the environment. A methane study would be conducted for proposed FMP components located within methane districts or near oil and gas wells (**MM-HAZ-2**), and potential risks would be addressed in a methane safety plan. Operation of the proposed FMP components would be similar to current operations and would not

increase the potential for hazardous emissions or use of hazardous materials near schools. Therefore, impacts would be less than significant with mitigation incorporated.

4. Would the project be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

Demolition, Rehabilitation, Construction and Operation

Less-than-Significant Impact with Mitigation Incorporated. Plant 1 has an open LUST file for a release that occurred in 2002. As such, Plant 1 is included on a Cortese List database pursuant to California Government Code Section 65962.5. Additionally, as a result of the environmental releases discussed in Section 4.8.1.3 and summarized in the previous reports (Appendices G1 through G3), Plant 1, Plant 2, and some of the collection system projects have been impacted or potentially impacted by Cortese List and non-Cortese List (e.g., conditionally closed LUST) contaminated sites. These specific listings are discussed in the referenced appendices. As discussed in Section 4.8.1.3, the following impacts on the project site are associated with these hazardous materials sites:

- There is potential for contaminated soil, groundwater, and soil vapor to be present on the FMP project sites due to multiple former release incidents; this could be disturbed during construction activities.
- Multiple monitoring wells are located within proposed collection system project boundaries. These monitoring wells may still be actively monitored as part of cleanup activities on the nearby sites. Disturbance of these wells is not permissible by law and could cause a release of hazardous materials to the environment.

Mitigation measures **MM-HAZ-4** and **MM-HAZ-5** would be implemented, eliminating significant hazards to the public or the environment.

In addition to known contaminated sites, sites are listed on Cortese List databases on a rolling basis, and new sites may be identified between the date of this PEIR and the actual construction of the FMP projects. Prior to construction, a review for additional Cortese List sites, or changes to existing Cortese List sites, would be conducted in accordance with **MM-HAZ-6**. Therefore, any new hazards associated with Cortese List sites would be identified. Implementation of the Hazards Contingency Plan, as described in **MM-HAZ-4**, would be used to mitigate hazards associated with newly identified contaminated sites.

With implementation of **MM-HAZ-4**, **MM-HAZ-5**, and **MM-HAZ-6**, these hazards would be reduced to less than significant with mitigation incorporated.

5. Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Demolition, Rehabilitation, and Construction

Less-than-Significant Impact with Mitigation Incorporated. FMP projects on Plant 1 and Plant 2 would occur entirely within the Plant 1 and Plant 2 boundaries. No road closures or plant operations are anticipated that would impact adopted emergency response plans. Truck traffic for construction activities would not be such that it would interfere with emergency evacuation routes designated for tsunamis.

FMP projects for the collection system may require partial road closures. As further explained in Section 3.17, incorporation of a Construction Traffic Control Plan as defined in **MM-TRA-1** would ensure that any temporary impacts to emergency vehicle flow and/or ingress/egress to properties along the FMP projects are coordinated in advance with emergency service providers and law enforcement to ensure that provision of sufficient emergency service, access, and evacuation can occur during construction if necessary. Implementation of the Construction Traffic Control Plan would reduce impacts to local emergency service providers, and impacts would be less than significant.

Operation

Less-than-Significant Impact. Operation of the proposed FMP would be similar to current operations. Plant operations would remain within existing plant boundaries, and collection system pipelines and features would be subsurface, or placed such that public rights-of-way would not be permanently impeded. Therefore, impacts would be less than significant.

4.8.5 Mitigation Measures

The following mitigation measures would be implemented to reduce all impacts described in Section 4.8.4 to levels below significance:

MM-HAZ-1 **Pre-Demolition Hazardous Building Materials Survey and Abatement.** A hazardous building materials survey shall be conducted prior to demolition or renovation activities at Reclamation Plant No. 1 and Treatment Plant No. 2. The survey will include polychlorinated biphenyls and universal wastes. A survey will also be conducted on collection system projects to identify yellow traffic striping that may contain lead chromate. Following results of the hazardous materials survey, and incorporating information from current asbestos and lead inventories, demolition or renovation plans and contract specifications, including those for road-disturbing activities, shall incorporate abatement procedures for the removal of materials containing asbestos, lead, polychlorinated biphenyls, and universal waste items, as required by law. All abatement work shall be done in accordance with federal, state, and local regulations, including those of the U.S. Environmental Protection Agency, Occupational Safety and Health Administration, California Occupational Safety and Health Administration, and the South Coast Air Quality Management District.

MM-HAZ-2 **Methane Management and Mitigation.** If a proposed rehabilitation, renovation, or construction project that involves the construction or occupancy of a building or structure is within a designated methane district, guidance from the applicable jurisdiction shall be consulted prior to project implementation to determine if the proposed Facilities Master Plan (FMP) is subject to any requirements, including health and safety requirements, related to the jurisdiction's methane districts. These jurisdictions include City of Huntington Beach, City of Newport Beach, City of Yorba Linda, and Orange County Fire Authority (OCFA). Additionally, projects located within a designated methane district or located within 100 feet of a plugged or active oil and gas well (a distance defined by OCFA) will have a methane survey conducted prior to ground-disturbing activities. The survey shall be conducted by a professional engineer or geologist with experience and credentials that meet the requirements of the County or local jurisdiction. Based on the result of the methane survey, a methane safety plan will be developed that identifies health and safety procedures for construction (such as ambient air monitoring) and operation (such as passive or active venting

systems on buildings) of proposed FMP projects that adequately mitigate risks associated with identified methane. The safety plan will meet minimum requirements set forth by OCFA Combustible Soil Gas Hazard Mitigation C-03, and applicable city-specific methane safety requirements. The Orange County Sanitation District and its contractors shall follow the methane safety plan during applicable projects. Should oil and gas wells require abandonment or re-abandonment to facilitate construction or operation of the proposed FMP, this shall be done in accordance with California Geologic Energy Management Division (CalGEM) requirements. Abandonment approval from CalGEM will be required prior to construction or other activities that could affect the oil and gas well.

MM-HAZ-3 **Hazardous Material Pipeline Location and Notification.** Prior to excavation or other ground-disturbing activities on proposed collection line projects, the Orange County Sanitation District (Sanitation District) or its contractor will determine if hazardous material pipelines are located in the area of excavation or other ground-disturbing activity. The National Pipeline Mapping System may be utilized to identify the location and owner/operator of hazardous material pipelines that may cross or run parallel to the proposed excavation area. The Sanitation District or its contractor will consult the pipeline owner, and will take the necessary precautions, such as setbacks, to avoid contact with the hazardous material pipeline, as required by the pipeline owner and by applicable federal, state, and local laws and regulations.

MM-HAZ-4 **Hazards Contingency Plan.** Prior to commencement of any ground-disturbing activities where it has been determined that hazardous materials are present and will be disturbed (see **MM-HAZ-6**), a Hazards Contingency Plan shall be developed that addresses potential impacts to soil, soil vapor, and groundwater from releases on or near the project sites. The Hazards Contingency Plan shall include training procedures for identification of contamination. The Hazards Contingency Plan shall describe procedures for assessment, characterization, management, and disposal of hazardous constituents, materials, and wastes, in accordance with all applicable state and local regulations. Contaminated soils and/or groundwater shall be managed and disposed of in accordance with local and state regulations. The Hazards Contingency Plan shall include health and safety measures, which may include but are not limited to periodic work breathing zone monitoring and monitoring for volatile organic compounds using a handheld organic vapor analyzer in the event impacted soils are encountered during excavation activities. As opposed to a single document, all necessary elements of a Hazards Contingency Plan may be developed into contract specifications.

MM-HAZ-5 **Monitoring Well Protection.** Monitoring wells associated with nearby cleanup sites may be located within proposed collection system project boundaries. Some of these wells may still be actively monitored as part of required cleanup activities. The agency overseeing the associated cleanup site (Regional Water Quality Control Board, Department of Toxic Substances Control, or Orange County Health Care Agency) will be consulted prior to Facilities Master Plan project activities that could affect the monitoring wells to determine the best plan of action to either decommission and destroy, protect, and/or replace affected monitoring wells.

MM-HAZ-6 **Review of Cortese List Databases.** Within proposed collection system project boundaries and prior to construction where ground disturbance is required, a review of Cortese List databases pursuant to Government Code 65962.5(a) and hazardous material sites listed on Department of Toxic Substances Control EnviroStor and State Water Resources Control Board GeoTracker will be conducted within 0.5 miles of the specific Facilities Master Plan project site where the ground

disturbance is proposed (project site). The review should be conducted by an environmental professional with experience in review and assessment of hazardous material sites. A search shall be conducted no more than 6 months prior to construction. In addition to the Cortese List and hazardous material sites identified in this program environmental impact report, each new Cortese List and hazardous material site identified within 0.5 miles of the project site will be reviewed for environmental contamination that could impact the project site, including soil, soil vapor, and groundwater contamination. The Hazards Contingency Plan developed in accordance with **MM-HAZ-4** would be modified to incorporate findings from this review.

4.8.6 Level of Significance After Mitigation

4.8.6.1 Routine Transport, Use, or Disposal of Hazardous Materials

The abatement of hazardous materials identified on FMP project sites would remove the potential for exposure of the public and the environment to accidental release of hazardous materials (**MM-HAZ-1**). Additionally, these materials would be removed, handled, and transported in accordance with applicable laws and regulations, removing the potential for exposure due to routine handling and transport. Therefore, with the implementation of **MM-HAZ-1,** impacts associated with the transport, use, or disposal of hazardous waste and materials during demolition and construction would be mitigated to a less-than-significant level.

4.8.6.2 Upset and Accident Conditions

The abatement of hazardous materials identified on the FMP project sites would remove the potential for upset and accident conditions associated with hazardous building materials (**MM-HAZ-1**). Risks associated with methane would be identified; a methane safety plan would be developed; and oil and gas wells within the boundaries of the FMP project sites would be abandoned or re-abandoned if required (**MM-HAZ-2**) to reduce the risk of an accident condition associated with methane. Hazardous material pipelines that transect or run parallel to the proposed collection line projects would be identified and proper safety procedures defined (**MM-HAZ-3**). A Hazards Contingency Plan will eliminate the risk of accidental release of hazardous materials associated with contaminated media (soil, soil vapor, groundwater) (**MM-HAZ-4**). Monitoring wells associated with cleanup and monitoring of nearby contaminated sites will be properly managed (**MM-HAZ-5**). With implementation of **MM-HAZ-1** through **MM-HAZ-5**, impacts associated with the foreseeable accident and upset conditions involving a release of hazardous materials to the environment during construction would be mitigated to a less-than-significant level.

4.8.6.3 Emissions Within 0.25 Miles of Schools

Hazardous materials associated with contaminated sites will be managed by the Hazards Contingency Plan, which will eliminate the risk of emissions (**MM-HAZ-4**). Methane emission risks will be identified in a methane study, and safety measures will be developed to eliminate any identified emission risks (**MM-HAZ-2**). With implementation of **MM-HAZ-2** and **MM-HAZ-4**, impacts associated with potential hazardous emissions or handling of hazardous or acutely hazardous materials, substances, or waste within 0.25 miles of an existing or proposed school would be mitigated to a less-than-significant level.

4.8.6.4 Cortese List Sites

Contaminated soil, soil vapor, and groundwater, that may be encountered due to release cases on or nearby FMP project sites will be identified, managed, and disposed of in accordance with the Hazards Contingency Plan (**MM-**

HAZ-4). Monitoring wells associated with cleanup and monitoring of nearby contaminated sites will be properly managed (MM-HAZ-5). New regulatory listings of contaminated sites that could impact project construction will be identified prior to construction (MM-HAZ-6). With implementation of MM-HAZ-4, MM-HAZ-5 and MM-HAZ-6, impacts associated with sites included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 would be mitigated to a less-than-significant level.

4.8.7 Cumulative Impacts

As described above, there are a variety of hazardous material and public health and safety issues that are relevant and applicable to the project sites and proposed FMP. Many potential impacts related to hazardous materials and public health and safety risks would be minimized due to compliance with federal, state, and local regulatory requirements. These legal requirements and regulations, as detailed in Section 4.8.2, minimize potential for health and safety risks.

Cumulative projects would also be subject to federal, state, and local regulations related to hazardous materials and other public health and safety issues. In a manner similar to the proposed FMP, adherence to these regulatory requirements would reduce incremental impacts associated with public exposure to health and safety hazards in each of the affected project sites. Additionally, most hazardous material and safety-related risks are localized, generally affecting a specific site and immediate surrounding area, thus minimizing the potential for an impact to combine with another project to create a cumulative scenario.

Because cumulative projects would be fully regulated, thus reducing potential for public safety risks, cumulative impacts associated with exposure to hazards and hazardous materials would be less than significant. Through mitigation and compliance with regulatory requirements, the construction or operation of the proposed FMP itself would not create significant human or environmental health or safety risks that could combine with other project impacts to create a significant and cumulatively considerable impact. For these reasons, the proposed FMP would not result in cumulatively considerable impacts related to hazards and hazardous materials.

4.8.8 Impact Summary

Table 4.8-1 summarizes the impacts for the FMP projects assessed at the project level at Plant 1, Plant 2, joint plant projects, and collection system projects under each threshold analyzed in this PEIR.

Table 4.8-1. Summary of FMP Project Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?					
Plant 1					
P1-126	Primary Clarifiers Replacements and Improvements	Replace	Significant	MM-HAZ-1	Less than Significant
X-093	Administrative Facilities and Power Building 3A Demolition	Misc. (Demo)	Significant	MM-HAZ-1	Less than Significant
X-092	Standby Generator Feeders for Plant 1 Secondary Systems	Misc.	Significant	MM-HAZ-1	Less than Significant

Table 4.8-1. Summary of FMP Project Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
X-048	Activated Sludge (AS)-1 Aeration Basin and Blower Rehabilitation	Rehab	Significant	MM-HAZ-1	Less than Significant
P1-135	Digester Ferric Piping Replacement	Replace	Significant	MM-HAZ-1	Less than Significant
X-077	Switchgear Replacement at Central Generation	Replace	Significant	MM-HAZ-1	Less than Significant
X-090	Network, Telecommunications, and Service Relocation at Plant 1	Misc.	Significant	MM-HAZ-1	Less than Significant
Plant 2					
P2-126	Substation and Warehouse Replacement at Plant 2	Misc.	Significant	MM-HAZ-1	Less than Significant
P2-138	Operations and Maintenance Complex at Plant 2	Replace	Significant	MM-HAZ-1	Less than Significant
X-050	Activated Sludge (AS) Aeration Basin	Rehab	Significant	MM-HAZ-1	Less than Significant
X-032	Truck Loading Facility Rehabilitation	Rehab	Significant	MM-HAZ-1	Less than Significant
X-054	Waste Side-Stream Pump Station C Rehabilitation	Rehab	Significant	MM-HAZ-1	Less than Significant
X-034	Sodium Bisulfite Station Replacement and Bleach Station Demolition	Replace	Significant	MM-HAZ-1	Less than Significant
Joint Plant Projects					
J-98	Plantwide Miscellaneous Electrical Power Distribution System Improvements	Replace	Significant	MM-HAZ-1	Less than Significant
J-120	Plantwide Miscellaneous Process Control Systems Upgrades	Replace	Significant	MM-HAZ-1	Less than Significant
J-133	Laboratory Rehabilitation or Replacement at Plant 1	Rehab	Significant	MM-HAZ-1	Less than Significant
X-057	Plantwide Miscellaneous Yard Structures Rehabilitation or Replacement	Misc.	Significant	MM-HAZ-1	Less than Significant
X-058	Plantwide Miscellaneous Yard Piping Replacement	Replace	Significant	MM-HAZ-1	Less than Significant
X-059	Plantwide Miscellaneous Tunnels Rehabilitation	Rehab	Significant	MM-HAZ-1	Less than Significant
J-121	UPS System Upgrades	Replace	Significant	MM-HAZ-1	Less than Significant
X-044	Steve Anderson Lift Station Rehabilitation	Rehab	Significant	MM-HAZ-1	Less than Significant
Collection System Projects					
5-68	Newport Beach Pump Station Odor Control Improvements	Misc.	Significant	MM-HAZ-1	Less than Significant

Table 4.8-1. Summary of FMP Project Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
X-076	Santa Ana Trunk Sewer Rehabilitation Phase II	Rehab	Significant	MM-HAZ-1	Less than Significant
X-082	North Trunk Improvement Project	Replace	Significant	MM-HAZ-1	Less than Significant
X-060	Newhope Placentia Chemical Dosing Station	Misc.	Significant	MM-HAZ-1	Less than Significant
11-33	Edinger Pumping Station Replacement	Replace	Significant	MM-HAZ-1	Less than Significant
X-063	South Santa Ana River Interceptor Connector Rehabilitation	Rehab	Significant	MM-HAZ-1	Less than Significant
2-73	Yorba Linda Pump Station Abandonment	Misc.	Significant	MM-HAZ-1	Less than Significant
3-67	Seal Beach Pump Station Replacement	Replace	Significant	MM-HAZ-1	Less than Significant
2-49	Taft Branch Sewer Improvements	Replace	Significant	MM-HAZ-1	Less than Significant
X-083	Greenville–Sullivan Sewer Relief Project	Replace	Significant	MM-HAZ-1	Less than Significant
Would the project 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?					
Plant 1					
P1-126	Primary Clarifiers Replacements and Improvements	Replace	Significant	MM-HAZ-1 MM-HAZ-2 MM-HAZ-4	Less than Significant
X-093	Administrative Facilities and Power Building 3A Demolition	Misc. (Demo)	Significant	MM-HAZ-1 MM-HAZ-2 MM-HAZ-4	Less than Significant
X-092	Standby Generator Feeders for Plant 1 Secondary Systems	Misc.	Significant	MM-HAZ-1 MM-HAZ-2 MM-HAZ-4	Less than Significant
X-048	Activated Sludge (AS)-1 Aeration Basin and Blower Rehabilitation	Rehab	Significant	MM-HAZ-1 MM-HAZ-2 MM-HAZ-4	Less than Significant
P1-135	Digester Ferric Piping Replacement	Replace	Significant	MM-HAZ-1 MM-HAZ-2 MM-HAZ-4	Less than Significant
X-077	Switchgear Replacement at Central Generation	Replace	Significant	MM-HAZ-1 MM-HAZ-2 MM-HAZ-4	Less than Significant
X-090	Network, Telecommunications, and Service Relocation at Plant 1	Misc.	Significant	MM-HAZ-1 MM-HAZ-2 MM-HAZ-4	Less than Significant

Table 4.8-1. Summary of FMP Project Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
Plant 2					
P2-126	Substation and Warehouse Replacement at Plant 2	Misc.	Significant	MM-HAZ-1 MM-HAZ-2 MM-HAZ-4	Less than Significant
P2-138	Operations and Maintenance Complex at Plant 2	Replace	Significant	MM-HAZ-1 MM-HAZ-2 MM-HAZ-4	Less than Significant
X-050	Activated Sludge (AS) Aeration Basin	Rehab	Significant	MM-HAZ-1 MM-HAZ-2 MM-HAZ-4	Less than Significant
X-032	Truck Loading Facility Rehabilitation	Rehab	Significant	MM-HAZ-1 MM-HAZ-2 MM-HAZ-4	Less than Significant
X-054	Waste Side-Stream Pump Station C Rehabilitation	Rehab	Significant	MM-HAZ-1 MM-HAZ-2 MM-HAZ-4	Less than Significant
X-034	Sodium Bisulfite Station Replacement and Bleach Station Demolition	Replace	Significant	MM-HAZ-1 MM-HAZ-2 MM-HAZ-4	Less than Significant
Joint Plant Projects					
J-98	Plantwide Miscellaneous Electrical Power Distribution System Improvements	Replace	Significant	MM-HAZ-1 MM-HAZ-2 MM-HAZ-4	Less than Significant
J-120	Plantwide Miscellaneous Process Control Systems Upgrades	Replace	Significant	MM-HAZ-1 MM-HAZ-2 MM-HAZ-4	Less than Significant
J-133	Laboratory Rehabilitation or Replacement at Plant 1	Rehab	Significant	MM-HAZ-1 MM-HAZ-2 MM-HAZ-4	Less than Significant
X-057	Plantwide Miscellaneous Yard Structures Rehabilitation or Replacement	Misc.	Significant	MM-HAZ-1 MM-HAZ-2 MM-HAZ-4	Less than Significant
X-058	Plantwide Miscellaneous Yard Piping Replacement	Replace	Significant	MM-HAZ-1 MM-HAZ-2 MM-HAZ-4	Less than Significant
X-059	Plantwide Miscellaneous Tunnels Rehabilitation	Rehab	Significant	MM-HAZ-1 MM-HAZ-2 MM-HAZ-4	Less than Significant
J-121	UPS System Upgrades	Replace	Significant	MM-HAZ-1 MM-HAZ-2 MM-HAZ-4	Less than Significant
X-044	Steve Anderson Lift Station Rehabilitation	Rehab	Significant	MM-HAZ-1 MM-HAZ-2 MM-HAZ-4	Less than Significant

Table 4.8-1. Summary of FMP Project Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
Collection System Projects					
5-68	Newport Beach Pump Station Odor Control Improvements	Misc.	Significant	MM-HAZ-1 MM-HAZ-2 MM-HAZ-3 MM-HAZ-4 MM-HAZ-5	Less than Significant
X-076	Santa Ana Trunk Sewer Rehabilitation Phase II	Rehab	Significant	MM-HAZ-1 MM-HAZ-2 MM-HAZ-3 MM-HAZ-4 MM-HAZ-5	Less than Significant
X-082	North Trunk Improvement Project	Replace	Significant	MM-HAZ-1 MM-HAZ-2 MM-HAZ-3 MM-HAZ-4 MM-HAZ-5	Less than Significant
X-060	Newhope Placentia Chemical Dosing Station	Misc.	Significant	MM-HAZ-1 MM-HAZ-2 MM-HAZ-3 MM-HAZ-4 MM-HAZ-5	Less than Significant
11-33	Edinger Pumping Station Replacement	Replace	Significant	MM-HAZ-1 MM-HAZ-2 MM-HAZ-3 MM-HAZ-4 MM-HAZ-5	Less than Significant
X-063	South Santa Ana River Interceptor Connector Rehabilitation	Rehab	Significant	MM-HAZ-1 MM-HAZ-2 MM-HAZ-3 MM-HAZ-4 MM-HAZ-5	Less than Significant
2-73	Yorba Linda Pump Station Abandonment	Misc.	Significant	MM-HAZ-1 MM-HAZ-2 MM-HAZ-3 MM-HAZ-4 MM-HAZ-5	Less than Significant
3-67	Seal Beach Pump Station Replacement	Replace	Significant	MM-HAZ-1 MM-HAZ-2 MM-HAZ-3 MM-HAZ-4 MM-HAZ-5	Less than Significant
2-49	Taft Branch Sewer Improvements	Replace	Significant	MM-HAZ-1 MM-HAZ-2 MM-HAZ-3 MM-HAZ-4 MM-HAZ-5	Less than Significant

Table 4.8-1. Summary of FMP Project Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
X-083	Greenville–Sullivan Sewer Relief Project	Replace	Significant	MM-HAZ-1 MM-HAZ-2 MM-HAZ-3 MM-HAZ-4 MM-HAZ-5	Less than Significant
Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?					
Plant 1					
P1-126	Primary Clarifiers Replacements and Improvements	Replace	Significant	MM-HAZ-4 MM-HAZ-5	Less than Significant
X-093	Administrative Facilities and Power Building 3A Demolition	Misc. (Demo)	Significant	MM-HAZ-4 MM-HAZ-5	Less than Significant
X-092	Standby Generator Feeders for Plant 1 Secondary Systems	Misc.	Significant	MM-HAZ-4 MM-HAZ-5	Less than Significant
X-048	Activated Sludge (AS)-1 Aeration Basin and Blower Rehabilitation	Rehab	Significant	MM-HAZ-4 MM-HAZ-5	Less than Significant
P1-135	Digester Ferric Piping Replacement	Replace	Significant	MM-HAZ-4 MM-HAZ-5	Less than Significant
X-077	Switchgear Replacement at Central Generation	Replace	Significant	MM-HAZ-4 MM-HAZ-5	Less than Significant
X-090	Network, Telecommunications, and Service Relocation at Plant 1	Misc.	Less than Significant	—	Less than Significant
Plant 2					
P2-126	Substation and Warehouse Replacement at Plant 2	Misc.	Less than Significant	—	Less than Significant
P2-138	Operations and Maintenance Complex at Plant 2	Replace	Less than Significant	—	Less than Significant
X-050	Activated Sludge (AS) Aeration Basin	Rehab	Less than Significant	—	Less than Significant
X-032	Truck Loading Facility Rehabilitation	Rehab	Less than Significant	—	Less than Significant
X-054	Waste Side-Stream Pump Station C Rehabilitation	Rehab	Less than Significant	—	Less than Significant
X-034	Sodium Bisulfite Station Replacement and Bleach Station Demolition	Replace	Less than Significant	—	Less than Significant
Joint Plant Projects					
J-98	Plantwide Miscellaneous Electrical Power Distribution System Improvements	Replace	Significant	MM-HAZ-4 MM-HAZ-5	Less than Significant
J-120	Plantwide Miscellaneous Process Control Systems Upgrades	Replace	Significant	MM-HAZ-4 MM-HAZ-5	Less than Significant
J-133	Laboratory Rehabilitation or Replacement at Plant 1	Rehab	Significant	MM-HAZ-4 MM-HAZ-5	Less than Significant

Table 4.8-1. Summary of FMP Project Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
X-057	Plantwide Miscellaneous Yard Structures Rehabilitation or Replacement	Misc.	Significant	MM-HAZ-4 MM-HAZ-5	Less than Significant
X-058	Plantwide Miscellaneous Yard Piping Replacement	Replace	Significant	MM-HAZ-4 MM-HAZ-5	Less than Significant
X-059	Plantwide Miscellaneous Tunnels Rehabilitation	Rehab	Significant	MM-HAZ-4 MM-HAZ-5	Less than Significant
J-121	UPS System Upgrades	Replace	Significant	MM-HAZ-4 MM-HAZ-5	Less than Significant
X-044	Steve Anderson Lift Station Rehabilitation	Rehab	Significant	MM-HAZ-4 MM-HAZ-5	Less than Significant
Collection System Projects					
5-68	Newport Beach Pump Station Odor Control Improvements	Misc.	Significant	MM-HAZ-4 MM-HAZ-5	Less than Significant
X-076	Santa Ana Trunk Sewer Rehabilitation Phase II	Rehab	Significant	MM-HAZ-4 MM-HAZ-5	Less than Significant
X-082	North Trunk Improvement Project	Replace	Significant	MM-HAZ-4 MM-HAZ-5	Less than Significant
X-060	Newhope Placentia Chemical Dosing Station	Misc.	Significant	MM-HAZ-4 MM-HAZ-5	Less than Significant
11-33	Edinger Pumping Station Replacement	Replace	Significant	MM-HAZ-4 MM-HAZ-5	Less than Significant
X-063	South Santa Ana River Interceptor Connector Rehabilitation	Rehab	Significant	MM-HAZ-4 MM-HAZ-5	Less than Significant
2-73	Yorba Linda Pump Station Abandonment	Misc.	Significant	MM-HAZ-4 MM-HAZ-5	Less than Significant
3-67	Seal Beach Pump Station Replacement	Replace	Significant	MM-HAZ-4 MM-HAZ-5	Less than Significant
2-49	Taft Branch Sewer Improvements	Replace	Significant	MM-HAZ-4 MM-HAZ-5	Less than Significant
X-083	Greenville–Sullivan Sewer Relief Project	Replace	Significant	MM-HAZ-4 MM-HAZ-5	Less than Significant
Would the project be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?					
Plant 1					
P1-126	Primary Clarifiers Replacements and Improvements	Replace	Significant	MM-HAZ-4 MM-HAZ-5 MM-HAZ-6	Less than Significant
X-093	Administrative Facilities and Power Building 3A Demolition	Misc. (Demo)	Significant	MM-HAZ-4 MM-HAZ-5 MM-HAZ-6	Less than Significant

Table 4.8-1. Summary of FMP Project Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
X-092	Standby Generator Feeders for Plant 1 Secondary Systems	Misc.	Significant	MM-HAZ-4 MM-HAZ-5 MM-HAZ-6	Less than Significant
X-048	Activated Sludge (AS)-1 Aeration Basin and Blower Rehabilitation	Rehab	Significant	MM-HAZ-4 MM-HAZ-5 MM-HAZ-6	Less than Significant
P1-135	Digester Ferric Piping Replacement	Replace	Significant	MM-HAZ-4 MM-HAZ-5 MM-HAZ-6	Less than Significant
X-077	Switchgear Replacement at Central Generation	Replace	Significant	MM-HAZ-4 MM-HAZ-5 MM-HAZ-6	Less than Significant
X-090	Network, Telecommunications, and Service Relocation at Plant 1	Misc.	Significant	MM-HAZ-4 MM-HAZ-5 MM-HAZ-6	Less than Significant
Plant 2					
P2-126	Substation and Warehouse Replacement at Plant 2	Misc.	Significant	MM-HAZ-4 MM-HAZ-5 MM-HAZ-6	Less than Significant
P2-138	Operations and Maintenance Complex at Plant 2	Replace	Significant	MM-HAZ-4 MM-HAZ-5 MM-HAZ-6	Less than Significant
X-050	Activated Sludge (AS) Aeration Basin	Rehab	Significant	MM-HAZ-4 MM-HAZ-5 MM-HAZ-6	Less than Significant
X-032	Truck Loading Facility Rehabilitation	Rehab	Significant	MM-HAZ-4 MM-HAZ-5 MM-HAZ-6	Less than Significant
X-054	Waste Side-Stream Pump Station C Rehabilitation	Rehab	Significant	MM-HAZ-4 MM-HAZ-5 MM-HAZ-6	Less than Significant
X-034	Sodium Bisulfite Station Replacement and Bleach Station Demolition	Replace	Significant	MM-HAZ-4 MM-HAZ-5 MM-HAZ-6	Less than Significant
Joint Plant Projects					
J-98	Plantwide Miscellaneous Electrical Power Distribution System Improvements	Replace	Significant	MM-HAZ-4 MM-HAZ-5 MM-HAZ-6	Less than Significant
J-120	Plantwide Miscellaneous Process Control Systems Upgrades	Replace	Significant	MM-HAZ-4 MM-HAZ-5 MM-HAZ-6	Less than Significant
J-133	Laboratory Rehabilitation or Replacement at Plant 1	Rehab	Significant	MM-HAZ-4 MM-HAZ-5 MM-HAZ-6	Less than Significant

Table 4.8-1. Summary of FMP Project Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
X-057	Plantwide Miscellaneous Yard Structures Rehabilitation or Replacement	Misc.	Significant	MM-HAZ-4 MM-HAZ-5 MM-HAZ-6	Less than Significant
X-058	Plantwide Miscellaneous Yard Piping Replacement	Replace	Significant	MM-HAZ-4 MM-HAZ-5 MM-HAZ-6	Less than Significant
X-059	Plantwide Miscellaneous Tunnels Rehabilitation	Rehab	Significant	MM-HAZ-4 MM-HAZ-5 MM-HAZ-6	Less than Significant
J-121	UPS System Upgrades	Replace	Significant	MM-HAZ-4 MM-HAZ-5 MM-HAZ-6	Less than Significant
X-044	Steve Anderson Lift Station Rehabilitation	Rehab	Significant	MM-HAZ-4 MM-HAZ-5 MM-HAZ-6	Less than Significant
Collection System Projects					
5-68	Newport Beach Pump Station Odor Control Improvements	Misc.	Significant	MM-HAZ-4 MM-HAZ-5 MM-HAZ-6	Less than Significant
X-076	Santa Ana Trunk Sewer Rehabilitation Phase II	Rehab	Significant	MM-HAZ-4 MM-HAZ-5 MM-HAZ-6	Less than Significant
X-082	North Trunk Improvement Project	Replace	Significant	MM-HAZ-4 MM-HAZ-5 MM-HAZ-6	Less than Significant
X-060	Newhope Placentia Chemical Dosing Station	Misc.	Significant	MM-HAZ-4 MM-HAZ-5 MM-HAZ-6	Less than Significant
11-33	Edinger Pumping Station Replacement	Replace	Significant	MM-HAZ-4 MM-HAZ-5 MM-HAZ-6	Less than Significant
X-063	South Santa Ana River Interceptor Connector Rehabilitation	Rehab	Significant	MM-HAZ-4 MM-HAZ-5 MM-HAZ-6	Less than Significant
2-73	Yorba Linda Pump Station Abandonment	Misc.	Significant	MM-HAZ-4 MM-HAZ-5 MM-HAZ-6	Less than Significant
3-67	Seal Beach Pump Station Replacement	Replace	Significant	MM-HAZ-4 MM-HAZ-5 MM-HAZ-6	Less than Significant
2-49	Taft Branch Sewer Improvements	Replace	Significant	MM-HAZ-4 MM-HAZ-5 MM-HAZ-6	Less than Significant
X-083	Greenville–Sullivan Sewer Relief Project	Replace	Significant	MM-HAZ-4 MM-HAZ-5 MM-HAZ-6	Less than Significant

Table 4.8-1. Summary of FMP Project Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?					
Plant 1					
P1-126	Primary Clarifiers Replacements and Improvements	Replace	Less than Significant	—	Less than Significant
X-093	Administrative Facilities and Power Building 3A Demolition	Misc. (Demo)	Less than Significant	—	Less than Significant
X-092	Standby Generator Feeders for Plant 1 Secondary Systems	Misc.	Less than Significant	—	Less than Significant
X-048	Activated Sludge (AS)-1 Aeration Basin and Blower Rehabilitation	Rehab	Less than Significant	—	Less than Significant
P1-135	Digester Ferric Piping Replacement	Replace	Less than Significant	—	Less than Significant
X-077	Switchgear Replacement at Central Generation	Replace	Less than Significant	—	Less than Significant
X-090	Network, Telecommunications, and Service Relocation at Plant 1	Misc.	Less than Significant	—	Less than Significant
Plant 2					
P2-126	Substation and Warehouse Replacement at Plant 2	Misc.	Less than Significant	—	Less than Significant
P2-138	Operations and Maintenance Complex at Plant 2	Replace	Less than Significant	—	Less than Significant
X-050	Activated Sludge (AS) Aeration Basin	Rehab	Less than Significant	—	Less than Significant
X-032	Truck Loading Facility Rehabilitation	Rehab	Less than Significant	—	Less than Significant
X-054	Waste Side-Stream Pump Station C Rehabilitation	Rehab	Less than Significant	—	Less than Significant
X-034	Sodium Bisulfite Station Replacement and Bleach Station Demolition	Replace	Less than Significant	—	Less than Significant
Joint Plant Projects					
J-98	Plantwide Miscellaneous Electrical Power Distribution System Improvements	Replace	Less than Significant	—	Less than Significant
J-120	Plantwide Miscellaneous Process Control Systems Upgrades	Replace	Less than Significant	—	Less than Significant
J-133	Laboratory Rehabilitation or Replacement at Plant 1	Rehab	Less than Significant	—	Less than Significant
X-057	Plantwide Miscellaneous Yard Structures Rehabilitation or Replacement	Misc.	Less than Significant	—	Less than Significant
X-058	Plantwide Miscellaneous Yard Piping Replacement	Replace	Less than Significant	—	Less than Significant

Table 4.8-1. Summary of FMP Project Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
X-059	Plantwide Miscellaneous Tunnels Rehabilitation	Rehab	Less than Significant	—	Less than Significant
J-121	UPS System Upgrades	Replace	Less than Significant	—	Less than Significant
X-044	Steve Anderson Lift Station Rehabilitation	Rehab	Less than Significant	—	Less than Significant
Collection System Projects					
5-68	Newport Beach Pump Station Odor Control Improvements	Misc.	Significant	MM-TRA-1	Less than Significant
X-076	Santa Ana Trunk Sewer Rehabilitation Phase II	Rehab	Significant	MM-TRA-1	Less than Significant
X-082	North Trunk Improvement Project	Replace	Significant	MM-TRA-1	Less than Significant
X-060	Newhope Placentia Chemical Dosing Station	Misc.	Significant	MM-TRA-1	Less than Significant
11-33	Edinger Pumping Station Replacement	Replace	Significant	MM-TRA-1	Less than Significant
X-063	South Santa Ana River Interceptor Connector Rehabilitation	Rehab	Significant	MM-TRA-1	Less than Significant
2-73	Yorba Linda Pump Station Abandonment	Misc.	Significant	MM-TRA-1	Less than Significant
3-67	Seal Beach Pump Station Replacement	Replace	Significant	MM-TRA-1	Less than Significant
2-49	Taft Branch Sewer Improvements	Replace	Significant	MM-TRA-1	Less than Significant
X-083	Greenville–Sullivan Sewer Relief Project	Replace	Significant	MM-TRA-1	Less than Significant

Note: UPS = uninterruptible power system.

4.8.9 References

Caltrans (California Department of Transportation). 2011. *Guideline for Selecting Materials and Standard Special Provisions for Traffic Striping and Pavement Marking, Version 2.0*. December 2011.

FEMA (Federal Emergency Management Agency). 2003. *Federal Emergency Response Plan*. Interim. 9230.1-PL. January 2003.

San Francisco Bay RWQCB (Regional Water Quality Control Board). 2019. *Environmental Screening Levels.* January 2019.

Sanitation District (Orange County Sanitation District). 2019. "History of OCSD." Accessed December 3, 2019. https://www.ocsd.com/about-us/general-information/history.

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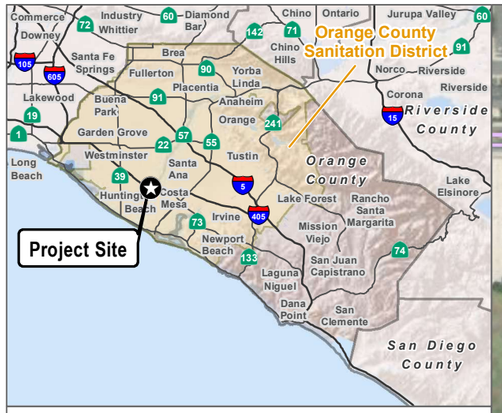
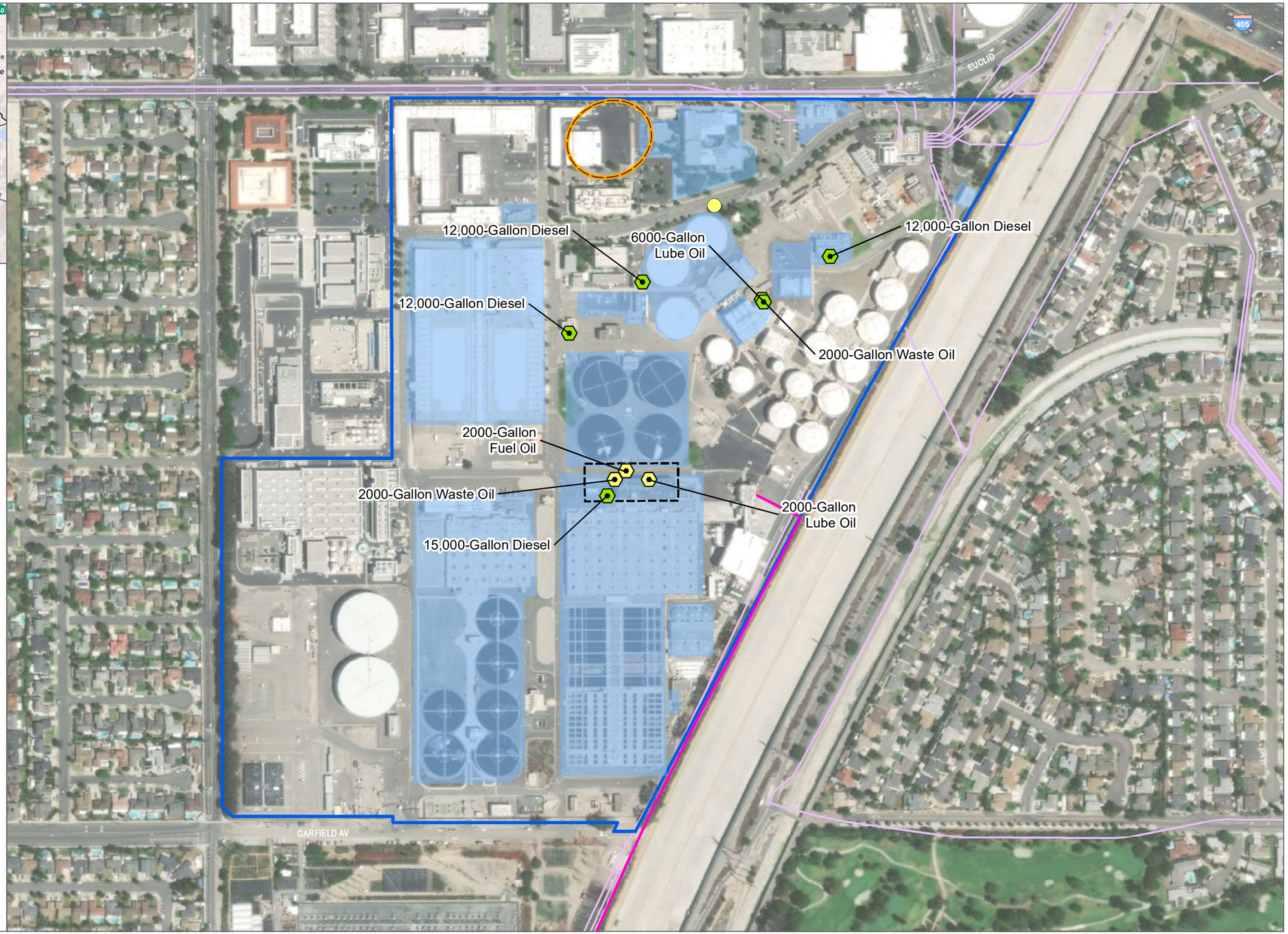


- Plant Boundary
- Project Areas
- Interplant Digester Gas Pipeline
- OCSD Sewer
- Approximate location of former 15,000-gallon USTs
- Former Fleet Services Fuel Island/2002 LUST (open cleanup)
- Plugged Oil and Gas Well

Underground Storage Tank (Status)

- Current
- Former



SOURCE: DigitalGlobe 2016

DUDEK 0 125 250 Feet

FIGURE 4.8-1

Potential Site Hazards - Reclamation Plant No.1

Sanitation District Facilities Master Plan PEIR

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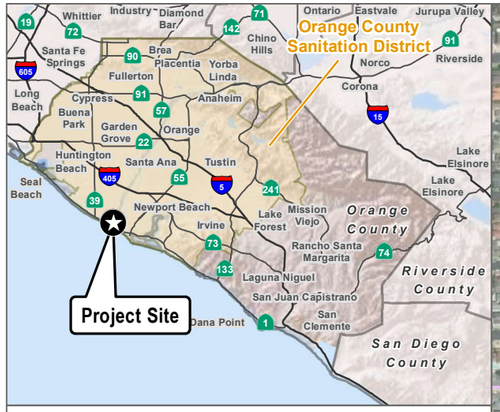

Plant Boundary
Project Areas
OCSD Sewer
Interplant Digester Gas Pipeline

Underground Storage Tank (Status)

Current
Former

Feature locations are approximate based on available data

SOURCE: DigitalGlobe 2016, DOGGR 2014

DUDEK 0 225 450 Feet

FIGURE 4.8-2

Potential Site Hazards - Treatment Plant No.2

Sanitation District Facilities Master Plan PEIR

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- OCSD Sewer

Collection System Projects
- Replacement
- Rehabilitation
- Air Jumper Rehabilitation
- Pump Station

Non-Cortese List Sites
- Likely Impact
- Potential Impact
- Approximate OC North Basin VOC Plume

Cortese List Sites
- Likely Impact
- Potential Impact
- Monitoring Wells

Oil and Gas Features
- Huntington Beach Methane District
- Oil and gas wells within 1/4 mile of the Project

SOURCE: DigitalGlobe 2016; DOGGR 2014

DUDEK

0 3,100 6,200 Feet

FIGURE 4.8-3A

Sanitation District Collection System Projects: Potential Site Hazards

Sanitation District Facilities Master Plan PEIR

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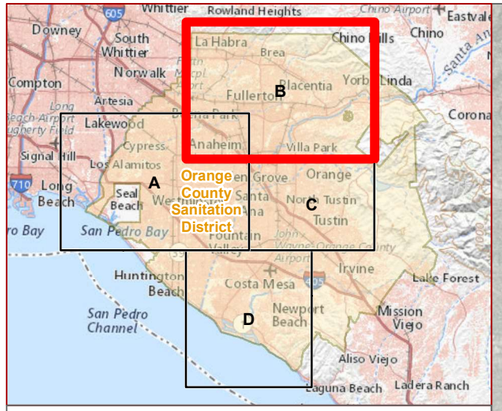

- OCSD Sewer

Collection System Projects

- Replacement
- Rehabilitation
- Air Jumper Rehabilitation
- Pump Station

Non-Cortese List Sites

- Potential Impact
- Approximate OC North Basin VOC Plume

Oil and Gas Field

- Richfield Well Field
- Oil and gas wells within 1/4 mile of the Project

Outside of OCSD

Pomona Box Company

X-061

X-061

X-086

X-063

X-065

X-065

X-066

2-49

P

WHITTIER

BEACH

BERRY ST

LAMBERT

PUENTE ST

BREA

BIRCH ST

IMPERIAL HWY

EUCLID

IMPERIAL

VALENCIA

ROSE

CARBON CANYON

ROSE DR

BASTANCHURY

FAIRMONT BLVD

YORBA LINDA

ROSECRANS AV

HARBOR BLVD

BREA BLVD

BASTANCHURY RD

STATE COLLEGE

KRAEMER BLVD

GILBERT

BASTANCHURY

MALVERN AV

MALVERN

NUTWOOD AV

CHAPMAN AV

LAKEVIEW

IMPERIAL HWY

CLOUD CREST

FAIRMONT

LA PALMA

WEIR CANYON

ESPERANZA

CAMINO MANZANO

ORANGETHORPE AV

PLACENTIA

MAGNOLIA

BROOKHURST

LA PALMA

LA PALMA AVE

TUSTIN

IMPERIAL

HARBOR

LINCOLN

TUSTIN AV

SANTIAGO

STA ANA CANYON

LINCOLN AV

TUSTIN ST

MEATS AV

BALL

BALL RD

EUCLID

ANAHEIM

LEWIS ST

CERRITOS AV

TAFT

TAFT AV

SANTIAGO CANYON RD

Outside of OCSD

SOURCE: DigitalGlobe 2016; DOGGR 2014

DUDEK

0 3,100 6,200 Feet

FIGURE 4.8-3B

Sanitation District Collection System Projects: Potential Site Hazards

Sanitation District Facilities Master Plan PEIR

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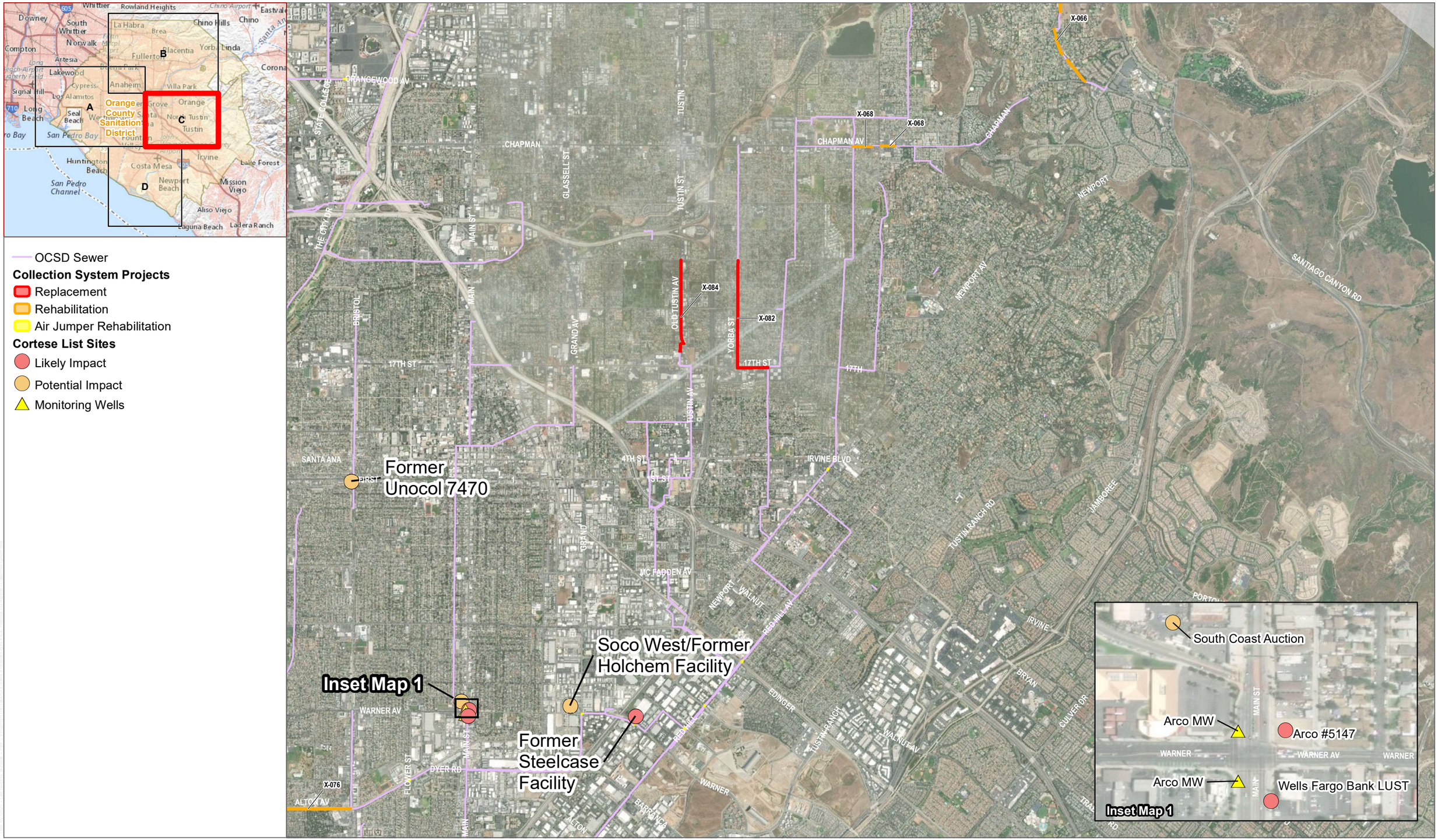

SOURCE: DigitalGlobe 2016; DOGGR 2014

DUDEK

0 2,050 4,100 Feet

FIGURE 4.8-3C

Sanitation District Collection System Projects: Potential Site Hazards

Sanitation District Facilities Master Plan PEIR

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SOURCE: DigitalGlobe 2016; DOGGR 2014

DUDEK

0 3,050 6,100 Feet

FIGURE 4.8-3D

Sanitation District Collection System Projects: Potential Site Hazards

Sanitation District Facilities Master Plan PEIR

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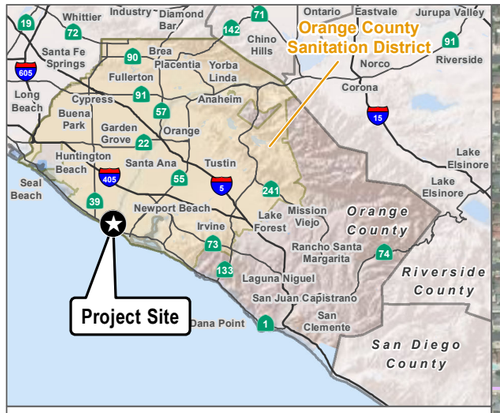

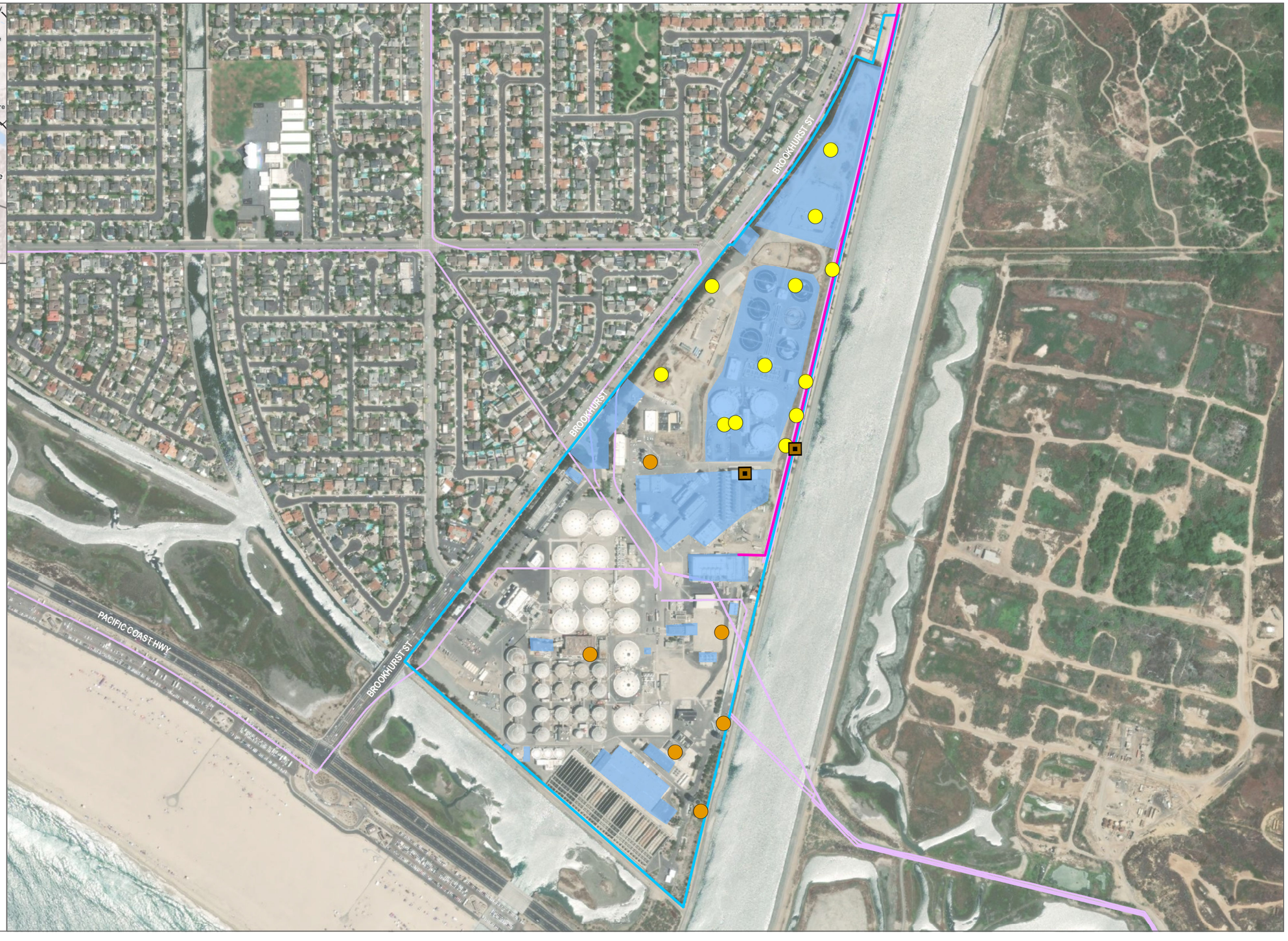

- Plant Boundary
- Project Areas
- OCSD Sewer
- Interplant Digester Gas Pipeline
- Plugged Oil and Gas Well
- Plugged Dry Hole
- Former Tank Farm

Feature locations are approximate based on available data

SOURCE: DigitalGlobe 2016, DOGGR 2014

DUDEK

0 225 450 Feet

FIGURE 4.8-4

Former Oil Drilling Features - Treatment Plant No.2

Sanitation District Facilities Master Plan PEIR

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OCSD Sewer

Collection System Projects

- Replacement
- Rehabilitation
- Air Jumper Rehabilitation
- Pump Station

Wells

- Plugged (Within 100')

Outside of OCSD

Outside of OCSD

MOODY ST
BALL RD
KNOTT AV
CERRITOS AV
CERRITOS
LOS ALAMITOS BLVD
VALLEY VIEW ST
WESTERN AVE
CHAPMAN
KNOTT ST
X-067 (X-085)
LAMPSON AV
MAGNOLIA
LINCOLN
BALL
BROOKHURST
EUCLID
LA PALMA
HARBOR
ANAHEIM
CERRITOS AV
HARBOR BLVD
CHAPMAN AV
GARDEN GROVE
3-67
WESTMINSTER BLVD
SEAL BEACH BLVD
1ST
PACIFIC COAST HWY
HOOVER ST
GOLDEN WEST ST
BOLSA AV
BOLSA
1ST ST
FIRST
FAIRVIEW ST
DUCHESS LN
S SULLIVAN ST
X-083
FAIRVIEW
GREENVILLE ST
WARNER AV
X-071
EDINGER AV
11-33
BOLSA CHICA
WARNER
SPRINGDALE ST
11-34
MAGNOLIA
EDINGER
EUCLID ST
TALBERT
TALBERT AV
X-076
MAC ARTHUR BLVD
19
605
405
1
39
22
91
5
17

SOURCE: DigitalGlobe 2016; DOGGR 2014

DUDEK

0 3,100 6,200 Feet

FIGURE 4.8-5A

Sanitation District Collection System Projects: Oil Drilling Features

Sanitation District Facilities Master Plan PEIR

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OCSD Sewer

Collection System Projects

- Replacement
- Rehabilitation
- Air Jumper Rehabilitation
- P Pump Station

Wells

- Active (Within 1/4 mile)
- Plugged (Within 100')

SOURCE: DigitalGlobe 2016; DOGGR 2014

DUDEK

0 3,100 6,200 Feet

FIGURE 4.8-5B

Sanitation District Collection System Projects: Oil Drilling Features

Sanitation District Facilities Master Plan PEIR

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OCSD Sewer

Collection System Projects

- Replacement
- Rehabilitation
- Air Jumper Rehabilitation

SOURCE: DigitalGlobe 2016; DOGGR 2014

DUDEK

0 2,050 4,100 Feet

FIGURE 4.8-5C

Sanitation District Collection System Projects: Oil Drilling Features

Sanitation District Facilities Master Plan PEIR

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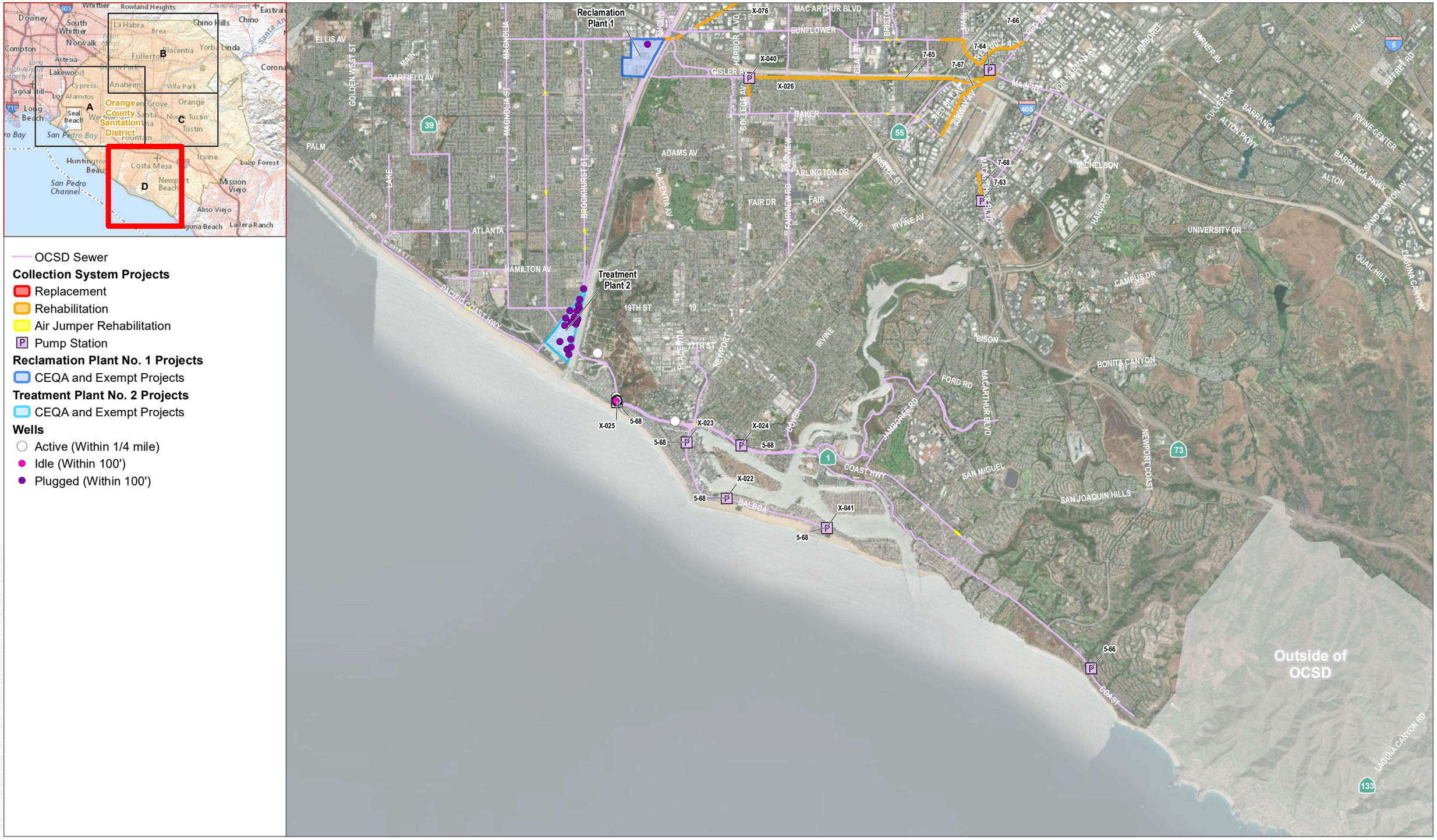

SOURCE: DigitalGlobe 2016; DOGGR 2014

DUDEK

0 3,050 6,100 Feet

FIGURE 4.8-5D

Sanitation District Collection System Projects: Oil Drilling Features

Sanitation District Facilities Master Plan PEIR

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4.9 Hydrology and Water Quality

This section describes the existing hydrology and water quality conditions of the proposed Facilities Master Plan (FMP) area and the vicinity, identifies associated regulatory requirements, evaluates potential hydrology impacts, and identifies mitigation measures, if required, related to implementation of the proposed FMP.

4.9.1 Existing Conditions

Regional Watershed

The Orange County Sanitation District (Sanitation District) service area is located within nine Orange County sub-watersheds, which are all encompassed by the Santa Ana River Watershed (see Figure 4.9-1, Orange County Flood Control District Drainage System, and Figure 2-1, Project Location, in Chapter 2). The Santa Ana River Watershed drains from the slopes of the San Bernardino Mountains to the valley floor of the Inland Empire, through the Prado Basin, on to Orange County and then the Pacific Ocean. The Santa Ana River Watershed is the largest watershed in coastal Southern California, consisting of more than 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 Sanitation District is located within the Lower Santa Ana River Hydraulic Area, which extends from Prado Dam to the Pacific Coast (Santa Ana RWQCB 2019).

Topography

The geologic setting of Orange County is varied and complex. Orange County is composed of a western basin area of very low relief, rimmed by mountainous and hilly terrain (CDMG 1976). The Sanitation District service area lies predominantly on a flat-lying to gently sloping alluvial plain at elevations less than 300 feet above mean sea level. Several low-lying mesas interrupt the plain along the northern coast. Mountainous and hilly areas compose approximately two-thirds of the total area of Orange County.

Surface Water

Surface Water Hydrology

The flows of the Santa Ana River consist of storm flows and perennial flow (base flow) that increase in the winter and decrease in the summer. The Santa Ana Region Basin Plan (Basin Plan) divides the Santa Ana River into six reaches (Santa Ana RWQCB 2019). Reach 2 carries all upstream flows downstream through Santa Ana Canyon to Orange County, where much of the water is recharged into the Coastal Plain of the Orange County Groundwater Basin. The Santa Ana River then transitions into Reach 1, where it empties 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.

Surface Water Quality

The Santa Ana Regional Water Quality Control Board (RWQCB), Region 8, is one of nine RWQCBs overseen by the California State Water Resources Control Board (SWRCB). The Santa Ana RWQCB regulates water quality, among various other agencies, within the Santa Ana Region. Water quality objectives, plans, and policies for surface waters are established in the Basin Plan, which establishes water quality objectives based on the beneficial uses identified for surface waters (Santa Ana RWQCB 2019).

Beneficial Uses

Beneficial uses of the primary drainages within the Santa Ana Region, which includes watersheds encompassing the Sanitation District, are listed in Table 4.9-1, including the beneficial uses of watersheds within the Sanitation District, as well as the corresponding water bodies as identified in the Basin Plan. Hydrologic Unit codes corresponding to the Basin Plan watersheds are also provided. For a complete listing of beneficial uses of primary and tributary creeks, see the Basin Plan (Santa Ana RWQCB 2019).

Surface Water Quality Impairment and Total Maximum Daily Loads

Changes in land use from grazing and farming, and residential, industrial, and military development have resulted in the discharge of metals (cadmium, copper, lead, selenium, and zinc) and toxic organic compounds into Orange County waterways. Furthermore, land use activities that cause erosion have increased the delivery of toxic substances to the waterways. Water quality impairments, as defined in Clean Water Act (CWA) Section 303(d), for watersheds encompassing the Sanitation District are identified in Table 4.9-2. These impaired water bodies are listed as Category 5, which include waters where at least one beneficial use is not supported and a total maximum daily load (TMDL) is required. Waters in Orange County are impaired with a wide variety of point-source (e.g., industrial process water discharges, cleanup sites, sewer system overflows) and non-point-source (e.g., agricultural runoff, urban runoff/storm sewers, construction/land development) pollutants.

Sedimentation/siltation (e.g., high turbidity) has been included as a water quality impairment under CWA Section 303(d). Erosion, sediment transport, and sedimentation are natural fluvial processes and are only considered a water quality issue where anthropogenic activities cause excessively high erosion and turbidity beyond natural background levels (i.e., to such a degree that they cause the loss or impairment of beneficial uses). In earthen-engineered channels, increased surface flow due to urbanization and channelization has increased the quantity of sediment transport and sediment buildup in maintained flood control facilities. However, such sediment buildup is managed through routine maintenance and through natural processes. Sediment-laden runoff from sources upstream of debris basins is captured by the basins. These basins filter out sediment loads in surface runoff, thus decreasing the turbidity of stormwater flows downstream. Generally, issues related to increased surface water flow and sedimentation include increased stream erosion, which has threatened homes, utilities, and other structures; impacts to biological species and habitats; and loss of channel hydraulic capacity.

Table 4.9-1. Beneficial Uses of Watersheds within the Sanitation District Service Area

Drainage	Santa Ana Region Basin Plan Water Body	Beneficial Use																		Primary HU
		MUN	*AGR*	*IND*	*PROC*	*GWR*	*NAV*	*POW*	*REC1*	*REC2*	*COMM*	*WARM*	*LWRM*	*COLD*	*BIOL*	*WILD*	*RARE*	*SPWN*	*EST*	
Lower Santa Ana River Basin																				
San Gabriel River Drainage	Coyote Creek (Within Santa Ana Regional Boundary)	X							X	X		X				X	X			845.61
Greenville Banning Channel	Reach 1- Inflatable Diversion Dam to California Street	+							U	U		X				X				801.10
San Diego Creek Drainage	Reach 1 – below Jeffrey Road	+							X[2]	X		X				X	X		X*[1]	801.11
	Reach 2 – above Jeffrey Road to Headwaters	+				I			I	I		I				I	X			801.11
	Other Tributaries: Bonita Creek, Serrano Creek, Peters Canyon Wash, Hicks Canyon Wash, Bee Canyon Wash, Borrego Canyon Wash, Agua Chinon Wash, Laguna Canyon Wash, Rattlesnake Canyon Wash, Sand Canyon Wash,* and other Tributaries to these Creeks	+				I			I	I		I				I	X			801.11

Table 4.9-1. Beneficial Uses of Watersheds within the Sanitation District Service Area

Drainage	Santa Ana Region Basin Plan Water Body	Beneficial Use																		Primary HU
		MUN	*AGR*	*IND*	*PROC*	*GWR*	*NAV*	*POW*	*REC1*	*REC2*	*COMM*	*WARM*	*LWRM*	*COLD*	*BIOL*	*WILD*	*RARE*	*SPWN*	*EST*	
Santa Ana River	Reach 1 – Tidal Prism to 17th Street in Santa Ana	+							X[2]	X		I				I				801.11
	Reach 2 – 17th Street in Santa Ana to Prado Dam	+	X			X			X	X		X				X	X	X[*2]		801.11
	Aliso Creek	X				X			X	X		X				X	X			845.63
	Carbon Canyon Creek	X				X			X	X		X				X	X			845.63
San Jacinto River	Salt Creek	+							I	I		I				I				802.12

Source: Santa Ana RWQCB 2019

Legend:

+ Excepted from MUN (see text)
AGR Agricultural supply
BIOL Preservation of biological habitats of special significance
COLD Cold freshwater habitat
COMM Commercial and sport fishing
EST Estuarine habitat
GWR Groundwater recharge
HU Santa Ana RWQCB Basin Plan Hydrologic Unit
I Intermittent Beneficial Use
IND Industrial service supply
LWRM Limited warm freshwater habitat
MUN Municipal and domestic supply
NAV Navigation
POW Hydropower generation
PROC Industrial process supply
RARE Rare, threatened, or endangered species
REC1 Water contact recreation
REC2 Non-contact recreation
SPWN Spawning, reproduction, and development
U REC 1 and/or REC 2 are not attainable uses as determined by Use Attainability Analysis
WARM Warm freshwater habitat
WILD Wildlife habitat
X Existing or Potential Beneficial Use
X[2] Access prohibited in all or part per agency with jurisdiction
X[*1] The Estuarine Reach is from just upstream of the MacArthur Boulevard Bridge to the Bay
X[*2] SPWN only from Prado Dam to 0.6 miles downstream of the State Route 90 (Imperial Highway) Bridge

Table 4.9-2. Water Quality Impairments of Water Bodies within the Sanitation District Service Area

Water Body	2014 and 2016 303(d) List of Water Quality Impairments (Included under SWRCB Integrated Report Category 5)
Anaheim Bay	Nickel, PCBs, toxicity
Balboa Beach	DDT, dieldrin, PCBs
Bolsa Bay Marsh	Toxicity
Bolsa Chica Channel	Ammonia, indicator bacteria, pH
Bolsa Chica Ecological Reserve	Toxicity
Bolsa Chica State Beach	Copper, nickel
Bonita Creek	Benthic community effects, toxicity
Borrego Creek (from Irvine Boulevard to San Diego Creek Reach 2)	Ammonia (un-ionized), indicator bacteria
Huntington Beach State Park	PCBs
Huntington Harbour	Chlordane, copper, indicator bacteria, lead, PCBs, toxicity
Little Corona Del Mar Beach	Indicator bacteria
Los Trancos Creek (Crystal Cove Creek)	Indicator bacteria
Newport Bay, Lower	Chlordane, copper, DDT, indicator bacteria, nutrients, PCBs, toxicity
Newport Bay, Upper	Chlordane, copper, DDT, indicator bacteria, Malathion, nutrients, PCBs, sedimentation/siltation, toxicity
Newport Slough	Indicator bacteria
San Diego Creek, Reach 1	Benthic community effects, DDT, indicator bacteria, Malathion, nutrients, sedimentation/siltation, selenium, toxaphene, toxicity
San Diego Creek, Reach 2	Benthic community effects, indicator bacteria, nutrients, sedimentation/siltation, toxicity
Seal Beach	Indicator bacteria, PCBs
Serrano Creek	Ammonia (un-ionized), benthic community effects, indicator bacteria, toxicity, pH
Talbert Channel	Toxicity

Source: SWRCB 2017.
Note: SWRCB = State Water Resources Control Board.

Groundwater

The Sanitation District service area is predominantly underlain by the Orange County Groundwater Basin. This 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 Orange County Groundwater Basin is contiguous and directly connected with the Central Basin of Los Angeles County to the northwest. The Orange County Groundwater Basin reaches depths of more than 2,000 feet and is composed of a complex series of interconnected sand and gravel deposits (MWDOC 2016).

The Orange County Water District (OCWD) manages, replenishes, and protects the Orange County Groundwater Basin. The 270-square-mile basin provides approximately 75% of the water supply to 2.4 million residents in central and northern Orange County (OCWD 2017). The Orange County Groundwater Basin is recharged by multiple sources, including artificial recharge (i.e., constructed systems and imported supplies) and incidental and natural recharge from the Santa Ana River and Santiago Creek. Artificial recharge is achieved through the Groundwater Replenishment System, a project jointly funded by OCWD and the Sanitation District. The Groundwater Replenishment System takes secondary treated wastewater from Sanitation District 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 treated water is conveyed to recharge basins to augment the Orange County Groundwater Basin (MWDOC 2016).

Groundwater Quality

To maintain groundwater quality, OCWD conducts an extensive monitoring program that serves to manage the Orange County Groundwater Basin's groundwater production, controls groundwater contamination, and complies with all required laws and regulations. A network of nearly 700 wells provides OCWD a source for samples, which are tested for a variety of purposes. OCWD collects 600 to 1,700 samples each month to monitor Orange County Groundwater Basin water quality. These samples are collected and tested according to approved federal and state procedures, as well as industry-recognized quality assurance and control protocols (MWDOC 2016).

Flood Hazards

Orange County is vulnerable to chronic flooding during peak rainfall periods. Urban development has increased impervious surfaces and created increased peak flood flows, thus increasing the risk of flooding. The major flooding threat in Orange County is the Santa Ana River. The U.S. Army Corps of Engineers (USACE) has significantly reduced flood risks along the Santa Ana River through construction of concrete-lined levees and flood control channels along much of the river and its tributaries (FEMA 2019a). Despite USACE's extensive efforts at flood control protection, it appears that portions of Orange County that would not be inundated by Santa Ana River overflow during the 100-year event could be subject to flooding from an overflow of stormwater drainage facilities, which are presently inadequate for carrying the 100-year discharge. The East Garden Grove–Wintersburg Channel and Ocean View Channel are underlying channel systems of the Santa Ana River floodplain that do not have the channel capacity to contain the 100-year flood (OC Public Works 2019).

In addition to the Santa Ana River, other areas subject to flooding during severe storms include the area adjacent to Atwood Channel, Brea Creek Channel, Carbon Canyon Channel, Capistrano Beach Storm Channel, El Modena Irvine Channel, Fullerton Creek Channel, Hickey Canyon Storm Channel, Houston Storm Channel, Horno Creek Channel, Modjeska Canyon, Silverado Canyon, Niguel Storm Drain, Oso Creek Channel, San Juan Creek Channel, Santiago Creek Channel, and Trabuco Creek Channel (Figure 4.9-1) (OC Public Works 2019). Areas within Orange County's Flood Hazard Zones can be seen on Figure 4.9-2, Flood Hazard Zones.

In the central portion of Orange County, areas adjacent to Santiago Creek and Collins Channel may be inundated. Large portions of the San Diego Creek watershed in the City of Irvine and the unincorporated area of Orange County are also subject to inundation. In the southern part of Orange County, flooding is mostly confined to the canyon areas; however, as development increases, these zones are increasingly becoming areas of concern (OC Public Works 2019).

The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps indicate that Reclamation Plant No. 1 (Plant 1) and Treatment Plant No. 2 (Plant 2) are located in an area designated as Zone X, areas with reduced risk due to levee (or 500-year flood zone; see Figure 4.9-2) In addition, pump stations and pipelines are located in the following areas (FEMA 2019a):

- Zone AE, areas inundated by the 1% annual chance of flooding (i.e., 100-year flood), for which base flood elevations (BFEs) have been determined
- Zone VE, areas inundated by 1% annual chance flooding with velocity hazard (wave action) and BFEs have been determined
- Zone A, areas inundated by 1% annual chance flooding for which no BFEs have been determined

- Zone X (shaded), 0.2% annual chance of flood hazards (i.e., 500-year flood)
- Zone X, areas with reduced risk due to levees
- Zone X (unshaded), areas of minimal flooding

Zone AE, Zone VE, and Zone A are identified as Special Flood Hazard Areas, which are defined as zones that would be inundated by the flood event having a 1% chance of being equaled or exceeded in any given year. Zone X (shaded) are zones with a moderate flood hazard. Zone X areas of minimal flooding are zones that are protected from the 1% annual chance of flooding by levees, dikes, or other structures subject to possible failure or overtopping during larger floods. Lastly, Zone X (unshaded) are zones of minimal flood hazard, which are the areas outside the Special Flood Hazard Area and higher than the elevation of the 0.2% annual chance flood (FEMA 2019b). As such, portions of the FMP project sites are susceptible to flooding.

Tsunamis and Seiches

Plant 2, several pump station sites in Newport Beach, and several air jumper addition/rehabilitation project sites are located within a tsunami run-up area (CEMA/CGS/USC 2009; City of Huntington Beach 2011; CGS 2019). Seiches are seismically induced oscillations (i.e., sloshing) in an enclosed water body. No FMP project sites would be susceptible to seiches.

Dam Inundation

Dams can fail for a multitude of reasons, including overtopping caused by floods that exceed the capacity of the dam, structural failure of materials used in dam construction, movement and/or failure of the foundation supporting the dam, settlement and cracking of concrete or embankment dams, piping and internal erosion of soils in embankment dams, and inadequate maintenance and upkeep. A series of dam failures in the 1970s, which killed at least 175 people and destroyed thousands of structures, resulted in a national focus on inspecting and regulating dams (FEMA 2019c).

Within the Santa Ana River Watershed, the Prado, Santiago Creek, and Villa Park Dams all provide flood control protection to the greater Orange County area. Of the three, the Prado and Santiago Creek Dams, located in the northeast and northcentral part of Orange County, pose the greatest risk of inundation in the unlikely event of structural failure. Historical data on rainfall and runoff, coupled with advances in predicting future flood potential, have shown Prado Dam to currently offer only 70-year flood protection. A probable maximum flood could result in the overtopping of the dam, posing a potential flood hazard downstream. Furthermore, the earthen Santiago Creek Dam's flood potential could be exacerbated by failure downstream of the Villa Park Dam (County of Orange 2005). Areas within the inundation zone can be seen on Figure 4.9-3, Prado Dam and Santiago Reservoir Inundation Areas. Since the Sanitation District's service area is located within this flood zone, the FMP project sites, including Plants 1 and 2, could be subject to dam failure inundation.

4.9.2 Relevant Plans, Policies, and Ordinances

Federal

Clean Water Act

Increasing public awareness and concern for controlling water pollution led to the enactment of the Federal Water Pollution Control Act Amendments of 1972. As amended in 1977, this law became commonly known as the Clean Water Act (CWA) (33 USC 1251 et seq.). The objective of the CWA is to restore and maintain the chemical, physical,

and biological integrity of the nation's waters. The CWA established basic guidelines for regulating discharges of pollutants into waters of the United States. The CWA requires that states adopt water quality standards to protect public health, enhance the quality of water resources, and ensure implementation of the CWA.

Section 401 of the Clean Water Act (Water Quality Certification)

Section 401 of the CWA requires that an applicant for any federal permit (e.g., USACE Section 404 permit) obtain certification from the state, requiring that discharges to waters of the United States comply with provisions of the CWA and with state water quality standards. For example, an applicant for a permit under Section 404 of the CWA must also obtain water quality certification per Section 401 of the CWA. Section 404 of the CWA requires a permit from USACE prior to discharging dredged or fill material into waters of the United States unless such a discharge is exempt from CWA Section 404. For the FMP project sites, the Santa Ana RWQCB must provide the water quality certification required under Section 401 of the CWA.

Section 404 of the Clean Water Act

Section 404 of the CWA established a permitting program to regulate the discharge of dredged or fill material into waters of the United States, which include wetlands adjacent to national waters (33 USC 1344). This permitting program is administered by USACE and enforced by the U.S. Environmental Protection Agency (EPA). For more information on Section 404 of the CWA, see Section 4.3, Biological Resources, of this program environmental impact report (PEIR).

National Flood Insurance Program

The National Flood Insurance Act of 1968 established the National Flood Insurance Program to provide flood insurance within communities that were willing to adopt floodplain management programs to mitigate future flood losses. The National Flood Insurance Act also required identification of all floodplain areas within the United States, and establishment of flood-risk zones within those areas. FEMA is the primary agency responsible for administering programs and coordinating with communities to establish effective floodplain management standards. FEMA is responsible for preparing Flood Insurance Rate Maps that delineate the areas of known special flood hazards and their risk applicable to the community. The National Flood Insurance Program encourages the adoption and enforcement by local communities of floodplain management ordinances that reduce flood risks. In support of the National Flood Insurance Program, FEMA identifies flood hazard areas throughout the United States on FEMA flood hazard boundary maps.

Federal Antidegradation Policy

The Federal Antidegradation Policy (40 CFR 131.12) requires states to develop statewide antidegradation policies and identify methods for implementing them. Pursuant to the Code of Federal Regulations (CFR), state antidegradation policies and implementation methods must, at a minimum, protect and maintain existing in-stream water uses; existing water quality where the quality of the waters exceeds levels necessary to support existing beneficial uses unless the state finds that allowing lower water quality is necessary to accommodate economic and social development in the area; and water quality in waters considered an outstanding national resource.

Federal Guidelines for Emergency Action, Federal Emergency Management Agency Publication No. 64

The Federal Guidelines for Emergency Action provide guidance to help dam owners, in coordination with emergency management authorities, effectively develop and exercise emergency action plans for dams. The guidelines encourage the development of comprehensive and consistent emergency action planning to protect lives and

reduce property damage, and the participation of emergency management authorities and dam owners in emergency action planning.

Federal Guidelines for Dam Safety Risk Management, Federal Emergency Management Agency Publication No. 1025

These guidelines enable federal agencies to use the general principles of risk management to make risk-informed decisions. The agencies work to develop and maintain consistent application of risk analysis, risk assessment, risk management, and risk communication using equivalent procedures and tools. Risk estimates typically reflect the risk at a given dam at the snapshot in time when the risk analysis is performed. Risk management includes structural and nonstructural actions on a given dam, as well as activities such as routine and special inspections, instrumented monitoring, structural analyses, site investigations, development and testing of Emergency Action Plans, and many other activities.

State

National Pollutant Discharge Elimination System

Direct discharges of pollutants into waters of the United States are not allowed, except in accordance with the National Pollutant Discharge Elimination System (NPDES) program, established in Section 402 of the CWA. A stormwater pollution prevention plan (SWPPP) prepared in compliance with an NPDES permit describes erosion and sediment controls, runoff water quality monitoring, means of waste disposal, implementation of approved local plans, control of post-construction sediment and erosion control measures and maintenance responsibilities, and non-stormwater management controls. Construction activities associated with routine maintenance, repairs, and upgrading existing linear underground pipelines are typically exempt from SWPPP requirements. Dischargers are also required to inspect construction sites before and after storms to identify stormwater discharge from construction activity and to identify and implement controls, where necessary.

Porter–Cologne Water Quality Control Act

Since 1973, the California SWRCB and its nine RWQCBs have been delegated the responsibility for administering permitted discharge into the waters of California. The FMP area falls within the jurisdiction of the Santa Ana RWCQB. The Porter–Cologne Water Quality Act (California Water Code Section 13000 et seq.; 23 CCR, Chapter 3, Chapter 15) provides a comprehensive water quality management system for the protection of California waters. Under this act, "any person discharging waste, or proposing to discharge waste, within any region that could affect the quality of the waters of the state" must file a report of the discharge with the appropriate RWQCB. Pursuant to the act, the RWQCB may then prescribe "waste discharge requirements" that add conditions related to control of the discharge. Porter–Cologne defines "waste" broadly, and the term has been applied to a diverse array of materials, including non-point-source pollution. When regulating discharges that are included in the federal CWA, the state essentially treats waste discharge requirements and NPDES regulations as a single permitting vehicle. In April 1991, SWRCB and other state environmental agencies were incorporated into the California Environmental Protection Agency (CalEPA).

The appropriate RWQCB regulates urban runoff discharges under the NPDES permit regulations. NPDES permitting requirements cover runoff discharged from point (e.g., industrial outfall discharges) and non-point (e.g., stormwater runoff) sources. The RWQCB implements the NPDES program by issuing construction and industrial discharge permits.

Under the NPDES permit regulations, best management practices (BMPs) are required. The EPA defines BMPs as "schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the United States." BMPs include treatment requirements, operating procedures, and practices to control site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage (40 CFR 122.2).

Section 303 of the Clean Water Act (Beneficial Uses and Total Maximum Daily Loads)

The Santa Ana RWQCB is responsible for protection of the beneficial uses of waters within the FMP area in Orange County. The Santa Ana RWQCB uses its planning, permitting, and enforcement authority to meet its responsibilities adopted in the Basin Plan to implement plans, policies, and provisions for water quality management.

In accordance with state policy for water quality control, the RWQCB employs a range of beneficial use definitions for surface waters, groundwater basins, marshes, and mudflats that serve as the basis for establishing water quality objectives and discharge conditions and prohibitions. The Basin Plan has identified existing and potential beneficial uses supported by the key surface water drainages throughout its jurisdiction. Under CWA Section 303(d), California is required to develop a list of impaired water bodies that do not meet water quality standards and objectives. A TMDL defines how much of a specific pollutant/stressor a given water body can tolerate and still meet relevant water quality standards. The Santa Ana RWQCB has developed TMDLs for select reaches of water bodies.

California Water Code, Division 3. Dams and Reservoirs, Sections 6101–6102

These regulations require dam owners to maintain records of, and to report on, maintenance, operation, staffing, and engineering and geologic investigations, and to issue orders as necessary to secure maintenance and operations to safeguard life and property. The owner of a dam or its agent must fully and promptly advise the California Department of Water Resources of any sudden or unprecedented flood or unusual or alarming circumstance or occurrence affecting the dam or reservoir. These regulations require the Department of Water Resources to periodically inspect dams and reservoirs to determine their safety. If required, the dam owner must perform the work necessary to secure maintenance and operation that will safeguard life and property.

Governor's Office of Emergency Services, California Code of Regulations, Title 19 - Public Safety, Division 2 – Office of Emergency Services, Chapter 2 – Emergencies and Major Disaster, Subchapter 4 – Dam Inundation Mapping Procedures

These regulations were adopted to implement the provisions of Government Code Section 8589.5, which provide the standards for producing and submitting an inundation map, acquiring a waiver from the inundation mapping requirement, and administering the program. These regulations are not applicable to those structures identified as "debris basins" in the California Department of Water Resources Division of Safety and Dams Bulletin 17-00, dated July 2000. However, these regulations are not intended to limit the authority of the Governor's Office of Emergency Services, or any appropriate public agency, to act under the police power of the state, when necessary, to protect life and property from a threatened or actual dam failure.

California Antidegradation Policy

The California Antidegradation Policy, otherwise known as the Statement of Policy with Respect to Maintaining High-Quality Water in California, was adopted by the SWRCB (State Board Resolution No. 68-16) in 1968. Unlike the federal Antidegradation Policy, the California Antidegradation Policy applies to all waters of the state (e.g., includes isolated wetlands and groundwater), not just surface waters. The policy states that whenever the existing quality of

a water body is better than the quality established in individual Basin Plans, such high quality must be maintained, and discharges to that water body must not unreasonably affect present or anticipated beneficial uses of such water resources.

California Toxics Rule

EPA has established water quality criteria for certain toxic substances via the California Toxics Rule. The California Toxics Rule established acute (i.e., short-term) and chronic (i.e., long-term) standards for bodies of water, such as inland surface waters and enclosed bays and estuaries, that are designated by each RWQCB as having beneficial uses protective of aquatic life or human health.

California Water Code

The California Water Code includes 22 kinds of districts or local agencies with specific statutory provisions to manage surface water. Many of these agencies have statutory authority to exercise some forms of groundwater management. For example, a Water Replenishment District (Water Code Section 60000 et seq.) is authorized to establish groundwater replenishment programs and collect fees for that service, and a Water Conservation District (Water Code Section 75500 et seq.) can levy groundwater extraction fees. Through special acts of the Legislature, 13 local agencies have been granted greater authority to manage groundwater. Most of these agencies, formed since 1980, have the authority to limit export and control some in-basin extraction upon evidence of overdraft or the threat of an overdraft condition. These agencies can also generally levy fees for groundwater management activities and for water supply replenishment.

Assembly Bill 3030 – Groundwater Management Act

In 1992, Assembly Bill 3030 was passed, which increased the number of local agencies authorized to develop a groundwater management plan and set forth a common framework for management by local agencies throughout California. These agencies could possess the same authority as a water replenishment district to "fix and collect fees and assessments for groundwater management" (Water Code Section 10754), provided they receive a majority of votes in favor of the proposal in a local election (Water Code Section 10754.3).

Local

One Water One Watershed Plan Update 2018

The Santa Ana Watershed Project Authority's One Water One Watershed (OWOW) Plan Update 2018 is the Integrated Regional Water Management Plan for the Santa Ana River Watershed (SAWPA 2019). The OWOW Plan Update 2018 was written by and for stakeholders throughout the watershed. The OWOW Plan considers the challenges and opportunities facing the entire watershed area of the Santa Ana Region within the California Integrated Regional Water Management Program. By incorporating stakeholders from all subregions, political jurisdictions, water agencies, non-governmental organizations, businesses, and the public, the OWOW Plan Update 2018 addresses all types of water as a single resource. To achieve its water management goals, the OWOW Plan Update 2018 strives to do the following (SAWPA 2019):

- Achieve resilient water resources through innovation and optimization.
- Ensure high-quality water for all people and the environment.
- Preserve and enhance recreational areas, open space, habitat, and natural hydrologic function.

- Engage with members of disadvantaged communities and associated supporting organizations to diminish environmental injustices and their impacts on the watershed.
- Educate and build trust between people and organizations.
- Improve data integration, tracking, and reporting to strengthen decision making.

County of Orange

General Plan

In 2005, the County of Orange (County) adopted the Resources Element of the General Plan. The Resource Element sets forth a comprehensive strategy for the development, management, preservation, and conservation of resources that are necessary to meet the County's existing and future demands. One of the components covered in the Resources Element is water resources (County of Orange 2005). Proposed FMP activities, which would occur throughout Orange County, would not conflict with General Plan policies.

National Pollutant Discharge Elimination Program

The County's NPDES Program enforces state-mandated water quality regulations that apply to construction projects in the unincorporated area. These regulations are intended to minimize pollutants and runoff from construction sites and completed project sites. The County has established requirements that owners, developers, contractors, and builders must meet at each stage of the project development process to achieve compliance. These NPDES requirements have been integrated into the application/permit approval process and construction site inspection system. These requirements include the following:

- Non-exempt projects must prepare and submit a project-specific water quality management plan (WQMP) prior to the issuance of any grading or building permit. The WQMP describes the permanent, post-construction BMPs that will be constructed or used on the site and maintained during the life of the project. These improvements include the installation of biofiltration systems, harvest and reuse systems, and constructed wetland treatment systems, depending on site conditions.
- An erosion and sediment control plan (ESCP) must be submitted with each set of grading and building plans submitted for plan check. The ESCP describes the appropriate BMPs that will be used throughout the construction (grading and building) phase. These temporary measures include the use of inlet protection methods, regular watering of exposed soils, sediment control measures, and the diversion of off-site runoff away from maintenance sites.
- NPDES inspections will be conducted on all construction sites to ensure that appropriate BMPs are kept in place throughout the construction phase. The frequency of these inspections is regulated by a state-mandated schedule for wet and dry seasons.

After construction has been completed, property owners are responsible for the ongoing operation and maintenance of all structural and non-structural water quality BMPs on their property, and may be required to obtain a 12-month post-construction inspection of treatment control BMPs.Drainage Area Management Plan

In 2003, the Orange County Flood Control District and incorporated cities enacted the Drainage Area Management Plan (DAMP) to serve as a guiding framework document for a series of model programs, local implementation plans, and watershed implementation plans aimed at enhancing water quality throughout Orange County. The DAMP describes the agreements, structures, and programs that do the following (County of Orange 2003):

- Provide the framework for the program management activities and plan development.
- Provide the legal authority for prohibiting unpermitted discharges into the storm drain system and for requiring BMPs in new development and significant redevelopment.
- Improve existing municipal pollution prevention and removal BMPs to further reduce the number of pollutants entering the storm drain system.
- Ensure that all new development and significant redevelopment incorporates appropriate site design, source control, and treatment control BMPs to address specific water quality issues.
- Ensure that construction sites implement control practices that address control of construction-related pollutant discharges, including erosion and sediment control and on-site hazardous materials and waste management.
- Identify impacted receiving waters and produce environmental quality information to direct management activities, including prioritization of pollutants to support the development of specific controls to address these problems.

Orange County Flood Control District

The Orange County Flood Control District 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 existing channels have been improved to accommodate up to a 100-year flood event.

Orange County Regional Water and Wastewater Mitigation Plan

In 2007, the Municipal Water District of Orange County (MWDOC), along with 19 member agencies, prepared a multi-jurisdictional hazard mitigation plan (HMP) that identified critical water and wastewater facilities in Orange County, and mitigation actions in the form of projects and programs to reduce the impact of natural and built hazards on these facilities. An updated 2019 HMP builds on the original 2007 HMP and a previous update approved in 2012 (MWDOC 2019). MWDOC was joined in this current update by 18 participating water and wastewater utilities that serve communities in Orange County. The HMP was prepared with input from County residents and County emergency managers, and with the support of the California Governor's Office of Emergency Services and FEMA. The process to develop the HMP included five planning team meetings and coordination with representatives from MWDOC and each participating water and wastewater utility.

The HMP is a guide for MWDOC and the water and wastewater utilities over the next 5 years toward greater disaster resistance, in harmony with the character and needs of the local community, as well as the water and wastewater utilities. The HMP focuses on participating water and wastewater facilities in Orange County, and identifies mitigation actions to reduce the impact of natural and created hazards on critical facilities. In addition, each agency will use current, approved planning documents that identify implementation strategies for capital improvement, risk reduction, system upgrades, and operations (MWDOC 2019). These documents complement the HMP and include the All-Hazards Superfund Enterprise Management System/National Incident Management System Emergency Response Plans, capital improvement plans, and asset management plans.

Orange County Water District Groundwater Management Plan 2015 Update

OCWD is a special district formed in 1933 by an act of the California Legislature. OCWD manages the Orange County Groundwater Basin that underlies central and northern Orange County. Water produced from the groundwater basin is the primary water supply for approximately 2.4 million residents living within OCWD's boundaries. OCWD has managed the groundwater basin to provide a reliable supply of relatively low-cost water, accommodating rapid population growth while avoiding the costly and time-consuming adjudication of water rights experienced in many other major groundwater basins in Southern California. Facing the challenge of increasing demand for water has fostered a history of innovation and creativity that has enabled OCWD to increase available groundwater supply while protecting the long-term sustainability of the Orange County Groundwater Basin (OCWD 2015).

Other General Plans

General plans serve to guide and direct local government decision making on hydrology- and water-quality-related issues. The safety element, natural hazards element, and conservation element in local jurisdictions' general plans, in part, focus on mitigating and managing the negative impacts of adverse hydrology and water quality conditions. Proposed FMP activities would occur in several local jurisdictions that have adopted General Plan policies regarding hydrology and water quality. Many of the projects associated with the proposed FMP would be completed at Plant 1 and Plant 2, located in the Cities of Fountain Valley and Huntington Beach, respectively, and pump stations that are concentrated in the City of Newport Beach.

Newport Beach General Plan

The Safety Element of the Newport Beach General Plan, in part, describes the hydrological hazards within the municipality, including flooding, tsunamis, and dam failure. In addition, the Natural Resources Element of the General Plan addresses water resource issues throughout the City. Goals or policies related to hydrology and water quality in the General Plan include the following (City of Newport Beach 2006):

Safety Element

Goal

S 1 Protection of people and property from the adverse effects of coastal hazards related to tsunamis and rogue waves.

Policies

S 1.1 **Evacuation Routes.** Review local and distant tsunami inundation maps for Newport Beach and adjacent coastal communities as they are developed to identify susceptible areas and plan evacuation routes.

S 1.2 **Evacuation Response Plans.** Participate in any regional effort to develop and implement workable response plans that the City's emergency services can adopt immediately for evacuation in the case of a tsunami warning.

S 1.3 **Beach Replenishment.** Maintain beach width, critical protection against tsunami run-up for structures along the oceanfront, through such projects as the Surfside-Sunset/West Newport Beach Replenishment Program.

S 1.4 **Education Program.** Develop and implement a tsunami educational program for residents, visitors, and people who work in susceptible areas.

S 1.5 **Tsunami Research.** Support tsunami research in the Newport Beach offshore and Newport Bay areas.

Goal

S 2 Protection of people and property from the adverse effects of coastal hazards related to storm surges and seiches.

Policies

S 2.1 **Wave Up-Rush and Impact Reports.** Prepare and periodically update (every 5 years) comprehensive wave up-rush and impact reports for shoreline and coastal bluff areas subject to wave action that will be made available to applicants for new development on a beach or coastal bluff property.

S 2.2 **Shoreline Management Plans.** Develop and implement shoreline management plans for shoreline areas subject to wave hazards and erosion. Shoreline management plans should provide for the protection of private property, public improvements, coastal access, public opportunities for coastal recreation, and coastal resources.

S 2.3 **Use of Temporary Shoreline Protection.** Utilize temporary sand dunes in shoreline areas to protect buildings and infrastructure from wave up-rush, while minimizing significant impacts to coastal access and resources.

S 2.4 **Use of Existing Shoreline Protection.** Encourage the use of existing sand dunes with native vegetation as a protective device in beach areas.

S 2.5 **Shoreline Protection Alternatives.** Encourage the use of nonstructural methods, such as dune restoration and sand nourishment, as alternatives to shoreline protective structures.

S 2.6 **Maintenance of Storm Drains.** Maintain and regularly clean out storm drains in low lying areas, as necessary, such that floodwaters can be effectively conveyed away from structures.

Goal

S 3 Protection of people and property from the adverse effects of coastal erosion.

Policies

S 3.1 **Coastal Hazard Studies.** Prepare and periodically update comprehensive studies of seasonal and longterm shoreline change, episodic and chronic bluff retreat, flooding, and local changes in sea levels, and other coastal hazard conditions.

S 3.3 **Maintenance of Beach Width and Elevations.** Develop and implement a comprehensive beach replenishment program to assist in maintaining beach width and elevations. Analyze monitoring data to determine nourishment priorities, and try to use nourishment as shore protection, in lieu of more permanent hard shoreline armoring options.

S 3.4 **Minimization of Shoreline Process Effects**. Maintain existing groin fields and jetties and modify as necessary to eliminate or mitigate adverse effects on shoreline processes.

S 3.5 **Protection of Coastal-Dependent Uses.** Permit revetments, breakwaters, groins, harbor channels, seawalls, cliff retaining walls and other structures, altering natural shoreline processes or retaining walls when required to serve coastal-dependent uses or to protect existing structures or public beaches in danger from erosion and when designed to eliminate or mitigate adverse impacts on local shoreline sand supply.

S 3.6 **Siting of Shoreline Protective Devices.** Design and site protective devices to minimize impacts to coastal resources, minimize alteration of natural shoreline processes, provide for coastal access, minimize visual impacts, and eliminate or mitigate adverse impacts on local shoreline sand supply.

S 3.11 **New Development Impact on Coastal Erosion.** Require that applications for new development with the potential to be impacted or impact coastal erosion include slope stability analyses and erosion rate estimates provided by a licensed Certified Engineering Geologist or Geotechnical Engineer.

S 3.12 **Minimization of Coastal Bluff Recession.** Require new development adjacent to the edge of coastal bluffs to incorporate drainage improvements, irrigation systems, and/or native or drought-tolerant vegetation into the design to minimize coastal bluff recession.

Goal

S 5 Protection of human life and public and private property from the risks of flooding.

Policies

S 5.1 **New Development Design within 100-year Floodplains**. Require that all new development within 100-year floodplains incorporate sufficient measures to mitigate flood hazards, including the design of onsite drainage systems that are connected with the City's storm drainage system, gradation of the site such that runoff does not impact adjacent properties, and buildings are elevated.

S 5.2 **Facility Use or Storage of Hazardous Materials Standards**. Require that all new facilities storing, using, or otherwise involved with substantial quantities of onsite hazardous materials within flood zones comply with standards of elevation, anchoring, and floodproofing, and hazardous materials are stored in watertight containers.

S 5.3 **Minimization of Flood Hazard Risk.** Require stormwater detention basins, where appropriate, to reduce the potential risk of flood hazards.

Natural Resources Element

Goal

NR 1 Minimized water consumption through conservation methods and other techniques.

Policies

NR 1.1 **Water Conservation in New Development.** Enforce water conservation measures that limit water usage, prohibit activities that wastewater or cause runoff, and require the use of water-efficient landscaping and irrigation in conjunction with new construction projects.

NR 1.2 **Use of Water Conserving Devices.** Establish and actively promote the use of water-conserving devices and practices in both new construction and major alterations and additions to existing buildings. This can include the use of rainwater capture, storage, and reuse facilities.

NR 1.4 **Alternative Conservation Measures.** Explore the implementation of alternative conservation measures and technology as they become available.

Goal

NR 2 Expanded use of alternative water sources to provide adequate water supplies for present uses and future growth.

Policies

NR 2.1 **Recycled Water Use.** Increase the use of recycled water in the City by continuing to provide financial incentives, staff assistance, and training opportunities for customers, and expand recycled water infrastructure and programs, when feasible.

NR 2.2 **Advanced Water Treatment Process.** Use alternative water sources for the City's water supply by implementing advanced water treatment processes such as brackish groundwater and seawater desalination programs when feasible.

Goal

NR 3 Enhancement and protection of water quality of all natural water bodies, including coastal waters, creeks, bays, harbors, and wetlands (Goal HB8)

Policies

NR 3.1 **Chemical Uses Impacting Water Quality.** Support regulations that limit or ban the use of insecticides, fertilizers, and other chemicals that are shown to be detrimental to water quality.

NR 3.2 **Water Pollution Prevention.** Promote pollution prevention and elimination methods that minimize the introduction of pollutants into natural water bodies

NR 3.3 **Ground Water Contamination.** Suspend activities and implement appropriate health and safety procedures in the event that previously unknown groundwater contamination is encountered during construction. Where site contamination is identified, implement an appropriate remediation strategy that is approved by the City and the state agency with appropriate jurisdiction.

NR 3.4 **Storm Drain Sewer System Permit.** Require all development to comply with the regulations under the City's municipal separate storm drain system permit under the National Pollutant Discharge Elimination System.

NR 3.5 **Natural Water Bodies.** Require that development does not degrade natural water bodies.

NR 3.6 **Watershed Runoff Quality Control.** Represent Newport Beach by participating in watershed-based runoff reduction, water quality control, and other planning efforts with the RWQCB, the County of Orange, and upstream cities. Promote regulation of upstream dischargers (cities, Orange County, residential and commercial uses) in the San Diego Creek and Santa Ana/Delhi Channel watersheds.

NR 3.7 **Newport Beach Water Quality Ordinance.** Update and enforce the Newport Beach Water Quality Ordinance.

NR 3.8 **Permit Review Process.** Develop and maintain a water quality checklist to be used in the permit review process to assess potential water quality impacts.

NR 3.9 **Water Quality Management Plan.** Require new development applications to include a WQMP to minimize runoff from rainfall events during construction and post-construction.

NR 3.10 **Best Management Practices.** Implement and improve upon BMPs for residences, businesses, development projects, and City operations.

NR 3.11 **Site Design and Source Control.** Include site design and source control BMPs in all developments. When the combination of site design and source control BMPs are not sufficient to protect water quality as required by the NPDES, structural treatment BMPs will be implemented along with site design and source control measures.

NR 3.12 **Reduction of Infiltration.** Include equivalent BMPs that do not require infiltration, where infiltration of runoff would exacerbate geologic hazards.

NR 3.15 **Street Drainage Systems.** Require all street drainage systems and other physical improvements created by the City, or developers of new subdivisions, to be designed, constructed, and maintained to minimize adverse impacts on water quality. Investigate the possibility of treating or diverting street drainage to minimize impacts to water bodies.

NR 3.16 **Siting of New Development.** Require that development be located on the most suitable portion of the site and designed to ensure the protection and preservation of natural and sensitive site resources that provide important water quality benefits.

NR 3.19 **Natural Drainage Systems.** Require incorporation of natural drainage systems and stormwater detention facilities into new developments, where appropriate and feasible, to retain stormwater in order to increase groundwater recharge.

NR 3.20 **Impervious Surfaces**. Require new development and public improvements to minimize the creation of and increases in impervious surfaces, especially directly connected impervious areas, to the maximum extent practicable. Require redevelopment to increase area of pervious surfaces, where feasible.

NR 3.22 **Water Quality Study**. Retain qualified and objective water quality consultants to thoroughly review all scopes of work for any proposed water quality study: (a) to be conducted, sponsored or considered by the Watershed Management Committee (or any subcommittee or successor entity) in making any decision affecting water quality in Newport Beach; (b) related to water quality in the San Diego Creek and Santa Ana/Delhi Channel watersheds; and (c) that is relevant to any aspect of the establishment or enforcement of any order of the RWQCB including the TMDL for Upper Newport Bay.

Goal

NR 4 Maintenance of water quality standards through compliance with the TMDLs standards.

Policies

NR 4.1 **Total Maximum Daily Loads.** Develop and implement the TMDLs established by the RWQCB, Santa Ana Region and guided by the Newport Bay Watershed Executive Committee (WEC).

NR 4.3 **Restore Natural Hydrologic Conditions.** Preserve, or where feasible, restore natural hydrologic conditions such that downstream erosion, natural sedimentation rates, surface flow, and groundwater recharge function near-natural equilibrium states.

NR 4.4 **Erosion Minimization.** Require grading/erosion control plans with structural BMPs that prevent or minimize erosion during and after construction for development on steep slopes, graded, or disturbed areas.

City of Fountain Valley General Plan

The Conservation Element of the City of Fountain Valley General Plan, in part, describes the hydrology and water quality within the municipality, and includes the following goals and policies (City of Fountain Valley 1995):

Goals

5.1 Conserve, protect, and enhance the natural resources in Fountain Valley to ensure their optimal use and support to the benefit of all present and future citizens of the City.

5.2 Protect Fountain Valley's existing and future water resources.

Policies

5.2.1 Conserve scarce water resources.

5.2.2 Work with Federal, State and County governments and agencies to maintain and improve the quality and quantity of local and regional groundwater resources available to the City.

City of Huntington Beach General Plan

The Natural and Environmental Hazards Element of the City of Huntington Beach General Plan addresses hydrological hazards within the municipality, including flooding, tsunamis, and dam failure. In addition, the Environmental Resources and Conservation Element of the General Plan addresses water resource issues

throughout the City. Goals or policies related to hydrology and water quality in the General Plan include the following (City of Huntington Beach 2017a, 2017b):

Goal

HAZ-3 Residents, businesses, visitors, and resources are adequately protected from risks associated with flood and tsunami hazards.

Policies

A. Establish and maintain local flood prevention standards and practices that adequately protect public and private development and resources within the planning area.
B. Maintain and increase local storm drain capacity to meet 100-year or greater flood protection requirements to protect residents and businesses from flood risks.
C. Provide sufficient warning and evacuation assistance to residents and others impacted by flooding and tsunami events.
D. Continue to identify tsunami-prone areas and establish development, emergency response, and recovery standards and procedures within these areas.
E. Continue to identify, manage, and repair or renovate areas that experience long-term ponding during heavy rain events.

Goal

ERC-15 Adequate water supply is available to the community through facilities, infrastructure, and appropriate allocation.

Policies

A. Maintain a system of water supply and distribution facilities capable of meeting existing and future daily and peak demands, including fire flow requirements, in a timely and cost-efficient manner.
B. Monitor demands on the water system, manage new development, reuse projects and existing land uses to mitigate impacts and/or facilitate improvements to the system as well as maintain and expand water supply and distribution facilities.
C. Evaluate participation in OCWD's recycled water program, and explore opportunities for the City to produce its own recycled water for use within the community.
D. Continue to explore innovative alternative water infrastructure improvements, including but not limited to groundwater injection, maximizing groundwater recharge/percolation, and desalination.

Goal

ERC-16 Water conservation efforts are maximized in every aspect of use.

Policies

A. Continue to require the incorporation of feasible and innovative water conservation features in the design of new development and reuse projects.

B. Encourage maximum water conservation in existing land uses, and provide incentives that encourage building owners and homeowner associations to complete water efficiency retrofits.
C. Require the use of recycled water for landscaping irrigation, grading, and other non-contact uses in new development or substantial retrofit projects where recycled water is available or expected to be available.
D. Partner with and provide information to community organizations, residents, and businesses regarding methods to reduce water use.

Goal

ERC-17 Enhance and protect the water quality of all natural water bodies including rivers, creeks, harbors, wetlands, and the ocean.

Policies

A. Require redevelopment to comply with the City's NPDES permit and other regional permits issued by the SWRCB and the Santa Ana RWQCB.
B. Require that new development and significant redevelopment projects employ innovative and efficient drainage technologies that comply with Federal and State water quality requirements and reduce runoff and water quality impacts to downstream environments.
C. Continue to require new development and significant redevelopment projects to propose protective safeguards and implement BMPs that minimize non-point source pollution and runoff associated with construction activities and ongoing operations.
D. Continue to require that new development and significant redevelopment projects incorporate low-impact development (LID) BMPs, which may include infiltration, harvest and reuse, evapotranspiration, and bio-treatment.
E. Prioritize investment in green stormwater infrastructure that restores natural landscapes before employing other management solutions.
F. Reduce pollutant runoff from new development to marine biological resources and wetlands by requiring the use of the most effective best management practices currently available.
G. Partner with and provide information to community organizations, community members, and businesses regarding best practices to minimize runoff and improve groundwater recharge.
H. Reduce impacts of new development and significant redevelopment project sites' hydrologic regime (hydromodification).
I. Continue working with the County and the Santa Ana RWQCB on the IRWM [Integrated Regional Water Management] Plan to explore and expand more regional treatment of stormwater runoff.

4.9.3 Thresholds of Significance

The significance criteria used to evaluate the proposed FMP's impacts to hydrology and water quality are based on Appendix G of the California Environmental Quality Act Guidelines. Through the analysis in the Initial Study (see Appendix A), it was determined that the proposed FMP would not:

- Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.

- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:
  - Result in substantial erosion, siltation or runoff rate on or off site;
  - Substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or off site; or
  - 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.

Accordingly, these issues are not further analyzed in this PEIR. Based on the remaining thresholds, a significant impact related to a project would occur if the project would:

1. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality.
2. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would impede or redirect flood flows.
3. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation.
4. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

4.9.4 Impacts Analysis

1. Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

Construction – Plant 1, Plant 2, and Collection System

Less-than-Significant Impact. Implementation of the proposed FMP would involve a variety of construction methods that would occur over a 20-year planning period. Project construction activities would generally include installation of new structures, structural rehabilitation, interior pipeline lining, potential pipe removal, manhole repair or replacement, and manhole removal with associated demolition. Construction methods would include temporary aboveground sewer bypassing, open-trench excavation for new sewer extensions or replacement, dewatering, shoring, and use of trenchless installations such as horizontal directional drilling (HDD), microtunneling, and jack-and-bore methods. Trenchless methods would potentially be used for pipeline installment and repairs at sensitive crossings (e.g., busy intersections, railroad spurs, freeways, or flood control channels).

The analysis of potential impacts of construction activities, construction materials, and non-stormwater runoff on water quality during the demolition and construction phase focuses primarily on sediment and certain non-sediment-related pollutants. Construction-related activities that primarily result in sediment releases are related to exposing previously stabilized soils to potential mobilization by rainfall/runoff and wind. Such activities include grading, excavations, and temporary stockpiling of soil. Environmental factors that affect erosion include topographic, soil, and rainfall characteristics.

Erosion and sedimentation affect water quality and interfere with photosynthesis, oxygen exchange, and the respiration, growth, and reproduction of aquatic species. Additionally, other pollutants, such as nutrients, trace metals, and hydrocarbons, can attach to sediment and be transported to downstream drainages, which could contribute to the degradation of water quality. Furthermore, during grading and soil storage, there is the potential for soil migration off site via wind (see Section 4.2, Air Quality, for further discussion of construction-generated air quality impacts).

Non-sediment-related pollutants that are also of concern during construction relate to construction materials and non-stormwater flows, and include construction materials (e.g., paint, stucco); chemicals, liquid products, and petroleum products used in building construction or the maintenance of heavy equipment; and concrete-related pollutants.

The proposed FMP's demolition and construction impacts would be minimized through compliance with local, state, and federal regulations pertaining to water quality standards. As previously discussed in Section 4.6, Geology and Soils, FMP projects that would result in ground-disturbing activities in excess of 1.0 acres, including pipeline rehabilitation projects that cumulatively disturb 1 acre or more of land, would be required to implement a SWPPP in accordance with Construction General Permit (Order No. 2009-0009-DWQ/CAS000002, as amended) requirements, to mitigate construction-related sedimentation and siltation impacts. Due to the discontinuous nature and timeline of the FMP projects (over a 20-year time span), a new SWPPP would likely be required for each of these projects. However, in some instances, related or proximal projects may be bundled into combined SWPPPs. All projects in unincorporated portions of Orange County would be completed in accordance with the County NPDES Program and the project's associated ESCP. The ESCP would require that all sediments from areas disturbed by construction activities be retained on site using an effective combination of erosion and sediment control BMPs to reduce off-site sedimentation to the maximum extent practicable.

The ESCPs and SWPPPs, consistent with the County NPDES Program and the DAMP, would identify BMPs that protect stormwater runoff and ensure avoidance of the substantial degradation of water quality. Implementation of these plans would ensure that no substantial water quality impacts occur on site or off site. Typical BMPs that could be incorporated into the ESCPs and SWPPPS to protect water quality include the following:

- Diverting off-site runoff away from maintenance sites
- Vegetating landscaped/vegetated swale areas as soon as feasible following grading activities
- Placing perimeter straw wattles to prevent off-site transport of sediment
- Using drop inlet protection (filters and sandbags or straw wattles) with sandbag check dams within paved areas
- Regular watering of exposed soils to control dust during demolition and construction activities
- Implementing specifications for demolition/construction waste handling and disposal
- Using contained equipment wash-out and vehicle maintenance areas
- Maintaining erosion and sedimentation control measures throughout the construction period
- Stabilizing construction entrances to avoid trucks from imprinting soil and debris onto adjoining roadways
- Training, including for subcontractors, on general site housekeeping

For projects requiring less than 1 acre of ground disturbance (i.e., projects for which a SWPPP is not required under the Construction General Permit) and located in municipalities lacking requirements for

completion of erosion control plans, construction-related erosion could result in potentially significant impacts. However, in accordance with Sanitation District Master Specification Section 02270 (Sanitation District 2020a) and Section 02271 (Sanitation District 2020b), ground-disturbing activities on projects smaller than 1 acre would be completed in accordance with a Sanitation District Stormwater Pollution Control Plan (Appendix L-1) and associated Water Pollution Control Drawings (Appendix L-2). Implementation of measures detailed in the Sanitation District Stormwater Pollution Control Plan and associated Water Pollution Control Drawings would ensure that standard construction BMPs are included to address sedimentation and erosion from construction activities, consistent with the County's NPDES Program and DAMP. The plan would include soil stabilization BMPs, sediment control BMPs, tracking control BMPs, wind erosion BMPs, non-stormwater management BMPs, and waste management/materials pollution control BMPs. The Stormwater Pollution Control Plan would specify measures regarding construction BMP maintenance, inspection, and repair. In addition, the Stormwater Pollution Control Plan would describe the individual project, assign BMP implementation responsibilities, and document personnel training.

Incorporation of required BMPs for materials and waste storage and handling, and equipment and vehicle maintenance and fueling would reduce the potential discharge of polluted runoff from project sites, consistent with the state NPDES Construction General Permit, as well as local and County municipal codes. Compliance with existing regulations and Sanitation District Stormwater Pollution Control Plans would prevent violation of water quality standards and minimize the potential for contributing sources of polluted runoff. Therefore, compliance with existing regulations and Sanitation District established protocols would ensure that FMP projects would not violate any water quality standards or waste discharge requirements, or otherwise substantially degrade surface quality from demolition and construction activities. Impacts would be less than significant.

Trenchless Installation

Installation and repair of select pipelines would be accomplished using trenchless methods, such as microtunneling, jack-and-bore, and HDD, in sensitive areas (e.g., busy intersections, railroad spurs, freeways, or flood control channels). Trenchless technologies would reduce potential biological impacts in sensitive areas, and would reduce potential water quality impacts resulting from erosion and incidental equipment-related petroleum spills to the waterway.

No FMP projects would include pipeline replacements beneath creeks or the Santa Ana River. Although Project X-063, the South Santa Ana River Interceptor Connector Rehabilitation project, would be completed beneath the Santa Ana River, this project would not require HDD, as the portion of the project beneath the river would involve rehabilitation, rather than replacement. Pipeline rehabilitation would consist of sewer lining, which is a method of rehabilitation that uses the existing pipe as a host for a new liner and may include slip lining, cured-in-place pipe (CIPP), and modified cross-section liner. Similarly, no other pipeline replacement projects would occur beneath creeks or the Santa Ana River. Rather, HDD would be completed beneath linear infrastructure features and beneath sensitive water bodies.

Trenchless technology would locally require excavation of portals, or pits, at both ends of the borehole. Soil excavation and temporary stockpiling of soils would potentially expose soils to erosion and lead to sedimentation in nearby drainages. However, as previously discussed, incorporation of state and local erosion control regulations (e.g., SWPPP, ESCP), as well as Sanitation District Stormwater Pollution Control Plans, would ensure that standard construction BMPs are included to address sedimentation and erosion from construction activities, consistent with the County's NPDES Program and DAMP.

In addition, operation and maintenance of trenchless technology equipment could result in incidental spills of petroleum products, which in turn could result in adverse surface water quality impacts. Incorporation of required BMPs for materials and waste storage and handling and BMPs for equipment and vehicle maintenance and fueling would reduce the potential discharge of polluted runoff from construction sites, consistent with the state NPDES Construction General Permit, as well as local and County municipal codes. Compliance with existing regulations and Sanitation District Stormwater Pollution Control Plans would prevent violation of water quality standards and minimize the potential for contributing sources of polluted runoff. Therefore, FMP projects would not violate any water quality standards or waste discharge requirements, or otherwise substantially degrade surface quality from trenchless technology activities. Impacts would be less than significant.

Operations

Less-than-Significant Impact. Implementation of the FMP projects would involve upgrading, replacing, and rehabilitating older facilities within the Sanitation District's wastewater collection and treatment system. Because each of these projects would involve replacement of existing infrastructure, potential water quality impacts associated with potential incidental spills of vehicle oils and other chemicals during operations and maintenance would generally be the same as under existing conditions.

Similar to existing conditions, during storm events, pollutants from paved areas, without proper stormwater controls and BMPs, could enter the municipal storm drain system before eventually being discharged into nearby waterways. The majority of pollutants entering the storm drain system in this manner would be dust, litter, and possibly residual petroleum products (e.g., motor oil, gasoline, diesel fuel). Certain metals, along with nutrients and pesticides from landscape areas, can also be present in stormwater runoff. Between periods of rainfall, surface pollutants tend to accumulate, and runoff from the first significant storm of the year ("first flush") would likely have the largest concentration of pollutants.

The County and cities within Orange County are co-permittees under the Orange County Municipal NPDES permit. The NPDES permit sets limits on pollutants being discharged into waterways, and requires all new development and significant redevelopment to incorporate LID features laid out in the WQMP. Completion of a WQMP is one of the main components of the Orange County Municipal NPDES permit. In accordance with the NPDES permit, depending on the nature and location of the individual FMP project, the County or appropriate city would be responsible for monitoring the preparation and implementation of WQMPs. As a result of compliance with existing regulations, the FMP would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality during long-term operations. As a result, impacts would be less than significant and no mitigation is required.

2. Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would impede or redirect flood flows?

Plant 1 and Plant 2

Less-than-Significant Impact. FEMA flood insurance maps show that Plant 1 and Plant 2 are located in an area designated as Zone X, areas with reduced risk due to levees. This area is protected from the 1% annual flood

zone (i.e., 100-year flood) by levee, dike, or other structures subject to possible failure or overtopping during larger floods, and is therefore considered a 500-year flood zone.

Project activities at Plant 1 and Plant 2 would involve the demolition, replacement, and rehabilitation of various structures. Because Plant 1 and Plant 2 are located in a 500-year flood zone (Figure 4.9-2), or an area protected from the 100-year flood by an adjoining levee or dike, any new developments associated within or near the project sites would be located outside Special Flood Hazard Areas and therefore would not impede or redirect flood flows. As a result, flooding impacts would be less than significant at Plant 1 and Plant 2.

Collection System Improvements

Less-than-Significant Impact. FEMA Flood Insurance maps indicate that the collection system improvements (i.e., proposed pump stations and pipeline improvements) are located in the following zones:

- AE – areas inundated by the 1% annual chance of flooding (i.e., 100-year flood), for which base flood elevations (BFEs) have been determined
- VE – areas inundated by 1% annual chance of flooding with velocity hazard (wave action) and BFEs have been determined
- A – areas inundated by 1% annual chance of flooding for which no BFEs have been determined
- X (shaded) – 0.2% annual chance of flooding (i.e., 500-year flood)
- X – areas with reduced risk due to levees
- X (unshaded) – areas of minimal flooding

Collection system improvements would involve the rehabilitation, replacement, repair, and modification of existing pump stations and pipeline infrastructure. For pipeline rehabilitation projects, all portions of the individual project site that would be disturbed during construction would be restored to pre-construction conditions once the new trunk line and mainline segments have been installed. As such, site conditions during project operation would be similar to existing conditions. These projects would operate passively belowground, with the exception of minor appurtenant facilities, such as isolation valves, blow-offs, and air/vacuum valves; however, these structures would be low in profile and small in size relative to the surrounding buildings and other built environment features. For pump stations, the projects would involve the replacement of existing infrastructure, the expansion of the footprint, and/or the addition of generators or odor control equipment. However, similar to the project activities at Plant 1 and Plant 2, any ground disturbance related to project activities would result in a drainage pattern that mimics existing conditions and conforms to the current discharge locations. In addition, these proposed activities would incorporate LID features to reduce runoff from the area. As such, impacts would be minor and would not result in a substantial alteration of flood flows.

Regardless of whether collection system improvements are within a 100-year floodplain (Zone X) or are located in a Special Flood Hazard Area (Zone AE, Zone VE, Zone A), these structures would not result in a substantial increase of new or expanded structures in flood zones compared to existing conditions. As such, flood flows would not be impeded or redirected and would not adversely affect downstream flood-related impacts. As a result, flood-related impacts would be less than significant, and no mitigation is required.

3. In flood hazard, tsunami, or seiche zones, would the project risk release of pollutants due to project inundation?

Plant 1 and Plant 2

Less-than-Significant Impact. As previously discussed, Plant 1 and Plant 2 are located in an area designated as Zone X, areas with reduced risk due to levees. However, Plant 2 is located within a tsunami run-up area. In addition, as shown on Figure 4.9-3 (Prado Dam and Santiago Reservoir Inundation Areas), most of the Sanitation District's service area, including Plant 1, is located in areas susceptible to dam inundation. However, implementation of the FMP projects associated with Plant 1 and Plant 2 improvements would not involve the introduction of new pollutants. Post-construction operations and maintenance activities are not expected to change from the activities that are currently ongoing. Since the FMP would collectively improve older and damaged infrastructure, the risk of incidental release of pollutants would be reduced with respect to existing conditions. As a result, Plant 1 and Plant 2 improvements would have less-than-significant impacts related to the risk of release of pollutants due to inundation.

Collection System Improvements

Less-than-Significant Impact. As previously discussed, several collection system improvement projects are located in Special Flood Hazard Zones. Multiple pump station sites in Newport Beach, and several air jumper addition/rehabilitation project sites, are located within a tsunami run-up area. Further, as shown on Figure 4.9-3, most of the Sanitation District's service area is located in areas susceptible to dam inundation. However, implementation of the collection system improvements would not involve the introduction of new pollutants. Post-construction operations and maintenance activities are not expected to change from the activities that are currently ongoing. Since the FMP would collectively improve older and damaged infrastructure, the risk of incidental release of pollutants would be reduced compared to existing conditions. As a result, the collection system improvements would have less-than-significant impacts related to the risk of release of pollutants due to inundation.

4. Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

Less-than-Significant Impact. As previously discussed, the FMP would comply with all applicable water quality regulatory requirements, including the implementation of stormwater BMPs and LID design, which would minimize potential off-site surface water quality impacts and contribute to a reduction in water quality impacts within Orange County watersheds. Compliance with these regulatory requirements would reduce potential water quality impairment of surface waters such that existing and potential beneficial uses of key surface water drainages throughout the jurisdiction of the Basin Plan would not be adversely impacted. As a result, the FMP would not conflict with or obstruct the Basin Plan.

With respect to groundwater management, OCWD is a special district formed to manage the Orange County Groundwater Basin. To do so, OCWD implemented the Orange County Water District Groundwater Management Plan 2015 Update, which presents basin management goals aimed to protect and enhance the groundwater quality of the Orange County Groundwater Basin, to protect and increase the sustainable yield of the basin in a cost-effective manner, and to increase the efficiency of OCWD operations. In addition, OCWD and the Sanitation District jointly manage the Groundwater Replenishment System, which diverts wastewater

that otherwise would be discharged to the Pacific Ocean and is instead purified using a three-step process to produce high-quality water used to control seawater intrusion and to recharge the Orange County Groundwater Basin. Implementation of the FMP would improve facilities that contribute to the Groundwater Replenishment System, thereby increasing the effectiveness of the local groundwater management plan. As such, the FMP would have less-than-significant impacts related to conflicting with a sustainable groundwater management plan.

4.9.5 Mitigation Measures

No mitigation is required.

4.9.6 Level of Significance After Mitigation

Implementation of BMPs would ensure effective control of incidental releases of sediment into the environment during construction activities. Therefore, impacts related to hydrology and water quality would be less than significant.

4.9.7 Cumulative Impacts

The geographic context for the analysis of cumulative impacts associated with water quality is the watersheds of Orange County (Figure 4.9-1). Cumulative development in the watersheds could add new sources of stormwater runoff. Construction activities associated with the FMP and other development could temporarily increase the number of exposed surfaces, which could contribute to sediments in stormwater runoff. Additionally, materials associated with construction activities could be deposited on surfaces and carried to receiving waters in stormwater runoff. Continued development and redevelopment within the Orange County watersheds could also increase the number of impervious surfaces that could increase stormwater runoff rates and amounts, as well as changes in land use that may increase the number of pollutants in stormwater runoff.

However, all cumulative development in the watersheds would be subject to the existing regulatory requirements to protect water quality and minimize increases in stormwater runoff. Implementation of BMPs would ensure that no substantial water quality impacts occur on site or off site, ensuring that the proposed FMP does not contribute to regional degradation of water quality. Other development in these municipalities would also be subject to both County and city goals and policies related to water quality, such as the County's NPDES Program and DAMP, the Santa Ana Watershed Project Authority's OWOW Plan Update 2018, MWDOC's HMP, and OCWD's Groundwater Management Plan 2015 Update.

Every 2 years, the Santa Ana RWQCB must re-evaluate water quality within its geographic region and identify the water bodies that are not meeting water quality standards. For those impaired water bodies, a TMDL must be prepared and implemented to reduce pollutant loads to levels that would not contribute to a violation of water quality standards. All developments within the Santa Ana River Watershed are subject to the water quality standards outlined in the Basin Plan and must comply with any established TMDLs. The continuing review process would ensure that cumulative development within the watershed would not substantially degrade water quality.

The County and cities located within Orange County are co-permittees under the Orange County Municipal NPDES permit. The NPDES permit sets limits on pollutants being discharged into waterways, and requires that the project designer and/or contractor of all new development and redevelopment projects that fall under specific project categories develop a WQMP that includes LID design requirements related to water quality.

The LID features would address long-term effects on water quality within the Orange County watersheds and ensure that BMPs and LID designs minimize potential water quality impacts to the maximum extent practicable. Therefore, with the implementation of BMPs, impacts associated with water quality standards and polluted runoff in the watersheds would be minimized, and the proposed FMP's contribution to cumulative impacts would not be cumulatively considerable.

4.9.8 Impact Summary

Table 4.9-3 summarizes the impacts for the FMP projects assessed at the project level at Plant 1, Plant 2, joint plant projects, and collection system projects under each threshold analyzed in this PEIR.

Table 4.9-3. Summary of FMP Project Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?					
Plant 1					
P1-126	Primary Clarifiers Replacements and Improvements	Replace	Less than Significant	—	Less than Significant
X-093	Administrative Facilities and Power Building 3A Demolition	Misc. (Demo)	Less than Significant	—	Less than Significant
X-092	Standby Generator Feeders for Plant 1 Secondary Systems	Misc.	Less than Significant	—	Less than Significant
X-048	Activated Sludge (AS)-1 Aeration Basin and Blower Rehabilitation	Rehab	Less than Significant	—	Less than Significant
P1-135	Digester Ferric Piping Replacement	Replace	Less than Significant	—	Less than Significant
X-077	Switchgear Replacement at Central Generation	Replace	Less than Significant	—	Less than Significant
X-090	Network, Telecommunications, and Service Relocation at Plant 1	Misc.	Less than Significant	—	Less than Significant
Plant 2					
P2-126	Substation and Warehouse Replacement at Plant 2	Misc.	Less than Significant	—	Less than Significant
P2-138	Operations and Maintenance Complex at Plant 2	Replace	Less than Significant	—	Less than Significant
X-050	Activated Sludge (AS) Aeration Basin	Rehab	Less than Significant	—	Less than Significant
X-032	Truck Loading Facility Rehabilitation	Rehab	Less than Significant	—	Less than Significant
X-054	Waste Side-Stream Pump Station C Rehabilitation	Rehab	Less than Significant	—	Less than Significant
X-034	Sodium Bisulfite Station Replacement and Bleach Station Demolition	Replace	Less than Significant	—	Less than Significant

Table 4.9-3. Summary of FMP Project Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
Joint Plant Projects					
J-98	Plantwide Miscellaneous Electrical Power Distribution System Improvements	Replace	Less than Significant	—	Less than Significant
J-120	Plantwide Miscellaneous Process Control Systems Upgrades	Replace	Less than Significant	—	Less than Significant
J-133	Laboratory Rehabilitation or Replacement at Plant 1	Rehab	Less than Significant	—	Less than Significant
X-057	Plantwide Miscellaneous Yard Structures Rehabilitation or Replacement	Misc.	Less than Significant	—	Less than Significant
X-058	Plantwide Miscellaneous Yard Piping Replacement	Replace	Less than Significant	—	Less than Significant
X-059	Plantwide Miscellaneous Tunnels Rehabilitation	Rehab	Less than Significant	—	Less than Significant
J-121	UPS System Upgrades	Replace	Less than Significant	—	Less than Significant
X-044	Steve Anderson Lift Station Rehabilitation	Rehab	Less than Significant	—	Less than Significant
Collection System Projects					
5-68	Newport Beach Pump Station Odor Control Improvements	Misc.	Less than Significant	—	Less than Significant
X-076	Santa Ana Trunk Sewer Rehabilitation Phase II	Rehab	Significant	—	Less than Significant
X-082	North Trunk Improvement Project	Replace	Less than Significant	—	Less than Significant
X-060	Newhope Placentia Chemical Dosing Station	Misc.	Less than Significant	—	Less than Significant
11-33	Edinger Pumping Station Replacement	Replace	Less than Significant	—	Less than Significant
X-063	South Santa Ana River Interceptor Connector Rehabilitation	Rehab	Less than Significant	—	Less than Significant
2-73	Yorba Linda Pump Station Abandonment	Misc.	Less than Significant	—	Less than Significant
3-67	Seal Beach Pump Station Replacement	Replace	Less than Significant	—	Less than Significant
2-49	Taft Branch Sewer Improvements	Replace	Less than Significant	—	Less than Significant
X-083	Greenville–Sullivan Sewer Relief Project	Replace	Less than Significant	—	Less than Significant

Table 4.9-3. Summary of FMP Project Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would impede or redirect flood flows?					
Plant 1					
P1-126	Primary Clarifiers Replacements and Improvements	Replace	Less than Significant	—	Less than Significant
X-093	Administrative Facilities and Power Building 3A Demolition	Misc. (Demo)	Less than Significant	—	Less than Significant
X-092	Standby Generator Feeders for Plant 1 Secondary Systems	Misc.	Less than Significant	—	Less than Significant
X-048	Activated Sludge (AS)-1 Aeration Basin and Blower Rehabilitation	Rehab	Less than Significant	—	Less than Significant
P1-135	Digester Ferric Piping Replacement	Replace	Less than Significant	—	Less than Significant
X-077	Switchgear Replacement at Central Generation	Replace	Less than Significant	—	Less than Significant
X-090	Network, Telecommunications, and Service Relocation at Plant 1	Misc.	Less than Significant	—	Less than Significant
Plant 2					
P2-126	Substation and Warehouse Replacement at Plant 2	Misc.	Less than Significant	—	Less than Significant
P2-138	Operations and Maintenance Complex at Plant 2	Replace	Less than Significant	—	Less than Significant
X-050	Activated Sludge (AS) Aeration Basin	Rehab	Less than Significant	—	Less than Significant
X-032	Truck Loading Facility Rehabilitation	Rehab	Less than Significant	—	Less than Significant
X-054	Waste Side-Stream Pump Station C Rehabilitation	Rehab	Less than Significant	—	Less than Significant
X-034	Sodium Bisulfite Station Replacement and Bleach Station Demolition	Replace	Less than Significant	—	Less than Significant
Joint Plant Projects					
J-98	Plantwide Miscellaneous Electrical Power Distribution System Improvements	Replace	Less than Significant	—	Less than Significant
J-120	Plantwide Miscellaneous Process Control Systems Upgrades	Replace	Less than Significant	—	Less than Significant
J-133	Laboratory Rehabilitation or Replacement at Plant 1	Rehab	Less than Significant	—	Less than Significant
X-057	Plantwide Miscellaneous Yard Structures Rehabilitation or Replacement	Misc.	Less than Significant	—	Less than Significant
X-058	Plantwide Miscellaneous Yard Piping Replacement	Replace	Less than Significant	—	Less than Significant

Table 4.9-3. Summary of FMP Project Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
X-059	Plantwide Miscellaneous Tunnels Rehabilitation	Rehab	Less than Significant	—	Less than Significant
J-121	UPS System Upgrades	Replace	Less than Significant	—	Less than Significant
X-044	Steve Anderson Lift Station Rehabilitation	Rehab	Less than Significant	—	Less than Significant
Collection System Projects					
5-68	Newport Beach Pump Station Odor Control Improvements	Misc.	Less than Significant	—	Less than Significant
X-076	Santa Ana Trunk Sewer Rehabilitation Phase II	Rehab	Less than Significant	—	Less than Significant
X-082	North Trunk Improvement Project	Replace	Less than Significant	—	Less than Significant
X-060	Newhope Placentia Chemical Dosing Station	Misc.	Less than Significant	—	Less than Significant
11-33	Edinger Pumping Station Replacement	Replace	Less than Significant	—	Less than Significant
X-063	South Santa Ana River Interceptor Connector Rehabilitation	Rehab	Less than Significant	—	Less than Significant
2-73	Yorba Linda Pump Station Abandonment	Misc.	Less than Significant	—	Less than Significant
3-67	Seal Beach Pump Station Replacement	Replace	Less than Significant	—	Less than Significant
2-49	Taft Branch Sewer Improvements	Replace	Less than Significant	—	Less than Significant
X-083	Greenville–Sullivan Sewer Relief Project	Replace	Less than Significant	—	Less than Significant
In flood hazard, tsunami, or seiche zones, would the project risk release of pollutants due to project inundation?					
Plant 1					
P1-126	Primary Clarifiers Replacements and Improvements	Replace	Less than Significant	—	Less than Significant
X-093	Administrative Facilities and Power Building 3A Demolition	Misc. (Demo)	Less than Significant	—	Less than Significant
X-092	Standby Generator Feeders for Plant 1 Secondary Systems	Misc.	Less than Significant	—	Less than Significant
X-048	Activated Sludge (AS)-1 Aeration Basin and Blower Rehabilitation	Rehab	Less than Significant	—	Less than Significant
P1-135	Digester Ferric Piping Replacement	Replace	Less than Significant	—	Less than Significant
X-077	Switchgear Replacement at Central Generation	Replace	Less than Significant	—	Less than Significant
X-090	Network, Telecommunications, and Service Relocation at Plant 1	Misc.	Less than Significant	—	Less than Significant

Table 4.9-3. Summary of FMP Project Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
Plant 2					
P2-126	Substation and Warehouse Replacement at Plant 2	Misc.	Less than Significant	—	Less than Significant
P2-138	Operations and Maintenance Complex at Plant 2	Replace	Less than Significant	—	Less than Significant
X-050	Activated Sludge (AS) Aeration Basin	Rehab	Less than Significant	—	Less than Significant
X-032	Truck Loading Facility Rehabilitation	Rehab	Less than Significant	—	Less than Significant
X-054	Waste Side-Stream Pump Station C Rehabilitation	Rehab	Less than Significant	—	Less than Significant
X-034	Sodium Bisulfite Station Replacement and Bleach Station Demolition	Replace	Less than Significant	—	Less than Significant
Joint Plant Projects					
J-98	Plantwide Miscellaneous Electrical Power Distribution System Improvements	Replace	Less than Significant	—	Less than Significant
J-120	Plantwide Miscellaneous Process Control Systems Upgrades	Replace	Less than Significant	—	Less than Significant
J-133	Laboratory Rehabilitation or Replacement at Plant 1	Rehab	Less than Significant	—	Less than Significant
X-057	Plantwide Miscellaneous Yard Structures Rehabilitation or Replacement	Misc.	Less than Significant	—	Less than Significant
X-058	Plantwide Miscellaneous Yard Piping Replacement	Replace	Less than Significant	—	Less than Significant
X-059	Plantwide Miscellaneous Tunnels Rehabilitation	Rehab	Less than Significant	—	Less than Significant
J-121	UPS System Upgrades	Replace	Less than Significant	—	Less than Significant
X-044	Steve Anderson Lift Station Rehabilitation	Rehab	Less than Significant	—	Less than Significant
Collection System Projects					
5-68	Newport Beach Pump Station Odor Control Improvements	Misc.	Less than Significant	—	Less than Significant
X-076	Santa Ana Trunk Sewer Rehabilitation Phase II	Rehab	Less than Significant	—	Less than Significant
X-082	North Trunk Improvement Project	Replace	Less than Significant	—	Less than Significant
X-060	Newhope Placentia Chemical Dosing Station	Misc.	Less than Significant	—	Less than Significant
11-33	Edinger Pumping Station Replacement	Replace	Less than Significant	—	Less than Significant
X-063	South Santa Ana River Interceptor Connector Rehabilitation	Rehab	Less than Significant	—	Less than Significant

Table 4.9-3. Summary of FMP Project Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
2-73	Yorba Linda Pump Station Abandonment	Misc.	Less than Significant	—	Less than Significant
3-67	Seal Beach Pump Station Replacement	Replace	Less than Significant	—	Less than Significant
2-49	Taft Branch Sewer Improvements	Replace	Less than Significant	—	Less than Significant
X-083	Greenville–Sullivan Sewer Relief Project	Replace	Less than Significant	—	Less than Significant
Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?					
Plant 1					
P1-126	Primary Clarifiers Replacements and Improvements	Replace	Less than Significant	—	Less than Significant
X-093	Administrative Facilities and Power Building 3A Demolition	Misc. (Demo)	Less than Significant	—	Less than Significant
X-092	Standby Generator Feeders for Plant 1 Secondary Systems	Misc.	Less than Significant	—	Less than Significant
X-048	Activated Sludge (AS)-1 Aeration Basin and Blower Rehabilitation	Rehab	Less than Significant	—	Less than Significant
P1-135	Digester Ferric Piping Replacement	Replace	Less than Significant	—	Less than Significant
X-077	Switchgear Replacement at Central Generation	Replace	Less than Significant	—	Less than Significant
Plant 2					
P2-126	Substation and Warehouse Replacement at Plant 2	Misc.	Less than Significant	—	Less than Significant
X-050	Activated Sludge (AS) Aeration Basin	Rehab	Less than Significant	—	Less than Significant
X-032	Truck Loading Facility Rehabilitation	Rehab	Less than Significant	—	Less than Significant
X-054	Waste Side-Stream Pump Station C Rehabilitation	Rehab	Less than Significant	—	Less than Significant
X-034	Sodium Bisulfite Station Replacement and Bleach Station Demolition	Replace	Less than Significant	—	Less than Significant
X-090	Network, Telecommunications, and Service Relocation at Plant 1	Misc.	Less than Significant	—	Less than Significant
X-008	Operations Center Replacement	Replace	Less than Significant	—	Less than Significant
Joint Plant Projects					
J-98	Plantwide Miscellaneous Electrical Power Distribution System Improvements	Replace	Less than Significant	—	Less than Significant
J-120	Plantwide Miscellaneous Process Control Systems Upgrades	Replace	Less than Significant	—	Less than Significant

Table 4.9-3. Summary of FMP Project Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
J-133	Laboratory Rehabilitation or Replacement at Plant 1	Rehab	Less than Significant	—	Less than Significant
X-057	Plantwide Miscellaneous Yard Structures Rehabilitation or Replacement	Misc.	Less than Significant	—	Less than Significant
X-058	Plantwide Miscellaneous Yard Piping Replacement	Replace	Less than Significant	—	Less than Significant
X-059	Plantwide Miscellaneous Tunnels Rehabilitation	Rehab	Less than Significant	—	Less than Significant
J-121	UPS System Upgrades	Replace	Less than Significant	—	Less than Significant
X-044	Steve Anderson Lift Station Rehabilitation	Rehab	Less than Significant	—	Less than Significant
Collection System Projects					
5-68	Newport Beach Pump Station Odor Control Improvements	Misc.	Less than Significant	—	Less than Significant
X-076	Santa Ana Trunk Sewer Rehabilitation Phase II	Rehab	Less than Significant	—	Less than Significant
X-082	North Trunk Improvement Project	Replace	Less than Significant	—	Less than Significant
X-060	Newhope Placentia Chemical Dosing Station	Misc.	Less than Significant	—	Less than Significant
11-33	Edinger Pumping Station Replacement	Replace	Less than Significant	—	Less than Significant
X-063	South Santa Ana River Interceptor Connector Rehabilitation	Rehab	Less than Significant	—	Less than Significant
2-73	Yorba Linda Pump Station Abandonment	Misc.	Less than Significant	—	Less than Significant
3-67	Seal Beach Pump Station Replacement	Replace	Less than Significant	—	Less than Significant
2-49	Taft Branch Sewer Improvements	Replace	Less than Significant	—	Less than Significant
X-083	Greenville–Sullivan Sewer Relief Project	Replace	Less than Significant	—	Less than Significant

Note: UPS = uninterruptible power system.

4.9.9 References

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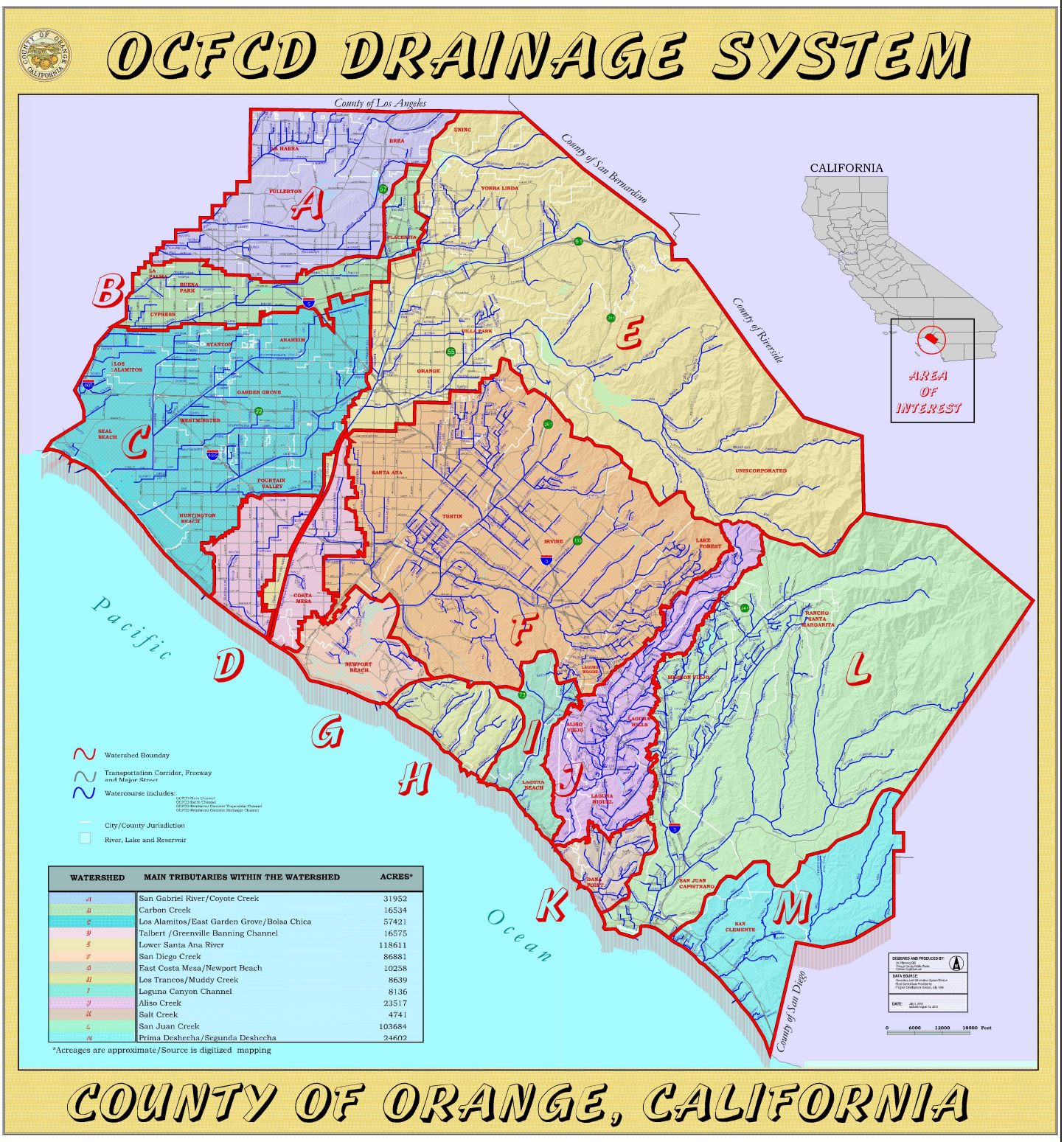

WATERSHED	MAIN TRIBUTARIES WITHIN THE WATERSHED	ACRES*
A	San Gabriel River/Coyote Creek	31952
B	Carbon Creek	16534
C	Los Alamitos/East Garden Grove/Bolsa Chica	57421
D	Talbert /Greenville Banning Channel	16575
E	Lower Santa Ana River	118611
F	San Diego Creek	86881
G	East Costa Mesa/Newport Beach	10258
H	Los Trancos/Muddy Creek	8639
I	Laguna Canyon Channel	8136
J	Aliso Creek	23517
K	Salt Creek	4741
L	San Juan Creek	103684
M	Prima Deshecha/Segunda Deshecha	24602

*Acreages are approximate/Source is digitized mapping

SOURCE: Orange County Public Works 2010

FIGURE 4.9-1

OCFCD Drainage System

Sanitation District Facilities Master Plan PEIR

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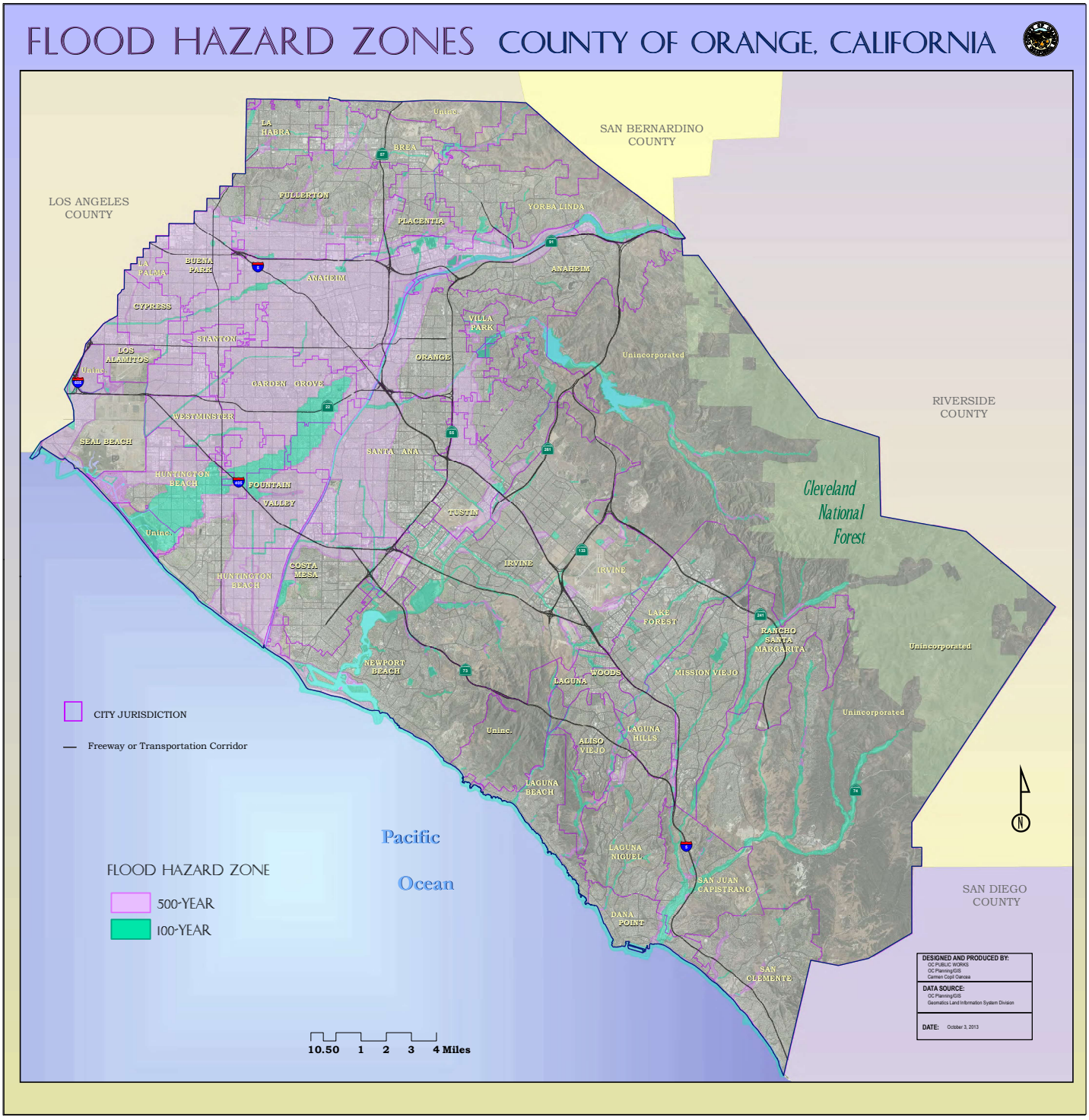

SOURCE: Orange County Public Works 2010

FIGURE 4.9-2

Flood Hazard Zones

Sanitation District Facilities Master Plan PEIR

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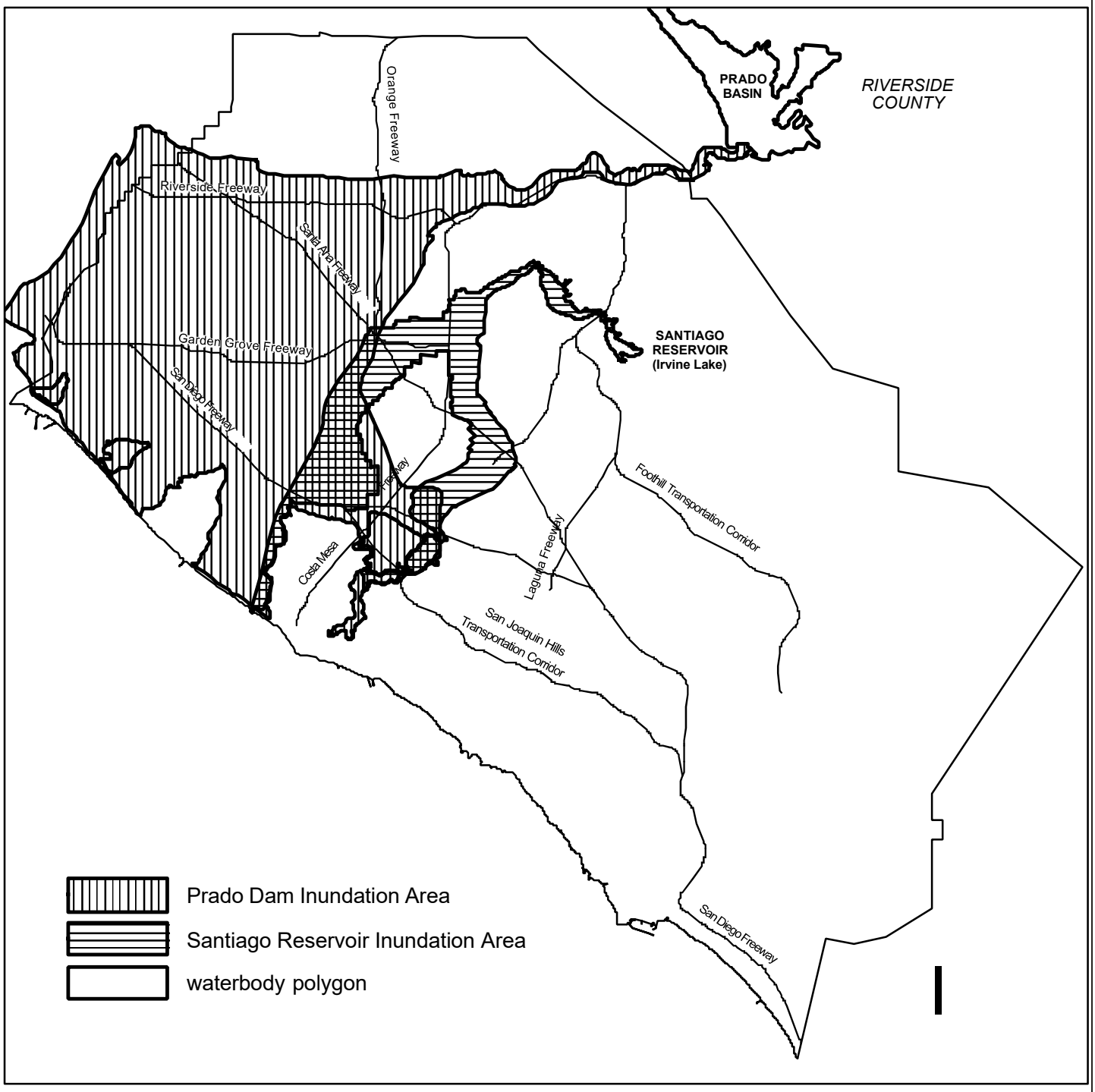

SOURCE: U.S. Army Corps of Engineers, 1985 & Orange County Flood Programs Division, 1973

FIGURE 4.9-3

Prado Dam and Santiago Reservoir Inundation Areas

Sanitation District Facilities Master Plan PEIR

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4.10 Land Use and Planning

This section describes the existing land use and planning setting for the Orange County Sanitation District (Sanitation District) Facilities Master Plan (FMP) area, identifies the associated regulatory framework, evaluates potential impacts, and identifies mitigation measures, if required, to reduce the level of impact associated with implementation of the FMP projects. The following topic related to land use and planning is examined in this section:

- Potential for the project to conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the program adopted for the purpose of avoiding or mitigating an environmental effect.

General Plans and other relevant local policy documents were reviewed to determine consistency with the FMP. As such, a land use policy table that includes the relevant policies, goals, and objectives associated with each applicable jurisdiction in the FMP area is included in Section 4.10.4, Impacts Analysis.

As stated in the July 2019 Initial Study (Appendix A to this program environmental impact report [PEIR]), there would be no impacts associated with the expansion of facilities or construction of new facilities for implementation of the FMP, due to the nature of the proposed improvements. Therefore, the following topic is not further analyzed in this PEIR:

- The physical division of an established community.

4.10.1 Existing Conditions

The FMP projects addressed in this PEIR would be located at various sites throughout the Sanitation District's service area, which covers an approximately 479-square-mile area within the northwestern and central portions of Orange County. The service area includes the entirety or portions of municipal boundaries for 20 cities, as well as unincorporated land and 4 special districts (see Section 2.1.1, Sanitation District History and Governance, in Chapter 2, Introduction).

4.10.2 Relevant Plans, Policies, and Ordinances

Agencies with jurisdiction over the FMP projects may include the U.S. Army Corps of Engineers, U.S. Fish and Wildlife Services, California State Lands Commission, California Coastal Commission (CCC), California Department of Parks and Recreation, and local governments.

Federal

U.S. Department of Navy

The Sanitation District has facilities that traverse the Seal Beach Naval Weapons Station (Naval Weapons Station). The Naval Weapons Station is a munitions loading, storage, and maintenance facility; however, it is also a sensitive area that contains the Seal Beach National Wildlife Refuge. The 965-acre Seal Beach National Wildlife Refuge is located completely within the Naval Weapons Station and encompasses remnant saltwater marsh in the Anaheim Bay Estuary (USFWS 2017). As such, project approval resides solely with the U.S. Department of Navy and coordination between the Sanitation District and U.S. Department of Navy is required (CNIC 2020) for any work that would occur on the Seal Beach Naval Weapons Station.

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.

California Environmental Quality Act

The California Environmental Quality Act (CEQA) requires that project proponents assess potential land use impacts, including project consistency with local land use policies and plans adopted for the purpose of avoiding or mitigating an environmental effect. Consistency with local land use policies and plans adopted for the purpose of avoiding or mitigating an environmental effect is one of several criteria that can be used to assess whether a project could have significant environmental impacts under the provisions of CEQA. A discussion of local land use policies and plans and standards of significance for potential land use impacts is included below.

California Coastal Commission

The state legislature established the CCC through adoption of the California Coastal Act of 1976 (California Public Resources Code, Section 30000 et seq.). The intent of the California Coastal Act is to protect, maintain, and, where feasible, enhance and restore the overall quality of the coastal zone environment. The California Coastal Act includes specific policies that address issues such as shoreline and upland public access and recreation, terrestrial and marine habitat protection, visual resources, water quality, public works, and land/water uses.

Southern California Association of Governments

The Southern California Association of Governments (SCAG) is the nation's largest metropolitan planning organization, representing six counties (Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura), 191 cities, and more than 18 million residents. SCAG undertakes a variety of planning and policy initiatives to encourage a more sustainable Southern California. SCAG develops long-range regional transportation plans, including sustainable communities strategy and growth-forecast components, regional transportation improvement programs, regional housing needs allocations, and a portion of the south coast air quality management plans (SCAG 2016).

Local

Orange County Central and Coastal Subregion Natural Community Conservation Plan/Habitat Conservation Plan

The Orange County Central and Coastal Subregion Natural Community Conservation Plan/Habitat Conservation Plan (NCCP/HCP) covers a 208,000-acre area (about 325 square miles) that includes the central portion of Orange County, incorporating the area from the coastline inland to Riverside County (County of Orange 1996). The subregion extends along the coast from the mouth of the Santa Ana River (City of Costa Mesa) to the mouth of San Juan Creek (City of Dana Point). The inland boundaries of the subregion follow State Route 91 along the west and El Toro Road and Interstate 5 to San Juan Creek in the east. The NCCP/HCP provides for the conservation of large, diverse areas of natural habitat, including habitat for the federally threatened coastal California gnatcatcher

(*Polioptila californica californica*) and other federally listed species. Development activities covered by the NCCP/HCP include public infrastructure facilities such as roads, utilities and recreation facilities, and private residential, commercial, and industrial development. The Sanitation District service area that extends through the NCCP/HCP area is located in Irvine, Newport Beach, Costa Mesa, Villa Park, and unincorporated Orange County.

City of Fountain Valley General Plan

The City of Fountain Valley General Plan provides a comprehensive plan for the future. The General Plan provides estimates about future population, household types and employment base, so that plans for land use and facilities can be made to meet changing needs. Throughout the General Plan, but specifically the Land Use Element and Growth Management Element, the concept of growth management is discussed; the intent of managing growth within Fountain Valley is not necessarily to limit or minimize growth, but rather to ensure that the proper infrastructure and backbone systems are in place in order to accommodate growth as it occurs (City of Fountain Valley 1995).

City of Fountain Valley, Zoning Code Designation

Reclamation Plant No. 1 (Plant 1) is designated as a Specific Plan Area that is covered by the Sanitation District Plant Specific Plan (SDPSP).

Sanitation District Plant Specific Plan

The County Sanitation Districts of Orange County Specific Plan establishes comprehensive guidance for the continued use and the proposed planned future development of the approximate 108-acre site (Plant 1), owned by the Districts in the City of Fountain Valley. The Specific Plan will carry out the agreed upon land use site plan by combining the master plan of land use for the site, establishing policies and administrative procedures and development regulations for implementation of the specific land uses of the site and will replace the current property zoning standards, including any applicable requirements for obtaining a Conditional Use Permit (City of Fountain Valley 1993).

City of Huntington Beach General Plan

The City of Huntington Beach General Plan is a policy document providing the 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 2017a).

City of Huntington Beach, Zoning Code Designation

The zoning designation for Plant 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 Public Resources Code, Division 20, Sections 30000 et seq.) allows local governments to prepare coastal land use plans for areas lying wholly or partially within the Coastal Zone. Local coastal plans (LCPs) are reviewed and certified by the 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 2019).

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 2011).

City of Newport Beach General Plan

The General Plan for the City of Newport Beach presents a vision for the City's future and a strategy to make that vision a reality. The General Plan is the result of thousands of hours of research and technical studies, the collective efforts of the diversity of elected decision-makers, individuals, and agencies who cumulatively guide and shape land use development and natural resource conservation, and the engagement of numerous individuals throughout the community who have articulated their hopes and expectations for the City's future. Specifically, the Land Use Element provides guidance regarding the ultimate pattern of development for Newport Beach at buildout. As such, it is based on and correlates the policies from all elements into a set of coherent development policies, which serve as the central organizing element for the General Plan as a whole. Policies for the conservation of natural resources and protection of residents and businesses from the risks of hazards are reflected in the distribution and densities of uses (City of Newport Beach 2006).

City of Seal Beach General Plan, Land Use Element (Planning Area 5)

Planning Area 5 consists of the bulk of the City of Seal Beach's landmass with 5,256 acres owned and operated by the Department of Navy since it was acquired in 1944. The Seal Beach Naval Weapons Station is the largest and most important naval ordnance storage, maintenance, production, and supply facility in the western United States. Approximately 3,280 acres of the 5,256-acre Planning Area 5 are situated within the California Coastal Zone Boundary. However, under Federal Coastal Zone Management Act, all federal lands within the coastal zone are exempt from LCPs and local government authority. Projects on federal lands are required to only be consistent to maximum extent feasible with state programs. Therefore, projects located within the Naval Weapons Station site are not subject to local or state coastal development requirements. The CCC serves in an advisory and review role for projects proposed on federal lands within the coastal zone boundary. Federal projects within the designated coastal boundaries would require submittal of an application to the CCC for preliminary Coastal Consistency Determination on an individual project basis. However, final project approval resides solely with the U.S. Department of Navy (City of Seal Beach 2003).

Other Local General Plans, Policies, and Regulations

The Land Use Element of a General Plan guides future land use and development throughout a community. Zoning ordinances support the land use designations of a General Plan. General Plans typically include provisions to allow for utility system maintenance. The FMP proposes maintenance of existing facilities, so FMP projects would be consistent with existing local General Plans. A compilation of the General Plans and policies that were reviewed for this analysis are provided in Table 4.10-1 in Section 4.10.4.

The Sanitation District understands the importance of consistency with the goals and policies identified within local jurisdictions' General Plans and other local ordinances/plans; however, per California Government Code Section 53091, the Sanitation District, as a wastewater treatment facility, is exempt from building ordinances. As part of standard practice, the Sanitation District would coordinate with local jurisdictions to the extent feasible during implementation of the FMP projects to avoid and/or minimize potential impacts. The FMP projects are intended to maintain, repair, and improve existing infrastructure, as necessary, to ensure the reliability of the Sanitation District's water conveyance and treatment system. Overall, the FMP, which is a maintenance program, is not anticipated to conflict with any applicable land use plans, policies, or regulations of local agencies.

4.10.3 Thresholds of Significance

The significance criteria used to evaluate the FMP's impacts to land use and planning are based on Appendix G of the CEQA Guidelines. According to Appendix G, a significant impact related to land use and planning would occur if a project would:

1. Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulations adopted for the purpose of avoiding or mitigating an environmental effect.

4.10.4 Impacts Analysis

This analysis evaluates the consistency or compliance of the FMP projects with relevant land use plans, policies, and regulations adopted for the purpose of avoiding or mitigating an environmental effect. The analysis determines whether or not there is the potential for physical incompatibilities between the underlying land uses, whereby construction activities and maintenance of the Sanitation District's facilities would cause potential impacts. Secondary effects resulting from potential land use conflicts or incompatibility (specifically during construction activities) are usually the result of other environmental effects, such as noise generation or air quality issues resulting from grading activities; those issues are addressed within other resource chapters. Land use impacts resulting from the FMP projects are evaluated below. For a detailed analysis of secondary impacts that would result from the FMP projects, see Sections 4.2, Air Quality; 4.3, Biological Resources; 4.11, Noise; and 4.13, Transportation. Additionally, a land use policy consistency table has been prepared for this analysis (Table 4.10-1).

1. Would the project cause a significant environmental impact due to a conflict with any land use plan, policy, or regulations adopted for the purpose of avoiding or mitigating an environmental effect?

Less-than-Significant Impact. As discussed in Section 2.2, Program Background, of Chapter 2, Introduction, the 2017 FMP (Sanitation District 2017) and 2019 update present a series of Capital Improvement Program (CIP) projects proposed to be implemented by the Sanitation District through 2040 to rehabilitate, replace, and optimize their existing facilities in continued service to residents and businesses. Specifically,

implementation of the FMP projects would involve facility improvements at Plant 1 located in Fountain Valley, facility improvements at Treatment Plant No. 2 (Plant 2) located in Huntington Beach, joint improvements at Plant 1 and Plant 2, and collection system improvements. Table 4.10-1 presents a consistency analysis of the FMP projects with each jurisdiction's land use policies.

Table 4.10-1. Land Use Policy Consistency Table

Goal, Objective, or Policy Number	Applicable Goal, Objective, or Policy	Proposed Project Consistency	Consistency Determination
Orange County General Plan (2015) Public Services and Facilities Element			
Goal 1	Support the planning and development of a wastewater system to meet both the County's demand and attain water quality goals.	The FMP would include a series of CIP projects proposed to be implemented by the Sanitation District through 2040 to rehabilitate, replace, and optimize existing facilities in continued service to residents and businesses within the service area. The FMP projects would include facility improvements at Plant 1 in Fountain Valley, facility improvements at Plant 2 in Huntington Beach, joint plant improvements at Plant 1 and Plant 2, and collection system improvements (i.e., pipeline, pump station, interplant and lift station projects). This supports the County's goal to develop a wastewater system that meets demand and meets water quality goals.	The FMP projects would be consistent with this goal.
Objective 1.1	To maintain wastewater system service levels through the coordination of land use and wastewater system planning.	Refer to Goal 1 response.	The FMP projects would be consistent with this objective.
Policy 1	To protect quality in both delivery systems and groundwater basins through effective wastewater system management.	As outlined in Chapter 3 of this PEIR, the Sanitation District has adopted objectives that will help evaluate the FMP and its environmental impacts, and aid in its consideration of potential alternatives. Objective four is consistent with this goal as it is designed to ensure that the Sanitation District can accommodate the expanded Groundwater Replenishment System operations approved in 2016. The County and cities within Orange County are co-permittees under the Orange County Municipal National Pollutant Discharge Elimination System (NPDES) permit. The NPDES permit sets limits on pollutants being discharged into waterways and requires all new development and significant redevelopment to incorporate Low-Impact Development features laid out in	The FMP projects would be consistent with this policy.

Table 4.10-1. Land Use Policy Consistency Table

Goal, Objective, or Policy Number	Applicable Goal, Objective, or Policy	Proposed Project Consistency	Consistency Determination
		the water quality management plan (WQMP). Completion of a WQMP is one of the main components of the Orange County Municipal NPDES permit. In accordance with the NPDES permit, depending on the nature and location of the individual project, the County or appropriate city would be responsible for monitoring WQMPs. As a result of compliance with existing regulations, the FMP projects would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality during long-term operations.	
Policy 2	To actively encourage opportunities for increased coordination between the County and wastewater agencies through cooperative wastewater studies, planning, and facility implementation efforts.	As the lead agency, the Sanitation District would coordinate with the applicable jurisdictions within its service area prior to implementation of the FMP projects.	The FMP projects would be consistent with this policy.
Policy 3	To ensure the adequacy of wastewater system capacity and phasing in consultation with the service providing agency(ies) in order to serve existing and future development as defined by the General Plan.	The FMP projects would include replacement, rehabilitation, and other miscellaneous projects, some of which propose to ensure reliability of wastewater system capacity. The FMP projects that would increase capacity to accommodate storm water infiltration in order to ensure reliability include projects X-006, X-007, X-082, 249, X-084, X-086, and 7-68.	The FMP projects would be consistent with this policy.
City of Anaheim General Plan (2004) Public Services and Facilities Element			
Goal 5.1	Provide a safe and effective sewer system that meets the needs of the City's residents, businesses, and visitors.	The FMP projects would make improvements to the Sanitation District's facilities through rehabilitation, replacement, and other miscellaneous improvements with the intent to continue optimal service to residents and businesses within the service area.	The FMP projects would be consistent with this goal.
Goal 6.1	Maintain a storm drain system that will adequately protect and enhance the health, safety and general welfare of residents, visitors,	Implementation of the FMP projects would involve the upgrade, replacement, and rehabilitation of older facilities within the Sanitation District's wastewater collection and treatment system. In some instances, the FMP projects would result in the installation of new infrastructure that would result in more	The FMP projects would be consistent with this goal.

Table 4.10-1. Land Use Policy Consistency Table

Goal, Objective, or Policy Number	Applicable Goal, Objective, or Policy	Proposed Project Consistency	Consistency Determination
	employees, and their property.	intensive use of land, which could be a source of pollution from incidental spills of vehicle oils and other chemicals that can be conveyed by stormwater and irrigation flows. Stormwater collection and conveyance within the Sanitation District service area is provided by the Sanitation District's constituent cities and by Orange County Public Works within the unincorporated areas, with smaller local facilities draining into a larger regional system maintained by the Orange County Flood Control District (OCFCD 2020). The County and cities within Orange County are co-permittees under the Orange County Municipal NPDES permit. The NPDES permit sets limits on pollutants being discharged into waterways, and requires all new development and significant redevelopment to incorporate Low-Impact Development features laid out in the WQMP. As a result of compliance with existing regulations, the FMP would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality during long-term operations.	
City of Buena Park (2010) Community Facilities Element			
Goal CF-5	Adequate wastewater facilities to serve existing and new development in the City.	The FMP projects would include facility improvements at Plant 1 in Fountain Valley, facility improvements at Plant 2 in Huntington Beach, joint plant improvements at Plant 1 and Plant 2, and collection system improvements (i.e., pipeline, pump station, interplant and lift station projects). The aforementioned improvements would maintain and enhance existing wastewater facilities needed to serve existing and new development throughout the Sanitation District's service area.	The FMP projects would be consistent with this goal.
Policy CF-5.1	Continue to maintain, improve, and replace aging wastewater collection facilities to ensure the provision of these services to all areas of the community.	The FMP projects would make improvements to the Sanitation District's facilities through rehabilitation, replacement, and other miscellaneous improvements with the intent to continue optimal service to residents and businesses within the service area.	The FMP projects would be consistent with this policy.

Table 4.10-1. Land Use Policy Consistency Table

Goal, Objective, or Policy Number	Applicable Goal, Objective, or Policy	Proposed Project Consistency	Consistency Determination
Policy CF-5.2	Continue to coordinate with the Orange County Sanitation District (OCSD) to ensure existing wastewater systems are maintained and upgraded and new wastewater facilities are constructed, as needed.	As the lead agency, the Sanitation District will coordinate with applicable jurisdictions prior to implementation of the FMP projects, which include various improvements to the Sanitation District's existing wastewater facilities.	The FMP projects would be consistent with this policy.
Policy CF-5.6	Ensure that infrastructure capacities are planned to serve future development.	The FMP projects would include facility improvements to expand specific sewer pipeline and pump station capacities to maintain an efficient level of wastewater service based on previously projected growth. Additionally, maintenance of existing facilities (i.e., rehabilitation, replacement, and other miscellaneous projects) would ensure that the needs of communities served by the Sanitation District are met.	The FMP projects would be consistent with this policy.
City of Cypress General Plan (2000) Land Use Element			
Goal LU-5	Ensure that public facilities and services are available to accommodate development allowed under the General Plan and Zoning Ordinance.	FMP projects within the City of Cypress include addition and rehabilitation of air jumpers. Air jumpers are short segments of pipelines constructed parallel to and at a higher elevation than their paired sewer segments, for the purpose of ventilating air from sewer sections that are lower to avoid an obstacle such as a creek (also known as a siphon). The Sanitation District currently meets the City's wastewater needs and would support previously projected growth.	The FMP projects would be consistent with this goal.
Policy LU-5.3	Coordinate and collaborate with other agencies providing public utility service to Cypress to define areawide and regional needs, projects and responsibilities.	The Sanitation District will coordinate with the City of Cypress prior to implementation of the FMP projects. As mentioned in the response to Goal LU-5, air jumper addition/rehabilitation is proposed within the City of Cypress. Without air jumpers, air must be released upstream of the siphon, which can cause upstream odor emissions and potential increase in sewer pipe deterioration. Thus, the addition and rehabilitation of air jumpers is essential for decreasing odor emissions and increasing the longevity of sewer pipelines.	The FMP projects would be consistent with this policy.

Table 4.10-1. Land Use Policy Consistency Table

Goal, Objective, or Policy Number	Applicable Goal, Objective, or Policy	Proposed Project Consistency	Consistency Determination
City of Fountain Valley (1995) Land Use Element			
Policy 2.14.2	Work with water services, sewer and flood control agencies to ensure the adequate maintenance of infrastructure facilities and provision for future maintenance and possible replacement or repair of such facilities.	The FMP is a multi-year planning program intended to plan, design, and implement systemwide Sanitation District projects through 2040. The FMP projects include various rehabilitation, replacement, and other miscellaneous facility improvements to maintain the Sanitation District's existing facilities. As part of the FMP projects, improvements at Plant 1 as well as the addition and rehabilitation of air jumpers are proposed within the City of Fountain Valley. FMP projects that would take place within Plant 1 boundaries may include structural demolition and new concrete work, replacement of mechanical and electrical components and instrumentation, trench excavation for installation or replacement of pipes and conduit, interior pipeline lining, seismic upgrades, hardscape and pavement demolition and replacement, and grading. Similar activities would be performed at pump stations. As such, the FMP projects would be consistent with Policy 2.14.2.	The FMP projects would be consistent with this policy.
City of Fullerton Plan (2011) The Fullerton Built Environment Element			
Goal 7	Growth and development aligned with infrastructure capabilities.	The focus of the FMP is to rehabilitate existing facilities over a 20-year period. The Sanitation District currently meets the City's wastewater needs and, with the FMP, the Sanitation District would continue to be able to do so.	The FMP projects would be consistent with this goal.
City of Garden Grove General Plan (2008) Infrastructure Element			
Goal INFR-2	Adequate wastewater facilities shall be provided to serve new and existing development within the City.	Prior to implementation of the FMP projects, the Sanitation District would coordinate with the City of Garden Grove and other applicable jurisdictions. The FMP projects propose improvements to the Sanitation District's wastewater facilities through rehabilitation, replacement, and other miscellaneous improvements with the intent to continue optimal service to residents and businesses.	The FMP projects would be consistent with this goal.
Policy INFR-2.2	Continue to coordinate with the Garden Grove Sanitary District (GGSD) and Orange County	Refer to Goal INFR-2 response.	The FMP projects would be consistent with this policy.

Table 4.10-1. Land Use Policy Consistency Table

Goal, Objective, or Policy Number	Applicable Goal, Objective, or Policy	Proposed Project Consistency	Consistency Determination
	Sanitation District (OCSD) to ensure existing wastewater systems are maintained and upgraded and new wastewater facilities are constructed, as needed.		
City of Huntington Beach (2011) Coastal Element			
Policy C 9.1.2	Adopt and maintain master plans and capital improvement programs consistent with this LCP to ensure that water, sewer and drainage needs are met. The master plan and capital improvement program shall address issues such as ongoing maintenance, new facility needs to meet projected demands of planned land uses, funding sources, phasing and prioritization and responsible agencies.	The FMP would include a series of CIP projects proposed to be implemented by the Sanitation District through 2040 to rehabilitate, replace, and optimize existing facilities in continued service to residents and businesses within the service area. The FMP projects would include facility improvements at Plant 1 in Fountain Valley, facility improvements at Plant 2 in Huntington Beach, joint plant improvements at Plant 1 and Plant 2, and collection system improvements (i.e., pipeline, pump station, interplant, and lift station projects). This supports the County's goal to develop a wastewater system that meets demand and meets water quality goals.	The FMP projects would be consistent with this policy.
City of Irvine (2015) Public Facilities and Services Element			
Objective G-4	Ensure that public facilities are maintained and rehabilitated in a manner that provides an acceptable level of service, is cost-effective and consistent with the community's ability to pay.	Refer to City of Huntington Beach Policy C 9.1.2 response.	The FMP projects would be consistent with this objective.
Policy (b)	Pursue state, federal and other available funding sources to improve and enhance public facilities.	Refer to City of Huntington Beach Policy C 9.1.2 response.	The FMP projects would be consistent with this policy.

Table 4.10-1. Land Use Policy Consistency Table

Goal, Objective, or Policy Number	Applicable Goal, Objective, or Policy	Proposed Project Consistency	Consistency Determination
City of La Habra General Plan 2035 (2014) Infrastructure Element			
Goal SS 1	Adequate wastewater collection service and treatment system facilities that minimize adverse effects to water quality and meets existing and future sewer needs.	The FMP projects would include replacement, rehabilitation, and other miscellaneous facility improvements to maintain and enhance the existing wastewater treatment facilities. Improvements to the wastewater treatment facilities would ensure that wastewater demands are met for the existing and anticipated future needs of the communities serviced by the Sanitation District.	The FMP projects would be consistent with this goal.
Policy SS 1.2	Peak Flow Service: Provide sufficient wastewater conveyance, pumping, and treatment capacity for peak sewer flows and infiltration.	The FMP projects would rehabilitate certain pump stations and sewer pipelines in order to ensure reliable conveyance of peak flows. The FMP meets the needs of anticipated growth that will occur with or without the implementation of the identified FMP projects. The focus of the FMP is to rehabilitate existing facilities over a 20-year period. FMP projects would upgrade, replace, and rehabilitate aging facilities within the Sanitation District's wastewater collection and treatment system.	The FMP projects would be consistent with this policy.
Policy SS 1.4	Adequate Wastewater Facilities. Coordinate with the Orange County Sanitation District (OCSD) to provide adequate collection, supply, treatment, and disposal of wastewater to meet the demands of existing and future development.	Prior to implementation of the FMP projects, the Sanitation District would coordinate with the City of La Habra and other applicable jurisdictions. The FMP projects include improvements to the Sanitation District's wastewater facilities through rehabilitation, replacement, and other miscellaneous improvements with the intent to continue optimal service to residents and businesses.	The FMP projects would be consistent with this policy.
City of La Palma General Plan (2014) Circulation and Infrastructure Element			
Goal CI-4	Provide adequate and reliable wastewater collection, water, storm water, and communications facilities.	The FMP projects would include a series of CIP projects that would maintain the Sanitation District's existing wastewater facilities.	The FMP projects would be consistent with this goal.
Policy CI-4.1	Implement sewer system improvements and operational recommendations identified in the Sewer Master Plan 2013,	The City of La Palma's 2013 Sewer Master Plan states that due to strategic planning and contracted outfall service locations with the Sanitation District, the City has been able to maintain operation without the need for any pumping. Although this affords the City	The FMP projects would be consistent with this policy.

Table 4.10-1. Land Use Policy Consistency Table

Goal, Objective, or Policy Number	Applicable Goal, Objective, or Policy	Proposed Project Consistency	Consistency Determination
	and as it may be updated from time to time.	optimum efficiency in terms of energy requirements for its collection system, it requires prudent planning, maintenance, and operation to minimize odor issues and sewer system overflows. Because the FMP projects include such planning, maintenance, and operation, they would be consistent with Policy CI-4.1.	
City of Newport Beach General Plan (2006) Natural Resources Element			
Policy NR 5.3	Renovate all older sewer pump stations and install new plumbing according to most recent standards.	The FMP projects would make improvements throughout the Sanitation District's collection system (e.g., pipelines, pump stations, and lift stations). As such, various projects proposed within the City of Newport Beach include pump station rehabilitation.	The FMP projects would be consistent with this policy.
Policy NR 5.4	Comply with the RWQCB's [Regional Water Quality Control Board's] Waste Discharge Requirements (WDRs) associated with the operation and maintenance of the City's sewage collection system.	The Sanitation District serves the City's wastewater needs. The FMP projects would maintain the Sanitation District's existing wastewater facilities throughout the Sanitation District's service area. Project construction activities would generally include installation of new structures, structural rehabilitation, interior pipeline lining, potential pipe removal, manhole repair or replacement, and manhole removal with associated demolition. The proposed FMP's demolition and construction impacts would be minimized through compliance with local, state, and federal regulations pertaining to water quality standards. FMP projects that would result in ground-disturbing activities in excess of 1 acre, including pipeline rehabilitation projects that cumulatively disturb 1 acre or more of land, would be required to implement a Stormwater Pollution Prevention Plan (SWPPP) in accordance with Construction General Permit. Additionally, the project would implement an Erosion and Sediment Control Plan (ESCP), which would require that all sediments from areas disturbed by construction activities be retained on site using an effective combination of erosion and sediment control best management practices (BMPs) to reduce off-site sedimentation to the maximum extent practicable. The ESCPs and SWPPPs would identify BMPs that protect stormwater runoff and ensure avoidance of the substantial degradation of water quality.	The FMP projects would be consistent with this policy.

Table 4.10-1. Land Use Policy Consistency Table

Goal, Objective, or Policy Number	Applicable Goal, Objective, or Policy	Proposed Project Consistency	Consistency Determination
		Compliance with existing regulations and Sanitation District Stormwater Pollution Control Plans would prevent violation of water quality standards and minimize the potential for contributing sources of polluted runoff. Therefore, compliance with existing regulations and Sanitation District–established protocols would ensure that FMP projects would not violate any water quality standards or waste discharge requirements during construction or long-term operations. Thus, the project would be consistent with Policy NR 5.4.	
City of Orange General Plan (2015) Infrastructure Element			
Goal 1.0	Ensure water, sewer, and storm drain systems that meet the needs of residents and businesses.	Project 2-49 would replace in place a portion of the Taft Branch regional sewer located in a developed area of the City of Orange. The FMP project would increase the capacity of a portion of the Taft Branch regional sewer to meet existing and anticipated demand.	The FMP projects would be consistent with this goal.
Policy 1.1	Provide sufficient levels of water, sewer, and storm drain service throughout the community.	Refer to Goal 1.0 response.	The FMP projects would be consistent with this policy.
City of Santa Ana General Plan (2010) Conservation Element			
Objective 1.4	Assure adequate sewer treatment facilities to meet population and economic growth requirements.	The FMP projects proposes improvements to the Sanitation District's wastewater facilities through rehabilitation, replacement, and other miscellaneous improvements with the intent to continue optimal service to residents and businesses within the service area. The FMP projects would extend the life of the existing facilities.	The FMP projects would be consistent with this objective.
City of Seal Beach (2003) Safety Element			
Water Quality Goal 3	Conserve and protect watershed areas.	Project # 3-67, 3-68, and X-071 would be located within or close proximity to the Seal Beach Naval Weapons Station which contains the Seal Beach National Wildlife Refuge. However, construction of the FMP projects would generally occur within the footprint of existing Sanitation District facilities and within the public streets rights-of-way. Thus, construction of the FMP projects would not occur within the National Wildlife Refuge.	The FMP projects would be consistent with this policy.

Table 4.10-1. Land Use Policy Consistency Table

Goal, Objective, or Policy Number	Applicable Goal, Objective, or Policy	Proposed Project Consistency	Consistency Determination
City of Stanton General Plan (2008) Infrastructure and Community Services Element			
Goal ICS-2.1	Provide adequate linear infrastructure to serve new and existing development within the City of Stanton.	Linear infrastructure can refer to power lines, communication, pipelines, roads, and access tracks. The FMP projects would make improvements to the Sanitation District's facilities (e.g., pipelines, pump stations, air jumpers) through rehabilitation, replacement, and other miscellaneous improvements. Thus, the FMP projects would improve linear infrastructure that will continue to serve existing and projected new development.	The FMP projects would be consistent with this goal.
City of Tustin General Plan (2018) Land Use Element			
Policy 8.8	Maintain and improve, where necessary, the City's infrastructure and facilities.	The FMP projects would maintain and improve existing Sanitation District wastewater facilities. As such, the FMP projects include improvements to air jumpers and the North Trunk improvement project (X-082) within the City of Tustin. The proposed improvements would support the City's goal of maintaining existing infrastructure and facilities.	The FMP projects would be consistent with this policy.
2016/2040 Regional Transportation Plan/Sustainable Communities Strategy (2016)			
Land Use Policy	Ensure adequate access to open space and preservation of habitat	Construction of the FMP projects would generally occur within the footprint of existing Sanitation District facilities and within the public streets rights-of-way. As such, the FMP projects would not alter access to an existing open space. The FMP projects for the project-level and program-level analysis occur partially within the Central-Coastal Subarea Plan of the Orange County NCCP/HCP. However, no direct and indirect impacts from implementation of the project-level and program-level projects would result in a significant impact to the provisions of the Orange County NCCP/HCP. Therefore, implementation of FMP projects would result in no impact to the Orange County NCCP/HCP. Additionally, project-level and program-level impacts resulting from implementation of the FMP projects within the Central-Coastal Subarea Plan of the Orange County NCCP/HCP will be primarily contained to existing disturbed and developed areas of the County of Orange. The majority of project areas that occur within and adjacent to	The FMP projects would be consistent with this policy.

Table 4.10-1. Land Use Policy Consistency Table

Goal, Objective, or Policy Number	Applicable Goal, Objective, or Policy	Proposed Project Consistency	Consistency Determination
		natural and native areas, such as the Santa Ana River, concrete-lined drainages and flood control channels contain and lacking riparian habitats, would not result in an impact to Reserve Areas or covered species and habitats.	

Each FMP project is organized according to its category of CEQA coverage in this PEIR (project-level analysis or program-level analysis). Refer to Tables 3-1, 3-2, 3-3, and 3-4 in Chapter 3, Project Description, for specific project details.

Facility Improvements at Plant 1 in the City of Fountain Valley

Local jurisdiction land use plans describe present and planned land use activities designed to achieve the community's long-range goals. These plans also establish policies to direct land use and development. The FMP projects are related to maintenance of the Sanitation District facilities, including the existing collection system and pump stations. The FMP projects would include facility improvements at Plant 1 in the jurisdiction of the City of Fountain Valley. FMP projects include replacement, rehabilitation, and other miscellaneous projects, which include both project-level analysis and program-level analysis (see Table 3-1, Project Description).

This FMP project site (Plant 1) is located in the SDPSP) area; the SDPSP serves as a planning tool to implement the physical development of the project area by providing mechanisms to ensure consistency with the City of Fountain Valley's General Plan and SDPSP. As stated in the SDPSP project objectives, the SDPSP is intended to assure that adequate supporting infrastructure exists to service future needs of the City of Fountain Valley and the Sanitation District. Furthermore, SDPSP plans to implement goals, objectives, and policies of the City of Fountain Valley General Plan (City of Fountain Valley 1993). The City of Fountain Valley's General Plan defines multiple policies that promote the retrofit and rehabilitation of existing infrastructure systems, including broad municipal level wastewater and stormwater solutions for water reuse (see Table 4.10-1). The SDPSP establishes that wastewater treatment facilities are not subject to the City's building and zoning ordinances, but the Sanitation District must comply with the City's design review and planning process for all non-wastewater treatment facilities on site. Because the FMP involves improvements to existing wastewater treatment facilities, implementation of the FMP projects would not conflict with local jurisdictions' land use plans, policies, or regulations. In addition, as part of standard practice, the Sanitation District would coordinate with the City of Fountain Valley during implementation of the FMP projects to avoid and/or minimize potential impacts.

Therefore, impacts from FMP projects located at Plant 1 would be less than significant with respect to a conflict with an applicable land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.

Facility Improvements at Plant 2 in Huntington Beach

FMP projects would include facility improvements at Plant 2 in the City of Huntington Beach. The FMP projects include replacement, rehabilitation, and other miscellaneous projects, which include both project-level

analysis and program-level analysis (see Table 3-2, Project Description). The City of Huntington Beach General Plan designates Plant 2 as Public (P) land use and zones it for Industrial Limited (IL) and Residential Agriculture with an Oil Overlay (RA-O) (City of Huntington Beach 2015). The FMP projects would not require or result in changes to land uses or zoning designations.

This FMP project site is located within the City of Huntington Beach's Coastal Zone and is subject to the City's Local Coastal Program (LCP). The LCP outlines goals, objectives, and policies geared towards the maintenance of water, sewer, and drainage facilities to ensure that the community's needs are met (see Table 4.10-1). According to the LCP's Coastal Element Policy C 9.1.1, approval and implementation of development associated with water, sewer, and drainage facilities would be in accordance with the Coastal Element Land Use Plan (City of Huntington Beach 2011). As such, implementation of the FMP projects would not conflict with local jurisdictions' land use plans, policies, or regulations adopted for the purpose of avoiding or mitigating an environmental effect. Furthermore, as previously mentioned, as part of standard practice, the Sanitation District would coordinate with the City of Huntington Beach during implementation of the FMP projects to avoid and/or minimize potential impacts.

Operations and Maintenance Complex at Plant 2 (P2-138)

As discussed in Chapter 3, Project Description, the Operations/Control Center Building does not have a City of Huntington Beach building permit and does not meet the State of California's building code. The Sanitation District has proposed a new building that would meet code requirements and also reconfigures the plant entrance to more efficiently meet space needs. By redesigning the Operation Center, the Sanitation District would be eliminating an existing condition that poses a land use plan/policy conflict, and as such, upon FMP PEIR adoption, the FMP project would be less than significant for land use plan/policy/regulatory conflicts. Therefore, in summary, impacts from FMP projects at Plant 2 would be less than significant with respect to a conflict with an applicable land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.

Joint Plant Improvements at Plant 1 and Plant 2

Joint plant improvements at Plant 1 and Plant 2 include replacement, rehabilitation, and other miscellaneous projects solely on the project-level. These FMP projects do not include projects with program-level analysis (see Table 3-3, Project Description). As previously mentioned, the FMP projects would not require or result in changes to land uses or zoning designations. In addition, both the City of Fountain Valley General Plan and the City of Huntington Beach Local Coastal Plan identify goals, objectives, and policies promoting the maintenance of wastewater infrastructure systems. As explained in Table 4.10-1, the FMP is consistent with those goals, objectives, and policies.

Therefore, impacts from joint plant improvements at Plant 1 and Plant 2 would be less than significant with respect to a conflict with an applicable land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.

Collection System Improvements

Many of the FMP projects are located throughout the Sanitation District's collection system and pump stations, the components of which are dispersed throughout the Sanitation District's service area. FMP projects include replacement, rehabilitation, and other miscellaneous projects, which include both project-

level analysis and program-level analysis (see Table 3-4, Project Description). Because of the disparate nature of the Sanitation District's service area, the FMP projects are situated within a diversity of settings that reflect the range of land uses occurring in Orange County. Most of the existing facilities where the FMP projects are proposed are located in existing roads and Sanitation District rights-of-way traversing developed areas, including residential, commercial, and industrial uses. Additionally, certain existing facilities sit adjacent to public uses such as schools and parks, and some are near small areas of open space. As shown in Table 4.10-1, maintenance of the FMP projects identified in the PEIR would be consistent with each applicable jurisdiction's goals, objectives, and policies associated with wastewater facilities. Additionally, as previously mentioned, the FMP projects would not require or result in changes to land uses or zoning designations. Furthermore, as part of standard practice, the Sanitation District would coordinate with all applicable local jurisdictions to the extent feasible during implementation of the FMP projects to avoid and/or minimize potential impacts.

Therefore, impacts from the FMP projects involving collection systems improvements would be less than significant with respect to a conflict with an applicable land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.

4.10.5 Mitigation Measures

The FMP projects would not result in significant impacts, and no mitigation measures are necessary.

4.10.6 Level of Significance After Mitigation

Because significant land use impacts have not been identified, mitigation measures are not required. As discussed in Section 4.10.4, land use impacts associated with construction and operation of the FMP projects would be less than significant.

4.10.7 Cumulative Impacts

Cumulative land use impacts would result from projects that contribute to development that is inconsistent with applicable plans or incompatible with existing or planned uses. As discussed throughout this PEIR, the FMP projects are located across 20 jurisdictions, including County of Orange–owned land, and thus is subject to the applicable local land use regulations adopted for the purposes of avoiding or mitigating potential environmental effects only. Applicable jurisdiction land use and zoning information has been included for informational purposes, as well as to analyze the FMP project's compatibility with the surrounding environment. The FMP projects are consistent with applicable General Plan goals and policies, as well as the SCAG Regional Transportation Plan/Sustainable Communities Strategy. Therefore, the FMP projects that would occur throughout the applicable jurisdictions would not combine to create cumulatively considerable impacts related to land use plans, policies, or regulations, and impacts would be less than significant.

4.10.8 Impacts Summary

Table 4.10-2 summarizes the impacts for the FMP projects assessed at the project level at Plant 1, Plant 2, joint plant projects, and collection system projects under each threshold analyzed in this PEIR.

Table 4.10-2. Summary of FMP Project Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
1. Would the project cause a significant environmental impact due to a conflict with any land use plan, policy, or regulations adopted for the purpose of avoiding or mitigating an environmental effect?					
Plant 1					
P1-126	Primary Clarifiers Replacements and Improvements	Replace	Less than Significant	—	Less than Significant
X-093	Administrative Facilities and Power Building 3A Demolition	Misc. (Demo)	Less than Significant	—	Less than Significant
X-092	Standby Generator Feeders for Plant 1 Secondary Systems	Misc.	Less than Significant	—	Less than Significant
X-048	Activated Sludge (AS)-1 Aeration Basin and Blower Rehabilitation	Rehab	Less than Significant	—	Less than Significant
P1-135	Digester Ferric Piping Replacement	Replace	Less than Significant	—	Less than Significant
X-077	Switchgear Replacement at Central Generation	Replace	Less than Significant	—	Less than Significant
X-090	Network, Telecommunications, and Service Relocation at Plant 1	Misc.	Less than Significant	—	Less than Significant
Plant 2					
P2-126	Substation and Warehouse Replacement at Plant 2	Misc.	Less than Significant	—	Less than Significant
P2-138	Operations and Maintenance Complex at Plant 2	Replace	Less than Significant	—	Less than Significant
X-050	Activated Sludge (AS) Aeration Basin	Rehab	Less than Significant	—	Less than Significant
X-032	Truck Loading Facility Rehabilitation	Rehab	Less than Significant	—	Less than Significant
X-054	Waste Side-Stream Pump Station C Rehabilitation	Rehab	Less than Significant	—	Less than Significant
X-034	Sodium Bisulfite Station Replacement and Bleach Station Demolition	Replace	Less than Significant	—	Less than Significant
Joint Plant Projects					
J-98	Plantwide Miscellaneous Electrical Power Distribution System Improvements	Replace	Less than Significant	—	Less than Significant
J-120	Plantwide Miscellaneous Process Control Systems Upgrades	Replace	Less than Significant	—	Less than Significant
J-133	Laboratory Rehabilitation or Replacement at Plant 1	Rehab	Less than Significant	—	Less than Significant
X-057	Plantwide Miscellaneous Yard Structures Rehabilitation or Replacement	Misc.	Less than Significant	—	Less than Significant
X-058	Plantwide Miscellaneous Yard Piping Replacement	Replace	Less than Significant	—	Less than Significant
X-059	Plantwide Miscellaneous Tunnels Rehabilitation	Rehab	Less than Significant	—	Less than Significant

Table 4.10-2. Summary of FMP Project Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
J-121	UPS System Upgrades	Replace	Less than Significant	—	Less than Significant
X-044	Steve Anderson Lift Station Rehabilitation	Rehab	Less than Significant	—	Less than Significant
Collection System Projects					
5-68	Newport Beach Pump Station Odor Control Improvements	Misc.	Less than Significant	—	Less than Significant
X-076	Santa Ana Trunk Sewer Rehabilitation Phase II	Rehab	Less than Significant	—	Less than Significant
X-082	North Trunk Improvement Project	Replace	Less than Significant	—	Less than Significant
X-060	Newhope Placentia Chemical Dosing Station	Misc.	Less than Significant	—	Less than Significant
11-33	Edinger Pumping Station Replacement	Replace	Less than Significant	—	Less than Significant
X-063	South Santa Ana River Interceptor Connector Rehabilitation	Rehab	Less than Significant	—	Less than Significant
2-73	Yorba Linda Pump Station Abandonment	Misc.	Less than Significant	—	Less than Significant
3-67	Seal Beach Pump Station Replacement	Replace	Less than Significant	—	Less than Significant
2-49	Taft Branch Sewer Improvements	Replace	Less than Significant	—	Less than Significant
X-083	Greenville–Sullivan Sewer Relief Project	Replace	Less than Significant	—	Less than Significant

Note: UPS = uninterruptible power system.

4.10.9 References

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4.11 Noise

This section analyzes potential noise and vibration impacts associated with the proposed Orange County Sanitation District (Sanitation District) Facilities Master Plan (FMP). It describes noise conditions in the vicinity of proposed facility, collection system and pump station improvements, presents an assessment of related noise impacts, identifies associated regulatory requirements, and identifies mitigation measures related to implementation of the individual projects proposed under the FMP (FMP projects, or projects).

This section analyzes the FMP's potential construction-related (temporary) and operations and maintenance-related (permanent) noise impacts. The FMP is composed of the following components:

- Facility improvements to Reclamation Plant No. 1 (Plant 1) in Fountain Valley
- Facility improvements to Treatment Plant No. 2 (Plant 2) in Huntington Beach
- Joint improvements to Plant 1 and Plant 2
- Collection system improvements countywide

This assessment uses the significance thresholds in Appendix G of the California Environmental Quality Act (CEQA) Guidelines (14 CCR 15000 et seq.) and is based on the significance thresholds and noise/vibration standards of the County of Orange and the cities in which specific FMP projects are located.

Based on information provided by the Sanitation District, at the completion of FMP project construction, facility operation and the number of Sanitation District staff is not anticipated to increase; therefore, Sanitation District operations and maintenance noise/vibration levels would not increase to a measurable or significant degree. However, the analysis of the operations and maintenance condition is included for disclosure, and to account for cumulative impacts.

4.11.1 Fundamentals of Noise and Vibration

The following is a brief discussion of fundamental noise concepts and terminology.

Sound, Noise, and Acoustics

Sound is a process that consists of three components: the sound source, sound path, and sound receiver. All three components must be present for sound to exist. Without a source to produce sound, there is no sound. Similarly, without a medium to transmit sound pressure waves, there is no sound. Finally, sound must be received; a hearing organ, sensor, or object must be present to perceive, register, or be affected by sound or noise. In most situations, there are many different sound sources, paths, and receptors rather than just one of each. Acoustics is the field of science that deals with the production, propagation, reception, effects, and control of sound. Noise is defined as sound that is loud, unpleasant, unexpected, or undesired.

Sound Pressure Levels and Decibels

The amplitude of a sound determines its loudness. Loudness of sound increases with increasing amplitude. Sound pressure amplitude is measured in units of micronewton per square meter, also called micropascal. One micropascal is approximately one-hundred billionth (0.00000000001) of normal atmospheric pressure. The pressure of a very loud sound may be 200 million micropascals, or 10 million times the pressure of the weakest

audible sound. Because expressing sound levels in terms of micropascal would be very cumbersome, sound pressure level in logarithmic units is used instead to describe the ratio of actual sound pressure to a reference pressure squared. These units are called bels. To provide a finer resolution, a bel is subdivided into 10 decibels (dB).

A-Weighted Sound Level

Sound pressure level alone is not a reliable indicator of loudness. The frequency, or pitch, of a sound also has a substantial effect on how humans will respond. Although the intensity (energy per unit area) of the sound is a purely physical quantity, the loudness, or human response, is determined by the characteristics of the human ear.

Human hearing is limited not only in the range of audible frequencies, but also in the way it perceives the sound in that range. In general, the healthy human ear is most sensitive to sounds between 1,000 and 5,000 hertz, and it perceives a sound within that range as more intense than a sound of higher or lower frequency with the same magnitude. To approximate the frequency response of the human ear, a series of sound level adjustments is usually applied to the sound measured by a sound-level meter. The adjustments (referred to as a weighting network) are frequency dependent.

The A-scale weighting network approximates the frequency response of the average young ear when listening to ordinary sounds. When people make judgments about the relative loudness or annoyance of a sound, their judgments correlate well with the A-scale sound levels of those sounds. Other weighting networks have been devised to address high noise levels or other special situations (e.g., B-scale, C-scale, D-scale), but these scales are rarely used in conjunction with most environmental noise. Noise levels are typically reported in terms of A-weighted sound levels. All sound levels discussed in this report are A-weighted decibels (dBA); however, changes in sound level are referred to in decibels (dB). Examples of typical noise levels for common indoor and outdoor activities are depicted in Table 4.11-1.

Table 4.11-1. Typical Sound Levels in the Environment and Industry

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
Jet flyover at 300 meters (1,000 feet)	110	Rock band
Gas lawn mower at 1 meter (3 feet)	100	Food blender at 1 meter (3 feet)
Diesel truck at 15 meters (50 feet), at 80 kilometers per hour (50 miles per hour)	90	Garbage disposal at 1 meter (3 feet)
Noisy urban area, daytime	80	Vacuum cleaner at 3 meters (10 feet);
Gas lawnmower at 30 meters (100 feet)	70	Normal speech at 1 meter (3 feet)
Commercial area	60	Large business office
Heavy traffic at 90 meters (300 feet)	50	Dishwasher next room
Quiet urban, daytime	40	Theater; large conference room (background)
Quiet urban, nighttime	30	Library
Quiet suburban, nighttime	20	Bedroom at night; concert hall (background)
Quiet rural, nighttime	10	Broadcast/recording studio
Lowest threshold of human hearing	0	Lowest threshold of human hearing

Source: Caltrans 2013.[1]
Notes: dBA = A-weighted decibel; L_{eq} = equivalent continuous sound level.

[1] Although the Sanitation District does not use Caltrans noise standards, Caltrans reference information is provided in this document where useful.

Human Response to Changes in Noise Levels

Under controlled conditions in an acoustics laboratory, the trained, healthy human ear is able to discern changes in sound levels of 1 dB when exposed to steady, single-frequency signals in the mid-frequency range. Outside such controlled conditions, the trained ear can detect changes of 2 dB in normal environmental noise. It is widely accepted that the average healthy ear, however, can barely perceive noise level changes of 3 dB. A change of 5 dB is readily perceptible, and a change of 10 dB is perceived as twice or half as loud. A doubling of sound energy results in a 3 dB increase in sound, which means that a doubling of sound energy (e.g., doubling the volume of traffic on a road) would result in a barely perceptible change in sound level.

Noise Descriptors

Additional units of measure have been developed to evaluate the long-term characteristics of sound. The equivalent sound level (L_{eq}) is also referred to as the time-averaged sound level. It is the equivalent steady-state sound level that in a stated period of time would contain the same acoustical energy as the time-varying sound level during the same time period. The 1-hour A-weighted equivalent sound level, $L_{eq(1\text{-}hr)}$, is the energy average of the A-weighted sound levels occurring during a 1-hour period and is the basis for a jurisdiction's noise ordinance criteria.

People are generally more sensitive to and annoyed by noise occurring during the evening and nighttime hours. Thus, another noise descriptor used in community noise assessments—the community noise equivalent level (CNEL)—was introduced. The CNEL scale represents a time-weighted, 24-hour average noise level based on the A-weighted sound level. The CNEL accounts for the increased noise sensitivity during the evening hours (7:00 p.m. to 10:00 p.m.) and nighttime hours (10:00 p.m. to 7:00 a.m.) by adding 5 dB and 10 dB, respectively, to the average sound levels occurring during the evening and nighttime hours.

Sound Propagation

Sound propagation (i.e., the passage of sound from a noise source to a receiver) is influenced by geometric spreading, ground absorption, atmospheric effects, and shielding by natural and/or built features.

Sound levels attenuate (diminish) at a rate of approximately 6 dB per doubling of distance from an outdoor point source due to the geometric spreading of the sound waves. Atmospheric conditions such as humidity, temperature, and wind gradients can also temporarily either increase or decrease sound levels. In general, the greater the distance the receiver is from the source, the greater the potential for variation in sound levels due to atmospheric effects. Additional sound attenuation can result from built features such as intervening walls and buildings, and by natural features such as hills and dense woods.

Groundborne Vibration Fundamentals

Groundborne vibration is a small, rapidly fluctuating motion transmitted through the ground. The strength of groundborne vibration attenuates fairly rapidly over distance. Some soil types transmit vibration quite efficiently; other types (primarily sandy soils) do not. Several basic measurement units are commonly used to describe the intensity of ground vibration. The descriptors used by the Federal Transit Administration (FTA) are peak particle velocity (ppv), in units of inches per second, and velocity decibel (VdB).

The calculation to determine ppv at a given distance is as follows:

$$ppv_{dist} = ppv_{ref}*(25/D)^{1.5}$$

where:

ppv_{dist} = the peak particle velocity in inches per second of the equipment adjusted for distance

ppv_{ref} = the reference vibration level in inches per second at 25 feet

D = the distance from the equipment to the receiver

The velocity parameter (instead of acceleration or displacement) best correlates with human perception of vibration. Thus, the response of humans, buildings, and sensitive equipment to vibration is described in this section in terms of the root-mean square velocity level in VdB units relative to 1 micro-inch per second. As a point of reference, the average person can just barely perceive vibration velocity levels below 70 VdB (typically in the vertical direction). The calculation to determine the root-mean square at a given distance is as follows:

$$L_v(D) = L_v(25\ feet) - 30*\log(D/25)$$

where:

$L_v(D)$ = the vibration level at the receiver

$L_v(25\ feet)$ = the reference source vibration level

D = the distance from the vibration activity to the receiver

Typical background vibration levels are between 50 and 60 VdB, and the level for minor cosmetic damage to fragile buildings or blasting generally begins at 100 VdB (FTA 2018).

4.11.2 Existing Conditions

Overview

The FMP projects addressed in this analysis would be located at various sites throughout the Sanitation District's service area, which covers an approximately 479-square-mile area within the northwestern and central portions of Orange County. The boundaries of the Sanitation District's service area relative to the county boundaries are shown on Figure 2-1, Project Location. The service area includes the entirety or portions of municipal boundaries for 20 cities, as well as unincorporated land and four special districts (see Section 2.1.1, Sanitation District History and Governance). Project components are located at the sites of existing Sanitation District facilities, and work would be limited primarily to existing Sanitation District easements. Some construction activity and staging would occur outside Sanitation District easements, in the land use jurisdiction of the various municipalities listed in Section 2.1.1 and on unincorporated land within Orange County.

Existing Noise Setting

Given the wide geographical area encompassed by the FMP, the existing noise environment is varied. In general, the FMP area mainly consists of suburban land uses. The noise environments through most of the FMP area are characterized by a background, or "ambient," noise level generated by vehicular traffic. Typical secondary noise sources include distant aircraft, rustling leaves, landscaping maintenance, construction noise, birds, children

playing, and passing conversations. Noise-sensitive receptors are locations where human activity may be adversely affected by noise. Examples of noise sensitive receptors within the FMP area are residences, hotels and motels, educational institutions, libraries, and hospitals and clinics.

Ambient Noise Monitoring

Noise measurements were made using a SoftdB Piccolo integrating sound-level meter equipped with a 0.5-inch pre-polarized condenser microphone with pre-amplifier. The sound-level meter meets the current American National Standards Institute (ANSI) standard for a Type 2 (General Purpose) sound-level meter. The sound-level meter was calibrated before and after the measurements, and the measurements were conducted with the microphone positioned 5 feet above the ground and covered with a windscreen.

Short-term noise measurements were conducted at eight locations in the FMP vicinity on January 30, 2020, as depicted in Figures 4.11-1A through 4.11-1H, Noise Measurement Locations. These selected noise measurement locations are representative of the existing noise conditions throughout the FMP area. Long-term (i.e., 24-hour) noise measurements were not conducted because no long-term FMP-related activity during the night-time hours is anticipated.

The location where each noise measurement was conducted, as well as the measured time-averaged sound level and maximum sound level during the measurement interval (L_{max}), is presented in Table 4.11-2. Detailed noise measurement data are included as Appendix J to this program environmental impact report (PEIR).

Table 4.11-2. Facilities Master Plan Vicinity Measured Noise Locations and Levels

Receptors	Description	dBA L_{eq}	dBA L_{max}
ST1	3201 Iowa Street, Costa Mesa, east of Plant 1 (approximately 550 feet away); adjacent to residences and the Mesa Verde Country Club	53.4	64.9
ST2	10485 Nightingale Avenue, Fountain Valley, west of Plant 1 (approximately 125 feet away); adjacent to residences along west side of Ward Street	63.5	76.3
ST3	22201 Cape May Lane, Huntington Beach, west of Plant 2 (approximately 150 feet away); adjacent to residences along west side of Brookhurst Street	61.4	71.5
ST4	5452 Edinger Avenue, Huntington Beach, south of Sewer Rehabilitation X-071/Pump Station 11-33; adjacent to residences	69.4	81.5
ST5	406 South Sullivan Street, Santa Ana, west of Sewer Replacement X-083; adjacent to residences and Abraham Lincoln Elementary School	66.4	76.8
ST6	17502 Rainier Drive, Santa Ana, east of Sewer Replacement X-082; adjacent to residences	67.3	81.3
ST7	1396 Garlingford Street, Costa Mesa, south and east of Pump Station X-040/Sewer Rehabilitation X-026; adjacent to residences	68.2	90
ST8	1510 West Balboa Avenue, Newport Beach, east of Pump Station X-022; adjacent to residences	67.8	77.9

Source: Appendix J; Figures 4.11-1A through 4.11-1H.
Notes: dBA = A-weighted decibel; L_{eq} = equivalent continuous sound level (time-averaged sound level); L_{max} = maximum sound level during the measurement interval.

4.11.3 Relevant Plans, Policies, and Ordinances

Federal

There are no federal regulations related to noise that would apply to the FMP. However, the Federal Transit Administration (FTA) has established vibration impact criteria that are described below for informational purposes only.

Federal Transit Administration

Although these criteria are not regulatory in nature, FTA has established vibration impact criteria for various land uses based on their potential for human annoyance and activity disruption. Table 4.11-3 lists these criteria. It should be noted that these criteria are intended to apply to long-term or permanent operational groundborne vibration from transit projects, not from temporary events such as construction activities. Additionally, because these criteria were designed to assess transit impacts, they take into consideration the potential for groundborne vibration to impact residential sleeping environments. Unlike transit systems that commonly operate during late evening and early morning hours, construction activities would not typically occur during nighttime hours, when most people sleep. Therefore, although the same FTA vibration criteria are used to evaluate the impacts of construction activities, exceeding them on temporary, short-term timescales and during less-sensitive daytime hours would not necessarily be considered significant, as it would be for the long-term operational vibration impacts of transit systems. In general, groundborne vibration of 75 VdB or greater would be considered potentially annoying.

Table 4.11-3. Groundborne Vibration Human Annoyance Impact Criteria

Land Use	Significance Criteria (VdB)		
	Frequent Events	*Occasional Events*	*Infrequent Events*
Buildings where vibration would interfere with interior operations	65	65	65
Residences and buildings where people normally sleep	72	75	80
Institutional land uses with primarily daytime uses	75	78	83
Concert halls, TV studios, and recording studios	65	65	65
Auditoriums and theaters	72	80	80

Source: FTA 2018.
Note: VdB = vibration decibel.

Typically, potential building and structural damage is the foremost concern when evaluating the impacts of construction-related vibration. Table 4.11-4 summarizes the FTA vibration guidelines for building and structural damage.

Table 4.11-4. Groundborne Vibration Damage Potential Criteria

Building Category	Vibration Damage Criteria (in/sec ppv)
I. Reinforced concrete, steel or timber (no plaster)	0.5
II. Engineered concrete and masonry (no plaster)	0.3

Table 4.11-4. Groundborne Vibration Damage Potential Criteria

Building Category	Vibration Damage Criteria (in/sec ppv)
III. Non-engineered timber and masonry buildings	0.2
IV. Buildings extremely susceptible to vibration damage	0.12

Source: FTA 2018.
Note: in/sec ppv = inches per second peak particle velocity

State

Government Code Section 65302(g)

California Government Code Section 65302(g) requires the preparation of a Noise Element as part of each General Plan, which shall identify and appraise the noise problems in the community. The Noise Element shall recognize the guidelines adopted by the Office of Noise Control in the State Department of Health Services and shall quantify, to the extent practicable, current and projected noise levels for the following sources:

- Highways and freeways
- Primary arterials and major local streets
- Passenger and freight online railroad operations and ground rapid transit systems
- Aviation and airport-related operations
- Local industrial plants
- Other ground stationary noise sources contributing to the community noise environment

Local

Noise Ordinances

Orange County and each of the 20 cities in which specific FMP projects are located have established noise regulations as part of their code of ordinances, which include statutes associated with the generation of noise within their jurisdiction. Although noise regulations vary by jurisdiction, typically, noise zones are established within the ordinance and are characterized by noise sensitivity or land use types. Interior and exterior noise standards are generally categorized by noise zone and establish allowable noise levels for a given time period. Jurisdictions typically provide a list of noise-generating sources or activities exempt from the provisions established within the noise ordinance, which in most cases includes construction, maintenance, and emergency work on public utilities (County of Orange 1996).

Appendix J contains a summary of the municipal codes for jurisdictions (excluding the municipal codes for the County of Orange (County), the City of Fountain Valley, and the City of Huntington Beach, which are summarized below) within the FMP area as they pertain to noise.[2] The proposed FMP was evaluated for compatibility with each of these local codes.

[2] The County of Orange noise regulations are summarized in the following section because the noise standards of most of the other municipalities are very similar to or modeled after those of the County. The noise regulations of the other municipalities are summarized in Appendix J.

County of Orange

The County has adopted a quantitative noise ordinance (Division 6, Noise Control) to control excessive noise generated in Orange County (County of Orange 1996). The noise ordinance limits are stated in terms of a 1-hour average sound level. The allowable noise limits depend upon the land use zone, time of day, and duration of the noise. For example, residential land uses within Orange County are designated as Zone 1, for which the exterior noise standard is 55 dBA from 7:00 a.m. to 10:00 p.m. and 50 dBA from 10:00 p.m. to 7:00 a.m. It is declared (County of Orange 1996, Section 4-6-5):

> …unlawful for any person at any location within the unincorporated area of the County 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:
>
> 1) The noise standard for a cumulative period of more than thirty (30) minutes in any hour; or
> 2) The noise standard plus five (5) dB(A) for a cumulative period of more than fifteen (15) minutes in any hour; or
> 3) The noise standard plus ten (10) dB(A) for a cumulative period of more than five (5) minutes in any hour; or
> 4) The noise standard plus fifteen (15) dB(A) for a cumulative period of more than one (1) minute in any hour; or
> 5) The noise standard plus twenty (20) dB(A) for any period of time.

Note that these noise standards are applicable to non-transportation noise sources (i.e., on-site or adjacent stationary noise sources).

The County exempts noise associated with construction activities from the standards detailed above, provided that these activities do not take place between the hours of 8:00 p.m. and 7:00 a.m. on weekdays, including Saturday, or at any time on Sunday or a federal holiday.

City of Fountain Valley

The City of Fountain Valley has adopted a quantitative noise ordinance (Title 6.28, Noise Control) to control excessive noise (City of Fountain Valley 2002). The noise ordinance limits are stated in terms of a 1-hour average sound level. The allowable noise limits depend upon the land use zone, time of day, and duration of the noise. For example, residential land uses within the City of Fountain Valley are designated as Noise Zone 1, for which the exterior noise standard is 55 dBA from 7:00 a.m. to 10:00 p.m. and 50 dBA from 10:00 p.m. to 7:00 a.m. It is declared (City of Fountain Valley 2002, Section 6.28.050):

> …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:
>
> 1) The noise standard for a cumulative period of more than thirty (30) minutes in any hour; or
> 2) The noise standard plus five (5) dB(A) for a cumulative period of more than fifteen (15) minutes in any hour; or

3) The noise standard plus ten (10) dB(A) for a cumulative period of more than five (5) minutes in any hour; or
4) The noise standard plus fifteen (15) dB(A) for a cumulative period of more than one (1) minute in any hour; or
5) The noise standard plus twenty (20) dB(A) for any period of time."

Note that these noise standards are applicable to non-transportation noise sources (i.e., on-site or adjacent stationary noise sources).

The City of Fountain Valley exempts noise associated with construction activities from the standards detailed above, provided that these activities do not take place between the hours of 8:00 p.m. and 7:00 a.m. on weekdays, 8:00 p.m. and 9:00 a.m. on Saturday, or at any time on Sunday or a legal holiday.

City of Huntington Beach

The City of Huntington Beach has adopted a quantitative noise ordinance (Section 8.40.050, Noise Control) to control excessive noise (City of Huntington Beach 2012). The noise ordinance limits are stated in terms of a 1-hour average sound level. The allowable noise limits depend upon the land use zone, time of day, and duration of the noise. For example, residential land uses within the City of Huntington Beach are designated as Noise Zone 1, for which the exterior noise standard is 55 dBA from 7:00 a.m. to 10:00 p.m. and 50 dBA from 10:00 p.m. to 7:00 a.m. It is declared (City of Huntington Beach 2012, Section 6.40.050):

> …unlawful for any person at any location within the incorporated area of 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, which causes the noise level when measured on any residential, public institutional, professional, commercial or industrial property, either within or without the City, to exceed the applicable noise standards:
>
> 1) For a cumulative period of more than thirty (30) minutes in any hour;
> 2) Plus five (5) dB(A) for a cumulative period of more than fifteen (15) minutes in any hour;
> 3) Plus ten (10) dB(A) for a cumulative period of more than five (5) minutes in any hour;
> 4) Plus fifteen (15) dB(A) for a cumulative period of more than one (1) minute in any hour;
> 5) Plus twenty (20) dB(A) for any period of time."

Note that these noise standards are applicable to non-transportation noise sources (i.e., on-site or adjacent stationary noise sources).

The City of Huntington Beach exempts noise associated with construction activities from the standards detailed above, provided that these activities do not take place between the hours of 8:00 p.m. and 7:00 a.m. on weekdays, including Saturday, or at any time on Sunday or a federal holiday.

4.11.4 Thresholds of Significance

The significance criteria used to evaluate the FMP impacts to noise are based on Appendix G of the CEQA Guidelines. According to Appendix G, a significant impact related to noise would occur if the project would result in:

1. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.
2. Generation of excessive groundborne vibration or groundborne noise levels.
3. For a project located within the vicinity of a private airstrip or 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, exposure of people residing or working in the project area to excessive noise levels.

4.11.5 Approach and Methodology

Construction Noise Assumptions

The Federal Highway Administration's Roadway Construction Noise Model (RCNM) (FHWA 2008) and the representative projects' equipment information were used to estimate construction noise levels at nearby noise-sensitive land uses. The RCNM is a national model based on the noise calculations and extensive construction noise data compiled for the Central Artery/Tunnel Project in Boston, Massachusetts. This project, which began in the early 1990s, was one of the largest urban construction projects ever built in the United States. The basis for the national model is a spreadsheet tool developed in support of the Central Artery/Tunnel Project. The Central Artery/Tunnel Project predictions originated from U.S. Environmental Protection Agency noise-level work and an Empire State Electric Energy Research Corporation Guide, which uses an "acoustical usage factor" to estimate the fraction of time each piece of construction equipment is operating at full power (i.e., its loudest condition) during a construction operation (FHWA 2006).

Table 4.11-5 provides construction equipment reference noise data, which is used to predict construction noise in the RCNM (FHWA 2006). The noise levels listed represent the A-weighted maximum sound level (L_{max}), measured at a distance of 50 feet from the construction equipment (FHWA 2006).

Table 4.11-5. Road Construction Noise Model Noise Emission Reference Levels and Usage Factors

Equipment	Acoustical Usage Factor (percentage of time)	Maximum Sound Level at 50 feet (dBA Lmax)
Backhoe	40	80
Compressor (air)	40	80
Concrete pump truck	20	82
Concrete mixer truck	40	85
Crane	16	85
Excavator	40	85
Front-end loader	40	80
Generator	50	82
Grader	40	85
Paver	50	85

Table 4.11-5. Road Construction Noise Model Noise Emission Reference Levels and Usage Factors

Equipment	Acoustical Usage Factor (percentage of time)	Maximum Sound Level at 50 feet (dBA Lmax)
Pickup truck	40	55
Pump	50	77
Roller	20	85
Tractor	40	84

Source: FHWA 2006.
Notes: dBA = A-weighted decibels; L_{max} = maximum sound level.

Input variables for the RCNM consist of the receiver/land use types, the equipment type and number of each equipment type (e.g., two excavators, one loader, one dump truck), the duty cycle for each piece of equipment (i.e., percentage of hours the equipment typically works per day), and the distance from the noise source to the sensitive noise receptor. The RCNM has default duty cycle values for the various pieces of equipment, which were derived from an extensive study of typical construction activity patterns. Those default duty cycle values were used for this analysis. Because of the rigor with which the RCNM was created, it is widely used and recognized as a reliable, conservative tool for the estimation of construction activity noise.

Representative Projects

For the analysis of noise from FMP project construction, a representative project approach was applied to provide a conservative analysis of potential noise impacts without modeling each project separately. Because many of the projects use similar equipment and construction activities, projects were grouped into representative types: replacement and rehabilitation projects, pipeline projects and pump stations, and so on. Because they were selected based on both construction equipment and location (as detailed below), the selected representative projects are anticipated to result in the most intense noise impacts at the shortest distances to sensitive receptors. In other words, the representative projects are the anticipated worst-case scenario. Representative projects for Plant 1, Plant 2, joint plant projects, and collection system projects were identified based on the best available project information at the time. Key construction assumptions for purposes of construction noise modeling include phasing, the mix (i.e., the type and number) of construction equipment for each phase, and vehicle trips (haul trucks, vendor trucks, and worker vehicles). For purposes of consistency, the assumptions used for the noise analysis were the same as those developed for the air quality impacts analysis (Section 4.2, Air Quality), which were derived using the California Emissions Estimator Model (CalEEMod Version 2016.3.2).

The FMP projects were grouped by general location (i.e., Plant 1, Plant 2, joint plant [both Plants 1 and 2], and collection system). To identify the worst-case projects for each of these general locations, the number of estimated pieces of equipment for each phase of each of the projects was then tallied, and the maximum number of equipment by phase was identified. Similarly, the projects with the second-highest and third-highest number of construction equipment were identified, as well as the projects with the maximum number of phases. Based on these criteria, several projects were selected as being candidates for worst-case representative projects. Because noise is a very localized phenomenon, the individual project's location/proximity to noise-sensitive receivers is also an important factor. Therefore, geographic information system (GIS) imagery was also used to locate the nearest projects to adjacent residences and/or other noise-sensitive uses to ensure that the selection of representative projects would result in a conservative analysis. Using the representative projects and the associated project locations, the respective distances from each project site to the nearest noise-sensitive receivers was measured (using GIS and/or aerial imagery tools).

For each representative project, two distances were estimated and used for the construction noise calculations. One was the distance from the nearest construction activity area to the nearest noise-sensitive land use (i.e., the nearest source-receiver distance); the other was the "typical" source-receiver distance. Construction equipment would typically be operating all over any given FMP project site, both near and far from any one location in the vicinity of the project site. For example, the nearest point of construction activities to the closest noise-sensitive receivers (typically, residences) may be approximately 40 feet and the farthest may be approximately 500 feet. Because construction taking place within 40 feet would be temporary and intermittent, and because the sites may be quite large (particularly in the case of work taking place at Plants 1 and 2), the distance from the nearby receivers to the "acoustic center" (the point from which the energy sum of all construction activity noise, near and far, would be centered on an average or typical basis) is used.[3] For example, the nearest noise-sensitive receivers are approximately 140 feet away from what would be the acoustic center of the example just cited. Thus, the distance to construction activities for the closest residences would be as near as 40 feet away on a temporary and intermittent basis, but would typically be approximately 140 feet away.

Table 4.11-6 provides a summary of the 17 FMP projects selected as representative projects for construction noise analysis.

Table 4.11-6. Representative Project Summary

Project Number	Project Name	Project Type	Construction Start (Month Year)	Construction End (Month Year)
Plant 1				
P1-126	Primary Clarifiers Replacements and Improvements	Replace	Jun 2024	Mar 2029
X-017	Primary Clarifiers 6–37	Rehab	Mar 2029	Mar 2033
X-038	City Water Pump Station Rehabilitation	Rehab	Oct 2031	Dec 2032
X-049	Activated Sludge (AS)-1 Clarifier and RAS Pump Station Rehabilitation	Rehab	Oct 2032	Dec 2035
Plant 2				
P2-126	Substation and Warehouse Replacement at Plant 2	Misc.	Dec 2023	Nov 2027
P2-138	Operations and Maintenance Complex at Plant 2	Replace	Jan 2021	Jan 2022
X-031	Trickling Filter Solids-Contact Rehabilitation	Rehab	Apr 2037	Dec 2040
Joint Plant				
X-057	Plantwide Miscellaneous Yard Structures Rehabilitation or Replacement	Misc.	May 2025	Dec 2039
X-058	Plantwide Miscellaneous Yard Piping Replacement	Replace	May 2025	Dec 2039
X-059	Plantwide Miscellaneous Tunnels Rehabilitation	Rehab	May 2025	Dec 2039
Collection System				
11-33	Edinger Pumping Station Replacement	Replace	Nov 2026	Nov 2028
X-022	15th Street Pump Station Rehabilitation	Rehab	Oct 2036	Dec 2037
X-026	College Avenue Force Main Rehabilitation	Rehab	Nov 2027	Jan 2028
X-040	College Avenue Pump Station Replacement	Replace	Oct 2036	Dec 2037
X-071	Edinger/Springdale Trunk Sewer Rehabilitation	Rehab	Oct 2030	Jun 2032
X-082	North Trunk Improvement Project	Replace	May 2024	Nov 2025

[3] The acoustic center is calculated by taking the square root of the product of the nearest and farthest distances (i.e., $[D_{ac} = (D_n * D_f)^{0.5}]$, where: D_{ac} is the acoustic center distance, D_n is the nearest estimated source-receiver distance, and D_f is the farthest estimated source-receiver distance) (Caltrans 2013).

Table 4.11-6. Representative Project Summary

Project Number	Project Name	Project Type	Construction Start (Month Year)	Construction End (Month Year)
X-083	Greenville–Sullivan Sewer Relief Project	Replace	May 2025	May 2027

Notes: RAS = Return Activated Sludge.
X-057, X-058, and X-059 are modeled together.

Representative Plant 1 Construction Projects

The representative FMP projects selected for this noise analysis are summarized in this section. For detailed descriptions, please see Chapter 3, Project Description. Table 4.11-7 presents a summary of the representative proposed Plant 1 FMP projects analyzed herein.

Table 4.11-7. Representative Project Summary – Plant 1

Project Number	Project Name	Project Type	Construction Start (Month Year)	Construction End (Month Year)
P1-126	Primary Clarifiers Replacements and Improvements	Replace	Jun 2024	Mar 2029
X-017	Primary Clarifiers 6–37	Rehab	Mar 2029	Mar 2033
X-038	City Water Pump Station Rehabilitation	Rehab	Oct 2031	Dec 2032
X-049	Activated Sludge (AS)-1 Clarifier and RAS Pump Station Rehabilitation	Rehab	Oct 2032	Dec 2035

Note: RAS = Return Activated Sludge.

Details and construction activity assumptions for each of these representative projects are provided in Tables 4.11-8 through 4.11-11.

Table 4.11-8. P1-126 Primary Clarifiers Replacement and Improvements Construction Scenario Assumptions

	Schedule		One-Way Vehicle Trips			Equipment		
Construction Phase	*Start Date*	*End Date*	*Average Daily Worker Trips*	*Average Daily Vendor Truck Trips*	*Total Haul Truck Trips*	*Equipment Type*	*Quantity*	*Usage Hours*
Demolition of PCs 1 and 2	06/03/2024	09/02/2025	18	2	126	Cranes	1	8
						Crushing/processing equipment	1	8
						Excavators	2	8
						Forklifts	1	8
						Tractors/loaders/ backhoes	2	8

Table 4.11-8. P1-126 Primary Clarifiers Replacement and Improvements Construction Scenario Assumptions

Construction Phase	Schedule		One-Way Vehicle Trips			Equipment		
	Start Date	*End Date*	*Average Daily Worker Trips*	*Average Daily Vendor Truck Trips*	*Total Haul Truck Trips*	*Equipment Type*	*Quantity*	*Usage Hours*
Demolition of PCs 3, 4, and 5	06/03/2024	06/02/2026	18	2	376	Cranes	1	8
						Crushing/processing equipment	1	8
						Excavators	2	8
						Forklifts	1	8
						Tractors/loaders/ backhoes	2	8
Building construction (concrete structures)	06/03/2026	10/02/2027	30	2	0	Cement and mortar mixers	2	8
						Cranes	1	8
						Forklifts	1	8
						Generator sets	4	8
						Tractors/loaders/ backhoes	2	8
						Welders	2	8
Building construction (PCs 3, 4, and 5)	10/03/2027	08/02/2030	24	2	0	Cranes	1	8
						Forklifts	2	8
						Generator sets	2	8
						Tractors/loaders/ backhoes	2	8
						Welders	2	8
Paving	04/03/2030	08/02/2030	8	2	0	Pavers	1	8
						Rollers	2	8
Architectural coating	08/03/2030	02/02/2031	6	2	0	Air compressors	2	8
Testing	08/03/2030	08/02/2031	6	0	0	Generator sets	2	8

Notes: PC = Primary Clarifier.

Table 4.11-9. X-017 Primary Clarifiers 6–37 Construction Scenario Assumptions

Construction Phase	Schedule		One-Way Vehicle Trips			Equipment		
	Start Date	*End Date*	*Average Daily Worker Trips*	*Average Daily Vendor Truck Trips*	*Total Haul Truck Trips*	*Equipment Type*	*Quantity*	*Usage Hours*
Demolition	03/19/2029	08/18/2029	16	0	4	Aerial lifts	3	8
						Cranes	1	8
						Forklifts	2	8
Structural rehabilitation	08/19/2029	10/18/2031	10	2	0	Cement and mortar mixers	2	8
						Generator sets	2	8
Building construction	10/19/2031	01/18/2032	30	2	0	Aerial lifts	3	8
						Cranes	1	8
						Forklifts	2	8
						Generator sets	4	8
						Welders	2	8
Electrical/ instrumentation	01/19/2032	07/18/2032	6	2	0	Generator sets	2	8
Architectural coating	07/19/2032	08/18/2032	6	2	0	Air compressors	1	8
						Generator sets	1	8
Testing	08/19/2032	02/18/2033	6	0	0	NA	NA	NA

Notes: NA = not applicable.

Table 4.11-10. X-038 City Water Pump Station Rehabilitation Construction Scenario Assumptions

Construction Phase	Schedule		One-Way Vehicle Trips			Equipment		
	Start Date	*End Date*	*Average Daily Worker Trips*	*Average Daily Vendor Truck Trips*	*Total Haul Truck Trips*	*Equipment Type*	*Quantity*	*Usage Hours*
Demolition	10/01/2031	10/31/2031	6	0	4	Cranes	1	8
						Tractors/ loaders/ backhoes	1	8

Table 4.11-10. X-038 City Water Pump Station Rehabilitation Construction Scenario Assumptions

Construction Phase	Schedule		One-Way Vehicle Trips			Equipment		
	Start Date	*End Date*	*Average Daily Worker Trips*	*Average Daily Vendor Truck Trips*	*Total Haul Truck Trips*	*Equipment Type*	*Quantity*	*Usage Hours*
Structural rehabilitation	11/01/2031	11/30/2031	8	2	0	Aerial lifts	1	8
						Air compressors	1	8
						Cement and mortar mixers	1	8
Building construction	12/01/2031	01/31/2032	10	2	0	Aerial lifts	1	8
						Cranes	1	8
						Tractors/ loaders/ backhoes	1	8
						Welders	1	8
Testing	02/01/2032	03/31/2032	6	0	0	Generator sets	1	8

Table 4.11-11. X-049 Activated Sludge (AS)-1 Clarifier and RAS Pump Station Rehabilitation Construction Scenario Assumptions

Construction Phase	Schedule		One-Way Vehicle Trips			Equipment		
	Start Date	*End Date*	*Average Daily Worker Trips*	*Average Daily Vendor Truck Trips*	*Total Haul Truck Trips*	*Equipment Type*	*Quantity*	*Usage Hours*
Demolition	10/01/2032	01/31/2033	10	0	4	Cranes	1	8
						Pumps	1	8
						Tractors/ loaders/ backhoes	2	8
Structural rehabilitation	02/01/2033	09/30/2033	18	2	0	Aerial lifts	1	8
						Cement and mortar mixers	2	8
						Generator sets	3	8
						Pumps	1	8

Table 4.11-11. X-049 Activated Sludge (AS)-1 Clarifier and RAS Pump Station Rehabilitation Construction Scenario Assumptions

	Schedule		One-Way Vehicle Trips			Equipment		
Construction Phase	*Start Date*	*End Date*	*Average Daily Worker Trips*	*Average Daily Vendor Truck Trips*	*Total Haul Truck Trips*	*Equipment Type*	*Quantity*	*Usage Hours*
Building construction	10/01/2033	05/31/2034	26	2	0	Aerial lifts	2	8
						Cranes	1	8
						Generator sets	4	8
						Pumps	1	8
						Tractors/ loaders/ backhoes	1	8
						Welders	1	8
Testing	06/01/2034	11/30/2034	6	2	0	Generator sets	1	8

Note: RAS = Return Activated Sludge.

Representative Plant 2 Construction Projects

Table 4.11-12 presents a summary of the representative proposed Plant 2 FMP projects analyzed herein.

Table 4.11-12. Representative Project Summary – Plant 2

Project Number	Project Name	Project Type	Construction Start (Month Year)	Construction End (Month Year)
P2-126	Substation and Warehouse Replacement at Plant 2	Misc.	Dec 2022	Nov 2024
P2-138	Operations and Maintenance Complex at Plant 2	Replace	Jan 2021	Jan 2022
X-031	Trickling Filter Solids-Contact Rehabilitation	Rehab	Apr 2037	Dec 2040

Details and construction activity assumptions for each of these representative projects are provided in Tables 4.11-13 through 4.11-15.

Table 4.11-13. P2-126: Substation and Warehouse Replacement at Plant 2 Scenario Assumptions

	Schedule		One-Way Vehicle Trips			Equipment		
Construction Phase	*Start Date*	*End Date*	*Average Daily Worker Trips*	*Average Daily Vendor Truck Trips*	*Total Haul Truck Trips*	*Equipment Type*	*Quantity*	*Usage Hours*
	5/1/2022		10	2	4	Excavators	1	8

Table 4.11-13. P2-126: Substation and Warehouse Replacement at Plant 2 Scenario Assumptions

Construction Phase	Schedule		One-Way Vehicle Trips			Equipment		
	Start Date	*End Date*	*Average Daily Worker Trips*	*Average Daily Vendor Truck Trips*	*Total Haul Truck Trips*	*Equipment Type*	*Quantity*	*Usage Hours*
Warehouse site preparation		6/30/2022				Rubber-tired dozers	1	8
						Tractors/loaders/ backhoes	2	8
Warehouse Building construction		6/30/2023	30	8	0	Aerial lifts	2	8
						Cranes	1	8
						Generator sets	6	8
						Tractors/loaders/ backhoes	1	8
						Welders	2	8
Warehouse paving	7/1/2023	8/31/2023	8	2	0	Pavers	1	8
						Paving equipment	1	8
						Rollers	1	8
Warehouse architectural coating	9/1/2023	9/14/2023	4	2	0	Air compressors	1	8
Warehouse demolition	12/1/2023	2/28/2024	8	2	94	Cranes	1	8
						Excavators	2	8
						Tractors/loaders/ backhoes	2	8
Substation site preparation	8/1/2023	8/30/2023	10	2	56	Excavators	1	8
						Rubber-tired dozers	1	8
						Tractors/loaders/ backhoes	2	8
Substation building construction	9/1/2023	2/28/2025	38	4	0	Aerial lifts	2	8
						Cement and mortar mixers	2	2
						Cranes	1	8
						Generator sets	6	8
						Tractors/loaders/ backhoes	2	8
						Welders	2	8
Substation demolition	3/1/2025	5/30/2025	20	2	28	Cranes	1	8
						Crushing/processing equipment	1	8
						Excavators	2	8
						Rubber-tired dozers	1	8
						Tractors/loaders/ backhoes	2	8
Substation testing	3/1/2025	6/30/2025	6	0	0	NA	NA	NA
	12/16/2022	2/15/2023	10	2	70	Excavators	1	8

Table 4.11-13. P2-126: Substation and Warehouse Replacement at Plant 2 Scenario Assumptions

Construction Phase	Schedule		One-Way Vehicle Trips			Equipment		
	Start Date	*End Date*	*Average Daily Worker Trips*	*Average Daily Vendor Truck Trips*	*Total Haul Truck Trips*	*Equipment Type*	*Quantity*	*Usage Hours*
Service center site preparation						Rubber-tired dozers	1	8
						Tractors/loaders/ backhoes	2	8
Service center building construction	2/16/2023	12/15/2024	36	4	0	Aerial lifts	2	8
						Cement and mortar mixers	2	4
						Cranes	1	8
						Generator sets	6	8
						Tractors/loaders/ backhoes	1	8
						Welders	2	8
Service center architectural coating	12/16/2024	12/31/2024	4	2	0	Air compressors	1	8
Service center demolition	1/1/2025	1/31/2025	14	2	16	Cranes	1	8
						Excavators	2	8
						Tractors/loaders/ backhoes	2	8
Service center testing	2/1/2025	3/31/2025	6	0	0	Generator sets	1	8

Table 4.11-14. P2-138: Operations and Maintenance Complex at Plant 2 Scenario Assumptions

Construction Phase	Schedule		One-Way Vehicle Trips			Equipment		
	Start Date	*End Date*	*Average Daily Worker Trips*	*Average Daily Vendor Truck Trips*	*Total Haul Truck Trips*	*Equipment Type*	*Quantity*	*Usage Hours*
Site preparation	10/01/2031	12/31/2031	8	2	162	Rubber-tired dozers	1	8
						Tractors/loaders/ backhoes	2	8
Grading (pile)	01/01/2032	01/01/2032	4	2	10	Bore/drill rigs	1	8
Building construction	01/01/2032	06/30/2032	44	6	0	Aerial lifts	2	8
						Cement and mortar mixers	4	8

Table 4.11-14. P2-138: Operations and Maintenance Complex at Plant 2 Scenario Assumptions

Construction Phase	Schedule		One-Way Vehicle Trips			Equipment		
	Start Date	*End Date*	*Average Daily Worker Trips*	*Average Daily Vendor Truck Trips*	*Total Haul Truck Trips*	*Equipment Type*	*Quantity*	*Usage Hours*
						Cranes	1	8
						Generator sets	6	8
						Tractors/loaders/ backhoes	2	8
						Welders	2	8
Paving	05/01/2032	06/30/2032	14	2	0	Pavers	1	8
						Paving equipment	2	8
						Rollers	2	8
Demolition	07/01/2032	12/31/2032	34	2	168	Cranes	1	8
						Crushing/ processing equipment (415 hp)	2	8
						Excavators	2	8
						Forklifts	2	8
						Rubber-tired dozers	2	8
						Tractors/loaders/ backhoes	4	8
Architectural coating	01/01/2033	01/31/2033	10	2	0	Air compressors	2	8
						Generator sets	2	8
Testing	01/01/2033	01/31/2033	6	0	0	Generator sets	1	8

Notes: hp = horsepower.

Table 4.11-15. X-031 Trickling Filter Solids-Contact Rehabilitation Construction Scenario Assumptions

Construction Phase	Schedule		One-Way Vehicle Trips			Equipment		
	Start Date	*End Date*	*Average Daily Worker Trips*	*Average Daily Vendor Truck Trips*	*Total Haul Truck Trips*	*Equipment Type*	*Quantity*	*Usage Hours*
Demolition	04/01/2037	09/30/2037	34	2	2	Cranes	2	8
						Excavators	2	8
						Forklifts	3	8
						Tractors/loaders/ backhoes	6	8

Table 4.11-15. X-031 Trickling Filter Solids-Contact Rehabilitation Construction Scenario Assumptions

Construction Phase	Schedule		One-Way Vehicle Trips			Equipment		
	Start Date	*End Date*	*Average Daily Worker Trips*	*Average Daily Vendor Truck Trips*	*Total Haul Truck Trips*	*Equipment Type*	*Quantity*	*Usage Hours*
Structural rehabilitation	10/01/2037	02/28/2038	28	2	0	Aerial lifts	2	8
						Air compressors	2	8
						Cement and mortar mixers	2	8
						Generator sets	5	8
Building construction	03/01/2038	09/30/2040	28	2	0	Aerial lifts	2	8
						Cranes	2	8
						Generator sets	3	8
						Tractors/loaders/ backhoes	2	8
						Welders	2	8
Paving	09/01/2040	09/30/2040	14	2	0	Pavers	1	8
						Paving equipment	2	8
						Rollers	2	8
Testing	10/01/2040	09/30/2041	6	0	0	Generator sets	2	8

Representative Joint Plant Construction Projects

Table 4.11-16 presents a summary of the proposed Joint Plant FMP projects analyzed herein.

Table 4.11-16. Project Summary – Joint Plant

Project Number	Project Name	Project Type	Construction Start (Month Year)	Construction End (Month Year)
X-057	Plantwide Miscellaneous Yard Structures Rehabilitation or Replacement	Misc.	May 2025	Dec 2039
X-058	Plantwide Miscellaneous Yard Piping Replacement	Replace	May 2025	Dec 2039
X-059	Plantwide Miscellaneous Tunnels Rehabilitation	Rehab	May 2025	Dec 2039

Table 4.11-17 provides construction scenario details for the representative joint plant Projects X-057, 058, and 059. Because these projects would occur simultaneously, they are assessed as one project.

Table 4.11-17. X-057 Plantwide Miscellaneous Yard Structures Rehabilitation or Replacement, X-058 Plantwide Miscellaneous Yard Piping Replacement, and X-059 Plantwide Miscellaneous Tunnels Rehabilitation Construction Scenario Assumptions

Construction Phase	Schedule		One-Way Vehicle Trips			Equipment		
	Start Date	*End Date*	*Average Daily Worker Trips*	*Average Daily Vendor Truck Trips*	*Total Haul Truck Trips*	*Equipment Type*	*Quantity*	*Usage Hours*
Demolition	05/01/2025	05/31/2025	20	4	32	Excavators	2	8
						Pumps	2	8
						Tractors/ loaders/ backhoes	4	8
Building construction	06/01/2025	07/31/2025	28	4	0	Cement and mortar mixers	2	8
						Forklifts	2	8
						Pumps	2	8
						Tractors/ loaders/ backhoes	4	8
Structural rehabilitation (concurrent)	06/01/2025	05/31/2031	28	4	0	Air compressors	2	8
						Cement and mortar mixers	2	8
						Generator sets	2	8
						Pumps	4	8
Testing	06/01/2031	05/28/2032	8	0	0	Generator sets	2	8

Representative Collection System Projects

Table 4.11-18 presents a summary of the representative proposed collection system projects analyzed herein.

Table 4.11-18. Representative Project Summary – Collection System

Project Number	Project Name	Project Type	Construction Start (Month Year)	Construction End (Month Year)
11-33	Edinger Pumping Station Replacement	Replace	Nov 2026	Nov 2028
X-022	15th Street Pump Station Rehabilitation	Rehab	Oct 2036	Dec 2037
X-026	College Avenue Force Main Rehabilitation	Rehab	Nov 2027	Jan 2028
X-040	College Avenue Pump Station Replacement	Replace	Oct 2036	Dec 2037

Table 4.11-18. Representative Project Summary – Collection System

Project Number	Project Name	Project Type	Construction Start (Month Year)	Construction End (Month Year)
X-071	Edinger/Springdale Trunk Sewer Rehabilitation	Rehab	Oct 2030	Jun 2032
X-082	North Trunk Improvement Project	Replace	May 2024	Nov 2025
X-083	Greenville–Sullivan Sewer Relief Project	Replace	May 2025	May 2027

Tables 4.11-19 through 4.11-25 provide construction scenario details for these representative projects.

Table 4.11-19. 11-33 Edinger Pumping Station Replacement Construction Scenario Assumptions

Construction Phase	Schedule		One-Way Vehicle Trips			Equipment		
	Start Date	*End Date*	*Average Daily Worker Trips*	*Average Daily Vendor Truck Trips*	*Total Haul Truck Trips*	*Equipment Type*	*Quantity*	*Usage Hours*
Demolition	11/02/2026	03/01/2028	14	2	12	Cranes	1	8
						Forklifts	1	8
						Pumps	1	8
						Tractors/loaders /backhoes	2	8
Structural rehabilitation	05/02/2027	07/01/2027	14	2	0	Air compressors	1	8
						Cement and mortar mixers	1	8
						Generator sets	2	8
						Pumps	1	8
Building construction	07/02/2027	03/01/2028	26	2	0	Aerial lifts	1	8
						Cement and mortar mixers	1	8
						Forklifts	1	8
						Generator sets	4	8
						Pavers	1	8
						Pumps	1	8
						Welders	1	8
Testing	03/02/2028	09/01/2028	6	0	0	Generator sets	1	8

Table 4.11-20. X-022 15th Street Pump Station Rehabilitation and Pipeline Relining Construction Scenario Assumptions

Construction Phase	Schedule		One-Way Vehicle Trips			Equipment		
	Start Date	*End Date*	*Average Daily Worker Trips*	*Average Daily Vendor Truck Trips*	*Total Haul Truck Trips*	*Equipment Type*	*Quantity*	*Usage Hours*
Demolition	08/24/2022	09/06/2022	10	2	4	Cranes	1	8
						Pumps	1	8
						Tractors/loaders/ backhoes	2	8
Building construction	09/07/2022	10/06/2022	14	2	0	Aerial lifts	1	8
						Cranes	1	8
						Forklifts	1	8
						Pumps	1	8
						Welders	1	8
Pipeline lining	10/07/2022	01/06/2023	10	4	0	Generator sets	2	8
						Pumps	2	8
Testing	01/07/2023	03/06/2023	6	0	0	Generator sets	1	8

Table 4.11-21. X-026 Pipeline Replacement Construction Scenario Assumptions

Construction Phase	Schedule		One-Way Vehicle Trips			Equipment		
	Start Date	*End Date*	*Average Daily Worker Trips*	*Average Daily Vendor Truck Trips*	*Total Haul Truck Trips*	*Equipment Type*	*Quantity*	*Usage Hours*
Pipeline installation	07/03/2034	09/02/2034	14	2	102	Concrete/ industrial saws	1	8
						Excavators	1	8
						Forklifts	1	8
						Pumps	1	8
						Tractors/loaders/ backhoes	1	8
Paving (continual and final)	07/03/2034	10/02/2034	8	2	0	Pavers	1	8
						Paving equipment	1	8
						Rollers	1	8
Architectural coating (striping)	07/03/2034	10/09/2034	4	2	0	Air compressors	1	8
Testing	10/10/2034	11/02/2034	6	0	0	Generator sets	1	8

Table 4.11-22. X-040 College Avenue Pump Station Rehabilitation Construction Scenario Assumptions

Construction Phase	Schedule		One-Way Vehicle Trips			Equipment		
	Start Date	*End Date*	*Average Daily Worker Trips*	*Average Daily Vendor Truck Trips*	*Total Haul Truck Trips*	*Equipment Type*	*Quantity*	*Usage Hours*
Demolition	10/01/2036	11/30/2036	10	2	4	Excavators	1	8
						Pumps	1	8
						Tractors/loaders/ backhoes	2	8
Structural rehabilitation	12/01/2036	12/31/2036	14	2	0	Air compressors	1	8
						Cement and mortar mixers	1	8
						Generator sets	2	8
						Pumps	1	8
Building construction	01/01/2037	04/30/2037	24	2	0	Aerial lifts	1	8
						Forklifts	1	8
						Generator sets	2	8
						Pavers	1	8
						Pumps	1	8
						Tractors/loaders/ backhoes	2	8
						Welders	1	8
Testing	05/01/2037	10/31/2037	6	0	0	Generator sets	1	8

Table 4.11-23. X-071 Pipeline Replacement and Pipeline Relining Construction Scenario Assumptions

Construction Phase	Schedule		One-Way Vehicle Trips			Equipment		
	Start Date	*End Date*	*Average Daily Worker Trips*	*Average Daily Vendor Truck Trips*	*Total Haul Truck Trips*	*Equipment Type*	*Quantity*	*Usage Hours*
Pipeline installation	10/01/2030	12/31/2030	16	2	104	Concrete/ industrial saws	1	8
						Excavators	1	8
						Forklifts	1	8
						Pumps	1	8
						Tractors/loaders/ backhoes	1	8

Table 4.11-23. X-071 Pipeline Replacement and Pipeline Relining Construction Scenario Assumptions

Construction Phase	Schedule		One-Way Vehicle Trips			Equipment		
	Start Date	*End Date*	*Average Daily Worker Trips*	*Average Daily Vendor Truck Trips*	*Total Haul Truck Trips*	*Equipment Type*	*Quantity*	*Usage Hours*
Paving (continual and final)	10/01/2030	02/14/2031	8	2	0	Pavers	1	8
						Paving equipment	1	8
						Rollers	1	8
Architectural coating (striping)	10/01/2030	02/21/2031	4	2	0	Air compressors	1	8
Testing	02/22/2031	08/21/2031	6	0	0	Generator sets	1	8
Pipeline lining	02/22/2031	04/21/2031	8	4	0	Generator sets	1	8
						Pumps	2	8
Manhole rehabilitation	04/22/2031	05/21/2031	6	4	0	Air compressors	2	8

Table 4.11-24. X-082 North Trunk Improvement Project Construction Scenario Assumptions

Construction Phase	Schedule		One-Way Vehicle Trips			Equipment		
	Start Date	*End Date*	*Average Daily Worker Trips*	*Average Daily Vendor Truck Trips*	*Total Haul Truck Trips*	*Equipment Type*	*Quantity*	*Usage Hours*
Pipeline installation	05/22/2024	08/31/2024	16	2	164	Concrete/ industrial saws	1	8
						Excavators	1	8
						Forklifts	1	8
						Pumps	1	8
						Tractors/loaders/ backhoes	1	8
Paving (continual and final)	05/22/2024	10/07/2024	8	2	0	Pavers	1	8
						Paving equipment	1	8
						Rollers	1	8
Architectural coating (striping)	05/22/2024	10/14/2024	4	2	0	Air compressors	1	8
Testing	10/15/2024	04/14/2025	6	0	0	Generator sets	1	8

Table 4.11-25. X-083 Greenville–Sullivan Sewer Relief Project Construction Scenario Assumptions

Construction Phase	Schedule		One-Way Vehicle Trips			Equipment		
	Start Date	*End Date*	*Average Daily Worker Trips*	*Average Daily Vendor Truck Trips*	*Total Haul Truck Trips*	*Equipment Type*	*Quantity*	*Usage Hours*
Pipeline installation	07/1/2030	02/28/2031	16	2	536	Concrete/ industrial saws	1	8
						Excavators	1	8
						Forklifts	1	8
						Pumps	1	8
						Tractors/loaders/ backhoes	1	8
Paving (continual and final)	07/01/2030	06/30/2031	8	2	0	Pavers	1	8
						Paving equipment	1	8
						Rollers	1	8
Architectural coating (striping)	07/01/2030	07/07/2031	4	2	0	Air compressors	1	8
Testing	07/08/2031	01/07/2032	6	0	0	Generator sets	1	8

During construction of these projects, **Project Design Feature (PDF) NOI-1** (detailed in Section 4.11.7, Mitigation Measures) will be implemented to reduce potential noise and vibration effects on nearby sensitive uses.

Operation

Noise emissions from FMP project operations are anticipated to be the same as existing conditions. The FMP projects would rehabilitate, replace, or abandon existing facilities that currently produce relatively varying levels of noise during ongoing operations and maintenance activity. Because the FMP projects addressed in this PEIR do not propose additions of or appreciable changes to regular operations and maintenance activity by Sanitation District personnel, additional operational noise would not be created as a result of implementation of the FMP.

4.11.6 Impacts Analysis

1. Would the project result in the generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Construction Noise

Less-than-Significant Impact with Mitigation Incorporated. Construction activities under the proposed FMP would generate noise from the use of heavy equipment (excavators, tractors, backhoes, cement and mortar mixers, pumps, and other similar equipment) at the sites or from vehicles transporting material to or from

the project sites. Equipment anticipated for the proposed FMP would typically not include those with substantially higher noise-generation characteristics (e.g., pile drivers, rock drills, and blasting equipment). This type of equipment would not be necessary for implementation of the proposed FMP.

As described in Section 4.11.5, Approach and Methodology, the Federal Highway Administration's RCNM and equipment assumptions, based on input from city engineers and operations staff, were used to estimate noise levels at the nearest receivers, as well as at typical noise source-receiver distances. The input and output from this and the other RCNM analyses are included in Appendix J, and the results are summarized below by general location (i.e., Plant 1, Plant 2, joint plant, and collection system).

Plant 1 Projects

As shown in Table 4.11-26, construction activity noise levels at the nearest source-receiver distances are estimated to range from approximately 48 dBA L_{eq} during architectural coating activities for FMP project P1-126 to approximately 64 dBA L_{eq} during demolition activities for FMP project P1-126, as well as during building construction activities for FMP project X-049. More typically, construction activities for the Plant 1 FMP projects would range from approximately 47 to 63 dBA L_{eq}. Construction would typically occur between the hours of 7:00 a.m. and 6:00 p.m. Monday through Friday, and thus would not exceed applicable local noise standards. Night work, if and when it does occur, would be restricted to the applicable exempt hours per jurisdiction to ensure that it does not result in a noise impact. Based on the ambient noise measurements conducted adjacent to Plant 1 (which ranged from approximately 53 to 64 dBA L_{eq}), noise levels from FMP projects at Plant 1 would be up to 10 dB higher than ambient noise levels at times, resulting in a temporary significant increase compared to the existing ambient noise environment. Therefore, Plant 1 FMP construction noise impacts would be potentially significant, absent mitigation. Implementation of **Mitigation Measure (MM-) NOI-1** (provided in Section 4.11.7) would be required to reduce the noise impacts from construction activities to less than significant with mitigation.

Table 4.11-26. Representative Project Construction Noise Summary – Plant 1

Project Number	Project Name	Construction Phase	Construction Noise at Representative Receiver Distances (dBA L_{eq})	
			Nearest Source-Receiver Distance (feet)	*Typical Source-Receiver Distance (feet)*
P1-126	Primary Clarifiers Replacements and Improvements		***975***	***1,145***
		Demolition	64	63
		Building construction	63	62
		Paving	52	51
		Architectural coating	48	47
		Testing	55	53
X-017	Primary Clarifiers 6–37		***780***	***990***
		Demolition	53	51
		Structural rehabilitation	53	51
		Building construction	57	55
		Electrical and instrumentation	51	49
		Architectural coating	49	47
		Testing	NA	NA

Table 4.11-26. Representative Project Construction Noise Summary – Plant 1

Project Number	Project Name	Construction Phase	Construction Noise at Representative Receiver Distances (dBA L_{eq})	
			Nearest Source-Receiver Distance (feet)	*Typical Source-Receiver Distance (feet)*
X-038	City Water Pump Station Rehabilitation		*415*	*435*
		Demolition	59	58
		Structural rehabilitation	59	59
		Building construction	59	59
		Testing	59	59
X-049	Activated Sludge (AS)-1 Clarifier and RAS Pump Station Rehabilitation		*600*	*950*
		Demolition	60	56
		Structural rehabilitation	63	59
		Building construction	64	60
		Testing	56	52

Source: Appendix J.
Notes: dBA = A-weighted decibel; L_{eq} = equivalent continuous sound level (time-averaged sound level); NA = not applicable; RAS = Return Activated Sludge.

Plant 2 Projects

As shown in Table 4.11-27, construction activity noise levels at the nearest source-receiver distances are estimated to range from approximately 55 dBA L_{eq} during grading activities for FMP project P2-138 to approximately 77 dBA L_{eq} during building construction activities for FMP project P2-126. More typically, construction activities for the Plant 2 FMP projects would range from approximately 52 to 76 dBA L_{eq}. Construction would typically occur between the hours of 7:00 a.m. and 6:00 p.m. Monday through Friday, and thus would not exceed applicable local noise standards. Night work, if and when it does occur, would be restricted to the applicable exempt hours per jurisdiction to ensure that it does not result in a noise impact. Based on the ambient noise measurement conducted adjacent to Plant 1 (which was approximately 61 dBA L_{eq}), noise levels from FMP projects at Plant 2 would be up to 16 dB higher than ambient noise levels at times, resulting in a temporary significant increase compared to the existing ambient noise environment. Therefore, Plant 2 FMP construction noise impacts would be potentially significant, absent mitigation. Implementation of **MM-NOI-1** would be required to reduce the noise impacts from construction activities to less than significant with mitigation.

Table 4.11-27. Representative Project Construction Noise Summary – Plant 2

Project Number	Project Name	Construction Phase	Construction Noise at Representative Receiver Distances (dBA L_{eq})	
			Nearest Source-Receiver Distance (feet)	*Typical Source-Receiver Distance (feet)*
P2-126	Substation and Warehouse Replacement at Plant 2		***150***	***175***
		Site preparation	73	71
		Building construction	77	76
		Demolition	72	71
		Architectural coating	64	63
		Testing	68	67
P2-138	Operations and Maintenance Complex at Plant 2		***355***	***490***
		Site preparation	64	61
		Building construction	71	68
		Grading	55	52
		Paving	63	60
		Demolition	73	70
		Architectural coating	65	62
		Testing	61	58
X-031	Trickling Filter Solids-Contact Rehabilitation		***335***	***565***
		Demolition	71	67
		Structural rehabilitation	70	65
		Building construction	68	64
		Paving	64	59
		Testing	64	60

Source: Appendix J.
Notes: dBA = A-weighted decibel; L_{eq} = equivalent continuous sound level (time-averaged sound level).

Joint Plant Projects

As shown in Table 4.11-28, construction activity noise levels at the nearest source-receiver distances are estimated to range from approximately 70 dBA L_{eq} during testing activities for FMP projects X-057, X-058, and X-059 at Plant 2 to approximately 80 dBA L_{eq} during building construction activities for FMP projects X-057, X-058 and X-059 at Plant 1. More typically, construction activities for the Joint Plant projects would range from approximately 58 to 65 dBA L_{eq}. Construction would typically occur between the hours of 7:00 a.m. and 6:00 p.m. Monday through Friday, and thus would not exceed applicable local noise standards. Night work, if and when it does occur, would be restricted to the applicable exempt hours per jurisdiction to ensure that it does not result in a noise impact. Based upon the ambient noise measurement conducted adjacent to Plants 1 and 2 (which ranged from approximately 53 to 64 dBA L_{eq}), noise levels from FMP joint plant projects at Plant 2 would be up to 16 dB higher than ambient noise levels at times, resulting in a temporary significant increase compared to the existing ambient noise environment. Therefore, joint plant FMP construction noise impacts would be potentially significant, absent mitigation. Implementation of **MM-NOI-1** would be required to reduce the noise impacts from construction activities to less than significant with mitigation.

Table 4.11-28. Representative Project Construction Noise Summary – Joint Plant Projects

Project Number	Project Name	Construction Phase	Construction Noise at Representative Receiver Distances (dBA L_{eq})	
			Nearest Source-Receiver Distance (feet)	*Typical Source-Receiver Distance (feet)*
X-057, X-058, X-059	Plantwide Miscellaneous Yard Structures Rehabilitation or Replacement, Yard Piping Replacement, Tunnels Rehabilitation (Plant 1)		***115***	***610***
		Demolition	78	63
		Building construction	80	65
		Structural rehabilitation	80	65
		Testing	73	59
X-057, X-058, X-059	Plantwide Miscellaneous Yard Structures Rehabilitation or Replacement, Yard Piping Replacement, Tunnels Rehabilitation (Plant 2)		***165***	***650***
		Demolition	75	63
		Building construction	77	65
		Structural rehabilitation	76	65
		Testing	70	58

Source: Appendix J.
Notes: dBA = A-weighted decibel; L_{eq} = equivalent continuous sound level (time-averaged sound level).

Collection System Projects

As shown in Table 4.11-29, construction activity noise levels at the nearest source-receiver distances are estimated to range from approximately 70 dBA L_{eq} during testing activities for FMP project X-022 to approximately 94 dBA L_{eq} during pipeline installation activities for FMP project X-083. It should be noted that these high noise levels would only occur at any one noise-sensitive receiver location for relatively brief periods of time, because pipeline installation activities generally progress at a rate of several hundred feet per day. More typically, construction activities for the collection system FMP projects would range from approximately 59 to 73 dBA L_{eq}. Construction would typically occur between the hours of 7:00 a.m. and 6:00 p.m. Monday through Friday, and thus would not exceed applicable local noise standards. Night work, if and when it does occur, would be restricted to the applicable exempt hours per jurisdiction to ensure that it does not result in a noise impact. Based on the ambient noise measurements conducted adjacent to representative collection system locations (which ranged from approximately 66 to 69 dBA L_{eq}), noise levels from collection system FMP projects would be up to 25 dB higher than ambient noise levels at times, resulting in a temporary significant increase compared to the existing ambient noise environment. Therefore, collection system FMP construction noise impacts would be potentially significant, absent mitigation. Implementation of **MM-NOI-1** would be required to reduce the noise impacts from construction activities to less than significant with mitigation.

Table 4.11-29. Representative Project Construction Noise Summary – Collection System

Project Number	Project Name	Construction Phase	Construction Noise at Representative Receiver Distances (dBA L_{eq})	
			Nearest Source-Receiver Distance (feet)	*Typical Source-Receiver Distance (feet)*
11-33	Edinger Pumping Station Replacement		***90***	***250***
		Demolition	77	69
		Structural rehabilitation	78	70
		Building construction	80	73
		Testing	73	64
X-022	15th Street Pump Station Rehabilitation		***125***	***250***
		Demolition	73	67
		Building construction	75	69
		Pipeline lining	76	70
		Testing	70	64
X-026	College Avenue Force Main Rehabilitation		***40***	***250***
		Pipeline installation	87	72
		Paving	79	64
		Architectural coating	76	60
		Testing	80	64
X-040	College Avenue Pump Station Replacement		***20***	***250***
		Demolition	86	63
		Structural rehabilitation	87	65
		Building construction	91	67
		Testing	87	59
X-071	Edinger/Springdale Trunk Sewer Rehabilitation		***55***	***250***
		Pipeline installation	84	72
		Paving	76	64
		Architectural coating	73	60
		Testing	77	64
		Pipeline lining	80	69
		Manhole rehabilitation	75	63
X-082	North Trunk Improvement Project		***30***	***250***
		Pipeline installation	89	72
		Paving	81	64
		Architectural coating	78	60
		Testing	82	64

Table 4.11-29. Representative Project Construction Noise Summary – Collection System

Project Number	Project Name	Construction Phase	Construction Noise at Representative Receiver Distances (dBA L_{eq})	
			Nearest Source-Receiver Distance (feet)	*Typical Source-Receiver Distance (feet)*
X-083	Greenville–Sullivan Sewer Relief Project		***15***	***250***
		Pipeline installation	94	72
		Paving	86	64
		Architectural coating	84	60
		Testing	88	64

Source: Appendix J.

2. Would the project result in the generation of excessive groundborne vibration or groundborne noise levels?

Less-than-Significant Impact with Mitigation Incorporated. Groundborne vibration from heavy equipment operations during the course of construction activities under the proposed FMP was evaluated using the methodology contained in Section 7.2 of the Transit Noise and Vibration Impact Assessment Manual (FTA 2018) and compared with relevant vibration impact criteria. FTA has collected groundborne vibration information related to the use of heavy construction equipment. This information indicates that continuous vibration velocity levels of approximately 75 VdB begin to annoy people (FTA 2018).

The heavier pieces of construction equipment (e.g., bulldozers) would have vibration velocity levels of approximately 87 VdB (equivalent to 0.089 inches per second ppv) or less at a distance of 25 feet (FTA 2018). At the distance from the nearest vibration-sensitive receivers to construction activities (approximately 15 feet, during pipeline installation at several collection system projects), and with the anticipated construction equipment, the vibration velocity level would be approximately 94 VdB. These vibration levels would exceed the vibration threshold of potential annoyance of 75 VdB and could result in annoyance at nearby residences or other noise/vibration-sensitive uses. However, as previously noted, pipeline installation activities typically do not remain at any one location for long periods of time, because pipeline work usually progresses at a rate of several hundred feet per day. Moreover, groundborne vibration generally diminishes rapidly over short distances. More typically, at distances from construction activities to receivers of 65 feet and well beyond, vibration levels would be less than the annoyance threshold of 75 VdB. **PDF-NOI-1** includes a provision in which the contractor has the responsibility to address noise and vibration-related complaints.

The major concern with regards to construction vibration is related to building damage, which typically occurs at vibration levels of 0.5 inches per second ppv or greater for buildings of reinforced-concrete, steel, or timber construction. At the distance from the nearest vibration-sensitive receivers to construction activities (approximately 15 feet, during pipeline installation at several collection system projects), and with the anticipated construction equipment, the anticipated vibration levels associated with on-site project construction and pipeline installation in terms of ppv would be approximately 0.192 inches per second or less. This level would be well below the threshold of 0.5 inches per second ppv for building damage. Therefore, potential vibration impacts would be less than significant with mitigation.

3. For a project located within the vicinity of a private airstrip or 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 exposure of people residing or working in the project area to excessive noise levels?

Less-than-Significant Impact. There are no private airstrips within the vicinity of the FMP projects (AirNav 2020); however, FMP collection system projects are located within 2 miles of John Wayne Airport, Joint Forces Training Base Los Alamitos, and Fullerton Municipal Airport. Following are the airports and corresponding identified FMP projects located within 2 miles:

- John Wayne Airport:
  - Project 7-63 (MacArthur Pump Station Rehabilitation)
  - Project 7-64 (Main Street Pump Station Rehabilitation)
  - Project 7-65 (Gisler–Red Hill Interceptor Rehabilitation)
  - Project 7-66 (Sunflower and Red Hill Interceptor Rehab/Repair)
  - Project 7-67(Main Street Pump Station Replacement and Force Main Rehabilitation)
  - Project 7-68 (MacArthur Dual Force Main Improvements)
  - Project X-078 (Air Jumper Additions and Rehabilitation)
- Joint Forces Training Base Los Alamitos:
  - Project 3-68 (Los Alamitos Sub-Trunk Extension)
  - Project X-067 (X-085) (Hoover-Western Sub-Trunks Sewer Rehabilitation)
- Fullerton Municipal Airport:
  - Project X-078 (Air Jumper Additions and Rehabilitation)

Therefore, proposed FMP project activities (consisting of construction and periodic maintenance) would occur near active airports. Proposed FMP activities, however, would not result in excessive noise levels for those working or residing in the program area. Sanitation District employees and their contract employees are not likely to be exposed to noise or dangers associated with nearby air traffic because work in these areas would be temporary and short term, reducing the likelihood that employees would be significantly impacted by these dangers. Further, proposed FMP activities would not result in construction of facilities or structures that would create permanent, long-term exposure of residents or workers to increased levels of airport-related noise. Thus, noise Impacts would be considered less than significant.

4.11.7 Mitigation Measures

The following project design feature and mitigation measure would be implemented during FMP project-related construction activities at all locations.

PDF-NOI-1 To address construction noise impacts, the Orange County Sanitation District has a process in place as follows:

A. Public outreach is conducted in communities that could be impacted by construction activities so that the public is aware of the work that must be conducted, where the work will occur, and the timing of the proposed work.

B. At least five (5) days prior to the start of construction activities, the Sanitation District will notify the surrounding residents and businesses by mail or other means of distribution. For projects located outside of Plant 1 or Plant 2, the construction contractor will post signs in the project vicinity that identify the Orange County Sanitation District as the project owner and a general contract phone number. Sign location(s) will be identified with local jurisdiction approval.

C. Once work begins, the contractor has the responsibility to address noise and vibration-related complaints.

MM-NOI-1 For Facilities Master Plan (FMP) projects located within 500 feet of noise-sensitive receivers (residences, hotels and motels, educational institutions, libraries, hospitals, and clinics), the following measures shall be implemented:

A. All mobile or fixed noise-producing equipment used on an FMP project that is regulated for noise output by a local, state, or federal agency shall comply with such regulation while in the course of program activity.

B. Construction equipment shall be properly outfitted and maintained with manufacturer-recommended noise-reduction devices to minimize construction-generated noise.

C. Electrically powered equipment shall be used instead of pneumatic or internal-combustion-powered equipment, where feasible.

D. Stationary noise sources such as generators or pumps shall be located at least 100 feet from noise-sensitive land uses as feasible.

E. Material stockpiles and mobile equipment staging, parking, and maintenance areas shall be located as far as practicable from noise-sensitive receptors.

F. Construction site and haul-road speed limits shall be established and enforced during the construction period.

G. As feasible, the hours of construction, including noise-generating activities and all spoils and material transport, shall be restricted to the time periods and days permitted by the local noise or other applicable ordinances. As necessary, the Sanitation District shall coordinate with the applicable local jurisdiction regarding activities that are not consistent with local ordinances to avoid/minimize impacts.

H. The use of noise-producing signals, including horns, whistles, alarms, and bells, shall be for safety warning purposes only. Additionally, pursuant to Occupational Safety and Health Act Sections 1926.601(b)(4) and 1926.602(a)(9), a device that uses broadband "white noise" instead of a single-tone alarm may be used if it is shown to be effective.

I. The Orange County Sanitation District or its designees shall coordinate with local jurisdictions and sensitive receptors regarding the proposed FMP to address any potential project-specific noise-related issues prior to commencement of construction activities.

J. Noise-reduction measures such as sound blankets or temporary sound walls shall be used to reduce noise from noise-generating equipment and activities during construction.

4.11.8 Level of Significance After Mitigation

Noise. The effectiveness of **MM-NOI-1** would vary from several decibels (which, in general, is a relatively small change) to 10 dB or more (which, subjectively, would be perceived as a substantial change), depending on the specific equipment and the original condition of that equipment, the specific locations of the noise sources and the receivers, and other factors. Installation of more effective silencers could range from a reduction of several decibels to well over 10 dB. Reduction of idling equipment could reduce overall noise levels by up to several decibels, as could relocation of material laydown and staging areas. Cumulatively, however, these measures would result in substantial decreases in the noise from construction. Further, as detailed in Section 4.11.3, Relevant Plans, Policies, and Ordinances, the County and the cities exempt construction activity noise provided that such activities occur within permitted hours; the activities proposed in the FMP would comply with these hours. Therefore, with implementation of **MM-NOI-1** and incorporation of **PDF-NOI-1** into the FMP, construction activity noise levels would be less than significant.

Groundborne Vibration. Similar to noise, the effectiveness of the measures listed in Section 4.11.7 would have varying levels of benefit for the reduction of vibration during construction. The increase of distance between noise -and vibration-generating equipment whenever feasible, the reduction of idling equipment, and use of electrically powered equipment when feasible would reduce vibration levels. Additionally, **PDF-NOI-1** would provide for public outreach and notification, as well as the requirement that the contractor would have the responsibility to address noise- and vibration-related complaints. Cumulatively, these measures would reduce groundborne vibration impacts to a level of less than significant.

4.11.9 Cumulative Impacts

Cumulative impacts were analyzed by considering the potential noise impacts from the related projects listed in Chapter 3. The related projects may generate new sources of noise and vibration (from increased traffic, on-site operation, and construction), which in combination with the FMP could result in cumulative impacts. Noise and groundborne vibration levels decrease as the distance from the noise source to the receiver increases. Therefore, only noise and vibration sources in the immediate vicinity of FMP activities would have the potential to combine with the FMP projects to cause a cumulative noise or vibration impact. Further, the related projects would be subject to the same applicable noise standards and restrictions (i.e., limitations on permitted hours of construction) as the FMP projects. As previously discussed, FMP impacts related to noise and vibration would be less than significant with implementation of **MM-NOI-1**, and it is not anticipated that the proposed FMP, combined with other related projects, would result in a cumulatively considerable impact to noise in the FMP area.

As explained in Section 4.11.5, additional operational noise would not be created as a result of implementation of the FMP. Following the construction of FMP projects, operational activities associated with the proposed FMP would not contribute to cumulative noise impacts associated with other projects in the region. Further, the related projects would be required to comply with the same regulatory requirements and standards as the proposed FMP. Therefore, the FMP's incremental contribution to noise impacts would not be cumulatively considerable.

4.11.10 Impact Summary

Table 4.11-30 summarizes the impacts for the FMP projects assessed at the project level at Plant 1, Plant 2, joint plant projects, and collection system projects under each threshold analyzed in this PEIR.

Table 4.11-30. Summary of FMP Project Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
Would the project result in the generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?					
Plant 1					
P1-126	Primary Clarifiers Replacements and Improvements	Replace	Significant	PDF-NOI-1 MM-NOI-1	Less than Significant
X-093	Administrative Facilities and Power Building 3A Demolition	Misc. (Demo)	Significant	PDF-NOI-1 MM-NOI-1	Less than Significant
X-092	Standby Generator Feeders for Plant 1 Secondary Systems	Misc.	Significant	PDF-NOI-1 MM-NOI-1	Less than Significant
X-048	Activated Sludge (AS)-1 Aeration Basin and Blower Rehabilitation	Rehab	Significant	PDF-NOI-1 MM-NOI-1	Less than Significant
P1-135	Digester Ferric Piping Replacement	Replace	Significant	PDF-NOI-1 MM-NOI-1	Less than Significant
X-077	Switchgear Replacement at Central Generation	Replace	Significant	PDF-NOI-1 MM-NOI-1	Less than Significant
X-090	Network, Telecommunications, and Service Relocation at Plant 1	Misc.	Significant	PDF-NOI-1 MM-NOI-1	Less than Significant
Plant 2					
P2-126	Substation and Warehouse Replacement at Plant 2	Misc.	Significant	PDF-NOI-1 MM-NOI-1	Less than Significant
P2-138	Operations and Maintenance Complex at Plant 2	Replace	Significant	PDF-NOI-1 MM-NOI-1	Less than Significant
X-050	Activated Sludge (AS) Aeration Basin	Rehab	Significant	PDF-NOI-1 MM-NOI-1	Less than Significant
X-032	Truck Loading Facility Rehabilitation	Rehab	Significant	PDF-NOI-1 MM-NOI-1	Less than Significant
X-054	Waste Side-Stream Pump Station C Rehabilitation	Rehab	Significant	PDF-NOI-1 MM-NOI-1	Less than Significant
X-034	Sodium Bisulfite Station Replacement and Bleach Station Demolition	Replace	Significant	PDF-NOI-1 MM-NOI-1	Less than Significant
Joint Plant Projects					
J-98	Plantwide Miscellaneous Electrical Power Distribution System Improvements	Replace	Less than Significant	—	Less than Significant
J-120	Plantwide Miscellaneous Process Control Systems Upgrades	Replace	Less than Significant	—	Less than Significant
J-133	Laboratory Rehabilitation or Replacement at Plant 1	Rehab	Significant	PDF-NOI-1 MM-NOI-1	Less than Significant
X-057	Plantwide Miscellaneous Yard Structures Rehabilitation or Replacement	Misc.	Significant	PDF-NOI-1 MM-NOI-1	Less than Significant
X-058	Plantwide Miscellaneous Yard Piping Replacement	Replace	Significant	PDF-NOI-1 MM-NOI-1	Less than Significant

Table 4.11-30. Summary of FMP Project Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
X-059	Plantwide Miscellaneous Tunnels Rehabilitation	Rehab	Significant	PDF-NOI-1 MM-NOI-1	Less than Significant
J-121	UPS System Upgrades	Replace	Less than Significant	—	Less than Significant
X-044	Steve Anderson Lift Station Rehabilitation	Rehab	Significant	PDF-NOI-1 MM-NOI-1	Less than Significant
Collection System Projects					
5-68	Newport Beach Pump Station Odor Control Improvements	Misc.	Significant	PDF-NOI-1 MM-NOI-1	Less than Significant
X-076	Santa Ana Trunk Sewer Rehabilitation Phase II	Rehab	Less than Significant	—	Less than Significant
X-082	North Trunk Improvement Project	Replace	Significant	PDF-NOI-1 MM-NOI-1	Less than Significant
X-060	Newhope Placentia Chemical Dosing Station	Misc.	Significant	PDF-NOI-1 MM-NOI-1	Less than Significant
11-33	Edinger Pumping Station Replacement	Replace	Significant	PDF-NOI-1 MM-NOI-1	Less than Significant
X-063	South Santa Ana River Interceptor Connector Rehabilitation	Rehab	Significant	PDF-NOI-1 MM-NOI-1	Less than Significant
2-73	Yorba Linda Pump Station Abandonment	Misc.	Significant	PDF-NOI-1 MM-NOI-1	Less than Significant
3-67	Seal Beach Pump Station Replacement	Replace	Significant	PDF-NOI-1 MM-NOI-1	Less than Significant
2-49	Taft Branch Sewer Improvements	Replace	Significant	PDF-NOI-1 MM-NOI-1	Less than Significant
X-083	Greenville–Sullivan Sewer Relief Project	Replace	Significant	PDF-NOI-1 MM-NOI-1	Less than Significant
Would the project result in the generation of excessive groundborne vibration or groundborne noise levels?					
Plant 1					
P1-126	Primary Clarifiers Replacements and Improvements	Replace	Less than Significant	—	Less than Significant
X-093	Administrative Facilities and Power Building 3A Demolition	Misc. (Demo)	Less than Significant	—	Less than Significant
X-092	Standby Generator Feeders for Plant 1 Secondary Systems	Misc.	Less than Significant	—	Less than Significant
X-048	Activated Sludge (AS)-1 Aeration Basin and Blower Rehabilitation	Rehab	Less than Significant	—	Less than Significant
P1-135	Digester Ferric Piping Replacement	Replace	Less than Significant	—	Less than Significant
X-077	Switchgear Replacement at Central Generation	Replace	Less than Significant	—	Less than Significant

Table 4.11-30. Summary of FMP Project Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
X-090	Network, Telecommunications, and Service Relocation at Plant 1	Misc.	Less than Significant	—	Less than Significant
Plant 2					
P2-126	Substation and Warehouse Replacement at Plant 2	Misc.	Less than Significant	—	Less than Significant
P2-138	Operations and Maintenance Complex at Plant 2	Replace	Less than Significant	—	Less than Significant
X-050	Activated Sludge (AS) Aeration Basin	Rehab	Less than Significant	—	Less than Significant
X-032	Truck Loading Facility Rehabilitation	Rehab	Less than Significant	—	Less than Significant
X-054	Waste Side-Stream Pump Station C Rehabilitation	Rehab	Less than Significant	—	Less than Significant
X-034	Sodium Bisulfite Station Replacement and Bleach Station Demolition	Replace	Less than Significant	—	Less than Significant
Joint Plant Projects					
J-98	Plantwide Miscellaneous Electrical Power Distribution System Improvements	Replace	Less than Significant	—	Less than Significant
J-120	Plantwide Miscellaneous Process Control Systems Upgrades	Replace	Less than Significant	—	Less than Significant
J-133	Laboratory Rehabilitation or Replacement at Plant 1	Rehab	Less than Significant	—	Less than Significant
X-057	Plantwide Miscellaneous Yard Structures Rehabilitation or Replacement	Misc.	Less than Significant	—	Less than Significant
X-058	Plantwide Miscellaneous Yard Piping Replacement	Replace	Less than Significant	—	Less than Significant
X-059	Plantwide Miscellaneous Tunnels Rehabilitation	Rehab	Less than Significant	—	Less than Significant
J-121	UPS System Upgrades	Replace	Less than Significant	—	Less than Significant
X-044	Steve Anderson Lift Station Rehabilitation	Rehab	Less than Significant	—	Less than Significant
Collection System Projects					
5-68	Newport Beach Pump Station Odor Control Improvements	Misc.	Less than Significant	—	Less than Significant
X-076	Santa Ana Trunk Sewer Rehabilitation Phase II	Rehab	Less than Significant	—	Less than Significant
X-082	North Trunk Improvement Project	Replace	Significant	PDF-NOI-1 MM-NOI-1	Less than Significant
X-060	Newhope Placentia Chemical Dosing Station	Misc.	Less than Significant	—	Less than Significant
11-33	Edinger Pumping Station Replacement	Replace	Less than Significant	—	Less than Significant

Table 4.11-30. Summary of FMP Project Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
X-063	South Santa Ana River Interceptor Connector Rehabilitation	Rehab	Significant	PDF-NOI-1 MM-NOI-1	Less than Significant
2-73	Yorba Linda Pump Station Abandonment	Misc.	Less than Significant	—	Less than Significant
3-67	Seal Beach Pump Station Replacement	Replace	Less than Significant	—	Less than Significant
2-49	Taft Branch Sewer Improvements	Replace	Significant	PDF-NOI-1 MM-NOI-1	Less than Significant
X-083	Greenville–Sullivan Sewer Relief Project	Replace	Significant	PDF-NOI-1 MM-NOI-1	Less than Significant
For a project located within the vicinity of a private airstrip or 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 the exposure of people residing or working in the project area to excessive noise levels?					
Plant 1					
P1-126	Primary Clarifiers Replacements and Improvements	Replace	Less than Significant	—	Less than Significant
X-093	Administrative Facilities and Power Building 3A Demolition	Misc. (Demo)	Less than Significant	—	Less than Significant
X-092	Standby Generator Feeders for Plant 1 Secondary Systems	Misc.	Less than Significant	—	Less than Significant
X-048	Activated Sludge (AS)-1 Aeration Basin and Blower Rehabilitation	Rehab	Less than Significant	—	Less than Significant
P1-135	Digester Ferric Piping Replacement	Replace	Less than Significant	—	Less than Significant
X-077	Switchgear Replacement at Central Generation	Replace	Less than Significant	—	Less than Significant
X-090	Network, Telecommunications, and Service Relocation at Plant 1	Misc.	Less than Significant	—	Less than Significant
Plant 2					
P2-126	Substation and Warehouse Replacement at Plant 2	Misc.	Less than Significant	—	Less than Significant
P2-138	Operations and Maintenance Complex at Plant 2	Replace	Less than Significant	—	Less than Significant
X-050	Activated Sludge (AS) Aeration Basin	Rehab	Less than Significant	—	Less than Significant
X-032	Truck Loading Facility Rehabilitation	Rehab	Less than Significant	—	Less than Significant
X-054	Waste Side-Stream Pump Station C Rehabilitation	Rehab	Less than Significant	—	Less than Significant
X-034	Sodium Bisulfite Station Replacement and Bleach Station Demolition	Replace	Less than Significant	—	Less than Significant

Table 4.11-30. Summary of FMP Project Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
Joint Plant Projects					
J-98	Plantwide Miscellaneous Electrical Power Distribution System Improvements	Replace	Less than Significant	—	Less than Significant
J-120	Plantwide Miscellaneous Process Control Systems Upgrades	Replace	Less than Significant	—	Less than Significant
J-133	Laboratory Rehabilitation or Replacement at Plant 1	Rehab	Less than Significant	—	Less than Significant
X-057	Plantwide Miscellaneous Yard Structures Rehabilitation or Replacement	Misc.	Less than Significant	—	Less than Significant
X-058	Plantwide Miscellaneous Yard Piping Replacement	Replace	Less than Significant	—	Less than Significant
X-059	Plantwide Miscellaneous Tunnels Rehabilitation	Rehab	Less than Significant	—	Less than Significant
J-121	UPS System Upgrades	Replace	Less than Significant	—	Less than Significant
X-044	Steve Anderson Lift Station Rehabilitation	Rehab	Less than Significant	—	Less than Significant
Collection System Projects					
5-68	Newport Beach Pump Station Odor Control Improvements	Misc.	Less than Significant	—	Less than Significant
X-076	Santa Ana Trunk Sewer Rehabilitation Phase II	Rehab	Less than Significant	—	Less than Significant
X-082	North Trunk Improvement Project	Replace	Less than Significant	—	Less than Significant
X-060	Newhope Placentia Chemical Dosing Station	Misc.	Less than Significant	—	Less than Significant
11-33	Edinger Pumping Station Replacement	Replace	Less than Significant	—	Less than Significant
X-063	South Santa Ana River Interceptor Connector Rehabilitation	Rehab	Less than Significant	—	Less than Significant
2-73	Yorba Linda Pump Station Abandonment	Misc.	Less than Significant	—	Less than Significant
3-67	Seal Beach Pump Station Replacement	Replace	Less than Significant	—	Less than Significant
2-49	Taft Branch Sewer Improvements	Replace	Less than Significant	—	Less than Significant
X-083	Greenville–Sullivan Sewer Relief Project	Replace	Less than Significant	—	Less than Significant

Note: UPS = uninterruptible power system.

4.11.11 References

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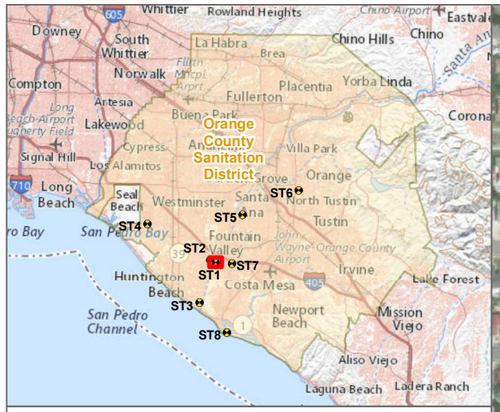


Noise Measurement Locations

OCSD Sewer

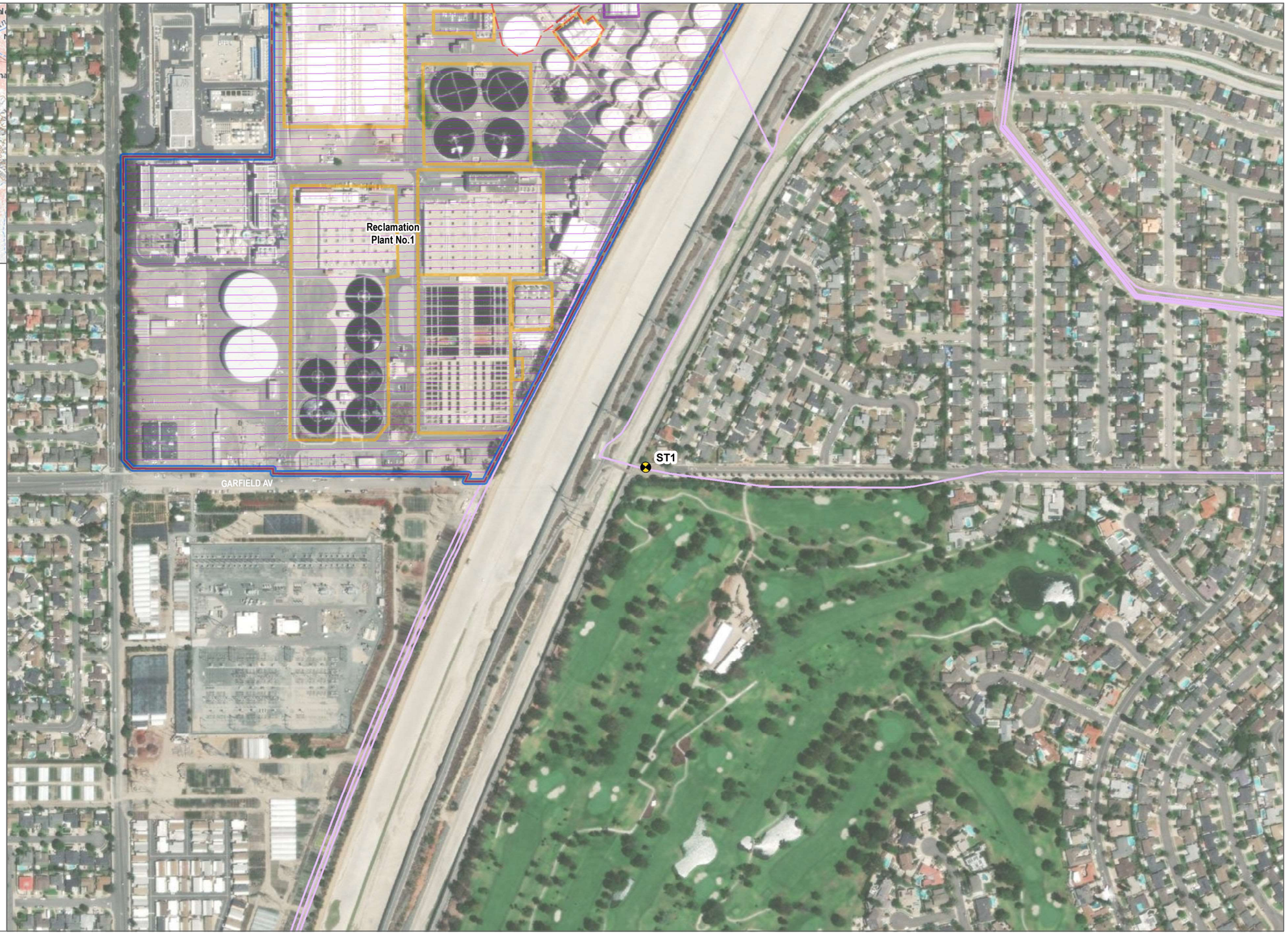
Reclamation Plant No.1 Projects

Project Type

Replacement

Rehabilitation

Miscellaneous



SOURCE: Maxar 2019; CNDDB 2020

DUDEK

0 200 400 Feet

FIGURE 4.11-1A

Noise Measurement Location 1

Sanitation District Facilities Master Plan PEIR

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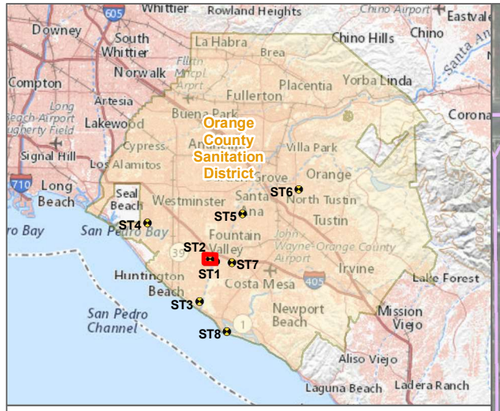


Noise Measurement Locations

OCSD Sewer

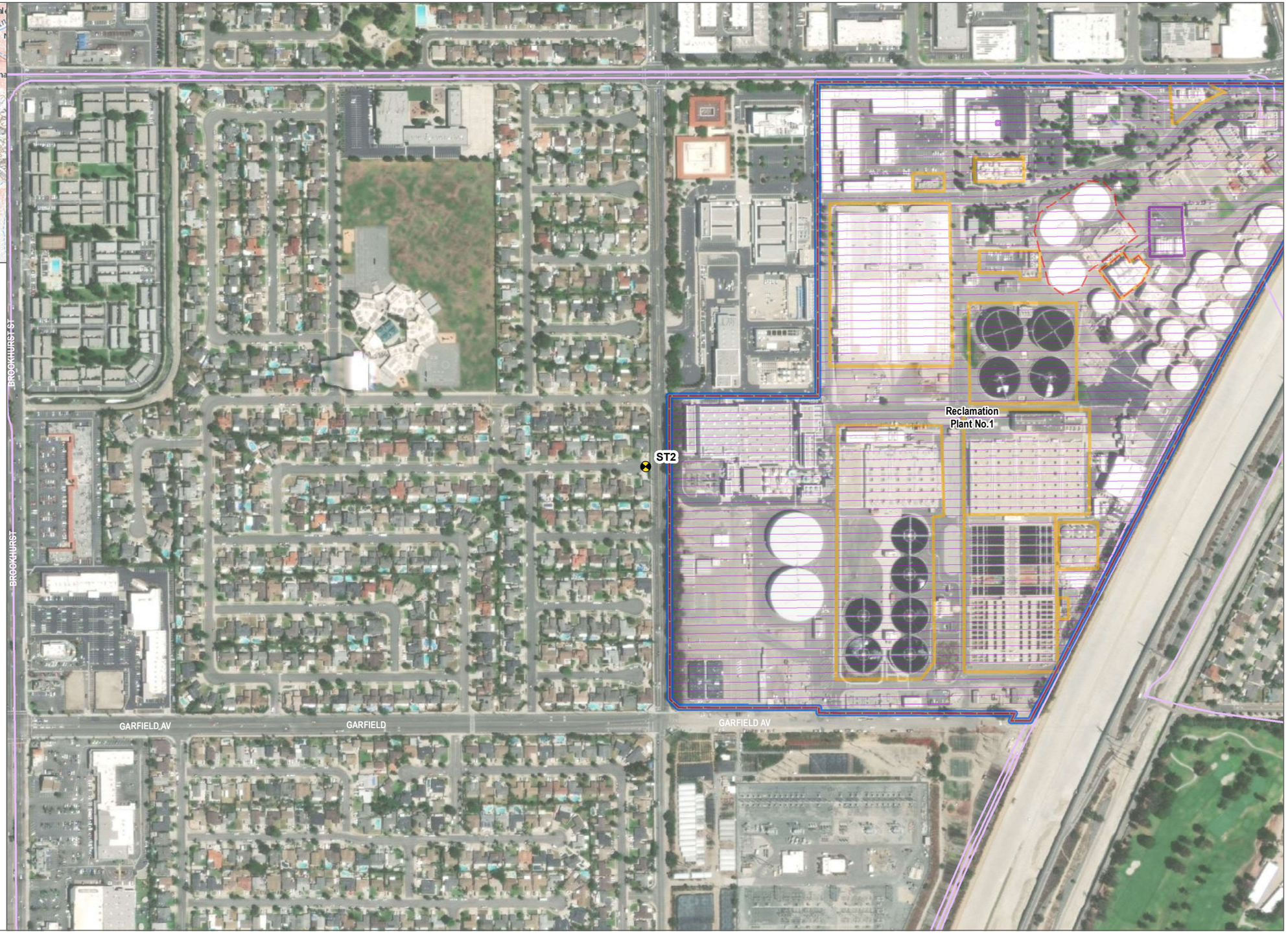
Reclamation Plant No.1 Projects

Project Type

Replacement

Rehabilitation

Miscellaneous



SOURCE: Maxar 2019; CNDDB 2020

DUDEK

0 200 400 Feet

FIGURE 4.11-1B

Noise Measurement Location 2

Sanitation District Facilities Master Plan PEIR

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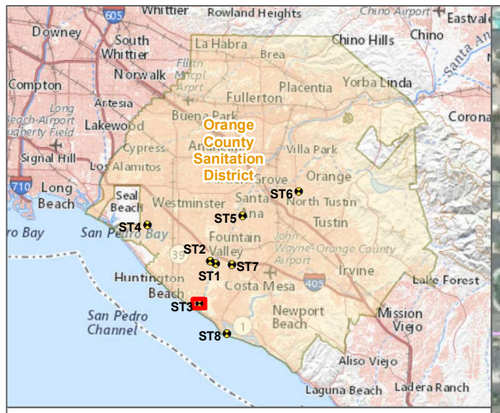

Noise Measurement Locations

OCSD Sewer

Treatment Plant No.2 Projects

Project Type

Replacement

Rehabilitation

Miscellaneous

SOURCE: Maxar 2019; CNDDB 2020

DUDEK

0 200 400 Feet

FIGURE 4.11-1C

Noise Measurement Location 3

Sanitation District Facilities Master Plan PEIR

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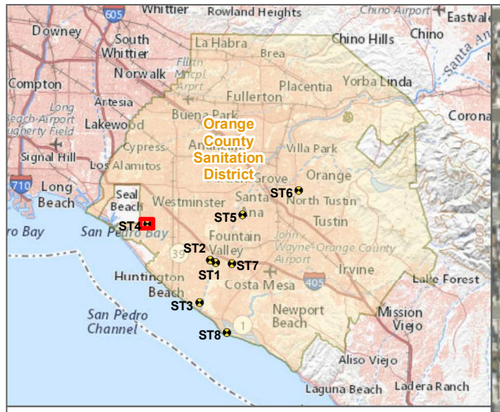


Noise Measurement Locations

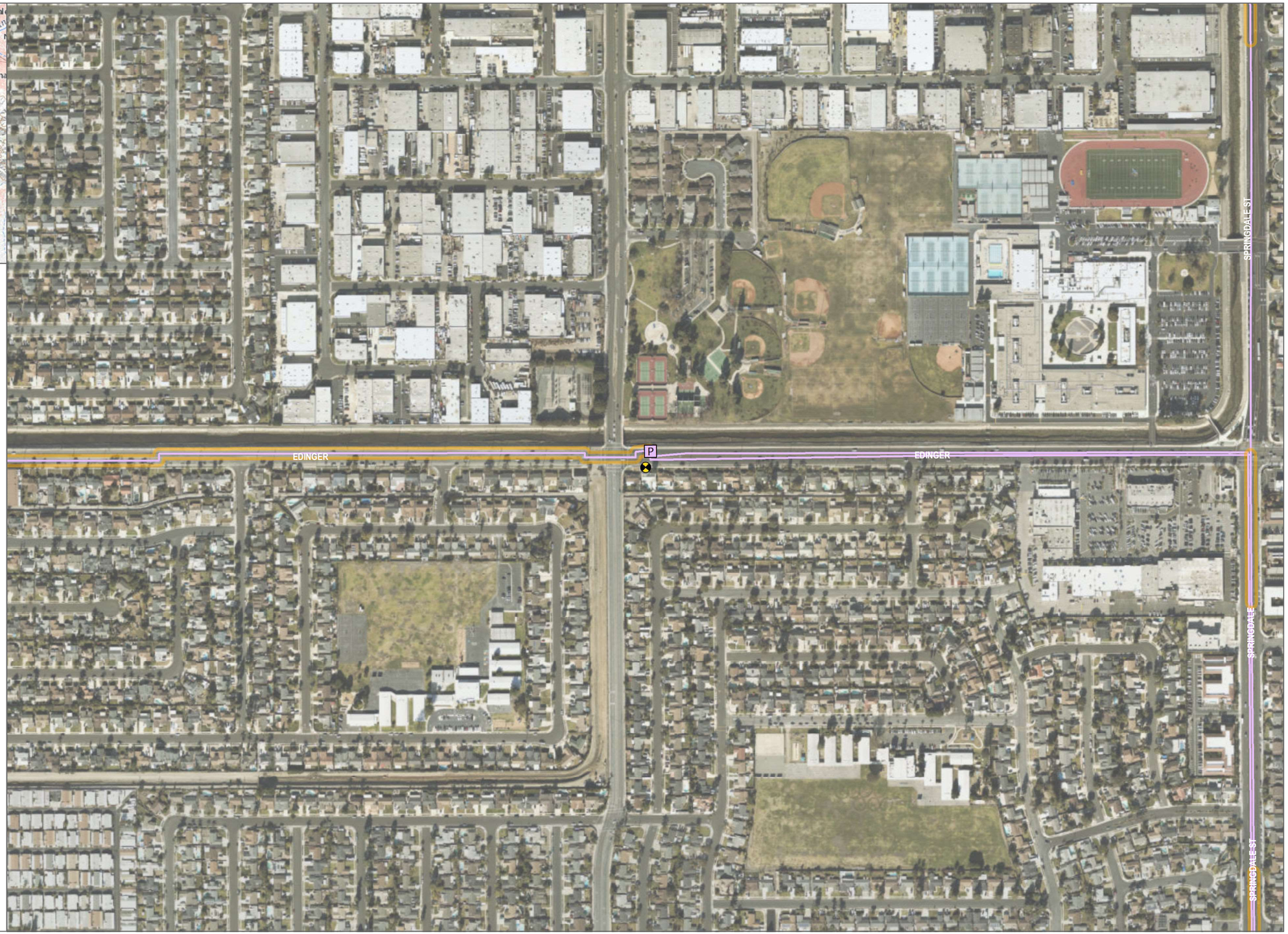
OCSD Sewer

Pump Station

Project Type

Replacement

Rehabilitation



SOURCE: Maxar 2019; CNDDB 2020

DUDEK

0 200 400 Feet

FIGURE 4.11-1D

Noise Measurement Location 4

Sanitation District Facilities Master Plan PEIR

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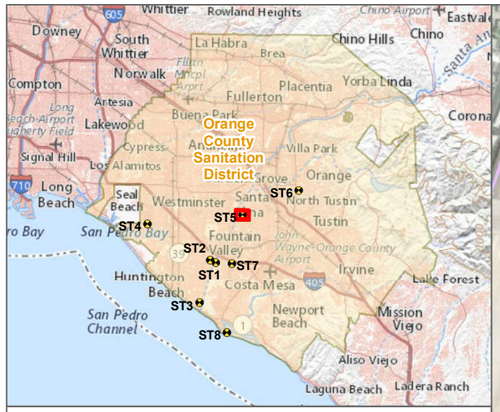
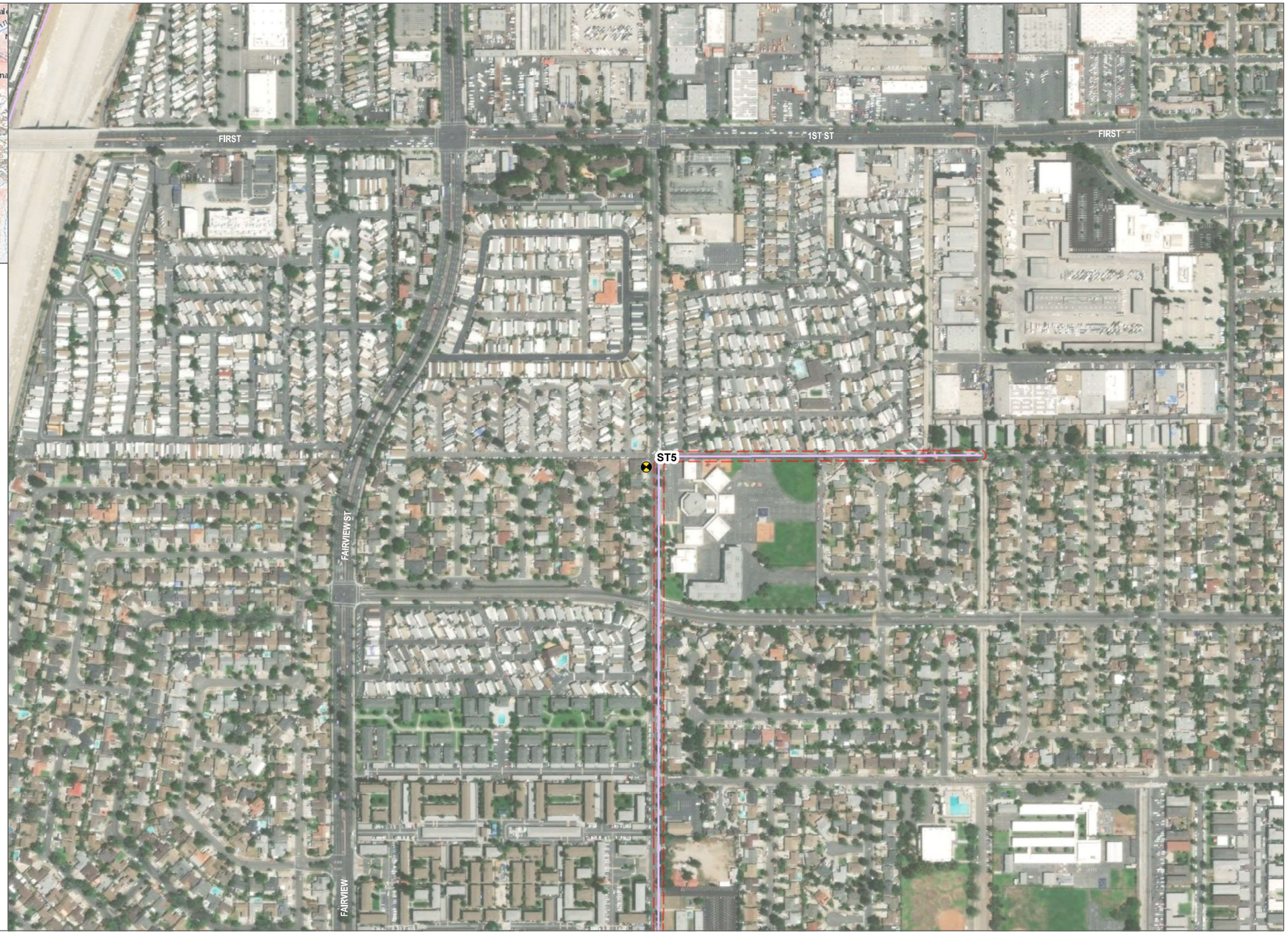


Noise Measurement Locations

OCSD Sewer

Project Type

Replacement



SOURCE: Maxar 2019; CNDDB 2020

DUDEK

0 200 400 Feet

FIGURE 4.11-1E

Noise Measurement Location 5

Sanitation District Facilities Master Plan PEIR

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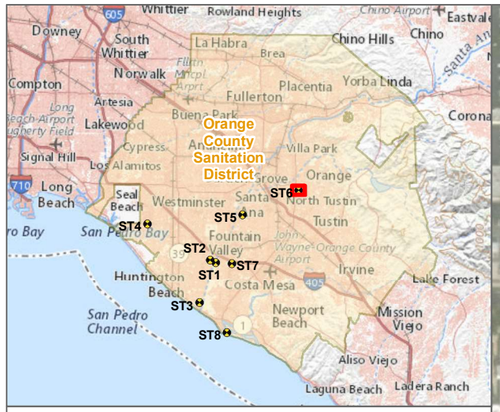
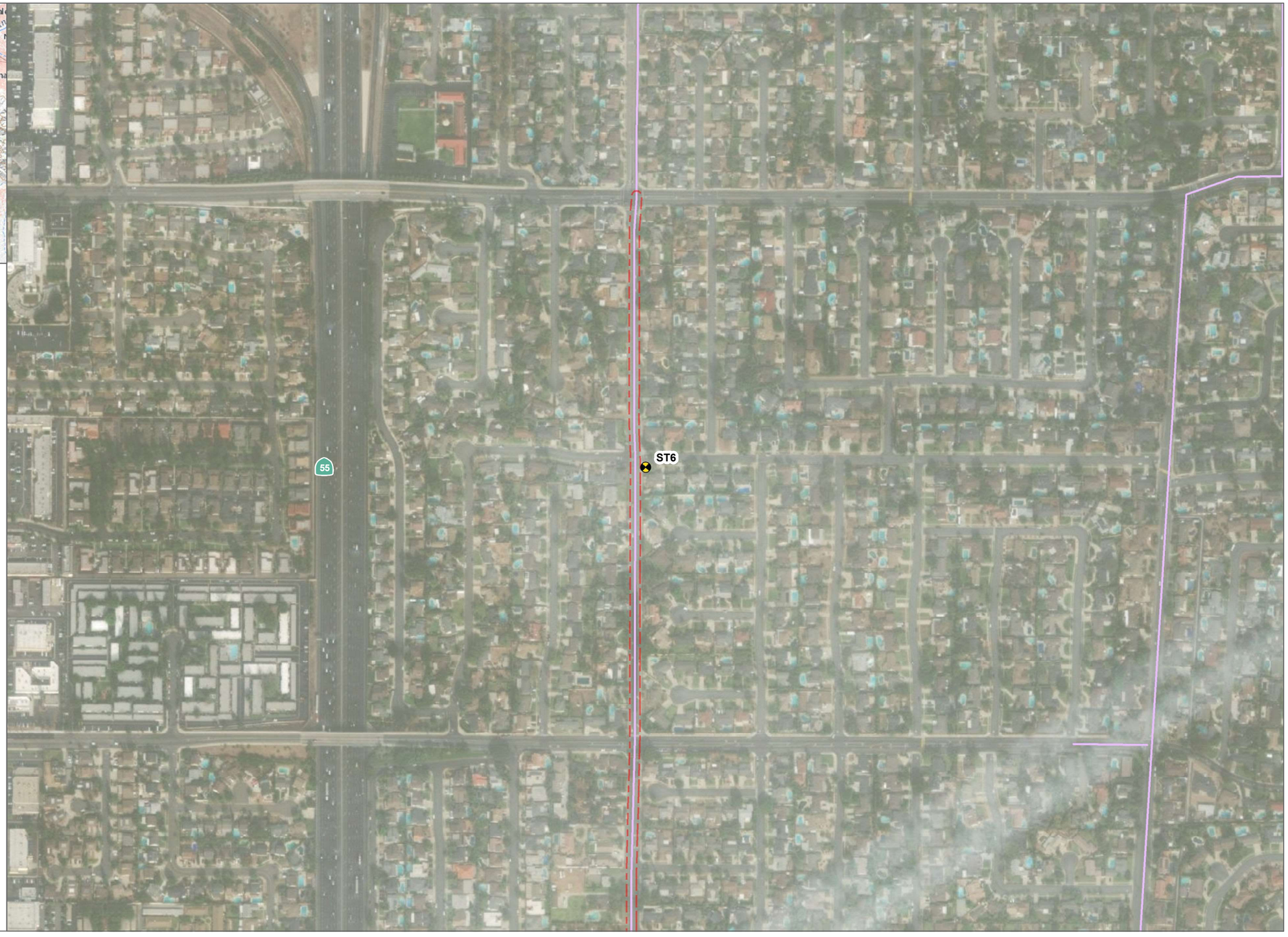


Noise Measurement Locations

OCSD Sewer

Project Type

Replacement



SOURCE: Maxar 2019; CNDDB 2020

DUDEK

0 200 400 Feet

FIGURE 4.11-1F

Noise Measurement Location 6

Sanitation District Facilities Master Plan PEIR

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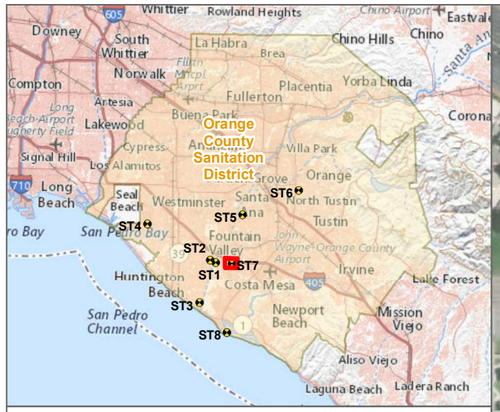

Noise Measurement Locations

OCSD Sewer

Pump Station

Project Type

Replacement

Rehabilitation

SOURCE: Maxar 2019; CNDDB 2020

DUDEK

0 200 400 Feet

FIGURE 4.11-1G

Noise Measurement Location 7

Sanitation District Facilities Master Plan PEIR

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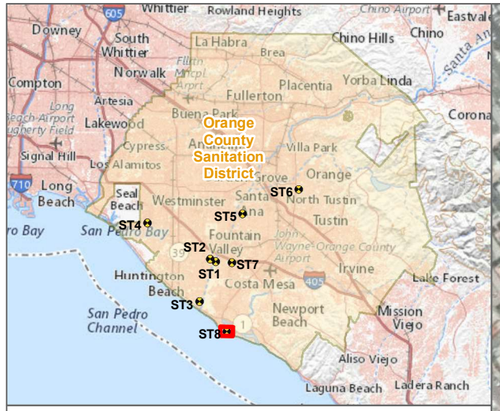


Noise Measurement Locations

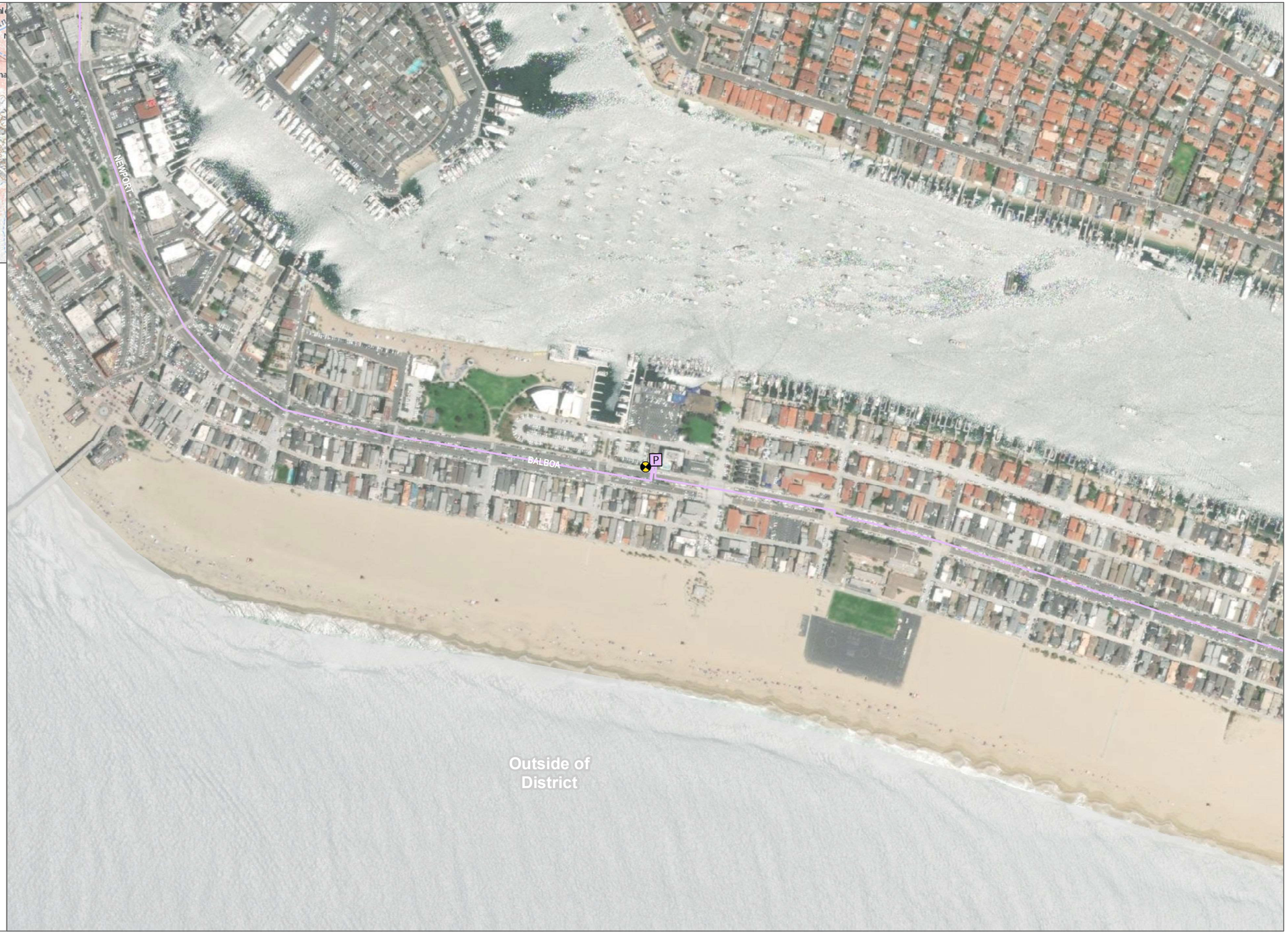
OCSD Sewer

Pump Station

Project Type

Rehabilitation

Miscellaneous



SOURCE: Maxar 2019; CNDDB 2020

DUDEK

0 200 400 Feet

FIGURE 4.11-1H

Noise Measurement Location 8

Sanitation District Facilities Master Plan PEIR

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4.12 Public Services

This section describes the existing public services in the vicinity of the Orange County Sanitation District (Sanitation District) Facilities Master Plan (FMP) area, identifies the associated regulatory framework, evaluates potential impacts, and identifies mitigation measures to reduce the level of impact associated with implementation of the individual projects under the proposed FMP (FMP projects, or projects). The impact analysis is based on a combination of responses to correspondence sent to local fire and police departments and agencies, and web-based research on existing facilities in the Sanitation District's service area. The following topics related to public services are examined in this section:

- Fire protection
- Police protection

As stated in the July 2019 Initial Study (Appendix A to this Program Environmental Impact Report [PEIR]), there would be no impacts associated with land uses and activities that would result in a permanent increase in population, due to the nature of the proposed improvements. Therefore, the following topics are not further analyzed in this PEIR:

- Schools
- Parks
- Other public facilities

4.12.1 Existing Conditions

4.12.1.1 Fire Protection

The Orange County Fire Authority (OCFA) is a regional fire service agency that serves 24 cities in Orange County and all unincorporated areas (OCFA 2020). OCFA regionally provides fire, emergency medical, and rescue services to more than 1,984,758 residents. There are 79 fire stations that provide regional emergency response for all fires, medical aids, rescues, hazardous materials incidents, wildland fires, aircraft fires, and rescue services at John Wayne Airport, and for other miscellaneous emergencies (OCFA 2020). Jurisdictions in Orange County that are not served by OCFA operate under individual city fire departments.

Table 4.12-1 identifies all of the jurisdictions within the Sanitation District service area, their corresponding fire jurisdictions, and the addresses of their fire departments' headquarters. The cities of Brea, Villa Park, and Los Alamitos are within the Sanitation District's service area, but they do not have activities proposed as part of the FMP. As such, these cities will not be analyzed in Section 4.12.4, Impacts Analysis. The remainder of the cities within the Sanitation District would potentially be affected by the FMP projects and are further analyzed.

Table 4.12-1. Fire Jurisdiction Summary

Jurisdiction	Fire Jurisdiction	Address
City of Anaheim	City of Anaheim Fire Department	201 South Anaheim Boulevard, Suite 301 Anaheim, California 92805

Table 4.12-1. Fire Jurisdiction Summary

Jurisdiction	Fire Jurisdiction	Address
City of Brea	City of Brea Fire Department	1 Civic Center Circle Brea, California 92821
Cities of Buena Park, Cypress, Garden Grove, Irvine, La Palma, Los Alamitos, Orange, Placentia, Santa Ana, Seal Beach, Stanton, Tustin, Villa Park, and Westminster	Orange County Fire Authority	1 Fire Authority Road Irvine, California 92602
City of Costa Mesa	City of Costa Mesa Fire Department	77 Fair Drive Costa Mesa, California 92626
City of Fountain Valley	City of Fountain Valley Fire Department	10200 Slater Avenue Fountain Valley, California 92708
City of Fullerton	City of Fullerton Fire Department	312 East Commonwealth Avenue Fullerton, California 92832
City of Huntington Beach	City of Huntington Beach Fire Department	2000 Main Street Huntington Beach, California 92648
City of La Habra	Los Angeles County Fire Department	1320 North Eastern Avenue Los Angeles, California 90063
City of Newport Beach	City of Newport Beach Fire Department	100 Civic Center Drive Newport Beach, California 92660

Note: The City of Costa Mesa is serviced by the Costa Mesa Sanitary District and the City of Westminster is serviced by the Midway City Sanitary District. Both are Member Agency special districts located within the Sanitation District's service area.

4.12.1.2 Police Protection

The Orange County Sheriff–Coroner Department (County Sheriff Department) is a large, multi-faceted law enforcement agency served by approximately 3,800 sworn and professional staff members and more than 800 reserve personnel. The County Sheriff Department consists of five organizational commands composed of 21 separate divisions. Collectively, these commands and divisions provide services such as land- and sea-based patrols and investigative services to unincorporated Orange County areas and to contract and task force partners at the city and county level (Sanitation District 2020). The County Sheriff Department currently patrols 13 cities (Sanitation District 2020). Cities that are served by the County Sheriff Department and are within the Sanitation District's service area are the City of Villa Park and City of Stanton. Jurisdictions in Orange County that are not served by the County Sheriff Department operate under individual city police/sheriff departments.

Table 4.12-2 identifies all of the jurisdictions within the Sanitation District's service area, their functioning police jurisdictions, and the addresses of their police departments' headquarters. The Cities of Brea, Villa Park, and Los Alamitos are within the Sanitation District's service area; however, they do not have FMP projects proposed within their jurisdictions. As such, these cities will not be included in the impact analysis in Section 4.12.4. The remainder of the cities within the Sanitation District's service area would potentially be affected by the FMP projects and are further analyzed in Section 4.12.4.

Table 4.12-2. Police Jurisdiction Summary

Jurisdiction	Police Jurisdiction	Address
City of Anaheim	City of Anaheim Police Department	425 South Harbor Boulevard Anaheim, California 92805
City of Brea	City of Brea Police Department	1 Civic Center Circle Brea, California 92821
City of Buena Park	City of Buena Park Police Department	6640 Beach Boulevard Buena Park, California 90622
City of Costa Mesa	City of Costa Mesa Police Department	99 Fair Drive Costa Mesa, California 92626
City of Cypress	City of Cypress Police Department	5275 Orange Avenue Cypress, California 90630
City of Fountain Valley	City of Fountain Valley Police Department	10200 Slater Avenue Fountain Valley, California 92708
City of Fullerton	City of Fullerton Police Department	237 West Commonwealth Avenue Fullerton, California 92832
City of Garden Grove	City of Garden Grove Police Department	11301 Acacia Parkway Garden Grove, California 92840
City of Huntington Beach	City of Huntington Beach Police Department	2000 Main Street Huntington Beach, California 92648
City of Irvine	City of Irvine Police Department	1 Civic Center Plaza Irvine, California 92606
City of La Habra	City of La Habra Police Department	150 North Euclid Street La Habra, California 90631
City La Palma	City of La Palma Police Department	7792 Walker Street La Palma, California 90623
City of Los Alamitos	City of Los Alamitos Police Department	3201 Katella Avenue Los Alamitos, California 90720
City of Newport Beach	City of Newport Beach Police Department	870 Santa Barbara Drive Newport Beach, California 92660
City of Orange	City of Orange Police Department	1107 North Batavia Street Orange, California 92867
City of Placentia	City of Placentia Police Department	401 East Chapman Avenue Placentia, California 92870
City of Santa Ana	City of Santa Ana Police Department	60 Civic Center Plaza Santa Ana, California 92701
City of Seal Beach	City of Seal Beach Police Department	911 Seal Beach Boulevard Seal Beach, California 90740
City of Stanton	Orange County Sheriff–Coroner Department	11100 Cedar Street Stanton, California 90680
City of Tustin	City of Tustin Police Department	300 Centennial Way Tustin, California 92780
City of Villa Park	Orange County Sheriff–Coroner Department	11100 Cedar Street Stanton, California 90680
City of Westminster	City of Westminster Police Department	8200 Westminster Boulevard Westminster, California 92683

Note: The City of Costa Mesa is serviced by the Costa Mesa Sanitary District and the City of Westminster is serviced by the Midway City Sanitary District. Both are Member Agency special districts located within the Sanitation District's service area.

4.12.2 Relevant Plans, Policies, and Ordinances

Local

Orange County General Plan

California State law (Government Code Section 65300) requires each city and county to adopt a comprehensive, long-term General Plan for its own physical development and for any land outside its boundaries related to its planning activities. All 34 cities in Orange County have General Plans that address their individual jurisdictions. The Orange County General Plan is a blueprint for growth and development in the unincorporated county areas. The General Plan also addresses regional services and facilities provided by the County of Orange (County), such as regional parks, roads, and flood control facilities. The following goals from the County General Plan's Public Services and Facilities Element pertaining to fire and police services may be applicable to the FMP projects (County of Orange 2005):

Orange County Fire Authority

Goal

1 Provide a safe living environment ensuring adequate fire protection facilities and resources to prevent and minimize the loss of life and property from structural and wildland fire damages.

2 To provide an adequate level of paramedic service for emergency medical aid in order to minimize trauma of injury or illness to patients.

Orange County Sheriff–Coroner

Goal

1 Assure that adequate Sheriff patrol service is provided to ensure a safe living and working environment.

Objective

1.1 To maintain adequate levels of Sheriff patrol services through coordinated land use and facility planning efforts.

City of Fountain Valley General Plan

Every city in California is required by state law to adopt a General Plan containing goals and policies that express the community's vision of its future, improve public safety, and enhance access to and use of available resources. The City of Fountain Valley General Plan is the primary long-range policy and planning document guiding Fountain Valley's physical development, conservation, and improvement. The following goals from the Public Safety Element pertaining to fire and police services may be applicable to the FMP projects (City of Fountain Valley 1995):

Public Safety

Goal

6.1 Minimize hazards to public health, safety and welfare resulting from natural and man-made hazards.

Policy

6.1.1 Improve the City's ability to respond to large scale emergencies.

6.1.2 The City shall update, on a regular basis, the multi-hazard functional plan to ensure that emergency response and evacuation routes are accessible throughout the entire City.

Fire

Goal

6.4 Minimize fire losses and damages within the City.

Policy

6.4.2 Enhance the City's fire protection capabilities.

Law Enforcement

Goal

6.6 A safe and secure environment for the City's residents, workers and visitors.

Policy

6.6.1 Enhance the City police protection capabilities.

City of Huntington Beach General Plan

The General Plan is a policy document providing the framework for the management and utilization of the City of Huntington Beach'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; provision of supporting infrastructure and public services; protection of environmental resources; allocation of fiscal resources; and protection of residents from natural and human-caused hazards. The following goals and policies from the Public Services and Infrastructure Element pertaining to public safety services may be applicable to the FMP projects (City of Huntington Beach 2017):

Goal

PSI-1 Public safety services, education, facilities, and technology protect the community from illicit activities and crime.

Policy

B Achieve optimal utilization of allocated public safety resources and provide desired levels of response and protection within the community.

C Establish proactive time targets and clearance rates that meet or exceed national averages and enhance and maintain police department staffing and facilities to achieve them.

Goal

PSI-2 Huntington Beach residents and property owners are protected from fire hazards and beach hazards, and adequate marine safety and emergency medical services are provided by modern facilities and advanced technology.

Policy

B Adopt locally defined performance objectives for emergency response to fire and EMS calls, and periodically evaluate fire service and EMS facilities and personnel relative to community needs.

City of Newport Beach General Plan

The General Plan for the City of Newport Beach presents a vision for Newport Beach's future and a strategy to make the vision a reality. The General Plan includes goals to improve transportation and infrastructure; continue to provide adequate parks, schools, police, fire, and other public services; protect valued open spaces, water resources, and environmental resources; and protect residents from the risks of earthquakes, fires, and other natural hazards. The following goals and policies from the Circulation Element and the Safety Element pertaining to safety and emergency response times may be applicable to the FMP projects (City of Newport Beach 2006a, 2006b):

Circulation Element

Roadway System

Goal

CE 2.2 A safe and efficient roadway system.

Policy

CE 2.2.1 **Safe Roadways.** Provide for safe roadway conditions by adhering to nationally recognized improvement standards and uniform construction and maintenance practices. *(Imp 16.4, 16.6)*

CE 2.2.3 **Traffic Control.** Design traffic control measures to ensure City streets and roads function with safety and efficiency. *(Imp 16.7)*

CE 2.2.6 **Emergency Access.** Provide all residential, commercial, and industrial areas with efficient and safe access for emergency vehicles. *(Imp 16.6)*

Safety Element

Disaster Planning: Adequate Disaster Planning

Goal

S9 Effective emergency response to natural or human-induced disasters that minimizes the loss of life and damage to property, while also reducing disruptions in the delivery of vital public and private services during and following a disaster.

Other Local General Plans, Policies, and Regulations

General Plans serve to guide and direct local government decision making in public-facility-related matters. Generally, public services and facilities chapters in General Plans focus on publicly managed services and facilities that have a direct influence on the distribution and intensity of development that can be accommodated through assumptions to determine adequate service levels. This includes fire and police protection and response services. Jurisdictions typically have an established threshold that measures a fire department's and police department's ability to respond to fire- and safety-related emergencies in a timely manner.

The Sanitation District understands the importance of consistency with the goals and policies identified within local jurisdictions' General Plans and other local ordinances/plans; however, per California Government Code Section 53091, the Sanitation District, as a wastewater treatment facility, is exempt from local building ordinances. As part of standard practice, the Sanitation District coordinates with local jurisdictions to the extent feasible during proposed projects to avoid and/or minimize potential impacts. The FMP projects are intended to maintain, repair, and improve existing infrastructure to ensure the reliability of the Sanitation District's water conveyance and treatment system. Overall, the FMP projects, which are part of a maintenance program, are not anticipated to conflict with any applicable goals, policies, or regulations of local agencies.

4.12.3 Thresholds of Significance

The significance criteria used to evaluate the proposed FMP's impact to public services is based on Appendix G of the California Environmental Quality Act Guidelines (14 CCR 15000 et seq.). According to Appendix G, a significant impact related to public services would occur if a project would:

1. Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:

    a. Fire protection.
    b. Police protection.

4.12.4 Impacts Analysis

1. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:

a. Fire protection?

Less-than-Significant Impact with Mitigation Incorporated. The need for new or expanded public facilities, such as fire protection facilities, is typically associated with a population increase. The FMP meets the needs of anticipated growth that will occur with or without the implementation of the identified FMP projects. The focus of the FMP is to rehabilitate existing facilities over a 20-year period. FMP projects would upgrade, replace, and rehabilitate aging facilities within the Sanitation District's wastewater collection and treatment system. In the event that fire suppression services are required at any of the FMP project sites

or within the entire FMP area during construction and operation of the above-mentioned FMP projects, existing fire protection facilities would be able to provide sufficient resources such as fire suppression equipment and personnel.

Construction Impacts

The FMP projects would not include construction of new or expanded Sanitation District facilities that would increase the number of fire protection facilities, or indirectly cause population growth or development, resulting in the need for additional fire protection services. However, FMP projects would potentially affect emergency vehicle access during construction due to temporary lane closures, potentially resulting in delayed emergency response times and hindering performance objectives. For the purpose of this impacts analysis, email and phone correspondence with applicable fire departments was conducted to gather additional information and further evaluate potential impacts associated with the FMP projects at Reclamation Plant No. 1 (Plant 1) and Reclamation Plant No. 2 (Plant 2), joint plant projects, pump stations, and the collection system.

In response to the potential disruption of emergency vehicle access, FMP projects would be subject to **Mitigation Measure (MM) TRA-1** (see Section 4.12.5, Mitigation Measures; also discussed in Section 4.13, Transportation). As part of **MM-TRA-1**, Traffic Control Plans would be implemented per applicable jurisdictions to reduce impacts to emergency vehicle access caused from potential lane closures that would take place during construction of the FMP projects.

With incorporation of **MM-TRA-1** and the required Traffic Control Plans to be implemented per applicable jurisdictions, impacts to emergency vehicle access resulting from construction would be reduced to a less-than-significant level.

Operational Impacts

FMP projects would consist of upgrading, replacing, and rehabilitating aging facilities within the Sanitation District's wastewater collection and treatment system. No new structures are proposed. Thus, operational activities would remain the same. Therefore, no impact to service ratios, response times, or other performance objectives would occur.

Facility Improvements at Plant 1 in the City of Fountain Valley

Plant 1 is located in the City of Fountain Valley (10844 Ellis Avenue). Emergency operations are managed by the Fountain Valley Fire Department, whose responsibilities include fires, hazardous material spills, traffic collisions, and other emergency response. The FMP projects include rehabilitation, replacement, and other miscellaneous projects on existing facilities within the boundaries of Plant 1. During construction activities, no lane closures or plant operations are anticipated that would impact adopted emergency response plans or interfere with emergency evacuation routes.

As discussed in the beginning of this section, applicable jurisdictions with FMP projects would implement Traffic Control Plans as part of **MM-TRA-1** in order to reduce impacts to emergency vehicle access caused by potential lane closures during construction activities (for more details, see **MM-TRA-1** in Section 4.12.5). Upon completion of construction, each FMP project site would return to existing conditions and no impact to emergency vehicle access would occur. As such, impacts associated with fire protection services as a result of FMP projects at Plant 1 would be less than significant with mitigation incorporated.

Facility Improvements at Plant 2 in Huntington Beach

Plant 2 is located in the City of Huntington Beach (22212 Brookhurst Street). Emergency operations are managed by the Huntington Beach Fire Department, whose responsibilities include fires, hazardous material spills, traffic collisions, and other emergency response. As determined by correspondence with the City of Huntington Beach Fire Department, FMP projects at Plant 2 would not result in adverse or significant environmental impacts to the Huntington Beach Fire Department's facilities, nor would it require expansion of existing or construction of new public facilities. However, fire protection plans and calculations would need to be provided to Huntington Beach's Fire Department for approval prior to any site improvements to ensure adequate fire flow capacity (i.e., water) and access is provided to the private on-site fire system (Eros, pers. comm. 2020).

Additionally, similar to projects at Plant 1, FMP projects at Plant 2 would include rehabilitation, replacement, and other miscellaneous projects. During construction activities, no lane closures or plant operations are anticipated that would impact adopted emergency response plans or interfere with emergency evacuation routes. As discussed in the beginning of this section, applicable jurisdictions with FMP projects would implement Traffic Control Plans as part of **MM-TRA-1** in order to reduce impacts to emergency vehicle access caused by potential lane closures during construction activities (for more details see **MM-TRA-1** in Section 4.12.5). Upon completion of construction, each FMP project site would return to existing conditions and no impact to emergency vehicle access would occur. Therefore, impacts to fire protection services as a result of FMP projects at Plant 2 would be less than significant with mitigation incorporated.

Joint Plant Improvements at Plant 1 and Plant 2

As previously discussed, FMP projects at Plant 1 and Plant 2 would include rehabilitation, replacement, and other miscellaneous projects. During construction of the FMP projects, no lane closures or plant operations that would impact adopted emergency response plans are anticipated. However, fire protection plans and calculations would need to be provided to the Huntington Beach Fire Department for approval prior to any site improvements to ensure adequate fire flow capacity (i.e., water) and access is provided to the private on-site fire system (Eros, pers. comm. 2020).

Additionally, both the City of Fountain Valley and the City of Huntington Beach would require a Traffic Control Plan as part of **MM-TRA-1** in order to reduce impacts to emergency vehicle access to the FMP project sites during construction (for more details, see **MM-TRA-1** in Section 4.12.5). Upon completion of construction, each FMP project site would return to existing conditions and no impacts to emergency vehicle access would occur. Therefore, impacts to fire protection services as a result of FMP projects at Plant 1 and Plant 2 would be less than significant with mitigation incorporated.

Collection System Improvements

FMP projects would be located throughout the Sanitation District's collection system and pump stations, the components of which are dispersed throughout the Sanitation District's service area. The FMP projects would include replacement, rehabilitation, and other miscellaneous projects. Most of the FMP projects would be located in existing roads and Sanitation District rights-of-way traversing developed areas, including residential, commercial, and industrial areas. Certain FMP project sites also sit adjacent to public uses, such as schools and parks, and some are near small areas of open space. Construction methods for collection system FMP projects generally include lining, manhole repair, manhole removal with associated

demolition, open-trench excavation for new sewer installations, shoring, dewatering, pipe removal, and potential jack-and-bore methods for installation at sensitive crossings (e.g., busy intersections, railroad spurs, or flood control channels).

On narrower residential streets, partial lane closures and parking restrictions might be imposed during construction periods to facilitate traffic flow around construction areas. Additionally, construction work in intersections might necessitate lane closures when the construction precludes safe traffic or work conditions. Staging areas would be necessary along the construction routes. Construction equipment and materials would be held in parking lots, vacant lots, or segments of street lanes that are temporarily closed. Although construction activities have the potential to block access to certain areas, construction would be temporary and would not result in permanent detours or closures of lanes or access driveways.

As a result of the correspondence with local fire departments and OCFA, the main concerns arising from the FMP projects are potential lane closures during construction that could affect fire response times and road access for emergency vehicles. Although construction activities have the potential to close lanes, construction would be temporary and would not result in permanent detours or closures of lanes and/or access driveways. Additionally, as discussed in the beginning of this section, applicable jurisdictions with FMP projects would implement Traffic Control Plans as part of **MM-TRA-1** in order to reduce impacts to emergency vehicle access caused by lane closures during construction activities (for more details, see **MM-TRA-1** in Section 4.12.5). Upon completion of construction, each FMP project site would return to existing conditions and no impact to emergency vehicle access would occur. As such, impacts associated with fire protection services as a result of FMP projects throughout the Sanitation District's collection system would be less than significant with mitigation incorporated.

Overall, impacts associated with the provision of new or altered governmental facilities, the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objects for fire protection services would be less than significant with mitigation incorporated.

b. Police protection?

Less-than-Significant Impact with Mitigation Incorporated. The need for new or expanded public services such as police protection facilities is typically associated with a population increase. The FMP meets the needs of anticipated growth that will occur with or without the implementation of the FMP projects. The focus of the FMP is to rehabilitate existing facilities over a 20-year period. The FMP projects would involve upgrading, replacing, and rehabilitating aging facilities within the Sanitation District's wastewater collection and treatment system. In the event that police services are required at the FMP project sites or within the FMP area during construction and operation of the above-mentioned projects, existing police protection facilities would be able to provide sufficient resources, such as police protection equipment and personnel.

Construction

The FMP projects would not include construction of new or expanded Sanitation District facilities that would increase the number of police protection facilities, or indirectly cause population growth and development, resulting in the need for additional police protection services. However, the FMP projects would potentially affect emergency vehicle access during construction due to temporary lane closures, potentially resulting in delayed emergency response times and hindering performance objectives. For the

purpose of this impact analysis, in February 2020, email and phone correspondence with applicable police departments was conducted to gather additional information and further evaluate potential impacts associated with the FMP projects at Plant 1, Plant 2, joint plant projects, pump stations, and the collection system.

In response to the potential disruption of emergency vehicle access, FMP projects would be subject to **MM-TRA-1** (see Section 4.12.5; also discussed in Section 4.13). As part of **MM-TRA-1**, Traffic Control Plans would be implemented per applicable jurisdictions to reduce impacts to emergency vehicle access caused from potential lane closures that would take place during construction of the FMP projects.

With incorporation of **MM-TRA-1** and the required Traffic Control Plans to be implemented per applicable jurisdictions, impacts to emergency vehicle access resulting from construction would be reduced to a less-than-significant level.

Operation

FMP projects would involve upgrading, replacing, and rehabilitating aging facilities within the Sanitation District's wastewater collection and treatment system. No new structures are proposed. Thus, operational activities would remain the same. Therefore, impacts to service ratios, response times, or other performance objectives would not occur.

Facility Improvements at Plant 1 in the City of Fountain Valley

The City of Fountain Valley Police Department serves the community of Fountain Valley with police services for more than 19,000 residents (City of Fountain Valley 2020). The FMP projects include rehabilitation, replacement, and other miscellaneous projects on existing facilities within the boundaries of Plant 1. Construction of the FMP projects must comply with the City of Fountain Valley Municipal Code Chapter 13.08, requiring the provision and maintenance of sufficient night lights, signs, barricades, flaggers, temporary sidewalks and surfacing, temporary bridges, danger signals, guards, and other safeguards as necessary during construction. These measures would enhance safety during construction and help reduce the need for police protection services at this FMP project site. As determined through correspondence with the City of Fountain Valley Police Department, potential lane closures could affect the ability of police personnel to traverse the property in the event of an emergency (Luce, pers. comm. 2020). However, because the FMP projects at Plant 1 would not require lane closures or block emergency vehicle routes, police protection services would maintain the appropriate response times and performance objectives to serve the community.

Additionally, as discussed in the beginning of this section, applicable jurisdictions with FMP projects would implement Traffic Control Plans as part of **MM-TRA-1** in order to reduce impacts to emergency vehicle access caused by lane closures during construction activities (for more details, see **MM-TRA-1** in Section 4.12.5). Upon completion of construction, each FMP project site would return to existing conditions and no impact to emergency vehicle access would occur. As such, impacts associated with police protection services as a result of FMP projects at Plant 1 would be less than significant with mitigation incorporated.

Facility Improvements at Plant 2 in Huntington Beach

The City of Huntington Beach Police Department serves the community with police services for more than 200,000 residents (City of Huntington Beach 2020). As previously discussed, FMP projects at Plant 2 would include rehabilitation, replacement, and other miscellaneous projects. As determined through

correspondence with the City of Huntington Beach Police Department, the FMP projects could result in impacts to emergency vehicle access at Plant 2 in the event of lane closures and as such, a Traffic Control Plan would be required to reduce those potential impacts (Martin, pers. comm. 2020). However, similar to Plant 1, during construction activities, no lane closures or plant operations are anticipated at Plant 2 that would impact adopted emergency response plans or interfere with emergency evacuation routes.

Additionally, as discussed in the beginning of this section, applicable jurisdictions with FMP projects would implement Traffic Control Plans as part of **MM-TRA-1** in order to reduce impacts to emergency vehicle access caused by potential lane closures during construction activities (for more details, see **MM-TRA-1** in Section 4.12.5). Upon completion of construction, each FMP project site would return to existing conditions and no impact to emergency vehicle access would occur. As such, impacts associated with police protection services as a result of FMP projects at Plant 2 would be less than significant with mitigation incorporated.

Joint Plant Improvements

FMP projects at Plant 1 and Plant 2 would include rehabilitation, replacement, and other miscellaneous projects. As previously determined by the responses from the City of Fountain Valley and City of Huntington Beach Police Departments, the main potential impact resulting from the FMP projects would be disruption of emergency vehicle access within Plant 1 and Plant 2 from potential lane closures during construction activities (Luce, pers. comm. 2020; Martin, pers. comm. 2020). However, as stated previously, the FMP projects are not anticipated to result in lane closures or plant operations that would impact adopted emergency response plans.

Additionally, both the City of Fountain Valley and the City of Huntington Beach would require a Traffic Control Plan as part of **MM-TRA-1** in order to reduce impacts to emergency vehicle access to the FMP project sites during construction (for more details, see **MM-TRA-1** in Section 4.12.5). Upon completion of construction, each FMP project site would return to existing conditions and no impacts to emergency vehicle access would occur. Therefore, impacts to police protection services as a result of FMP projects at Plant 1 and Plant 2 would be less than significant with mitigation incorporated.

Collection System Improvements

FMP projects would be located throughout the Sanitation District's collection system and pump stations, which are dispersed throughout the Sanitation District's service area. The FMP projects include replacement, rehabilitation, and other miscellaneous projects. Most of the FMP projects are located in existing roads and Sanitation District rights-of-way traversing developed areas, including residential, commercial, and industrial areas. Certain FMP project sites also sit adjacent to public uses, such as schools and parks, and some are near small areas of open space. As previously discussed, construction methods for collection system improvement projects would generally include lining, manhole repair, manhole removal with associated demolition, open-trench excavation for new sewer installations, shoring, dewatering, pipe removal, and potential jack-and-bore methods for installation at sensitive crossings (e.g., busy intersections, railroad spurs, or flood control channels).

Potential lane closures and parking restrictions may be implemented during construction at FMP project sites located throughout the Sanitation District collection system to facilitate traffic flow around construction areas. Additionally, construction work at intersections might necessitate lane closures when

the construction precludes safe traffic or work conditions. Traffic would be detoured around the construction area and, although some disruption to traffic could occur during construction activities, the need for lane closures would be infrequent in many areas. Staging areas would be necessary along construction routes. Construction equipment and materials would be held in parking lots, vacant lots, or segments of street lanes that are temporarily closed.

As determined though correspondence with local police departments, the main concerns arising from the FMP projects are potential lane closures during construction that could affect police response times and access for emergency vehicles. Although construction activities have the potential to close lanes, construction would be temporary and would not result in permanent detours or closures of lanes and/or access driveways. Additionally, as discussed in the beginning of this section, applicable jurisdictions with FMP projects would implement Traffic Control Plans as part of **MM-TRA-1** in order to reduce impacts to emergency vehicle access caused by potential lane closures during construction activities (for more details, see **MM-TRA-1** in Section 4.12.5). Upon completion of construction, each FMP project site would return to existing conditions and no impact to emergency vehicle access would occur. As such, impacts associated with police protection services as a result of FMP projects throughout the Sanitation District's collection system would be less than significant with mitigation incorporated.

Overall, impacts associated with the provision of new or altered governmental facilities, the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objects for police protection services would be less than significant with mitigation incorporated.

4.12.5 Mitigation Measures

As discussed in Section 4.12.4, the FMP projects would require construction within public streets that could temporarily cause lane closures, which could obstruct emergency vehicle access, potentially resulting in delayed emergency response times and hindering performance objectives. Thus, to mitigate potentially significant impacts related to emergency vehicle access, **MM-TRA-1** would be required.

MM-TRA-1 Prior to initiation of construction activities, engineering drawings and specifications and/or contractor shop drawings shall be submitted for review and approval by the Sanitation District, the Public Works Departments of affected cities, and the California Department of Transportation (Caltrans) (where applicable). The proposed project may impact local transportation facilities due to temporary street and/or lane closures, temporary transit stop relocations, haul truck circulation, and construction staging. These impacts, if any, will be identified in the engineering drawings and specifications and/or contractor shop drawings identified for individual projects. The following steps will be required to mitigate construction traffic impacts identified in the engineering drawings and specifications and/or contractor shop drawings:

Closures to Transportation Facilities

A. Traffic control, and associated Traffic Control Plans, for any lane closure, detour, or other disruption to traffic circulation, including bicycle and pedestrian trails. Bicycle and pedestrian trails shall remain open, to the greatest extent possible, during construction or re-routed to ensure continued connectivity.

B. Engineering drawings and specifications shall meet the standards established in the current California Manual on Uniform Traffic Control Device.

C. Bus stop access impacts shall be coordinated with, and approved by, the Orange County Transportation Authority.

D. Consistent with applicable City and/or Caltrans requirements, and at least three (3) business days before any construction activities that would affect travel on nearby roadways, the construction contractor shall notify the affected City Public Works Department and/or Caltrans of construction activities that could impede movement (such as lane closures) along roadways to allow for uninterrupted emergency access. Surrounding property owners shall also be notified of construction activities through the Sanitation District Public Outreach Process.

Truck Haul Routes and Circulation

E. As required by the applicable agency, construction vehicle haul routes for the delivery of construction materials (e.g., lumber, tiles, piping, windows) to the site, necessary traffic controls and detours, and a construction phasing plan for the construction activities shall be identified.

F. The hours during which transport activities can occur and methods to mitigate construction-related impacts to adjacent streets shall be specified. Examples of these methods include: 1) transport of materials and heavy equipment to the site(s) shall be avoided during the AM and PM peak commute hours; 2) haul trucks shall utilize designated truck routes to the extent feasible; 3) advance warning signage and/or detour routes shall be provided along streets where construction activities would occur; and, 4) scheduling of construction activities and workers at each individual site so that less than 110 daily trips would occur.

G. The contractor shall be required to keep all haul routes clean and free of debris, including gravel and dirt resulting from its operations. The contractor shall clean adjacent streets, as directed by the Sanitation District, of any material that may have been spilled, tracked, or blown onto adjacent streets and areas.

H. As required by the applicable agency, hauling and transport of oversize loads outside of their standard working hours will require approvals.

I. Use of local streets shall be prohibited, except what is required to provide direct access to a construction site.

J. Haul trucks entering or exiting public streets shall yield to public traffic at all times.

K. If hauling operations cause any damage to existing pavement, streets, curbs, and/or gutters along the haul route, the contractor shall be fully responsible for repairs. The repairs shall restore the damaged property to its original condition.

Construction Staging

L. Any off-site construction staging or material storage sites shall be identified to the extent feasible.

M. All project-related staging of vehicles shall be kept out of the adjacent public roadways and shall occur on site or within other off-street areas.

4.12.6 Level of Significance After Mitigation

As previously discussed, the FMP projects would not require new or altered government facilities. However, the FMP projects would potentially affect emergency vehicle access during construction due to temporary lane closures, resulting in delayed emergency response times and hindering performance objectives. With incorporation of **MM-TRA-1,** which implements Traffic Control Plans within the applicable jurisdictions, impacts that could affect emergency vehicle access would be reduced to less than significant. Therefore, impacts associated with the substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives would be less than significant with mitigation incorporated.

4.12.7 Cumulative Impacts

A significant adverse cumulative impact would occur in the category of public services if the service demands of the FMP projects were to combine with those of related projects, triggering a need for new or physically altered public service facilities, the development of which could cause significant environmental impacts. A significant adverse cumulative impact would also occur if the FMP projects were to make a considerable contribution to a cumulatively significant effect that is already occurring (or that is anticipated to occur).

As discussed in Section 4.12.1, Existing Conditions, the FMP projects would be served by OCFA and other local fire departments for fire protection services and by the County Sheriff Department and local police departments for police protection services. As previously discussed, the need for new or expanded public facilities, such as fire and/or police protection facilities, is typically associated with a population increase. The FMP projects would not include construction of new or expanded Sanitation District facilities that would increase the number of fire or police protection facilities, or indirectly cause population growth or development, resulting in the need for additional fire and/or police protection services. FMP projects would involve upgrading, replacing, and rehabilitating aging facilities within the Sanitation District's wastewater collection and treatment system. Upon completion of construction, each FMP project site would return to existing conditions. However, FMP projects would potentially affect emergency vehicle access during construction due to temporary lane closures, potentially resulting in delayed emergency response times and hindering performance objectives. A combination of related projects in the area could result in a cumulative impact to emergency vehicle access; however, each jurisdiction would require a Traffic Control Plan to mitigate each individual effect, and as a result, would contribute toward mitigating the cumulative impact to a less-than-significant level. As such, each jurisdiction with an FMP project would require a Traffic Control Plan, which would be implemented as part of **MM-TRA-1**, as well as compliance with applicable city codes and regulations. Thus, the FMP projects would not result in impacts to emergency vehicle access that would contribute to a cumulative effect.

Therefore, because the FMP projects and related projects in the area would be mitigated as individual effects, cumulative impacts would be less than significant with mitigation incorporated.

4.12.8 Impact Summary

Table 4.12-3 summarizes the impacts for the FMP projects assessed at the project level at Plant 1, Plant 2, joint plant projects, and collection system projects under each threshold analyzed in this PEIR.

Table 4.12-3. Summary of FMP Project Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services: fire protection?					
Plant 1					
P1-126	Primary Clarifiers Replacements and Improvements	Replace	Significant	MM-TRA-1	Less than Significant
X-093	Administrative Facilities and Power Building 3A Demolition	Misc. (Demo)	Significant	MM-TRA-1	Less than Significant
X-092	Standby Generator Feeders for Plant 1 Secondary Systems	Misc.	Significant	MM-TRA-1	Less than Significant
X-048	Activated Sludge (AS)-1 Aeration Basin and Blower Rehabilitation	Rehab	Significant	MM-TRA-1	Less than Significant
P1-135	Digester Ferric Piping Replacement	Replace	Significant	MM-TRA-1	Less than Significant
X-077	Switchgear Replacement at Central Generation	Replace	Significant	MM-TRA-1	Less than Significant
X-090	Network, Telecommunications, and Service Relocation at Plant 1	Misc.	Significant	MM-TRA-1	Less than Significant
Plant 2					
P2-126	Substation and Warehouse Replacement at Plant 2	Misc.	Significant	MM-TRA-1	Less than Significant
P2-138	Operations and Maintenance Complex at Plant 2	Replace	Significant	MM-TRA-1	Less than Significant
X-050	Activated Sludge (AS) Aeration Basin	Rehab	Significant	MM-TRA-1	Less than Significant
X-032	Truck Loading Facility Rehabilitation	Rehab	Significant	MM-TRA-1	Less than Significant
X-054	Waste Side-Stream Pump Station C Rehabilitation	Rehab	Significant	MM-TRA-1	Less than Significant
X-034	Sodium Bisulfite Station Replacement and Bleach Station Demolition	Replace	Significant	MM-TRA-1	Less than Significant
Joint Plant Projects					
J-98	Plantwide Miscellaneous Electrical Power Distribution System Improvements	Replace	Significant	MM-TRA-1	Less than Significant
J-120	Plantwide Miscellaneous Process Control Systems Upgrades	Replace	Significant	MM-TRA-1	Less than Significant
J-133	Laboratory Rehabilitation or Replacement at Plant 1	Rehab	Significant	MM-TRA-1	Less than Significant
X-057	Plantwide Miscellaneous Yard Structures Rehabilitation or Replacement	Misc.	Significant	MM-TRA-1	Less than Significant
X-058	Plantwide Miscellaneous Yard Piping Replacement	Replace	Significant	MM-TRA-1	Less than Significant

Table 4.12-3. Summary of FMP Project Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
X-059	Plantwide Miscellaneous Tunnels Rehabilitation	Rehab	Significant	MM-TRA-1	Less than Significant
J-121	UPS System Upgrades	Replace	Significant	MM-TRA-1	Less than Significant
X-044	Steve Anderson Lift Station Rehabilitation	Rehab	Significant	MM-TRA-1	Less than Significant
Collection System Projects					
5-68	Newport Beach Pump Station Odor Control Improvements	Misc.	Significant	MM-TRA-1	Less than Significant
X-076	Santa Ana Trunk Sewer Rehabilitation Phase II	Rehab	Significant	MM-TRA-1	Less than Significant
X-082	North Trunk Improvement Project	Replace	Significant	MM-TRA-1	Less than Significant
X-060	Newhope Placentia Chemical Dosing Station	Misc.	Significant	MM-TRA-1	Less than Significant
11-33	Edinger Pumping Station Replacement	Replace	Significant	MM-TRA-1	Less than Significant
X-063	South Santa Ana River Interceptor Connector Rehabilitation	Rehab	Significant	MM-TRA-1	Less than Significant
2-73	Yorba Linda Pump Station Abandonment	Misc.	Significant	MM-TRA-1	Less than Significant
3-67	Seal Beach Pump Station Replacement	Replace	Significant	MM-TRA-1	Less than Significant
2-49	Taft Branch Sewer Improvements	Replace	Significant	MM-TRA-1	Less than Significant
X-083	Greenville–Sullivan Sewer Relief Project	Replace	Significant	MM-TRA-1	Less than Significant
Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services: police protection?					
Plant 1					
P1-126	Primary Clarifiers Replacements and Improvements	Replace	Significant	MM-TRA-1	Less than Significant
X-093	Administrative Facilities and Power Building 3A Demolition	Misc. (Demo)	Significant	MM-TRA-1	Less than Significant
X-092	Standby Generator Feeders for Plant 1 Secondary Systems	Misc.	Significant	MM-TRA-1	Less than Significant
X-048	Activated Sludge (AS)-1 Aeration Basin and Blower Rehabilitation	Rehab	Significant	MM-TRA-1	Less than Significant
P1-135	Digester Ferric Piping Replacement	Replace	Significant	MM-TRA-1	Less than Significant
X-077	Switchgear Replacement at Central Generation	Replace	Significant	MM-TRA-1	Less than Significant

Table 4.12-3. Summary of FMP Project Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
X-090	Network, Telecommunications, and Service Relocation at Plant 1	Misc.	Potentially Significant	MM-TRA-1	Less than Significant
Plant 2					
P2-126	Substation and Warehouse Replacement at Plant 2	Misc.	Significant	MM-TRA-1	Less than Significant
P2-138	Operations and Maintenance Complex at Plant 2	Replace	Significant	MM-TRA-1	Less than Significant
X-050	Activated Sludge (AS) Aeration Basin	Rehab	Significant	MM-TRA-1	Less than Significant
X-032	Truck Loading Facility Rehabilitation	Rehab	Significant	MM-TRA-1	Less than Significant
X-054	Waste Side-Stream Pump Station C Rehabilitation	Rehab	Significant	MM-TRA-1	Less than Significant
X-034	Sodium Bisulfite Station Replacement and Bleach Station Demolition	Replace	Significant	MM-TRA-1	Less than Significant
Joint Plant Projects					
J-98	Plantwide Miscellaneous Electrical Power Distribution System Improvements	Replace	Significant	MM-TRA-1	Less than Significant
J-120	Plantwide Miscellaneous Process Control Systems Upgrades	Replace	Significant	MM-TRA-1	Less than Significant
J-133	Laboratory Rehabilitation or Replacement at Plant 1	Rehab	Significant	MM-TRA-1	Less than Significant
X-057	Plantwide Miscellaneous Yard Structures Rehabilitation or Replacement	Misc.	Significant	MM-TRA-1	Less than Significant
X-058	Plantwide Miscellaneous Yard Piping Replacement	Replace	Significant	MM-TRA-1	Less than Significant
X-059	Plantwide Miscellaneous Tunnels Rehabilitation	Rehab	Significant	MM-TRA-1	Less than Significant
J-121	UPS System Upgrades	Replace	Significant	MM-TRA-1	Less than Significant
X-044	Steve Anderson Lift Station Rehabilitation	Rehab	Significant	MM-TRA-1	Less than Significant
Collection System Projects					
5-68	Newport Beach Pump Station Odor Control Improvements	Misc.	Significant	MM-TRA-1	Less than Significant
X-076	Santa Ana Trunk Sewer Rehabilitation Phase II	Rehab	Significant	MM-TRA-1	Less than Significant
X-082	North Trunk Improvement Project	Replace	Significant	MM-TRA-1	Less than Significant
X-060	Newhope Placentia Chemical Dosing Station	Misc.	Significant	MM-TRA-1	Less than Significant
11-33	Edinger Pumping Station Replacement	Replace	Significant	MM-TRA-1	Less than Significant

Table 4.12-3. Summary of FMP Project Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
X-063	South Santa Ana River Interceptor Connector Rehabilitation	Rehab	Significant	MM-TRA-1	Less than Significant
2-73	Yorba Linda Pump Station Abandonment	Misc.	Significant	MM-TRA-1	Less than Significant
3-67	Seal Beach Pump Station Replacement	Replace	Significant	MM-TRA-1	Less than Significant
2-49	Taft Branch Sewer Improvements	Replace	Significant	MM-TRA-1	Less than Significant
X-083	Greenville–Sullivan Sewer Relief Project	Replace	Significant	MM-TRA-1	Less than Significant

Note: UPS = uninterruptible power system.

4.12.9 References

City of Fountain Valley. 1995. *Fountain Valley General Plan, Chapter 6, Public Safety Element*. Adopted March 21, 1995. https://www.fountainvalley.org/DocumentCenter/View/516/Chapter-6-Public-Safety-Element-March-21-1995.

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4.13 Transportation

This section analyzes transportation and traffic impacts of the proposed Orange County Sanitation District (Sanitation District) Facilities Master Plan (FMP). It describes transportation and traffic conditions in the vicinity of proposed facility, collection system and pump station improvements, presents an assessment of related transportation impacts, identifies associated regulatory requirements, and identifies mitigation measures related to implementation of the proposed FMP projects.

This section analyzes the potential construction-related (temporary) transportation impacts and operations- and maintenance-related (permanent) transportation impacts related to the following FMP project components:

- Facility improvements to Reclamation Plant No. 1 (Plant 1) in Fountain Valley
- Facility improvements to Treatment Plant No. 2 (Plant 2) in Huntington Beach
- Joint improvements to Plant 1 and Plant 2
- Collection system improvements countywide

Per the Sanitation District, at the completion of FMP project construction, the total number of Sanitation District staff is not anticipated to increase. Sanitation District operations and maintenance trips will not increase. However, analysis of the operations and maintenance condition is included for disclosure, and to account for cumulative impacts.

CEQA Guidelines Section 15064.3(b) focuses on newly adopted criteria (vehicle miles traveled, or VMT) pursuant to Senate Bill (SB 743) for determining the significance of transportation impacts. Pursuant to SB 743, the focus of transportation analysis changed from vehicle delay to VMT. The related updates to the CEQA Guidelines required under SB 743 were approved on December 28, 2018. As stated in CEQA Guidelines Section 15064.3(c), the provisions of Section 15064.3 shall apply prospectively, and a lead agency may elect to be governed by the provision of Section 15064.3 immediately. The provisions were required to be implemented statewide by July 1, 2020.

The proposed FMP area covers approximately 479 square miles within the northwestern and central portions of Orange County. The Sanitation District's service area includes the entirety or portions of municipal boundaries for 20 cities, as well as unincorporated land and four special districts. Since most of the lead agencies in Orange County are currently in the process of adopting region-specific transportation criteria and thresholds, the VMT analysis requirements per CEQA Guidelines Section 15064.3(b) for the proposed FMP was conducted based on guidance provided in the California Office of Planning and Research's (OPR) Technical Advisory On Evaluating Transportation Impacts in CEQA (OPR 2018).

> CEQA Guidelines Section 15064.3(b) focuses on specific criteria (VMT) for determining the significance of transportation impacts. It is further divided into four subdivisions: (1) land use projects, (2) transportation projects, (3) qualitative analysis, and (4) methodology. The CEQA Guidelines are accompanied by an OPR Technical Advisory, which includes specifications for how to estimate and forecast VMT for these subdivisions.

4.13.1 Existing Conditions

Overview

This section provides an overview of the existing transportation network within the vicinity of Plant 1 and Plant 2, along main arterial roadways directly impacted by collection system improvements, and on regional transportation facilities serving Orange County and the Cities of Fountain Valley and Huntington Beach.

Plant 1 is located on an approximately 109-acre site owned by the Sanitation District at 10844 Ellis Avenue in the southeastern portion of the City of Fountain Valley, just south of Interstate (I) 405. The Plant 1 site is bordered by Ellis Avenue on the north; the Santa Ana River channel on the southeast; Garfield Avenue on the south; and Ward Street and Orange County Water District facilities on the west, including the Groundwater Replenishment System. Figure 3-1, Reclamation Plant 1, identifies the location of Plant 1 and all respective Plant 1 projects.

Plant 2 is located on an approximately 111-acre site owned by the Sanitation District at 22212 Brookhurst Street, in the southernmost part of the City of Huntington Beach and adjacent to Huntington State Beach. The triangular Plant 2 site is bordered by Brookhurst Avenue on the west, the Santa Ana River channel on the east, and a lagoon on the south where Talbert Channel lets out into the Pacific Ocean. Figure 3-2, Treatment Plant 2, identifies the location of Plant 2 and all respective Plant 2 projects.

Collection system improvements are dispersed throughout the Sanitation District's service area, primarily located in existing roads and Sanitation District rights-of-way traversing developed areas. Figures 3-3A through 3-3D, Collections System and Pump Stations, identify the locations of all collection system improvements. Transportation facilities along some of main arterial roadways that would be directly impacted by collection system improvements are detailed below.

Interstate 405 is a regional north/south, 10-lane divided freeway that stretches from its junction with I-5 in the San Fernando Valley to the north and its junction with I-5 in the City of Irvine to the south. I-405 is located north of Plant 1, and the Euclid Street southbound on- and off-ramps provide direct access to the northeastern Plant 1 driveway. The posted speed limit is 65 miles per hour (mph), and high-occupancy-vehicle lanes are provided in both directions within the vicinity of the FMP area.

Pacific Coast Highway (State Route [SR] 1) is a major north/south, two- to six-lane, divided state route that stretches from its junction with SR-101 in the City of Leggett to the north and its junction with I-5 in Dana Point to the south. SR-1 is located south of Plant 2 and provides access to Plant 2 via Brookhurst Street. The posted speed limit within the vicinity of the FMP area is 45 mph.

Ellis Avenue is an east/west four-lane, divided roadway located immediately north of Plant 1. Ellis Avenue is designated as a secondary arterial roadway in the City of Fountain Valley General Plan Circulation Element (City of Fountain Valley 1995a) and stretches from Edwards Street in Huntington Beach in the west to the northeastern Plant 1 driveway intersection with the I-405 southbound on- and off-ramps, where Ellis Avenue becomes Euclid Street. The posted speed limit along Ellis Avenue is 45 mph.

Garfield Avenue is an east/west, four-lane divided roadway located along the southern boundary of Plant 1. Garfield Avenue is designated as a primary street by the City of Huntington Beach General Plan Circulation Element (City of Huntington Beach 2017) and stretches from Seapoint Street in Huntington Beach to the Santa Ana River Trail at the southeastern corner of Plant 1. The posted speed limit along Garfield Avenue is 45 mph.

Ward Street is a north/south, two- to four-lane divided roadway located along the western boundary of Plant 1. Ward Street is designated as a secondary street by the City of Huntington Beach General Plan Circulation Element (City of Huntington Beach 2017) and stretches from Warner Avenue in the City of Fountain Valley in the north to Yorktown Avenue in Huntington Beach to the south. The posted speed limit along Ward Street is 45 mph.

Brookhurst Street is a north/south, six-lane divided roadway bordering the western boundary of Plant 2 and serving as the primary site access road to Plant 2. Brookhurst Street is designated as a major street by the City of Huntington Beach General Plan Circulation Element (City of Huntington Beach 2017) and stretches from SR-1 in the south to the City of Anaheim to the north. The posted speed limit along Brookhurst Street is generally 50 mph.

Bushard Street is a north/south, four-lane undivided roadway that intersects with Brookhurst Street at the southernmost Plant 2 access driveway. Bushard Street is designated as a secondary street by the City of Huntington Beach General Plan Circulation Element (City of Huntington Beach 2017) and stretches from Brookhurst Street to Westminster Avenue in the City of Garden Grove. The posted speed limit along Bushard Street is generally 40 mph.

Banning Avenue is an east/west, two-lane undivided roadway that intersects with Brookhurst Street adjacent to the northernmost Plant 2 access driveway. Banning Avenue is designated as a secondary street by the City of Huntington Beach General Plan Circulation Element (City of Huntington Beach 2017) and stretches from Brookhurst Street to Magnolia Avenue. The posted speed limit along Banning Avenue ranges from 25 to 35 mph.

Greenville Street is a north/south, two- to four-lane divided and undivided roadway with a two-way left-turn lane between Warner Avenue and Alton Avenue. The southern portion of the Greenville–Sullivan Sewer Relief collection system project (X-083) stretches from Alton Avenue to Edinger Avenue along Greenville Street. Greenville Street is designated as a secondary arterial by the Santa Ana Active Transportation Plan (City of Santa Ana 2019) and stretches from Sunflower Avenue to Edinger Avenue within Santa Ana. The posted speed limit along Greenville Street ranges from 25 to 35 mph.

Sullivan Street is a north/south, two-lane undivided roadway that stretches from Edinger Avenue to 5th Street within Santa Ana. The northern portion of Greenville–Sullivan Sewer Relief collection system project (X-083) stretches from Edinger Avenue to Duchess Lane along Sullivan Street. Sullivan Street is designated as a minor street by the Santa Ana Active Transportation Plan (City of Santa Ana 2019), and the posted speed limit ranges from 25 to 35 mph.

Tustin Avenue is a north/south, six-lane divided roadway with a two-way left-turn lane that stretches from First Street to Fairhaven Avenue within Santa Ana, where it becomes Tustin Boulevard north into the City of Orange. The Tustin Avenue Sewer Relief collection system project (X-084) stretches from Old Tustin Avenue to Fairhaven Avenue within Santa Ana. Tustin Avenue is designated as a major arterial by the Santa Ana Active Transportation Plan (City of Santa Ana 2019), and the posted speed limit is 45 mph.

Yorba Street is a north/south, four-lane undivided and divided roadway with a two-way left-turn lane along portions of the roadway. The North Trunk collection system improvement project (X-082) stretches from 17th Street to Santa Clara Avenue within the City of Tustin, and from Santa Clara Avenue to Fairhaven Avenue within Orange County. The City of Tustin General Plan Circulation Element (City of Tustin 2018) designates Yorba Street as a secondary street, stretching from 17th Street in the City of Tustin to Chapman Avenue in the City of Orange, and the posted speed limit is 40 mph.

Pedestrian and Bicycle Facilities

Pedestrian Facilities

The majority of roadways within the transportation study area are equipped with sidewalk, curb, and gutter facilities, with the exception of the eastern side of Ward Street along the western boundary of Plant 1, and both sides of Garfield Avenue east of Ward Street along the southern boundary of Plant 1.

The Santa Ana River Trail, Banning Channel Bikeway, and Huntington Beach Bike Trail all serve as major multi-use pathways within the FMP area. The Huntington Beach Bike Trail extends along Huntington Beach and Pacific Coast Highway from the Santa Ana River Trail to Warner Avenue. Additionally, the Banning Channel Bikeway and the Santa Ana River Trail extend from Pacific Coast Highway north along the Santa Ana River. The Santa Ana River Trail runs adjacent to the eastern boundaries of Plants 1 and 2.

Bicycle Facilities

The City of Huntington Beach General Plan Circulation Element identifies the following bicycle facilities (City of Huntington Beach 2017):

> Class 1 – Multi-Use Bike Path: Provides a completely separated right-of-way for the exclusive use of bicycles and pedestrians with cross flow by motorists minimized.
>
> Class 2 – Bike Lane: Provides a striped lane for one-way bike travel on a street or highway.
>
> Class 3 – Bike Route: Provides a shared use of the roadway with motor vehicle traffic.

The Santa Ana River Trail, Banning Channel Bikeway, and Huntington Beach Bike Trail all serve as multi-use pathways within the FMP area, and are all identified as Class 1 multi-use bike paths by the Huntington Beach General Plan Circulation Element (City of Huntington Beach 2017). Bushard Street and Banning Avenue (near Plant 2), as well as Ward Street and Garfield Avenue (near Plant 1), are all designated with Class 2 bike lanes. A Class 2 bike lane is also proposed along Brookhurst Street per the City of Huntington Beach's General Plan (City of Huntington Beach 2017).

The City of Fountain Valley General Plan Circulation Element Trails Plan Map identifies bicycle facilities as either Class I or Class II Bike Paths, which generally fall within the same categories as the City of Huntington Beach's Class 1 and Class 2 bicycle facilities. Within Fountain Valley's city limits, north of Garfield Avenue, Brookhurst Street is classified as a Class II bike path, along with Garfield Avenue, Ward Street, and Ellis Avenue (City of Fountain Valley 1995b).

Transit Facilities

Orange County Transit Authority

The Orange County Transit Authority operates throughout Orange County, providing local and regional bus routes. The following routes serve the area around Plant 1 and Plant 2.

Route 35

Route 35 provides weekday and weekend/holiday bus service from Triangle Square in downtown Costa Mesa to the Fullerton Park-and-Ride lot via Brookhurst Street. The nearest bus stop to Plant 1 is located at Ellis Avenue and Brookhurst Street, approximately 0.5 miles west of Plant 1's northwestern boundary. The nearest bus stop to Plant 2 is located at Hamilton Avenue and Brookhurst Street, approximately 0.5 miles north of Plant 2's northern access driveway. Weekday service operates from approximately 4:30 a.m. to 10:30 p.m., with a peak weekday service headway of 40 minutes (OCTA 2020).

Route 37

Route 37 provides weekday and weekend/holiday bus service from MacArthur Boulevard and Hyland Avenue in the City of Fountain Valley to Main Street and 1st Street in the City of La Habra. The nearest southbound bus stops to Plant 1 are located along Ellis Avenue at Pacific Street and Mount Langley Street, immediately north of Plant 1. The nearest northbound bus stop is located at Euclid Street and Talbert Street, approximately 0.65 miles north of the northeastern Plant 1 driveway. Weekday service operates from approximately 4:30 a.m. to 11:00 p.m., with a peak weekday service headway of 30 minutes (OCTA 2020).

4.13.2 Relevant Plans, Policies, and Ordinances

Federal

Since there are no transportation facilities under federal jurisdiction within the project study area, there are no federal transportation plans, policies, or ordinances that apply to the FMP.

State

Senate Bill 743

On September 27, 2013, Senate Bill (SB) 743 was signed into law, which ordered a change in the way that transportation impacts are analyzed under the California Environmental Quality Act (CEQA). SB 743 requires that the Governor's Office of Planning and Research (OPR) amend the CEQA Guidelines to provide an alternative to level of service (LOS) for evaluating transportation impacts. LOS, or automobile delay, will no longer be considered an environmental impact under CEQA. Per OPR's Final Proposed Updates to the CEQA Guidelines effective on December 28, 2018, OPR added Section 15064.3 to the CEQA Guidelines, which would provide that, in most cases, vehicle miles traveled (VMT) is the most appropriate measure of transportation impacts. OPR also proposed changes to the questions related to transportation in Appendix G of the CEQA Guidelines. OPR revised the question related to "measures of effectiveness" (threshold question A) so that the analysis focuses on circulation elements of city and county general plans and other land use plans governing transportation. OPR also proposed to delete the second question related to LOS and insert references to new CEQA Section 15064.3. Finally, OPR proposed to clarify the question related to design features.

The new Section 15064.3(b), Criteria for Analyzing Transportation Impacts, states the following:

> If existing models or methods are not available to estimate the vehicle miles traveled for the particular project being considered, a lead agency may analyze the project's vehicle miles traveled qualitatively. Such a qualitative analysis would evaluate factors such as the availability of transit, proximity to other destinations, etc. For many projects, a qualitative analysis of construction traffic may be appropriate.

OPR's regulatory text indicates that a public agency may immediately commence implementation of the transportation impact guidelines, and that the guidelines will apply statewide by July 1, 2020. The following analysis uses the recently updated significance thresholds per Appendix G of the CEQA Guidelines.

California Department of Transportation

In anticipation of SB 743 implementation, Caltrans released the Draft Transportation Impact Study Guide (TISG) in February 2020, replacing the 2002 Guide for the Preparation of Traffic Impact Studies. Per the 2020 TISG, consistent with SB 743, Caltrans' primary review focus is also now VMT, replacing LOS as the metric used to evaluate traffic impacts in CEQA transportation analyses. Caltrans recommends use of the State Office of Planning and Research's (OPR) recommended thresholds for land use projects and recommends following the guidance on methods of VMT assessment found in OPR's Technical Advisory (OPR 2018).

In addition to VMT, the 2020 TISG states that it may request a targeted operational and safety analysis to address a specific geometric or operational issue related to the State Highway System and connections with the State Highway System. Caltrans also notes that a future update of the TISG will include the basis for requesting transportation impact analysis not based on VMT and define elements to be included in non-VMT analysis. This is anticipated to occur in September 2020.

Local

County of Orange

Plant 1, Plant 2, and all collection system improvement projects are located within Orange County. Currently, the County of Orange (County) does not have adopted VMT thresholds. Until VMT thresholds are adopted, OPR VMT thresholds will be assumed. The Orange County Congestion Management Program (CMP) identifies any project generating less than 1,600 average daily traffic (ADT) (or 2,400 ADT if the project does not directly access the CMP Highway System) to be exempt from the CMP traffic impact analysis process (County of Orange 2011). If any project or summation of concurrent projects within the CMP Highway System exceeds 1,600 ADT, a traffic impact analysis would be required.

Cities in FMP Transportation Study Area

The FMP could also affect transportation facilities in 12 cities within the County. Some of those cities currently have adopted VMT thresholds (noted below). It was assumed that VMT thresholds are currently being prepared for those other cities, and until VMT thresholds are adopted, OPR VMT thresholds will be used. Per the OPR Technical Advisory, a project that would generate fewer than 110 trips per day generally may be assumed to cause a less-than-significant transportation impact.

For purposes of the traffic analysis, a general criteria of 50 or more peak-hour trips was assumed as the threshold for the requirement of further traffic analysis of individual FMP projects for potential LOS policy inconsistencies on affected street networks. This criteria was chosen because it represents the most conservative requirement across all cities within the Sanitation District's service area, and is generally used by the Cities of Santa Ana, Seal Beach, Orange, Anaheim, La Habra, and Irvine. For FMP projects that generate less than 50 peak-hour trips, their potential to create LOS inconsistencies to the street network would not occur because their impact would not be measurable.

Plant 1 and some collection system improvement projects are located within the City of Fountain Valley. Plant 2 and some collection system improvement projects are located within the City of Huntington Beach. Collection system improvement projects are spread out across the Sanitation District's service area throughout Orange County. Along with the Cities of Fountain Valley and Huntington Beach, the following cities would also contain collection system improvement projects:

- Fountain Valley
- Newport Beach (VMT thresholds, April 2020)
- Santa Ana (VMT thresholds, June 2020)
- Costa Mesa
- Tustin
- Fullerton (VMT thresholds, anticipated June 2020)
- Seal Beach
- Orange
- Anaheim (VMT thresholds, June 2020)
- Westminster
- La Habra
- Irvine (VMT thresholds, June 2020)

Although all cities listed above have varying screening criteria, as mentioned above, a general criteria of 50 or more peak-hour trips was assumed as the threshold for the requirement of further traffic analysis of individual projects.

City of Huntington Beach

For the project-level analysis of project P2-138 at Plant 2, potential traffic impacts would occur on transportation facilities within the City of Huntington Beach. Currently, the City does not have adopted VMT thresholds, and until VMT thresholds are adopted, OPR VMT thresholds will be used.

For operational purposes, a level of service (LOS) analysis was also conducted to determine whether the City's LOS standards would be maintained with the project-level development of P2-138. LOS criteria for the City is based on the City of Huntington Beach's General Plan Circulation Element and was used for the intersections analyzed in the project-level analysis of Project P2-138 in Plant 2 (see below). Per the Circulation Element, the intersection of Brookhurst Street/Banning Avenue is a Principal Intersection with an LOS standard of LOS D, and the remaining adjacent study intersections are classified as Secondary Intersections with an LOS standard of LOS C (City of Huntington Beach 2017).

4.13.3 Thresholds of Significance

The significance criteria used to evaluate the FMP's impacts to transportation are based on Appendix G of the CEQA Guidelines. According to Appendix G, a significant impact related to transportation would occur if a project would:

1. Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities.
2. Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b).
3. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).
4. Result in inadequate emergency access.

4.13.4 Impacts Analysis

1. Would the project conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?

Less-than-Significant Impact. FMP activities were analyzed at both a project and program level. Chapter 2, Introduction, provides a detailed description of these distinctions. For the purposes of this analysis, the trip generation of all project- and program-level activities was analyzed to determine whether further traffic analysis would be required for any individual project or combination of concurrent projects. For projects that would generate less than 50 peak-hour trips, their impact to the street network would be considered to be less than significant or not measurable.

Program-Level Analysis

Facility Improvements at Plant 1 (and Joint Plant Improvements) in the City of Fountain Valley

As described in Section 4.13.1, Existing Conditions, Plant 1 is located within the City of Fountain Valley at 10844 Ellis Avenue. The FMP identifies 17 projects that would occur within Plant 1, ranging over the course of approximately 16 years, from June 2024 to December 2040. Additionally, the FMP identifies eight joint plant projects (projects occurring at both Plants 1 and 2) occurring over approximately 18 years, from March 2021 to December 2039. A summary of all projects is provided in Chapter 3, Project Description (see Table 3-1, Plant 1 Project Summary, and Table 3-3, Joint Plant Project Summary).

Plant 1 improvement projects and joint plant improvement projects with Plant 2 were analyzed together based on location. The trip generation of all program- and project-level activities associated with Plant 1 and joint plant improvements was analyzed across approximately 20 years to determine whether any project or set of concurrent (overlapping) projects would result in a weekday daily or peak-hour trip generation greater than the screening criteria identified in Section 4.13.2, Relevant Plans, Policies, and Ordinances. Passenger car equivalent (PCE) factors were applied to all trips to provide a conservative trip generation analysis.

The lowest trip generation period would occur April through October 2039, with approximately six weekday PCE daily trips and two peak-hour PCE trips. The highest trip generation period would occur during the first 2 weeks of April 2027, with approximately 122 PCE daily trips and 38 peak-hour PCE trips. This peak trip generation period would be created by the overlap of the following projects and subphases:

- Plant 1, X-017, Primary Clarifiers Replacements and Improvements (Building Construction – PCs 3, 4, and 5; Paving Subphases)
- Plant 1, X-092, Standby Generator Feeders for Plant 1 Secondary Systems (Building Construction subphase)
- Plant 1, X-048, Activated Sludge (AS)-1 Aeration Basin and Blower Rehabilitation (Demolition 1 – Equipment; Demolition 2 – Primary Effluent Pump Station [PEPS] Subphases)
- Joint Plant Project, -121, Uninterruptible Power System (UPS) System Upgrades (Electrical Subphase)
- Joint Plant Project, J-120, Plantwide Miscellaneous Process Control Systems Upgrades (Electrical Subphase)
- Joint Plant Project, X-057, X-058, X-05, Plantwide Miscellaneous Rehabilitation or Replacement (Building Construction; Structural Rehabilitation-Concurrent subphases)

Table 4.13-1 provides a summary of the trip generation estimates for workers, vendor trucks, and haul trucks for these projects.

Table 4.13-1. Peak-Period Trip Generation – Plant 1 Projects and Joint Plant Improvements

Vehicle Type	Daily Quantity		Daily Trips	AM Peak Hour Trips			PM Peak Hour Trips		
				In	*Out*	*Total*	*In*	*Out*	*Total*
Trip Generation (April 3 - 20, 2027)									
X-017, Primary Clarifiers Replacements and Improvements (Building Construction - PCs 3, 4, and 5; Paving)									
Workers1	16	Workers	32	8	0	8	0	8	8
Vendor Trucks2	2	Trucks	4	1	1	2	1	1	2
Haul Trucks2	1	Trucks	0	0	0	0	0	0	0
Subtotal X-017			*36*	*9*	*1*	*10*	*1*	*9*	*10*
X-092, Standby Generator Feeders for Plant 1 Secondary Systems (Building Construction)									
Workers1	7	Workers	14	3	0	3	0	3	3
Vendor Trucks2	1	Trucks	2	1	0	1	0	1	1
Haul Trucks2	0	Trucks	0	0	0	0	0	0	0
Subtotal X-092			*16*	*4*	*0*	*4*	*0*	*4*	*4*
X-048, Activated Sludge (AS)-1 Aeration Basin and Blower Rehabilitation (Demolition 1 - Equipment; Demolition 2 – PEPS)									
Workers1	11	Workers	22	5	0	5	0	5	5
Vendor Trucks2	0	Trucks	0	0	0	0	0	0	0
Haul Trucks2	1	Trucks	2	1	0	1	0	1	1
Subtotal X-048			*24*	*6*	*0*	*6*	*0*	*6*	*6*
J-121, UPS System Upgrades (Electrical)									
Workers[1]	2	Workers	4	1	0	1	0	1	1
Vendor Trucks[2]	1	Trucks	2	1	0	1	0	1	1
Haul Trucks[2]	0	Trucks	0	0	0	0	0	0	0
Subtotal J-121			*6*	*2*	*0*	*2*	*0*	*2*	*2*
J-120, Plantwide Miscellaneous Process Control Systems Upgrades (Electrical)									
Workers[1]	3	Workers	6	2	0	2	0	2	2
Vendor Trucks[2]	1	Trucks	2	1	0	1	0	1	1
Haul Trucks[2]	0	Trucks	0	0	0	0	0	0	0
Subtotal X-043			*8*	*3*	*0*	*3*	*0*	*3*	*3*
X-057, X-058, X-059, Plantwide Miscellaneous Rehabilitation or Replacement (Building Construction; Structural Rehabilitation-Concurrent)									
Workers[1]	7	Workers	14	4	0	4	0	4	4
Vendor Trucks[2]	1	Trucks	2	1	0	1	0	1	1
Haul Trucks[2]	0	Trucks	0	0	0	0	0	0	0
Subtotal X-057, X-058, X-059			*16*	*5*	*0*	*5*	*0*	*5*	*5*
Total			**106**	**29**	**1**	**30**	**1**	**29**	**30**
Trip Generation with PCE (April 3 - 20, 2027)									
X-017, Primary Clarifiers Replacements and Improvements (Building Construction - PCs 3, 4, and 5; Paving)									
Workers (1.0 PCE)[1]	16	Workers	32	8	0	8	0	8	8

Table 4.13-1. Peak-Period Trip Generation – Plant 1 Projects and Joint Plant Improvements

Vehicle Type	Daily Quantity		Daily Trips	AM Peak Hour Trips			PM Peak Hour Trips		
				In	*Out*	*Total*	*In*	*Out*	*Total*
Vendor Trucks (2.0 PCE)2	2	Trucks	8	2	2	4	2	2	4
Haul Trucks (3.0 PCE)2	0	Trucks	0	0	0	0	0	0	0
Subtotal X-017			*40*	*10*	*2*	*12*	*2*	*10*	*12*
X-092, Standby Generator Feeders for Plant 1 Secondary Systems (Building Construction)									
Workers (1.0 PCE)[1]	7	Workers	14	3	0	3	0	3	3
Vendor Trucks (2.0 PCE)[2]	1	Trucks	4	2	0	2	0	2	2
Haul Trucks (3.0 PCE)[2]	0	Trucks	0	0	0	0	0	0	0
Subtotal X-092			*18*	*5*	*0*	*5*	*0*	*5*	*5*
X-048, Activated Sludge (AS)-1 Aeration Basin and Blower Rehabilitation (Demolition 1 - Equipment; Demolition 2 – PEPS)									
Workers (1.0 PCE)[1]	11	Workers	22	5	0	5	0	5	5
Vendor Trucks (2.0 PCE)[2]	0	Trucks	0	0	0	0	0	0	0
Haul Trucks (3.0 PCE)[2]	1	Trucks	6	3	0	3	0	3	3
Subtotal X-048			*28*	*8*	*0*	*8*	*0*	*8*	*8*
J-121, UPS System Upgrades (Electrical)									
Workers (1.0 PCE)[1]	2	Workers	4	1	0	1	0	1	1
Vendor Trucks (2.0 PCE)[2]	1	Trucks	4	2	0	2	0	2	2
Haul Trucks (3.0 PCE)[2]	0	Trucks	0	0	0	0	0	0	0
Subtotal J-121			*8*	*3*	*0*	*3*	*0*	*3*	*3*
J-120, Plantwide Miscellaneous Process Control Systems Upgrades (Electrical)									
Workers (1.0 PCE)[1]	3	Workers	6	2	0	2	0	2	2
Vendor Trucks (2.0 PCE)[2]	1	Trucks	4	2	0	2	0	2	2
Haul Trucks (3.0 PCE)[2]	0	Trucks	0	0	0	0	0	0	0
Subtotal J-120			*10*	*4*	*0*	*4*	*0*	*4*	*4*
X-057, X-058, X-059, Plantwide Miscellaneous Rehabilitation or Replacement (Structural Rehabilitation - concurrent)									
Workers (1.0 PCE)[1]	7	Workers	14	4	0	4	0	4	4
Vendor Trucks (2.0 PCE)[2]	2	Trucks	4	2	0	2	0	2	2
Haul Trucks (3.0 PCE)[2]	0	Trucks	0	0	0	0	0	0	0
Subtotal X-057, X-058, X-059			*18*	*6*	*0*	*6*	*0*	*6*	*6*
Total (with PCE)			**122**	**36**	**2**	**38**	**2**	**36**	**38**

Source: Appendix I.

Notes: UPS = uninterruptible power system; PEPS = Primary Effluent Pump Station; PCE = passenger car equivalent.

1 Construction is assumed to occur from 7:00 a.m. to 6:00 p.m. This analysis assumes the majority of construction workers will arrive prior to the AM peak hour and leave after the PM peak hour; approximately 50% of construction workers are conservatively assumed to overlap into the AM or PM peak hours.

2 Vendor trucks and haul trucks are assumed to be distributed evenly across the 11-hour work shift.

As shown in Table 4.13-1, the proposed projects at Plant 1 and joint improvement projects with Plant 2 would not meet the 1,600 ADT screening criteria identified by the Orange County CMP (County of Orange 2011), nor would they meet the general screening criteria of 50 AM or PM peak-hour trips defined in Section 4.13.2. Additionally, there would be no increase in permanent employees once construction is completed. Therefore, no further analysis would be required, and the construction traffic associated with improvement

projects at Plant 1 would not conflict with a program, plan, ordinance, or policy addressing the circulation system. Impacts would be less than significant.

Facility Improvements at Plant 2 (and Joint Plant Improvements) in Huntington Beach

As described in Section 4.13.1, Plant 2 is located within the City of Huntington Beach at 22212 Brookhurst Street. The FMP identifies 15 projects that would occur within Plant 2, ranging over the course of approximately 18 years, from December 2022 to December 2040. Additionally, the FMP identifies eight joint plant projects (projects occurring at both Plants 1 and 2) occurring over approximately 18 years, from March 2021 to December 2039. A summary of all projects is provided in Chapter 3 (see Table 3-2 and Table 3-3).

Plant 2 improvement projects and joint plant improvement projects with Plant 1 were analyzed together based on location. The construction trip generation of all program- and project-level activities associated with Plant 2 and joint plant improvements was analyzed across approximately 20 years to determine whether any project or set of concurrent (overlapping) projects would result in a weekday average daily or peak-hour trip generation greater than the screening criteria identified in Section 4.13.2. PCE factors were applied to all trips to provide a conservative trip generation analysis.

Based on review of construction trips, the lowest trip generation period would occur from September 2040 to 2041, with approximately six weekday PCE daily and two peak-hour PCE trips. The highest trip generation period would occur during the first two weeks of December 2024, with approximately 149 PCE daily and 48 peak-hour PCE trips. This peak trip generation period would be created by the overlap of the following projects and subphases:

- Plant 2, X-050, Activated Sludge (AS) Aeration Basin (Structural Rehabilitation Subphase)
- Plant 2, P2-126, Substation and Warehouse Replacement at Plant 2 (Service Center Building Construction; Substation Building Construction Subphases)
- Joint Plant Project, J-98, Plantwide Miscellaneous Electrical Power Distribution System Improvements (Electrical Subphase)
- Joint Plant Project, J-120, Plantwide Miscellaneous Process Control Systems Upgrades (Electrical Subphase)
- Joint Plant Project, J-133, Laboratory Rehabilitation or Replacement at Plant 2 (Site Preparation subphase)

Table 4.13-2 provides a summary of the trip generation estimates for workers, vendor trucks, and haul trucks.[1]

Table 4.13-2. Peak Period Trip Generation – Plant 2 Projects and Joint Plant Improvements

Vehicle Type	Daily Quantity		Daily Trips	AM Peak Hour Trips			PM Peak Hour Trips		
				In	*Out*	*Total*	*In*	*Out*	*Total*
Trip Generation (December 1 – 13, 2024)									
X-050, Activated Sludge (AS) Aeration Basin (Structural Rehabilitation)									
Workers[1]	12	Workers	24	6	0	6	0	6	6
Vendor Trucks[2]	1	Trucks	2	1	0	1	0	1	1

[1] Because the peak period of construction of projects at Plant 2 falls during construction of project P2-138, further discussion of trip generation is included within the project-level analysis of project P2-138.

Table 4.13-2. Peak Period Trip Generation – Plant 2 Projects and Joint Plant Improvements

Vehicle Type	Daily Quantity		Daily Trips	AM Peak Hour Trips			PM Peak Hour Trips		
				In	*Out*	*Total*	*In*	*Out*	*Total*
Haul Trucks[2]	0	Trucks	0	0	0	0	0	0	0
		Subtotal X-050	*26*	*7*	*0*	*7*	*0*	*7*	*7*
P2-126, Substation and Warehouse Replacement at Plant 2 (Service Center Building Construction; Substation Building Construction)									
Workers[1]	37	Workers	74	19	0	19	0	19	19
Vendor Trucks[2]	4	Trucks	8	1	1	2	1	1	2
Haul Trucks[2]	0	Trucks	0	0	0	0	0	0	0
		Subtotal P2-126	*82*	*20*	*1*	*21*	*1*	*20*	*21*
J-98, Plantwide Miscellaneous Electrical Power Distribution System Improvements (Electrical)									
Workers[1]	3	Workers	6	2	0	2	0	2	2
Vendor Trucks[2]	1	Trucks	2	1	0	1	0	1	1
Haul Trucks[2]	0	Trucks	0	0	0	0	0	0	0
		Subtotal J-98	*8*	*3*	*0*	*3*	*0*	*3*	*3*
J-120, Plantwide Miscellaneous Process Control Systems Upgrades (Electrical)									
Workers[1]	3	Workers	6	2	0	2	0	2	2
Vendor Trucks[2]	1	Trucks	2	1	0	1	0	1	1
Haul Trucks[2]	0	Trucks	0	0	0	0	0	0	0
		Subtotal J-120	*8*	*3*	*0*	*3*	*0*	*3*	*3*
J-133, Laboratory Rehabilitation or Replacement at Plant 2 (Site Preparation)									
Workers[1]	2	Workers	4	1	0	1	0	1	1
Vendor Trucks[2]	1	Trucks	2	1	0	1	0	1	1
Haul Trucks[2]	1	Trucks	1	1	1	2	1	1	2
		Subtotal J-133	*7*	*3*	*1*	*4*	*1*	*3*	*4*
		Total	**131**	**36**	**2**	**38**	**2**	**36**	**38**
Trip Generation with PCE (December 1 – 13, 2024)									
X-050, Activated Sludge (AS) Aeration Basin (Structural Rehabilitation)									
Workers (1.0 PCE)[1]	12	workers	24	6	0	6	0	6	6
Vendor Trucks (2.0 PCE)[2]	1	trucks	4	2	0	2	0	2	2
Haul Trucks (3.0 PCE)[2]	0	trucks	0	0	0	0	0	0	0
		Subtotal X-050	*28*	*8*	*0*	*8*	*0*	*8*	*8*
P2-126, Substation and Warehouse Replacement at Plant 2 (Service Center Building Construction; Substation Building Construction)									
Workers (1.0 PCE)[1]	37	Workers	74	19	0	19	0	19	19
Vendor Trucks (2.0 PCE)[2]	4	Trucks	16	2	2	4	2	2	4
Haul Trucks (3.0 PCE)[2]	0	Trucks	0	0	0	0	0	0	0
		Subtotal P2-126	*90*	*21*	*2*	*23*	*2*	*21*	*23*
J-98, Plantwide Miscellaneous Electrical Power Distribution System Improvements (Electrical)									
Workers (1.0 PCE)[1]	3	Workers	6	2	0	2	0	2	2
Vendor Trucks (2.0 PCE)[2]	1	Trucks	4	2	0	2	0	2	2

Table 4.13-2. Peak Period Trip Generation – Plant 2 Projects and Joint Plant Improvements

Vehicle Type	Daily Quantity		Daily Trips	AM Peak Hour Trips			PM Peak Hour Trips		
				In	*Out*	*Total*	*In*	*Out*	*Total*
Haul Trucks (3.0 PCE)[2]	0	Trucks	0	0	0	0	0	0	0
Subtotal J-98			*10*	*4*	*0*	*4*	*0*	*4*	*4*
J-120, Plantwide Miscellaneous Process Control Systems Upgrades (Electrical)									
Workers (1.0 PCE)[1]	3	Workers	6	2	0	2	0	2	2
Vendor Trucks (2.0 PCE)[2]	1	Trucks	4	2	0	2	0	2	2
Haul Trucks (3.0 PCE)[2]	0	Trucks	0	0	0	0	0	0	0
Subtotal J-120			*10*	*4*	*0*	*4*	*0*	*4*	*4*
J-133, Laboratory Rehabilitation or Replacement at Plant 2 (Site Preparation)									
Workers (1.0 PCE)[1]	2	Workers	4	1	0	1	0	1	1
Vendor Trucks (2.0 PCE)[2]	1	Trucks	4	2	0	2	0	2	2
Haul Trucks (3.0 PCE)[2]	1	Trucks	3	3	3	6	3	3	6
Subtotal J-133			*11*	*6*	*3*	*9*	*3*	*6*	*9*
Total (with PCE)			**149**	**43**	**5**	**48**	**5**	**43**	**48**

Source: Appendix I.
Notes: PCE = passenger car equivalent.
[1] Construction is assumed to occur from 7:00 a.m. to 6:00 p.m. This analysis assumes the majority of construction workers will arrive prior to the AM peak hour and leave after the PM peak hour; approximately 50% of construction workers are conservatively assumed to overlap into the AM or PM peak hours.
[2] Vendor trucks and haul trucks are assumed to be distributed evenly across the 11-hour work shift.

As shown in Table 4.13-2, the proposed projects at Plant 2 and joint plant improvements would not meet the 1,600 ADT screening criteria identified by the Orange County CMP (County of Orange 2011), nor would they meet the general screening criteria of 50 AM or PM peak-hour trips defined in Section 4.13.2. Additionally, there would be no increase in permanent employees once construction is complete. Therefore, no further analysis would be required, and construction traffic associated with improvement projects at Plant 2 would not conflict with a program, plan, ordinance, or policy addressing the circulation system. Impacts would be less than significant.

Collection System Improvements

Proposed FMP activities would be located throughout the Sanitation District's collection system and pump stations, the components of which are dispersed throughout the Sanitation District's service area. Facility improvements would include replacement, rehabilitation, and other miscellaneous projects. Most facilities are located in existing roads and Sanitation District rights-of-way traversing developed areas, including residential, commercial, and industrial areas. Construction activities for collection system improvement projects would generally include lining, manhole repair, manhole removal with associated demolition, open-trench excavation for new sewer installations, shoring, dewatering, pipe removal, and potential jack-and-bore methods for installation at sensitive crossings (e.g., busy intersections, railroad spurs, or flood control channels).

The FMP identifies 35 collection system projects that would range over approximately 16 years, from August 2022 to December 2038. The construction trip generation of all program- and project-level collection system improvement projects were analyzed across approximately 16 years to determine whether any project or set of concurrent (overlapping) projects would result in a weekday average daily or peak-hour trip

generation greater than the screening criteria identified in Section 4.13.2. PCE factors were applied to all trips to provide a conservative trip generation analysis.

Construction trip generation estimates for collection system improvement projects were analyzed together; however, as described above, proposed improvements would be located across the Sanitation District's service area. Therefore, construction trips during the peak construction period of collection system improvement projects would be spread out across Orange County during the peak construction period.

Based on review of construction trips, the lowest trip generation period would occur during the first week of March 2038, with approximately six weekday PCE daily and two peak-hour PCE trips. The highest trip generation period would occur from December 2031 to early January 2032, with approximately 169 PCE daily and 50 peak-hour PCE trips. This peak trip generation period would be created by the overlap of the following projects and subphases:

- Collection System, X-022, 15th Street Pump Station Rehabilitation (Building Construction Subphase)
- Collection System, X-041, A Street Pump Station Rehabilitation (Building Construction Subphase)
- Collection System, 5-66, Crystal Cove Pumping Station Upgrade and Rehabilitation (Demolition Subphase)
- Collection System, X-024, Rocky Point Pump Station Rehabilitation (Building Construction Subphase)
- Collection System, X-025, Bitter Point Pump Station Rehabilitation (Demolition Subphase)
- Collection System, X-040, College Avenue Pump Station Replacement (Building Construction Subphase)
- X-061, Imperial Highway Relief Interceptor Rehabilitation (Pipeline Installation; Paving – Continual and Final; Architectural Coating – Striping)

Table 4.13-3 provides a summary of the trip generation estimates for workers, vendor trucks, and haul trucks.

Table 4.13-3. Peak-Period Trip Generation Summary – Collection System Projects

Vehicle Type	Daily Quantity		Daily Trips	AM Peak Hour Trips			PM Peak Hour Trips		
				In	*Out*	*Total*	*In*	*Out*	*Total*
Trip Generation (February 7, 2037 – March 2, 2037)									
X-022, 15th Street Pump Station Rehabilitation (Building Construction)									
Workers[1]	7	Workers	14	4	0	4	0	4	4
Vendor Trucks[2]	1	Trucks	2	1	0	1	0	1	1
Haul Trucks[2]	0	Trucks	0	0	0	0	0	0	0
	Subtotal X-022		*16*	*5*	*0*	*5*	*0*	*5*	*5*
X-041, A Street Pump Station Rehabilitation (Building Construction)									
Workers[1]	7	Workers	14	4	0	4	0	4	4
Vendor Trucks[2]	1	Trucks	2	1	0	1	0	1	1
Haul Trucks[2]	0	Trucks	0	0	0	0	0	0	0
	Subtotal X-041		*16*	*5*	*0*	*5*	*0*	*5*	*5*
5-66, Crystal Cove Pumping Station Upgrade and Rehabilitation (Demolition)									
Workers[1]	5	Workers	10	3	0	3	0	3	3
Vendor Trucks[2]	1	Trucks	2	1	0	1	1	0	1

Table 4.13-3. Peak-Period Trip Generation Summary – Collection System Projects

Vehicle Type	Daily Quantity		Daily Trips	AM Peak Hour Trips			PM Peak Hour Trips		
				In	*Out*	*Total*	*In*	*Out*	*Total*
Haul Trucks[2]	1	Trucks	2	1	0	1	1	0	1
		Subtotal 5-66	*14*	*5*	*0*	*5*	*2*	*3*	*5*
X-024, Rocky Point Pump Station Rehabilitation (Building Construction)									
Workers[1]	12	Workers	24	6	0	6	0	6	6
Vendor Trucks[2]	1	Trucks	2	1	0	1	0	1	1
Haul Trucks[2]	0	Trucks	0	0	0	0	0	0	0
		Subtotal X-024	*26*	*7*	*0*	*7*	*0*	*7*	*7*
X-025, Bitter Point Pump Station Rehabilitation (Demolition)									
Workers[1]	5	Workers	10	3	0	3	0	3	3
Vendor Trucks[2]	1	Trucks	2	1	0	1	0	1	1
Haul Trucks[2]	1	Trucks	2	1	1	2	1	1	2
		Subtotal X-025	*14*	*5*	*1*	*6*	*1*	*5*	*6*
X-040, College Avenue Pump Station Replacement (Building Construction)									
Workers[1]	12	Workers	24	6	0	6	0	6	6
Vendor Trucks[2]	1	Trucks	2	1	0	1	0	1	1
Haul Trucks[2]	0	Trucks	0	0	0	0	0	0	0
		Subtotal X-040	*26*	*7*	*0*	*7*	*0*	*7*	*7*
X-061, Imperial Highway Relief Interceptor Rehabilitation (Pipeline Installation; Paving - Continual and Final; Architectural Coating - Striping)									
Workers[1]	14	Workers	28	7	0	7	0	7	7
Vendor Trucks[2]	3	Trucks	6	1	1	2	1	1	2
Haul Trucks[2]	1	Trucks	2	1	0	1	0	1	1
		Subtotal X-061	*36*	*9*	*1*	*10*	*1*	*9*	*10*
		Total	**148**	**43**	**2**	**45**	**4**	**41**	**45**
Trip Generation with PCE (February 7, 2037 – March 2, 2037)									
X-022, 15th Street Pump Station Rehabilitation (Building Construction)									
Workers (1.0 PCE)[1]	7	Workers	14	4	0	4	0	4	4
Vendor Trucks (2.0 PCE)[2]	1	Trucks	4	2	0	2	0	2	2
Haul Trucks (3.0 PCE)[2]	0	Trucks	0	0	0	0	0	0	0
		Subtotal X-022	*18*	*6*	*0*	*6*	*0*	*6*	*6*
X-041, A Street Pump Station Rehabilitation (Building Construction)									
Workers (1.0 PCE)[1]	7	Workers	14	4	0	4	0	4	4
Vendor Trucks (2.0 PCE)[2]	1	Trucks	4	1	1	2	1	1	2
Haul Trucks (3.0 PCE)[2]	0	Trucks	0	0	0	0	0	0	0
		Subtotal X-041	*18*	*5*	*1*	*6*	*1*	*5*	*6*
5-66, Crystal Cove Pumping Station Upgrade and Rehabilitation (Demolition)									
Workers (1.0 PCE)[1]	5	Workers	10	3	0	3	0	3	3
Vendor Trucks (2.0 PCE)[2]	1	Trucks	4	2	1	3	1	0	1
Haul Trucks (3.0 PCE)[2]	1	Trucks	6	3	0	3	3	0	3
		Subtotal 5-66	*20*	*8*	*1*	*9*	*4*	*3*	*7*

Table 4.13-3. Peak-Period Trip Generation Summary – Collection System Projects

Vehicle Type	Daily Quantity		Daily Trips	AM Peak Hour Trips			PM Peak Hour Trips		
				In	*Out*	*Total*	*In*	*Out*	*Total*
X-024, Rocky Point Pump Station Rehabilitation (Building Construction)									
Workers (1.0 PCE)[1]	12	Workers	24	6	0	6	0	6	6
Vendor Trucks (2.0 PCE)[2]	1	Trucks	4	1	1	2	1	1	2
Haul Trucks (3.0 PCE)[2]	0	Trucks	0	0	0	0	0	0	0
		Subtotal X-024	*28*	*7*	*1*	*8*	*1*	*7*	*8*
X-025, Bitter Point Pump Station Rehabilitation (Demolition)									
Workers (1.0 PCE)[1]	5	Workers	10	3	0	3	0	3	3
Vendor Trucks (2.0 PCE)[2]	1	Trucks	4	1	1	2	1	1	2
Haul Trucks (3.0 PCE)[2]	1	Trucks	6	1	1	2	1	1	2
		Subtotal X-025	*20*	*5*	*2*	*7*	*2*	*5*	*7*
X-040, College Avenue Pump Station Replacement (Building Construction)									
Workers (1.0 PCE)1	12	Workers	24	6	0	6	0	6	6
Vendor Trucks (2.0 PCE)2	1	Trucks	4	1	1	2	1	1	2
Haul Trucks (3.0 PCE)2	0	Trucks	0	0	0	0	0	0	0
		Subtotal X-040	*28*	*7*	*1*	*8*	*1*	*7*	*8*
X-061, Imperial Highway Relief Interceptor Rehabilitation (Pipeline Installation; Paving - Continual and Final; Architectural Coating - Striping)									
Workers (1.0 PCE)[1]	14	Workers	28	7	0	7	0	7	7
Vendor Trucks (2.0 PCE)[2]	3	Trucks	12	1	0	1	0	1	1
Haul Trucks (3.0 PCE)[2]	1	Trucks	6	1	1	2	1	1	2
		Subtotal X-061	*46*	*9*	*1*	*10*	*1*	*9*	*10*
		Total (with PCE)	**178**	**47**	**7**	**54**	**10**	**42**	**52**

Source: Appendix I.

Notes: PCE = passenger car equivalent.

1 Construction is assumed to occur from 7:00 a.m. to 6:00 p.m. This analysis assumes the majority of construction workers will arrive prior to the AM peak hour and leave after the PM peak hour; approximately 50% of construction workers are conservatively assumed to overlap into the AM or PM peak hours.

2 Vendor trucks and haul trucks are assumed to be distributed evenly across the 11-hour work shift.

As shown in Table 4.13-3, the proposed collection system improvement projects would not meet the 1,600 ADT screening criteria identified by the Orange County CMP (County of Orange 2011). Although peak-hour trip generation may exceed 50 PCE trips, all projects identified in the table are spread out across the Sanitation District's service area, and trips would not be consolidated in one construction area. Additionally, there would be no increase in permanent employees once construction is completed. Therefore, no further analysis would be required, and construction traffic associated with the collection system improvement projects would not conflict with a program, plan, ordinance, or policy addressing the circulation system. Impacts would be less than significant.

Project-Level Analysis

Plant 1

Table 4.13-4 provides a trip generation summary of each project-level Plant 1 project included in the FMP. As shown in the table, no FMP project would individually generate 1,600 ADT or 50 or more peak-hour trips. Therefore, no further analysis would be required, and the construction traffic associated with the project level improvement projects at Plant 1 would not conflict with a program, plan, ordinance, or policy addressing the circulation system. Impacts would be less than significant.

Table 4.13-4. Plant 1 Improvements – Project-Level Trip Generation Summary

Project Number	Project Name	Project Type	Peak Trip Generating Phase(s)	Daily Trips (PCE)	AM Peak Hour Trips (PCE)			PM Peak Hour Trips (PCE)		
					In	*Out*	*Total*	*In*	*Out*	*Total*
P1-126	Primary Clarifiers Replacements and Improvements	Replace	Demolition of PCs 1 and 2; Demolition of PCs 3, 4, and 5	62	12	3	15	3	12	15
X-093	Administrative Facilities and Power Building 3A Demolition	Misc. (Demo)	Demolition	28	6	2	8	2	6	8
X-092	Standby Generator Feeders for Plant 1 Secondary Systems	Misc.	Building Construction	18	4	1	5	1	4	5
X-048	Activated Sludge (AS)-1 Aeration Basin and Blower Rehabilitation	Rehab	Structural Rehabilitation (Aeration Basin); Building Construction (Aeration Basins and Blower Building)	44	10	2	12	2	10	12
P1-135	Digester Ferric Piping Replacement	Replace	Pipeline Replacement; Paving (Continual and Final); Architectural Coating (Continual and Final)	65	12	5	17	5	12	17
X-077	Switchgear Replacement at Central Generation	Replace	Demolition and Replacement of Switchgear	15	3	1	4	1	3	4
X-090	Network, Telecommunications, and Service Relocation at Plant 1	Misc.	Building Construction	18	4	1	5	1	4	5

Source: Appendix I.
Note: PCE = passenger car equivalent

Plant 2

Table 4.13-5 provides the trip generation summary of each project-level Plant 2 project included in the FMP. As shown in the table, no project would individually generate 1,600 ADT or 50 or more peak-hour trips. Therefore, no further analysis would be required, and construction traffic associated with the project-level improvement projects at Plant 2 would not conflict with a program, plan, ordinance, or policy addressing the circulation system. Impacts would be less than significant.

Table 4.13-5. Plant 2 Improvements – Project-Level Trip Generation Summary

Project Number	Project Name	Project Type	Peak Trip Generating Phase(s)	Daily Trips (PCE)	AM Peak Hour Trips (PCE)			PM Peak Hour Trips (PCE)		
					In	*Out*	*Total*	*In*	*Out*	*Total*
P2-126	Substation and Warehouse Replacement at Plant 2	Misc.	Building Construction; Demolition	108	24	3	27	3	24	27
X-050	Activated Sludge (AS) Aeration Basin	Rehab	Structural Rehabilitation	28	7	1	8	1	7	8
X-032	Truck Loading Facility Rehabilitation	Rehab	Structural Rehabilitation; Building Construction	32	7	2	9	2	7	9
X-054	Waste Side-Stream Pump Station C Rehabilitation	Rehab	Building Construction	24	6	1	7	1	6	7
X-034	Sodium Bisulfite Station Replacement and Bleach Station Demolition	Replace	Structural Rehabilitation; Building Construction	30	7	2	9	2	7	9
P2-138	Operations and Maintenance Complex at Plant 2	Replace	Building Construction; Demolition	64	15	2	17	2	15	17

Source: Appendix I.
Note: PCE = passenger car equivalent.

Plant 2 – Project P2-138

Transportation Study Area and Existing Volumes

To provide a complete analysis regarding the peak impact of construction activities on the nearby transportation network, a project-level analysis was completed for the P2-138 Operations and Maintenance Complex at Plant 2. Project P2-138 would consist of the replacement and relocation of structures on the existing Plant 2 site, as well as changes to existing access points and gates for entrances. The main visitor and employee entrance would be moved from the center of the site (between Banning Avenue and Bushard Street) to the north and aligned with the Brookhurst Street/Banning Avenue signalized intersection. The current northern entrance, north of Brookhurst Street, would also be eliminated. The southernmost entrance at the intersection of Brookhurst Street/Bushard Street would remain intact to serve maintenance-related activities.

Plant 2 is located in the City of Huntington Beach on Brookhurst Street. The following intersections most likely to be impacted adjacent to the P2-138 project site were analyzed:

1. Brookhurst Street/Banning Avenue (signalized)
2. Brookhurst Street/Plant 2 Main Access (unsignalized)
3. Brookhurst Street/Bushard Street – Plant 2 South Access (signalized)
4. Brookhurst Street/Plant 2 North Access (unsignalized)

Traffic volumes were collected at the above-listed intersections in February 2020 (prior to COVID-19 business and school closures). The volumes were collected for the AM (7:00 a.m. to 9:00 a.m.) and PM (4:00 p.m. to 6:00 p.m.) peak periods during typical weekday traffic conditions. To account for the impacts of trucks on the roadway network, PCE factors were tabulated and used in the analysis. Raw traffic data is provided in Appendix I, Transportation.

Construction Traffic Impacts

Trip Generation

Because the Institute of Transportation Engineers' Trip Generation Manual does not contain trip rates for construction-related activities (ITE 2017), to accurately assess the impact of construction traffic, the general construction phasing and schedule as shown in Appendix I was used to estimate the proposed P2-138 project's peak construction traffic generation. Based on the estimated average number of worker, vendor truck, and haul truck trips across the various phases and months of the proposed P2-138 project, the peak construction period was identified as occurring in April 2021 and includes Plant 2 projects and joint plant improvements. The peak construction phase analyzed includes the following projects and subphases of construction:

- Plant 2, P2-138, Operations and Maintenance Complex at Plant 2 (Grading-Pile Subphase)
- Joint Plant 2, J-98, Plantwide Miscellaneous Electrical Power Distribution System Improvements (Electrical Subphase)

The majority of workers would likely arrive at the construction site before 7:00 a.m. and leave after 6:00 p.m., but to be conservative, approximately 50% of workers were assumed to arrive and depart during the peak hours. The daily off-site vendor and haul truck trips would be distributed throughout the work day. Based on these assumptions, Table 4.13-6 provides FMP project trip generation rates for the peak construction year phase, which would generate approximately 58 daily trips, 16 AM peak-hour trips (15 inbound and 1 outbound), and 15 PM peak-hour trips (1 inbound and 15 outbound). Using a PCE factor for truck trips, the proposed P2-138 project would generate approximately 66 daily PCE trips, 19 AM peak-hour PCE trips (17 inbound and 2 outbound), and 19 PM peak-hour PCE trips (2 inbound and 17 outbound).

Table 4.13-6. Peak-Period Trip Generation Summary – P2-138 with Overlapping Projects

Vehicle Type	Daily Quantity		Daily Trips	AM Peak Hour			PM Peak Hour		
				In	*Out*	*Total*	*In*	*Out*	*Total*
Trip Generation (April 1, 2021)									
P2-138, Operations Center Replacement (Grading - Pile)									
Workers[1]	22	Workers	44	12	0	12	0	12	12
Vendor Trucks[2]	3	Trucks	6	1	1	2	1	1	2
Haul trucks[2]	0	Trucks	0	0	0	0	0	0	0
Subtotal P2-138			*50*	*13*	*1*	*14*	*1*	*13*	*14*
J-98, Plantwide Miscellaneous Electrical Power Distribution System Improvements (Electrical)									
Workers[1]	3	Workers	6	1	0	1	0	1	1
Vendor Trucks[2]	1	Trucks	2	1	0	1	0	1	1
Haul trucks[2]	0	Trucks	0	0	0	0	0	0	0
Subtotal J-98			*8*	*2*	*0*	*2*	*0*	*2*	*2*
Total			**58**	**15**	**1**	**16**	**1**	**15**	**16**
Trip Generation with PCE (April 1, 2021)									
P2-138, Operations Center Replacement (Grading - Pile)									
Workers (1.0 PCE)[1]	22	Workers	44	12	0	12	0	12	12
Vendor Trucks (2.0 PCE)[2]	3	Trucks	12	2	2	4	2	2	4
Haul trucks (3.0 PCE)[2]	0	Trucks	0	0	0	0	0	0	0
Subtotal P2-138			*56*	*14*	*2*	*16*	*2*	*14*	*16*
J-98, Plantwide Miscellaneous Electrical Power Distribution System Improvements (Electrical)									
Workers (1.0 PCE)[1]	3	Workers	6	1	0	1	0	1	1
Vendor Trucks (2.0 PCE)[2]	1	Trucks	4	2	0	2	0	2	2
Haul trucks (3.0 PCE)[2]	0	Trucks	0	0	0	0	0	0	0
Subtotal J-98			*10*	*3*	*0*	*3*	*0*	*3*	*3*
Total (w/ PCE)			**66**	**17**	**2**	**19**	**2**	**17**	**19**

Note: PCE = passenger car equivalent.

Trip Assignment and Distribution

Temporary staging and laydown areas for construction materials and equipment, as well as parking for construction workers, would be accommodated within most of the FMP project sites. Worker and employee vehicle parking would also be accommodated within a project site for most of the construction duration. Construction traffic would be distributed throughout intersections and roadway segments based on logical commute routes for workers, and the nearest freeway access with truck routes for construction-related

trucks. Construction-related trips were assigned to the transportation study area intersections by applying the FMP project trip generation estimates to the trip distribution percentages at each transportation study area intersection.

Approximately 90% of construction traffic would arrive and depart north of Plant 2 and proceed northward toward I-405 for regional connections. The remaining 10% of construction traffic would arrive and depart south of the P2-138 project site using SR-1 (Pacific Coast Highway) for regional access. During the construction period, the remaining intersections along Brookhurst Street are expected to function, but intermittent closures would be dependent on construction activity on a day-to-day basis. Therefore, all construction traffic is expected to access the P2-138 project site (Plant 2) via the intersection of Brookhurst Street/Bushard Street, where signalized access currently exists for the southern portion of Plant 2. Figure 4.13-1, Peak Construction Project Trip Assignment (PCE), shows the FMP project trip assignment in PCE for construction traffic.

The following project-specific scenarios are analyzed below:

- Cumulative Year 2021 Plus Project (Construction) Analysis
- Existing Plus Project (Operations & Maintenance) Analysis
- Cumulative Year 2022 Plus Project (Operations & Maintenance) Analysis

Cumulative Year 2021 Plus Project (Construction) Analysis

Existing traffic volumes collected in 2020 were adjusted to reflect the baseline year of construction. As described above, the peak construction phase would occur in April 2021. Therefore, using a growth rate of 0.5% per year, existing 2020 volumes were adjusted to reflect the baseline traffic conditions for 2021, as well as the addition of the volumes from project J-98.

Traffic impacts due to construction of the proposed P2-138 project under the Cumulative Year 2031 Plus Project condition was forecast by adding P2-138 project traffic volumes from Figure 4.13-1 to the baseline Cumulative Year 2021 volumes.

An intersection LOS analysis was conducted for the Cumulative Year 2021 Plus Project scenario using the Intersection Capacity Utilization and Highway Capacity Manual (TRB 2016) methodologies. Table 4.13-7 shows the results in comparison with the Cumulative Year 2021 baseline condition (no project). Worksheets for the LOS analysis are provided in Appendix I.

Table 4.13-7. Cumulative Year 2021 Plus Project (Construction) Peak Hour Intersection Level of Service

No.		Control Type	LOS Method	Cumulative Year 2021				Cumulative Year 2021 Plus Project (Construction)				Change in V/C or Delay		Inconsistent w/ LOS Standard?	
				AM Peak		*PM Peak*		*AM Peak*		*PM Peak*					
				V/C Delay[1]	*LOS*	*V/C Delay*[1]	*LOS*	*V/C Delay*[1]	*LOS*	*V/C Delay*[1]	*LOS*	*AM*	*PM*	*AM*	*PM*
1.	Brookhurst Street/Banning Avenue – Plant 2 North Access	Signalized	ICU	0.283	A	0.260	A	0.285	A	0.263	A	0.002	0.003	No	No
2.	Brookhurst Street/Plant 2 Center Access	Unsignalized	HCM	11.7	B	15.0	C	11.8	B	15.1	C	0.1	0.1	No	No
3.	Brookhurst Street/Bushard Street – Plant 2 South Access	Signalized	ICU	0.304	A	0.324	A	0.304	A	0.325	A	0.000	0.001	No	No
4.	Brookhurst Street/ Plant 2 North Access	Unsignalized	HCM	11.9	B	13.9	B	12.2	B	14.1	B	0.3	0.2	No	No

Source: Appendix I.
Notes: LOS = level of service; ICU = Intersection Capacity Utilization; HCM = Highway Capacity Manual Methodology; V/C = volume-to-capacity ratio.
[1] Delay is calculated in seconds per vehicle.

As shown in Table 4.13-7, the addition of peak construction traffic would not exceed any of the significance criteria described previously (minimum of LOS D for the principal intersection of Brookhurst Street/Banning Avenue and LOS C for the remaining secondary intersections). All intersections are forecast to operate at LOS C or better. Additionally, all traffic generated by the construction phase of the proposed P2-138 project would be temporary and would be removed from the street network once the P2-138 project is constructed.

Therefore, per OPR's VMT screening criteria, since P2-138 would generate less than 110 daily trips, project impacts to VMT would be less than significant. Furthermore, P2-138 would not cause any study intersection to become inconsistent with the City of Huntington Beach's LOS standards.

Impacts Related to Transit, Bicycle, and Pedestrian Facilities

All construction-related traffic would access the P2-138 project site at the intersection of Brookhurst Street/Bushard Street, and all construction activities would occur away from public roadways. Existing transit facilities are provided by the Orange County Transportation Authority, and the nearest bus stop location to the P2-138 project site is located approximately 0.25 miles south of the P2-138 project site at the intersection of Brookhurst Street/SR-1 (Pacific Coast Highway) (OCTA 2020). Transit facilities would not be impacted. Currently, there are no bicycle facilities near the P2-138 project site, but a Class II bicycle lane is identified in the City of Huntington Beach Circulation Element (City of Huntington Beach 2017).

Operational and Maintenance Impacts

Once fully operational, the proposed P2-138 project would not generate new trips since it is the relocation of the Plant 2 main entrance. Instead, existing trips to and from Plant 2 would be rerouted to the new main entrance. Overall, operations and maintenance of the completed Plant 2 P2-138 project would not be changed from its current uses.

The P2-138 project would require the existing entrances to the Plant 2 site to be modified. To analyze the changing access and layout of Plant 2 upon the roadway network, the inbound and outbound traffic volumes derived from the Existing 2020 volumes to Plant 2 were isolated and reassigned to correspond to the final site layout. Figure 4.13-2 shows the Plant 2 reassigned volumes for the operations and maintenance scenario.

Traffic impacts due to operations and maintenance of the proposed P2-138 project under the existing plus operations and maintenance condition was forecast by adding (or subtracting where appropriate) the reassigned traffic volumes from Figure 4.13-2 to the Existing 2020 volumes to derive the Existing Plus Project (Operations and Maintenance) reassignment traffic volumes.

An intersection LOS analysis was conducted for the Existing Plus Project (Operations and Maintenance) scenario using the Intersection Capacity Utilization and Highway Capacity Manual methodologies (TRB 2016). Table 4.13-8 shows the results of the analysis. Worksheets for the LOS analysis are provided in Appendix I.

In order to analyze the impact of the reassignment within the Cumulative Year scenario, the completion of the P2-138 project is expected in 2022. Therefore, cumulative projects occurring in 2022 (as shown in Appendix I), were added to the Existing 2020 volumes, along with a 0.5%/year growth rate (totaling 1%). Traffic impacts due to operations and maintenance of the proposed P2-138 project under the Cumulative Year 2022 Plus (Operations and Maintenance) scenario was forecast by adding (or subtracting where appropriate) the reassigned traffic volumes from Figure 4.13-2 to the Cumulative Year 2022 baseline volumes to derive the Cumulative Year 2022 Plus (Operations and Maintenance) reassignment traffic volumes.

An intersection LOS analysis was conducted for the Cumulative Year 2022 Plus (Operations and Maintenance) scenario using the Intersection Capacity Utilization and Highway Capacity Manual methodologies (TRB 2016). Table 4.13-9 shows the results of the analysis. Worksheets for the LOS analysis are provided in Appendix I.

As shown in Table 4.13-8 and in Table 4.13-9, the reassignment of Plant 2 inbound and outbound traffic volumes on Plant 2 entrances and exits would not exceed any of the significance criteria described previously within the Existing condition or Cumulative Year 2022 scenario. All intersections are forecast to operate at LOS C or better. Therefore, based on the significance criteria, the P2-138 project traffic impacts at the transportation study area intersections would be less than significant.

Table 4.13-8. Existing Plus Project (Operations and Maintenance) Peak Hour Intersection Level of Service

No.		Control Type	LOS Method	Existing				Existing Plus Project (Operations and Maintenance)				Change in V/C or Delay		Inconsistent w/ LOS Standard?	
				AM Peak		*PM Peak*		*AM Peak*		*PM Peak*					
				V/C Delay[1]	*LOS*	*V/C Delay[1]*	*LOS*	*V/C Delay[1]*	*LOS*	*V/C Delay[1]*	*LOS*	*AM*	*PM*	*AM*	*PM*
1.	Brookhurst Street/Banning Avenue – Plant 2 North Access2	Signalized	ICU	0.282	A	0.259	A	0.306	A	0.301	A	0.024	0.042	No	No
2.	Brookhurst Street/Plant 2 Center Access2	Unsignalized	HCM	11.7	B	14.9	B	This access will be removed				–	–	NA	NA
3.	Brookhurst Street/Bushard Street – Plant 2 South Access	Signalized	ICU	0.303	A	0.323	A	0.318	A	0.340	A	0.015	0.017	No	No
4.	Brookhurst Street/Plant 2 North Access2	Unsignalized	HCM	12.1	B	13.9	B	This access will be removed				–	–	NA	NA

Source: Appendix I.

Notes: LOS = level of service; ICU = Intersection Capacity Utilization; HCM = Highway Capacity Manual Methodology; V/C = volume-to-capacity ratio; NA = not applicable.

[1] Delay is calculated in seconds per vehicle.

[2] In this scenario, Plant 2 North Access is moved to be a part of the Brookhurst Street/Banning Avenue intersection, and the Plant 2 Center Access is eliminated. Therefore, there are no delayed movements at these intersections.

Table 4.13-9. Cumulative Year 2022 Plus Project (Operations and Maintenance) Peak Hour Intersection Level of Service

No.		Control Type	LOS Method	Cumulative Year 2022				Cumulative Year 2022 Plus Project (Operations and Maintenance)				Change in V/C or Delay		Inconsistent w/ LOS Standard?	
				AM Peak		*PM Peak*		*AM Peak*		*PM Peak*					
				V/C Delay[1]	*LOS*	*V/C Delay*[1]	*LOS*	*V/C Delay*[1]	*LOS*	*V/C Delay*[1]	*LOS*	*AM*	*PM*	*AM*	*PM*
1.	Brookhurst Street/Banning Avenue – Plant 2 North Access2	Signalized	ICU	0.286	A	0.261	A	0.309	A	0.306	A	0.023	0.045	No	No
2.	Brookhurst Street/Plant 2 Center Access	Unsignalized	HCM	11.8	B	15.4	C	This access will be removed				–	–	NA	NA
3.	Brookhurst Street/Bushard Street – Plant 2 South Access	Signalized	ICU	0.306	A	0.326	A	0.321	A	0.343	A	0.015	0.017	No	No
4.	Brookhurst Street/ Plant 2 North Access2	Unsignalized	HCM	12.2	B	14.1	B	This access will be removed				–	–	NA	NA

Source: Appendix I.

Notes: LOS = level of service; ICU = Intersection Capacity Utilization; HCM = Highway Capacity Manual Methodology; V/C = volume-to-capacity ratio; NA = not applicable.

[1] Delay is calculated in seconds per vehicle.

[2] In this scenario, Plant 2 North Access is moved to be a part of the Brookhurst Street/Banning Avenue intersection, and the Plant 2 Center Access is eliminated. Therefore, there are no delayed movements at these intersections.

Joint Plant Improvements

Table 4.13-10 provides a trip generation summary of each project-level, joint plant improvement project included in the FMP. As shown in the table, no FMP project would individually generate 1,600 ADT or 50 or more peak-hour trips. Therefore, no further analysis would be required. Construction traffic associated with the project-level improvement projects for the joint improvements at Plants 1 and 2 would not conflict with a program, plan, ordinance, or policy addressing the circulation system. Therefore, impacts would be less than significant.

Table 4.13-10. Joint Plant Improvements Project-Level Trip Generation Summary

Project Number	Project Name	Project Type	Peak Trip Generating Phase(s)	Daily Trips (PCE)	AM Peak Hour Trips (PCE)			PM Peak Hour Trips (PCE)		
					In	*Out*	*Total*	*In*	*Out*	*Total*
J-98	Plantwide Miscellaneous Electrical Power Distribution System Improvements	Replace	Electrical	10	2	1	3	1	2	3
J-120	Plantwide Miscellaneous Process Control Systems Upgrades	Replace	Electrical	10	2	1	3	1	2	3
J-133	Laboratory Rehabilitation or Replacement at Plant 1	Rehab	Building Construction; Paving; Architectural Coating	30	6	3	9	3	6	9
X-057	Plantwide Miscellaneous Yard Structures Rehabilitation or Replacement	Misc.	Building Construction; Structural Rehabilitation (Concurrent)	36	8	2	10	2	8	10
X-058	Plantwide Miscellaneous Yard Piping Replacement	Replace								
X-059	Plantwide Miscellaneous Tunnels Rehabilitation	Rehab								
J-121	UPS System Upgrades	Replace	Electrical	18	4	1	5	1	4	5
X-044	Steve Anderson Lift Station Rehabilitation	Rehab	Demolition	13	3	1	4	1	3	4

Source: Appendix I.
Notes: PCE = passenger car equivalent; UPS = uninterruptible power system.

Collection System

Table 4.13-11 provides a trip generation summary of each project-level collection system project included in the FMP. As shown in the table, no FMP project would individually generate 1,600 ADT or 50 or more peak-hour trips. Therefore, no further analysis would be required. Construction traffic associated with the project-level improvement projects for the collection system would not conflict with a program, plan, ordinance, or policy addressing the circulation system. Therefore, impacts would be less than significant.

Table 4.13-11. Collection System Improvements – Project-Level Trip Generation Summary

Project Number	Project Name	Project Type	Peak Trip Generating Phase(s)	Daily Trips (PCE)	AM Peak Hour Trips (PCE)			PM Peak Hour Trips (PCE)		
					In	*Out*	*Total*	*In*	*Out*	*Total*
5-68	Newport Beach Pump Station Odor Control Improvements	Misc.	Building Construction	30	7	1	8	1	7	8
X-076	Santa Ana Trunk Sewer Rehabilitation Phase II	Rehab	Pipeline Lining	24	5	1	6	1	5	6
X-082	North Trunk Improvement Project	Replace	Pipeline Installation	19	6	2	8	2	6	8
X-060	Newhope Placentia Chemical Dosing Station	Misc.	Building Construction (Chemical Dosing Station)	42	10	1	11	1	10	11
11-33	Edinger Pumping Station Replacement	Replace	Demolition; Structural Rehabilitation; Building Construction	69	16	3	19	3	16	19
X-063	South Santa Ana River Interceptor Connector Rehabilitation	Rehab	Pipeline Installation; Paving (Continual & Final); Architectural Coating (Striping)	46	10	3	13	3	10	13
2-73	Yorba Linda Pump Station Abandonment	Misc.	Demolition	23	5	1	6	1	5	6
3-67	Seal Beach Pump Station Replacement	Replace	Building Construction	30	7	1	8	1	7	8
2-49	Taft Branch Sewer Improvements	Replace	Pipeline Installation and Manhole Replacement; Paving (Continual & Final); Architectural Coating (Striping)	49	11	4	15	4	11	15
X-083	Greenville–Sullivan Sewer Relief Project	Replace	Pipeline Installation; Paving (Continual & Final); Architectural Coating (Striping)	52	11	4	15	4	11	15

Source: Appendix I.
Notes: PCE = passenger car equivalent.

2. Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?

Significant and Unavoidable Impact. The FMP is not a land use or transportation project, and therefore neither Section 15064.3(b)(1) nor Section 15064.3(b)(2) of the CEQA Guidelines apply. Instead, the FMP would be categorized under Section 15064.3(b)(3) qualitative analysis. The following paragraph from the Section 15064.3(b)(3) provides guidance regarding qualitative analysis:

> If existing models or methods are not available to estimate the vehicle miles traveled for the particular project being considered, a lead agency may analyze the project's vehicle miles traveled qualitatively. Such a qualitative analysis would evaluate factors such as the availability of transit, proximity to other destinations, etc. For many projects, a qualitative analysis of construction traffic may be appropriate.

The updated CEQA Guidelines do not establish a significance threshold, but the OPR's Technical Advisory recommends a threshold of significance for residential, office, and other land uses. The recommended threshold for per-capita or per-employee for residential or office projects, respectively, is 15% below that of existing development. There is no significance threshold for construction or maintenance projects.

The FMP consists of approximately 30 near-term and 45 long-term construction projects that would rehabilitate or replace existing facilities that are currently subject to ongoing operation and maintenance activities. These projects do not propose additions or appreciable changes to current operation and maintenance activities. These projects would occur over a period of approximately 20 years from 2021 through 2040, and would generate temporary construction-related traffic that would cease after the construction activity is completed. Further, new trips generated from future operations and maintenance activities are anticipated to be nominal.

Since the OPR Technical Advisory does not recommend a quantitative method to estimate construction-related VMT, the project-level analysis and program-level analysis have been discussed qualitatively using reliance on fundamental CEQA principles to determine the significance of an impact.

Per the OPR Technical Advisory, a project that would generate fewer than 110 trips per day generally may be assumed to cause a less-than-significant transportation impact. Although the proposed FMP projects are not land use projects and would not generate permanent trips, they would generate temporary trips over an extended period of construction. Therefore, conservatively, the criteria of fewer than 110 trips has been used as a screening threshold for individual near-term and long-term projects within the overall FMP program.

As shown in Table 4.13-4, Plant 1 Improvements – Project-Level Trip Generation Summary; Table 4.13-5, Plant 2 Improvements – Project-Level Trip Generation Summary; Table 4.13-10, Joint Plant Improvements Project-Level Trip Generation Summary; and Table 4.13-11, Collection System Improvements – Project-Level Trip Generation Summary, all individual projects would generate fewer than 110 trips per day.

As shown in Table 4.13-1, Peak Period Trip Generation– Plant 1 Projects and Joint Improvements with Plant 2; Table 4.13-2, Peak Period Trip Generation – Plant 2 Projects and Joint Improvements with Plant 1; and Table 4.13-3, Peak Period Trip Generation – Collection System Improvements, with individual projects occurring at the same time with overlapping construction phases, the projects would generate more than 110 trips per day.

Although all the individual near-term projects and long-term projects under the FMP could be screened using the small project threshold of 110 trips per day, with some projects occurring concurrently, the trip generation would exceed 110 trips per day for a number of days over the period of 20 years, as shown in Figure 4.13-3. The VMT generated from these individual projects would be attributable to worker commute trips and haul trips. Although the approximate trip lengths for worker commute, vendor, and haul trips can be estimated using default values for the Orange County region from the California Emissions Estimator Model (CalEEMod) land use emissions computer model, it is not feasible to predict those precisely or to effectively predict trip lengths for specific construction projects. The overall FMP and the individual projects within it are generally consistent with construction activities in terms of the temporary nature of activities, trip generation characteristics, and the types of vehicles and equipment required. However, managing worker, vendor, and haul trip lengths for the FMP projects is not feasible because the location and duration of individual activities would vary. Further, carpooling or accessibility to alternative modes of transportation may not be effectively implemented for workers of these individual projects. Therefore, the FMP would cause an increase in VMT over the span of its implementation. Since measures to reduce the VMT generated by workers and trucks are limited, and there are no thresholds or significance criteria for construction-related VMT, to be conservative, the FMP's impacts related to conflicting with CEQA Guidelines Section 15064.3(b) would be significant and unavoidable.

3. Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

Less-than-Significant Impact with Mitigation Incorporated. Program- and project-level traffic impacts related to increased hazards at Plant 1 and Plant 2 would be less than significant. However, there would be potentially significant impacts related to increased traffic hazards for the collection system projects, for which **Mitigation Measure (MM) TRA-1** would be required.

Program-Level Analysis

Plant Improvements at Plant 1 and Plant 2

As discussed above in the analysis for Plant 1 and Plant 2, during construction, no road closures or construction activities at Plant 1 or 2 are anticipated that would increase hazards on public streets or intersections adjacent to either plant, since construction activities would occur within the plant boundaries. The exception is the P2-138 project at Plant 2, which would relocate the existing Plant 2 main gate on Brookhurst Street north to the existing intersection at Banning Avenue as a new east leg to the intersection. Based on the project-level analysis conducted for the P2-138 project, the relocated main gate would not create any line of sight impacts as it would be required to be designed to the City of Huntington Beach's intersection standards, and it would create a new leg at an existing signalized intersection. Additionally, P2-138 would not create any LOS standard inconsistencies at the new main gate intersection (Brookhurst Street/Banning Avenue) or adjacent intersections, nor would the P2-138 project create any significant queuing impacts at related intersections. Therefore, impacts due to increased hazards at Plant 1 and Plant 2 would be less than significant.

Collection System Improvements

Partial road closures and parking restrictions may be implemented during construction at collection system sites to facilitate traffic flow around construction areas. Additionally, construction work at intersections

might necessitate lane closures when the construction precludes safe traffic or work conditions. Traffic would be detoured around the construction area and, although some disruption to traffic could occur during construction activities, the need for lane closures would be infrequent in many areas. The Sanitation District would keep access to businesses and residences open during in-street work. If any access points were to be closed, it would be temporary and the Sanitation District would coordinate with the jurisdiction and property owner. Staging areas would be necessary along the construction routes. Construction equipment and materials would be located in parking lots, vacant lots, or segments of street lanes that are temporarily closed. Although construction activities have the potential to block access to certain areas, construction would be temporary and would not result in permanent detours or closures of roads or access driveways, however, these temporary blockages and closures may result in a significant impact to transportation facilities around the construction areas. Therefore, impacts due to increased hazards at the construction areas of the Collection System would be less than significant with mitigation incorporated. As such, **MM-TRA-1** would be implemented and would require the incorporation of a Traffic Control Plan to reduce impacts associated with construction impacts at the Collection System sites.

Project-Level Analysis for Plant 2, Project P2-138

As detailed previously, a project-level analysis was prepared for the P2-138 project at Plant 2. The peak construction phase for P2-138 would overlap with several other projects for Plant 2 and for joint plant projects with Plant 1. All construction-related traffic would access the Plant 2 site via the existing intersection of Brookhurst Street/Bushard Street, where there is existing access. During construction, temporary staging and laydown areas for construction materials and equipment would be accommodated within the Plant 2 site. All construction parking would also be accommodated within the existing Plant 2 site. All construction-related impacts would be temporary.

To evaluate the impact of construction of the P2-138 project, a queuing analysis was performed using the SimTraffic software program. The analysis was performed for turning movements that would be directly affected by the peak construction phase. SimTraffic queuing worksheets can be found in Appendix I. As shown in Table 4.13-12, the calculated 95th percentile (design) queue for the Cumulative Year 2021 Plus Project (Construction) condition at all intersections would not exceed the storage lengths provided.

Table 4.13-12. Cumulative Year 2021 Plus Project (Construction) Queuing Summary

Intersection	Movement	Vehicle Storage Length (feet)	Cumulative Year 2021 Plus Project (Construction)[1]		Exceeds Vehicle Storage Length?	
			AM	*PM*	*AM*	*PM*
Brookhurst Street/Banning Avenue – Plant 2 North Access	EBL	400	128	63	No	No
	EBR[2]	950	18	16	No	No
	NBL	215	18	33	No	No
Brookhurst Street/Plant 2 Center Access	WBLR[3]	200	41	59	No	No
	SBL	185	33	13	No	No
Brookhurst Street/Bushard Street – Plant 2 South Access	EBLT[2]	425	15	23	No	No
	EBR[2]	425	67	48	No	No
	WBLTR[3]	100	24	37	No	No
	NBTR[2]	1,100	16	24	No	No
	SBL	225	29	11	No	No
	SBR	215	19	32	No	No

Table 4.13-12. Cumulative Year 2021 Plus Project (Construction) Queuing Summary

Intersection	Movement	Vehicle Storage Length (feet)	Cumulative Year 2021 Plus Project (Construction)[1]		Exceeds Vehicle Storage Length?	
			AM	*PM*	*AM*	*PM*
Brookhurst Street/Plant 2 North Access	WBR	150	24	10	No	No
	SBL	240	22	5	No	No

Source: Appendix I.
Notes: EBL = eastbound left; EBR = eastbound right; NBL = northbound left; WBLR = westbound shared left and right; SBL = southbound left; EBLT = eastbound shared left and through; WBLTR = westbound shared left through and right; NBTR = northbound shared through and right; SBR = southbound right; WBR = westbound right.
1 Based on 95th percentile (design) queue length in SimTraffic 10; length measured in feet.
2 Length measured from nearest stop/signalized intersection.
3 Length measured from is estimated based on site layout.

Additionally, to evaluate the impact of operations and maintenance of the P2-138 project, a queuing analysis was performed using the SimTraffic software program. The analysis was performed for turning movements that would be directly affected by the peak construction phase analyzed. SimTraffic queuing worksheets can be found in Appendix I. As shown in Table 4.13-13, Existing Plus Project (Operations and Maintenance) Queuing, the calculated 95th percentile (design) queue for the Existing Plus (Operations and Maintenance) scenario at all intersections would not exceed the storage lengths provided.

Table 4.13-13. Existing Plus Project (Operations and Maintenance) Queuing

Intersection	Movement	Vehicle Storage Length (Feet)	Existing Plus Project (Operations and Maintenance)[1]		Exceeds Vehicle Storage Length?	
			AM	*PM*	*AM*	*PM*
Brookhurst Street/Banning Avenue – Plant 2 North Access	EBL	400	97	43	No	No
	EBT[2]	950	8	2	No	No
	EBR	150	21	16	No	No
	WBL[3]	150	14	37	No	No
	WBTR[3]	150	41	53	No	No
	NBTR[2]	2,200	16	8	No	No
	SBL	350	54	18	No	No
Brookhurst Street/Plant 2 Center Access[4]	NA	NA	NA	NA	NA	NA
Brookhurst Street/Bushard Street – Plant 2 South Access	EBLT[2]	425	21	23	No	No
	EBR[2]	425	67	43	No	No
	WBLTR[3]	100	27	0	No	No
	NBTR[2]	1,100	14	22	No	No
	SBL	225	17	11	No	No
	SBR	215	12	30	No	No
Brookhurst Street/Plant 2 North Access[4]	NA	NA	NA	NA	NA	NA

Source: Appendix I
EBL = eastbound left; EBT = eastbound through; EBR = eastbound right; WBL = westbound left; WBTR = westbound shared through and right; NBTR = northbound shared through and right; SBL = southbound left; EBLT = eastbound shared left and through; WBLTR = westbound shared left, through, and right; SBR = southbound right

1 Based on 95th percentile (design) queue length in SimTraffic 10; length measured in feet.
2 Length measured from nearest stop/signalized intersection.
3 Length measured from is estimated based on site layout.
4 In this scenario, Plant 2 North Access is moved to be a part of the Brookhurst Street/Banning Avenue intersection and the Plant 2 Center Access is eliminated. Therefore, there are no queued movements (i.e., not applicable).

Additionally, to evaluate the impact of operations and maintenance of the P2-138 project in the Cumulative year, a queuing analysis was performed using the SimTraffic software program. The analysis was performed for turning movements that would be directly affected by the peak construction phase analyzed during the Cumulative Year 2022. SimTraffic queuing worksheets can be found in Appendix I. As shown in Table 4.13-14, Cumulative Year 2022 Plus Project (Operations and Maintenance) Queuing, the calculated 95th percentile (design) queue for the Cumulative Year 2022 Plus (Operations and Maintenance) scenario at all intersections would not exceed the storage lengths provided. As such, construction impacts to hazards due to geometric design feature or incompatible uses for the peak construction phase and operations and maintenance of the P2-138 project would be **less than significant.**

Table 4.13-14. Cumulative Year 2022 Plus Project (Operations and Maintenance) Queuing

Intersection	Movement	Vehicle Storage Length (Feet)	Cumulative Year 2022Plus Project (Operations and Maintenance)[1]		Exceeds Vehicle Storage Length?	
			AM	*PM*	*AM*	*PM*
Brookhurst Street/Banning Avenue – Plant 2 North Access	EBL	400	95	57	No	No
	EBT[2]	950	8	5	No	No
	EBR	150	21	15	No	No
	WBL[3]	150	14	36	No	No
	WBTR[3]	150	43	56	No	No
	NBTR[2]	2,200	17	14	No	No
	SBL	350	51	17	No	No
Brookhurst Street/Plant 2 Center Access[4]	NA	NA	NA	NA	NA	NA
Brookhurst Street/Bushard Street – Plant 2 South Access	EBLT[2]	425	18	23	No	No
	EBR[2]	425	67	47	No	No
	WBLTR[3]	100	26	28	No	No
	NBTR[2]	1,100	16	24	No	No
	SBL	225	28	14	No	No
	SBR	215	14	31	No	No
Brookhurst Street/Plant 2 North Access[4]	NA	NA	NA	NA	NA	NA

Source: Appendix I.
Notes: EBL = eastbound left; EBT = eastbound through; EBR = eastbound right; WBL = westbound left; WBTR = westbound shared through and right; NBTR = northbound shared through and right; SBL = southbound left; EBLT = eastbound shared left and through; WBLTR = westbound shared left, through, and right; SBR = southbound right
1 Based on 95th percentile (design) queue length in SimTraffic 10; length measured in feet.
2 Length measured from nearest stop/signalized intersection.
3 Length measured from is estimated based on site layout.
4 In this scenario, Plant 2 North Access is moved to be a part of the Brookhurst Street/Banning Avenue intersection and the Plant 2 Center Access is eliminated. Therefore, there are no queued movements (i.e., not applicable).

4. Would the project result in inadequate emergency access?

Less-Than-Significant Impact with Mitigation Incorporated. As discussed above, program- and project-level traffic construction activities at Plants 1 and 2 would occur within the boundary of each plant and would not impact emergency access. However, the P2-138 project at Plant 2 and the collection system projects would have construction activities within the public right-of-way (i.e., streets) that may impact emergency access. For that reason, **MM-TRA-1** would also be required to mitigate impacts to emergency access.

Plant Improvements at Plant 1 and Plant 2

As discussed in the analysis for Plant 1 and Plant 2, during construction activities, no lane closures or plant operations are anticipated that would impact adopted emergency response plans. However, project X008 at Plant 2 would require construction activities along Brookhurst Street for the relocation of the Plant 2 main gate. With the implementation of **MM-TRA-1**, impacts to emergency access would be mitigated to less than significant.

Collection System

Lane closures and parking restrictions may be implemented during construction at the collection system sites to facilitate traffic flow around construction areas. Additionally, construction work in intersections might necessitate closures when construction precludes safe traffic or work conditions. Traffic would be detoured around the construction area, and although some disruption to traffic could occur during construction activities, the need for lane closures would be infrequent in many areas. If any access points were to be closed, it would be temporary. Although construction activities have the potential to block access, construction would be temporary and would not result in permanent detours or closures of roads or access driveways. However, these temporary blockages and closures may result in a significant impact to emergency access near the construction areas. Therefore, construction impacts due to partial road and/or lane closures may impact emergency access near the construction areas for the collection system improvements, and impacts would be less than significant with mitigation incorporated.

As such, **MM-TRA-1** would be implemented and would require the incorporation of a Traffic Control Plan to reduce impacts associated with construction at the collection system sites.

4.13.5 Mitigation Measures

As discussed above, to mitigate significant impacts related to hazards and emergency access, related to the P2-138 project at Plant 2 (relocation of main gate), and the construction areas of the collection system improvements, **MM-TRA-1** would be required.

MM-TRA-1 Prior to initiation of construction activities, engineering drawings and specifications and/or contractor shop drawings shall be submitted for review and approval by the Sanitation District, the Public Works Departments of affected cities, and the California Department of Transportation (Caltrans) (where applicable). The proposed project may impact local transportation facilities due to temporary street and/or lane closures, temporary transit stop relocations, haul truck circulation, and construction staging. These impacts, if any, will be identified in the engineering drawings and specifications and/or contractor shop drawings identified for individual projects. The following

steps will be required to mitigate construction traffic impacts identified in the engineering drawings and specifications and/or contractor shop drawings:

Closures to Transportation Facilities

A. Traffic control, and associated Traffic Control Plans, for any lane closure, detour, or other disruption to traffic circulation, including bicycle and pedestrian trails. Bicycle and pedestrian trails shall remain open, to the greatest extent possible, during construction or re-routed to ensure continued connectivity.

B. Engineering drawings and specifications shall meet the standards established in the current California Manual on Uniform Traffic Control Device.

C. Bus stop access impacts shall be coordinated with, and approved by, the Orange County Transportation Authority.

D. Consistent with applicable City and/or Caltrans requirements, and at least three (3) business days before any construction activities that would affect travel on nearby roadways, the construction contractor shall notify the affected City Public Works Department and/or Caltrans of construction activities that could impede movement (such as lane closures) along roadways to allow for uninterrupted emergency access. Surrounding property owners shall also be notified of construction activities through the Sanitation District Public Outreach Process.

Truck Haul Routes and Circulation

E. As required by the applicable agency, construction vehicle haul routes for the delivery of construction materials (e.g., lumber, tiles, piping, windows) to the site, necessary traffic controls and detours, and a construction phasing plan for the construction activities shall be identified.

F. The hours during which transport activities can occur and methods to mitigate construction-related impacts to adjacent streets shall be specified. Examples of these methods include: 1) transport of materials and heavy equipment to the site(s) shall be avoided during the AM and PM peak commute hours; 2) haul trucks shall utilize designated truck routes to the extent feasible; 3) advance warning signage and/or detour routes shall be provided along streets where construction activities would occur; and, 4) scheduling of construction activities and workers at each individual site so that less than 110 daily trips would occur.

G. The contractor shall be required to keep all haul routes clean and free of debris, including gravel and dirt resulting from its operations. The contractor shall clean adjacent streets, as directed by the Sanitation District, of any material that may have been spilled, tracked, or blown onto adjacent streets and areas.

H. As required by the applicable agency, hauling and transport of oversize loads outside of their standard working hours will require approvals.

I. Use of local streets shall be prohibited, except what is required to provide direct access to a construction site.

J. Haul trucks entering or exiting public streets shall yield to public traffic at all times.

K. If hauling operations cause any damage to existing pavement, streets, curbs, and/or gutters along the haul route, the contractor shall be fully responsible for repairs. The repairs shall restore the damaged property to its original condition.

Construction Staging

L. Any off-site construction staging or material storage sites shall be identified to the extent feasible.

M. All project-related staging of vehicles shall be kept out of the adjacent public roadways and shall occur on site or within other off-street areas.

4.13.6 Level of Significance After Mitigation

With implementation of the proposed mitigation measure, required to mitigate potentially significant impacts to hazards and emergency access related to the P2-138 project at Plant 2 (relocation of the main gate) and the potential road or lane closures at the construction areas of the collection system improvements, potential impacts would be mitigated to less than significant.

All FMP impacts at the program and project levels associated with conflicts with adopted policies, plans, or programs, regarding public transit, bicycles, or pedestrian facilities would be less than significant, and no mitigation measures would be required.

FMP impacts at the project level associated with conflict or inconsistency with CEQA Guidelines Section 15064.3(b), would be less than significant, and no mitigation measures would be required. However, FMP impacts at the program level associated with conflict or inconsistency with CEQA Guidelines Section 15064.3(b) would be significant and unavoidable.

4.13.7 Cumulative Impacts

Cumulative impacts were analyzed by considering the potential transportation impacts from the related projects listed in Chapter 3. As previously discussed, FMP impacts related to adopted policies, plans, or programs regarding public transit, bicycles, or pedestrian facilities would be less than significant, and it is not anticipated that the proposed FMP, combined with other related projects, would result in a cumulatively considerable impact to the FMP transportation study area, since individual components of the FMP would generate relatively low, temporary, construction-related traffic volumes.

Based on the conclusion above relating to the potential to conflict or be inconsistent with CEQA Guidelines Section 15064.3(b), the program-level projects are presumed to result in a significant and unavoidable impact with respect to VMT due to an increase in net VMT as compared with existing conditions. Therefore, the FMP's program-level VMT impact would be cumulatively considerable.

Based on the conclusions above relating to substantially increasing traffic hazards and resulting in inadequate emergency access, the program-level projects for the collection system and the project-level P2-138 project at Plant 2 are presumed to result in a potentially significant impact due to construction activities on public streets. However, with implementation of **MM-TRA-1** (Traffic Control Plan), these impacts would be mitigated to levels of less than significant.

4.13.8 Impact Summary

Table 4.13-15 summarizes the impacts for the FMP projects assessed at the project level at Plant 1, Plant 2, joint plant projects, and collection system projects under each threshold analyzed in this PEIR.

Table 4.13-15. Summary of FMP Project Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
Would the project conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?					
Plant 1					
P1-126	Primary Clarifiers Replacements and Improvements	Replace	Less than Significant	—	Less than Significant
X-093	Administrative Facilities and Power Building 3A Demolition	Misc. (Demo)	Less than Significant	—	Less than Significant
X-092	Standby Generator Feeders for Plant 1 Secondary Systems	Misc.	Less than Significant	—	Less than Significant
X-048	Activated Sludge (AS)-1 Aeration Basin and Blower Rehabilitation	Rehab	Less than Significant	—	Less than Significant
P1-135	Digester Ferric Piping Replacement	Replace	Less than Significant	—	Less than Significant
X-077	Switchgear Replacement at Central Generation	Replace	Less than Significant	—	Less than Significant
X-090	Network, Telecommunications, and Service Relocation at Plant 1	Misc.	Less than Significant	—	Less than Significant
Plant 2					
P2-126	Substation and Warehouse Replacement at Plant 2	Misc.	Less than Significant	—	Less than Significant
P2-138	Operations and Maintenance Complex at Plant 2	Replace	Less than Significant	—	Less than Significant
X-050	Activated Sludge (AS) Aeration Basin	Rehab	Less than Significant	—	Less than Significant
X-032	Truck Loading Facility Rehabilitation	Rehab	Less than Significant	—	Less than Significant
X-054	Waste Side-Stream Pump Station C Rehabilitation	Rehab	Less than Significant	—	Less than Significant
X-034	Sodium Bisulfite Station Replacement and Bleach Station Demolition	Replace	Less than Significant	—	Less than Significant
Joint Plant Projects					
J-98	Plantwide Miscellaneous Electrical Power Distribution System Improvements	Replace	Less than Significant	—	Less than Significant
J-120	Plantwide Miscellaneous Process Control Systems Upgrades	Replace	Less than Significant	—	Less than Significant
J-133	Laboratory Rehabilitation or Replacement at Plant 1	Rehab	Less than Significant	—	Less than Significant
X-057	Plantwide Miscellaneous Yard Structures Rehabilitation or Replacement	Misc.	Less than Significant	—	Less than Significant
X-058	Plantwide Miscellaneous Yard Piping Replacement	Replace	Less than Significant	—	Less than Significant
X-059	Plantwide Miscellaneous Tunnels Rehabilitation	Rehab	Less than Significant	—	Less than Significant

Table 4.13-15. Summary of FMP Project Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
J-121	UPS System Upgrades	Replace	Less than Significant	—	Less than Significant
X-044	Steve Anderson Lift Station Rehabilitation	Rehab	Less than Significant	—	Less than Significant
Collection System Projects					
5-68	Newport Beach Pump Station Odor Control Improvements	Misc.	Less than Significant	—	Less than Significant
X-076	Santa Ana Trunk Sewer Rehabilitation Phase II	Rehab	Less than Significant	—	Less than Significant
X-082	North Trunk Improvement Project	Replace	Less than Significant	—	Less than Significant
X-060	Newhope Placentia Chemical Dosing Station	Misc.	Less than Significant	—	Less than Significant
11-33	Edinger Pumping Station Replacement	Replace	Less than Significant	—	Less than Significant
X-063	South Santa Ana River Interceptor Connector Rehabilitation	Rehab	Less than Significant	—	Less than Significant
2-73	Yorba Linda Pump Station Abandonment	Misc.	Less than Significant	—	Less than Significant
3-67	Seal Beach Pump Station Replacement	Replace	Less than Significant	—	Less than Significant
2-49	Taft Branch Sewer Improvements	Replace	Less than Significant	—	Less than Significant
X-083	Greenville–Sullivan Sewer Relief Project	Replace	Less than Significant	—	Less than Significant
Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?					
Plant 1					
P1-126	Primary Clarifiers Replacements and Improvements	Replace	Less than Significant	—	Less than Significant
X-093	Administrative Facilities and Power Building 3A Demolition	Misc. (Demo)	Less than Significant	—	Less than Significant
X-092	Standby Generator Feeders for Plant 1 Secondary Systems	Misc.	Less than Significant	—	Less than Significant
X-048	Activated Sludge (AS)-1 Aeration Basin and Blower Rehabilitation	Rehab	Less than Significant	—	Less than Significant
P1-135	Digester Ferric Piping Replacement	Replace	Less than Significant	—	Less than Significant
X-077	Switchgear Replacement at Central Generation	Replace	Less than Significant	—	Less than Significant
X-090	Network, Telecommunications, and Service Relocation at Plant 1	Misc.	Less than Significant	—	Less than Significant

Table 4.13-15. Summary of FMP Project Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
Plant 2					
P2-126	Substation and Warehouse Replacement at Plant 2	Misc.	Less than Significant	—	Less than Significant
P2-138	Operations and Maintenance Complex at Plant 2	Replace	Less than Significant	—	Less than Significant
X-050	Activated Sludge (AS) Aeration Basin	Rehab	Less than Significant	—	Less than Significant
X-032	Truck Loading Facility Rehabilitation	Rehab	Less than Significant	—	Less than Significant
X-054	Waste Side-Stream Pump Station C Rehabilitation	Rehab	Less than Significant	—	Less than Significant
X-034	Sodium Bisulfite Station Replacement and Bleach Station Demolition	Replace	Less than Significant	—	Less than Significant
Joint Plant Projects					
J-98	Plantwide Miscellaneous Electrical Power Distribution System Improvements	Replace	Less than Significant	—	Less than Significant
J-120	Plantwide Miscellaneous Process Control Systems Upgrades	Replace	Less than Significant	—	Less than Significant
J-133	Laboratory Rehabilitation or Replacement at Plant 1	Rehab	Less than Significant	—	Less than Significant
X-057	Plantwide Miscellaneous Yard Structures Rehabilitation or Replacement	Misc.	Less than Significant	—	Less than Significant
X-058	Plantwide Miscellaneous Yard Piping Replacement	Replace	Less than Significant	—	Less than Significant
X-059	Plantwide Miscellaneous Tunnels Rehabilitation	Rehab	Less than Significant	—	Less than Significant
J-121	UPS System Upgrades	Replace	Less than Significant	—	Less than Significant
X-044	Steve Anderson Lift Station Rehabilitation	Rehab	Less than Significant	—	Less than Significant
Collection System Projects					
5-68	Newport Beach Pump Station Odor Control Improvements	Misc.	Less than Significant	—	Less than Significant
X-076	Santa Ana Trunk Sewer Rehabilitation Phase II	Rehab	Less than Significant	—	Less than Significant
X-082	North Trunk Improvement Project	Replace	Less than Significant	—	Less than Significant
X-060	Newhope Placentia Chemical Dosing Station	Misc.	Less than Significant	—	Less than Significant
11-33	Edinger Pumping Station Replacement	Replace	Less than Significant	—	Less than Significant
X-063	South Santa Ana River Interceptor Connector Rehabilitation	Rehab	Less than Significant	—	Less than Significant

Table 4.13-15. Summary of FMP Project Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
2-73	Yorba Linda Pump Station Abandonment	Misc.	Less than Significant	—	Less than Significant
3-67	Seal Beach Pump Station Replacement	Replace	Less than Significant	—	Less than Significant
2-49	Taft Branch Sewer Improvements	Replace	Less than Significant	—	Less than Significant
X-083	Greenville–Sullivan Sewer Relief Project	Replace	Less than Significant	—	Less than Significant
Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?					
Plant 1					
P1-126	Primary Clarifiers Replacements and Improvements	Replace	Less than Significant	—	Less than Significant
X-093	Administrative Facilities and Power Building 3A Demolition	Misc. (Demo)	Less than Significant	—	Less than Significant
X-092	Standby Generator Feeders for Plant 1 Secondary Systems	Misc.	Less than Significant	—	Less than Significant
X-048	Activated Sludge (AS)-1 Aeration Basin and Blower Rehabilitation	Rehab	Less than Significant	—	Less than Significant
P1-135	Digester Ferric Piping Replacement	Replace	Less than Significant	—	Less than Significant
X-077	Switchgear Replacement at Central Generation	Replace	Less than Significant	—	Less than Significant
X-090	Network, Telecommunications, and Service Relocation at Plant 1	Misc.	Less than Significant	—	Less than Significant
Plant 2					
P2-126	Substation and Warehouse Replacement at Plant 2	Misc.	Less than Significant	—	Less than Significant
P2-138	Operations and Maintenance Complex at Plant 2	Replace	Significant	MM-TRA-1	Less than Significant
X-050	Activated Sludge (AS) Aeration Basin	Rehab	Less than Significant	—	Less than Significant
X-032	Truck Loading Facility Rehabilitation	Rehab	Less than Significant	—	Less than Significant
X-054	Waste Side-Stream Pump Station C Rehabilitation	Rehab	Less than Significant	—	Less than Significant
X-034	Sodium Bisulfite Station Replacement and Bleach Station Demolition	Replace	Less than Significant	—	Less than Significant
Joint Plant Projects					
J-98	Plantwide Miscellaneous Electrical Power Distribution System Improvements	Replace	Less than Significant	—	Less than Significant
J-120	Plantwide Miscellaneous Process Control Systems Upgrades	Replace	Less than Significant	—	Less than Significant

Table 4.13-15. Summary of FMP Project Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
J-133	Laboratory Rehabilitation or Replacement at Plant 1	Rehab	Less than Significant	—	Less than Significant
X-057	Plantwide Miscellaneous Yard Structures Rehabilitation or Replacement	Misc.	Less than Significant	—	Less than Significant
X-058	Plantwide Miscellaneous Yard Piping Replacement	Replace	Less than Significant	—	Less than Significant
X-059	Plantwide Miscellaneous Tunnels Rehabilitation	Rehab	Less than Significant	—	Less than Significant
J-121	UPS System Upgrades	Replace	Less than Significant	—	Less than Significant
X-044	Steve Anderson Lift Station Rehabilitation	Rehab	Less than Significant	—	Less than Significant
Collection System Projects					
5-68	Newport Beach Pump Station Odor Control Improvements	Misc.	Significant	MM-TRA-1	Less than Significant
X-076	Santa Ana Trunk Sewer Rehabilitation Phase II	Rehab	Significant	MM-TRA-1	Less than Significant
X-082	North Trunk Improvement Project	Replace	Significant	MM-TRA-1	Less than Significant
X-060	Newhope Placentia Chemical Dosing Station	Misc.	Significant	MM-TRA-1	Less than Significant
11-33	Edinger Pumping Station Replacement	Replace	Significant	MM-TRA-1	Less than Significant
X-063	South Santa Ana River Interceptor Connector Rehabilitation	Rehab	Significant	MM-TRA-1	Less than Significant
2-73	Yorba Linda Pump Station Abandonment	Misc.	Significant	MM-TRA-1	Less than Significant
3-67	Seal Beach Pump Station Replacement	Replace	Significant	MM-TRA-1	Less than Significant
2-49	Taft Branch Sewer Improvements	Replace	Significant	MM-TRA-1	Less than Significant
X-083	Greenville–Sullivan Sewer Relief Project	Replace	Significant	MM-TRA-1	Less than Significant

Note: UPS = uninterruptible power system

4.13.9 References

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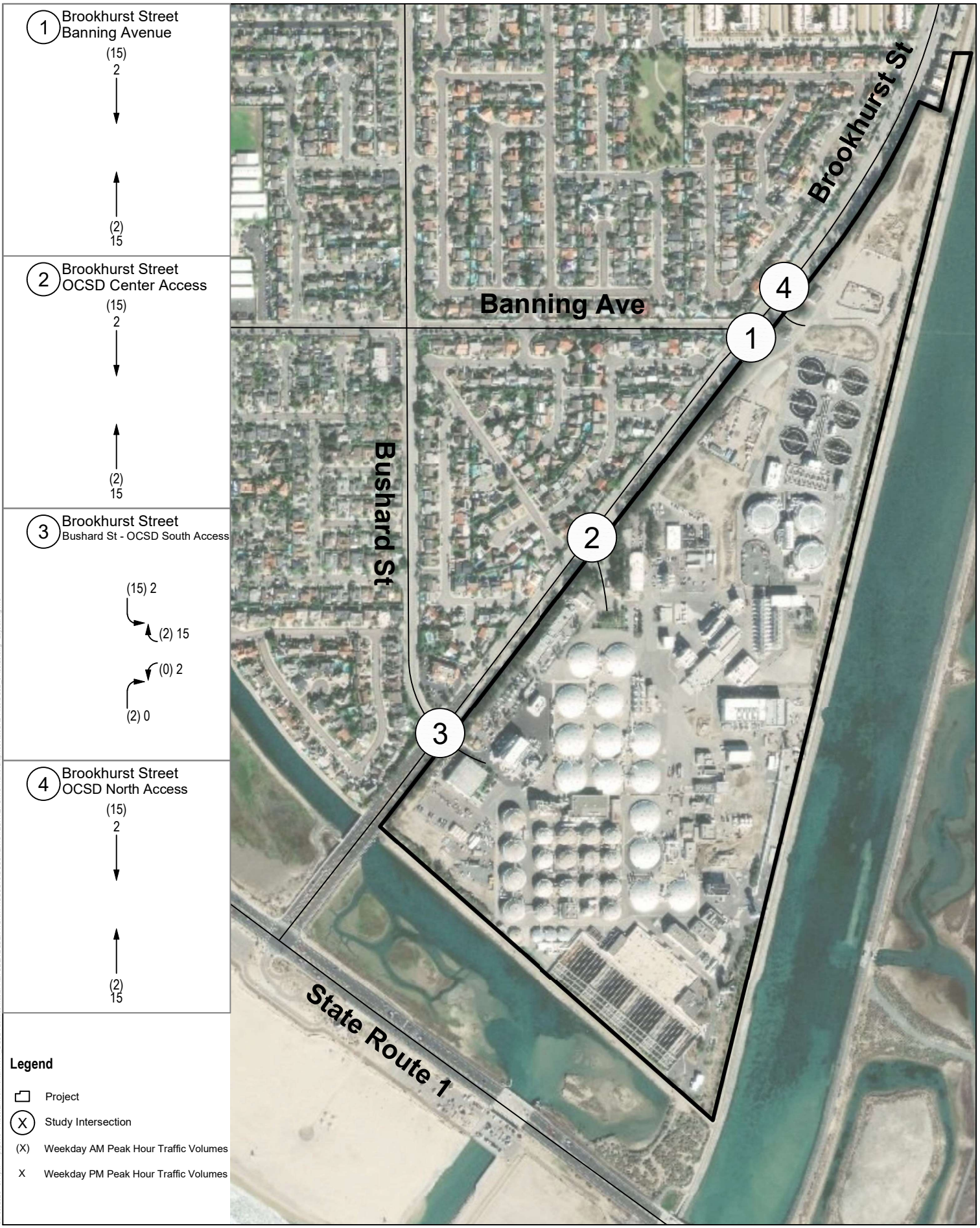

SOURCE: DigitalGlobe 2016

DUDEK

0 295 590 Feet

Figure 4.13-1

Peak Construction Project Trip Assignment (PCE)

OCSD Plant 2, P2-138 Project Level Analysis

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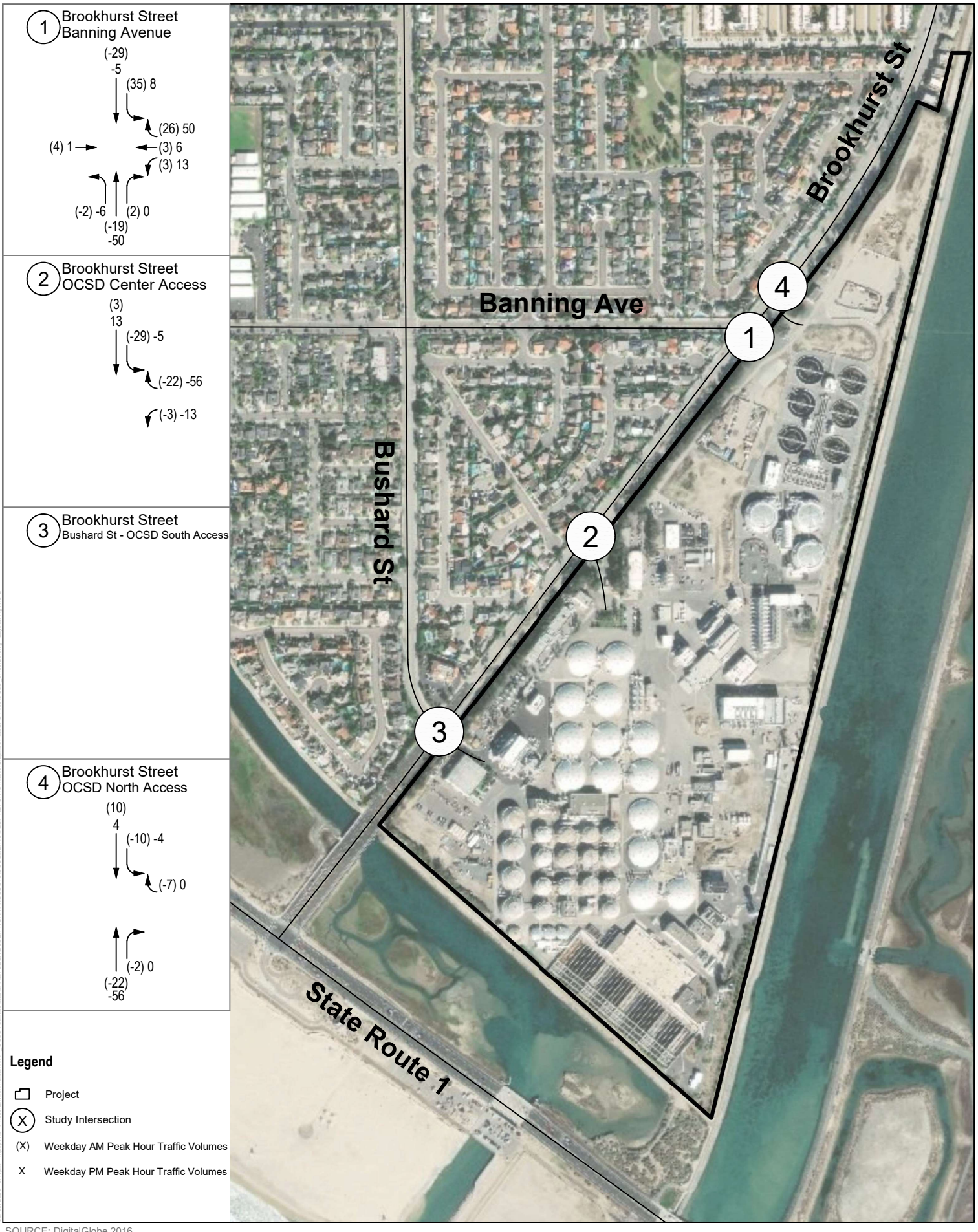

SOURCE: DigitalGlobe 2016

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Figure 4.13-2

Plant 2 Reassigned Volumes for Operations and Maintenance Scenario

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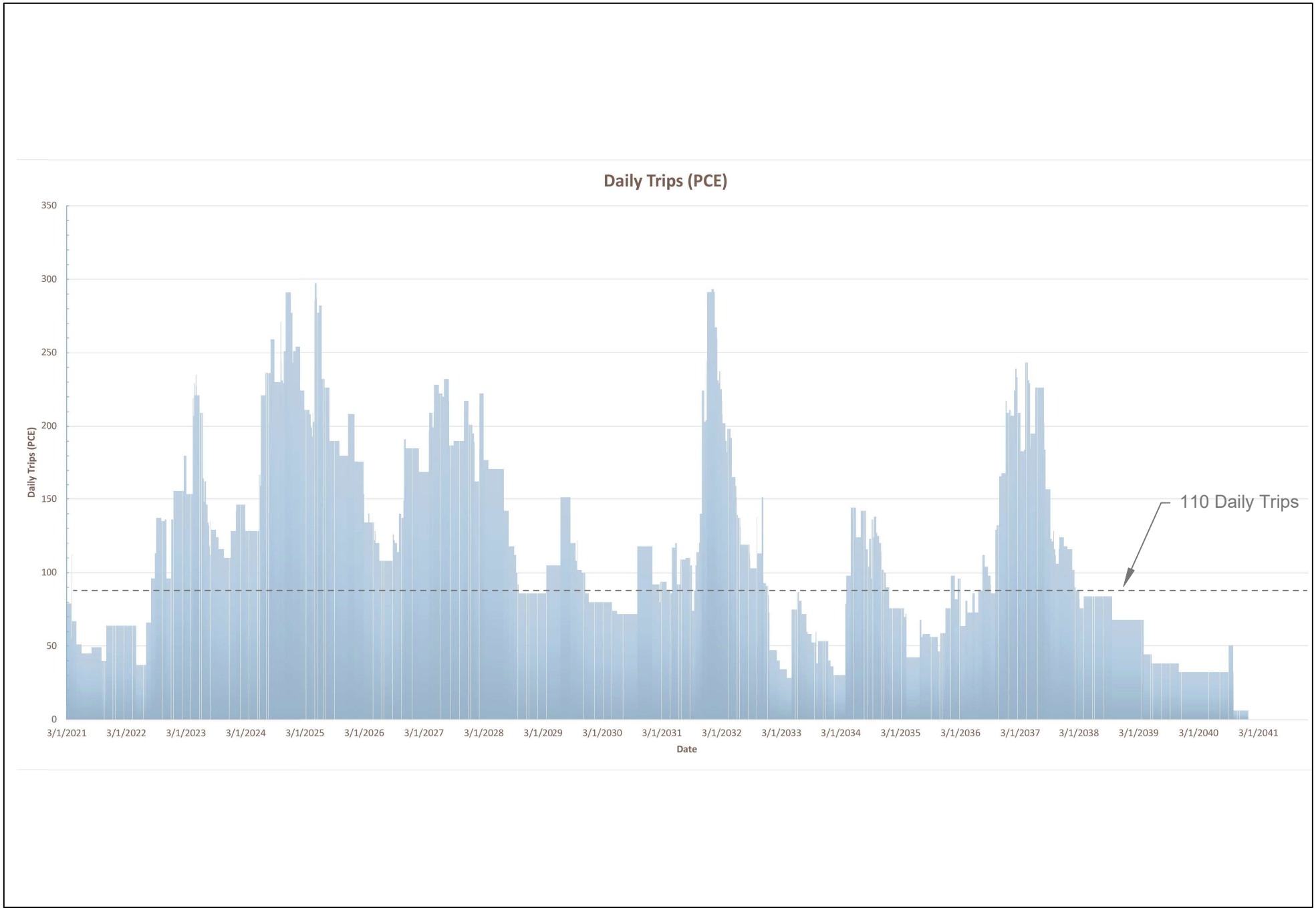

SOURCE: Dudek 2020

Figure 4.13-3

Daily Trips (PCE)

OCSD Plant 2, P2-138 Project Level Analysis

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4.14 Tribal Cultural Resources

This section describes the existing conditions for Tribal Cultural Resources (TCRs) in the Facilities Master Plan (FMP) area, describes the associated regulatory requirements, and evaluates the potential impacts to TCRs resulting from implementation of the proposed FMP projects.

On July 1, 2015, Assembly Bill (AB) 52 went into effect amending the California Environmental Quality Act (CEQA) to include TCRs as a new class of resources and to include new requirements relating to Native American consultation. A TCR, in general, is similar to the federally defined Traditional Cultural Properties. However, AB 52 incorporates consideration of local and state significance and requires mitigation under CEQA. TCRs may include resources that are listed in or eligible for listing in the California Register of Historical Resources, such as archaeological sites, districts, or landscapes, or other kinds of resources that the CEQA lead agency chooses to treat as a TCR through tribal consultation.

This section describes the methods and results of Native American consultation completed by the Orange County Sanitation District (Sanitation District) to identify TCRs within or near to FMP projects.

4.14.1 Existing Conditions

Overview

The FMP area addressed in this program environmental impact report (PEIR) is located throughout the Sanitation District service area, which covers an approximately 479-square-mile area within the northwestern and central portions of Orange County. The boundaries of the Sanitation District's service area relative to the county boundaries are shown in Figure 2-1, Project Location, in Chapter 2, Introduction. The service area includes the entirety or portions of municipal boundaries for 20 cities, as well as unincorporated land and four special districts (see Section 2.1.1, Sanitation District History and Governance). Project components are located at the sites of existing Sanitation District facilities, and work would primarily be limited to existing Sanitation District easements. Some construction activity and staging would occur outside Sanitation District easements, in the land use jurisdiction of the various municipalities listed in Section 2.1.1 and on unincorporated land within Orange County.

Native American Setting

CEQA identifies Native Americans as having special knowledge regarding the identification of TCRs. As such, the context for consideration of TCRs describes Native American groups local to the PEIR region, including the Luiseño-Juaneño (Acjachemen) and the Gabrielino (Kizh). Both of these ethnohistoric groups are linguistically related under a broader Uto-Aztecan language family (Golla 2007). Golla has interpreted the amount of internal diversity within these language-speaking communities to reflect a time depth of approximately 2,000 years. Other researchers have contended that Takic may have diverged from Uto-Aztecan circa 2600 BC–AD 1, which was later followed by the diversification within the Takic-speaking tribes, occurring approximately 1500 BC–AD 1000 (Laylander 2000). The Luiseño-Juaneño and Gabrielino represent the descendants of local Late Prehistoric populations. They are generally considered to have migrated into the area from the Mojave Desert, possibly displacing the prehistoric ancestors of the Yuman-speaking Kumeyaay (Ipai-Tipai) that lived to the south during Ethnohistoric times. The Luiseño-Juaneño shared boundaries with the Gabrielino and Serrano to the west and northwest, the Cahuilla to the east, the Cupeño to the southeast, and the Kumeyaay to the south (Bean and Shipek 1978; Kroeber 1925). Southern Native American tribal groups of the San Diego and southern Imperial region have traditionally spoken Yuman languages, a subgroup of the Hokan Phylum.

The Gabrielino territory included the Los Angeles Basin, the coast of Aliso Creek in Orange County to the south, and Topanga Canyon in the north; the four southern Channel Islands; and watersheds of the Los Angeles, San Gabriel, and Santa Ana Rivers. At the time of European contact, the Gabrielino were actively involved in trade using shell and beads as currency. The Gabrielino produced pipes, ornaments, cooking implements, inlay work, and basketry. Dwellings were constructed of tule mats on a framework of poles, but size and shape have not been recorded (Kroeber 1925). Basketry and steatite vessels were used rather than ceramics until near the end of the mission period in the nineteenth century (Garcia et al. 2011).

The Juaneño (Acjachemen) territory was bounded to the north by Aliso Creek, the east by the crest of the Santa Ana Mountains, the south by San Onofre Creek, and west by the Pacific Ocean (Kroeber 1925). Ethnographic, linguistic, and archaeological evidence indicate that Juaneño and Luiseño are one cultural/tribal group. There is no existing record of the Juaneño population during the pre-contact period. Records indicated that approximately 1,300 individuals culturally affiliated with the Juaneño resided at Mission San Juan Capistrano in the year 1800 (Engelhardt 1922). The mission death register shows as many as 4,000 native burials in the mission cemetery (White 1963). It is clear from that the arrival of the Spanish decimated Native peoples through disease and changed living conditions (Bean and Shipek 1978).

The tribes of the region were organized into patrilineal clans or bands centered on a chief, composed of 25 to 30 people (Kroeber 1925), each of which had their own territorial land or range where food and other resources were collected at different locations throughout the year (Sparkman 1908). The title of chief was heritable along family lines. Inter-band conflict was most common over trespassing. Sparkman observed that "when questioned as to when or how the land was divided and subdivided, the Indians say they cannot tell, that their fathers told them that it had always been thus" (1908). Place names were assigned to each territory, often reflecting common animals, plants, physical landmarks, or cosmological elements that were understood as being related to that location. Lukup, recorded immediately to the east of the FMP area, is one such place-named village.

Marriages were generally arranged by parents or guardians. Free and widowed women had the option to choose their partner. Polygamy occurred though was not common, often with a single man marrying a number of sisters and wives. Shamanism was a major component in tribal life. The physical body and its components was thought to be related to the power of an individual, and wastes such as fluids, hair, and nails were discarded with intent. Hair, once cut, was often carefully collected and buried to avoid being affected negatively or controlled by someone who wished them harm. Some locations and natural resources were of cultural significance. Springs and other water-related features were thought to be related to spirits. These resources, often a component of origin stories, had power that came with a variety of risks and properties to those who became affected. Puberty ceremonies for both boys and girls were complex and rigorous. Mourning ceremonies were similar throughout the region, generally involving cutting of the hair, burning the deceased's clothes a year after death, and redistributing personal items to individuals outside of the immediate tribal group (Sparkman 1908; Kroeber 1925). The center of the Gabrielino religion was *Chinigchinich*, the last of a series of heroic mythological figures. The heroes were originally from the stars and the sagas told of them formed the religious beliefs. The most obvious expression of the religion was the *Wankech*, a brush-enclosed area where religious observances were performed. The *Wankech* contained an inner enclosure housing a representation of *Chinigchinich*, a coyote skin stuffed with feathers, claws, beaks, and arrows. Early American ethnographers recorded a Gabrielino man named Salvador Cuevas who sang a song called "Song of To-mami-yo-wit" that was given by Chung-itch-nish at the location of the village of Lukup, just outside the FMP area (Gray and Schupman 1909).

Acorns were the staple food of the Native American inhabitants of this region during the Ethnohistoric period (Sparkman 1908). Of the six or more oak species within this traditional territory, the most desirable of these was the black oak, due to its ease of processing, protein content, and digestibility. Acorns were stored in granaries to be removed and used as needed. The acorns were generally processed into flour using a mortar and pestle. Other edible and medicinal plants of common use included wild plums, choke cherries, Christmas berry, gooseberry, elderberry, willow, Juncus grass, buckwheat, lemonade berry, sugar bush, sage scrub, currents, wild grapes, prickly pear, watercress, wild oats, and other plants. More arid plants such as yucca, agave, mesquite, chia, bird-claw fern, Datura, yerba santa, Ephedra, and cholla were also of common use by some Juaneño and Gabrielino populations. A number of mammals were commonly eaten. Game animals included black-tailed deer, antelope, rabbits, hares, birds, ground squirrels, woodrats, bears, mountain lions, bobcats, coyotes, and others. In lesser numbers, reptiles and amphibians may have been consumed. Fish and marine resources provided some portion of many tribal communities' food sources, though most notably those nearest the coast. Shellfish would have been procured and transported inland from three primary environments, including the sandy open coast, bay and lagoon, and rocky open coast.

Records Search

Significant archaeological sites are those that qualify as historical resources under CEQA and that may be identified by consulting tribes as TCRs. As such, the California Historical Resources Information System is often consulted to determine whether any potential TCRs existing within or near to the FMP area. To that end, on November 20 and December 12, 2019, Dudek cultural resources staff conducted a cultural resources records search through the California Historical Resources Information System database at the South Central Coastal Information Center. The full details of the records search are summarized in Section 4.4, Cultural Resources, of this PEIR.

Only one significant archaeological site (CA-ORA-1502) identified as a historical resource is located within the FMP area; it is within the project area of project 3-68, Los Alamitos Sub-Trunk Extension. This site is a large prehistoric habitation site located primarily on lands administered by a military installation (Naval Weapons Station Seal Beach). No burials or other deposits are known to exist within the FMP area, which has been fully developed. Despite the archaeological significance of CA-ORA-1502, no consulting tribes identified this site as a TCR during AB 52 consultation.

Native American Consultation

On May 13, 2019, the Sanitation District sent AB 52 formal notification letters to the three tribes that had requested consultation on all Sanitation District projects. The tribes contacted were the Gabrieleño Band of Mission Indians – Kizh Nation, the Juaneño Band of Mission Indians/Acjachemen Nation, and the San Gabriel Band of Mission Indians. None of the tribes requested consultation within the applicable AB 52 time frame or when the Notice of Preparation was distributed on July 25, 2019. No information was requested by any of the tribes contacted through the AB 52 consultation process, and no TCRs were identified. As such, the Sanitation District considers Native American consultation on this PEIR to be concluded.

4.14.2 Relevant Plans, Policies, and Ordinances

California State Assembly Bill 52

Assembly Bill (AB) 52 was approved by Governor Jerry Brown on September 25, 2014. AB 52 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 established that TCRs must be considered under CEQA and also provided for additional Native American consultation requirements for the lead agency. PRC Section 21074 describes a TCR as a site, feature, place, cultural landscape, sacred place, or object that is considered of cultural value to a California Native American Tribe. A TCR is defined as follows:

(a) Tribal cultural resources are either of the following:

Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either of the following:

(a) Included or determined to be eligible for inclusion in the California Register of Historical Resources.
(b) Included in a local register of historical resources as defined in subdivision (k) of Section 5020.1.

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 Section 5024.1.

(b) A cultural landscape that meets the criteria of subdivision (a) is a tribal cultural resource to the extent that the landscape is geographically defined in terms of the size and scope of the landscape. AB 52 formalizes the lead agency–tribal consultation process, requiring the lead agency to initiate consultation with California Native American groups that are traditionally and culturally affiliated with the project, including tribes that may not be federally recognized. Lead agencies are required to begin consultation prior to the release of a negative declaration, mitigated negative declaration, or environmental impact report.

(c) A historical resource described in Section 21084.1, a unique archaeological resource as defined in subdivision (g) of Section 21083.2, or a "nonunique archaeological resource" as defined in subdivision (h) of Section 21083.2 may also be a tribal cultural resources if it conforms with the criteria of subdivision (a).

AB 52 formalizes the lead agency–tribal consultation process, requiring the lead agency to initiate consultation with California Native American groups that are traditionally and culturally affiliated with the project, including tribes that may not be federally recognized. Lead agencies are required to begin consultation prior to the release of a negative declaration, mitigated negative declaration, or environmental impact report.

Section 1(a)(9) of AB 52 establishes that "a substantial adverse change to a tribal cultural resource has a significant effect on the environment." Effects on TCRs should be considered under CEQA. Section 6 of AB 52 adds Section 21080.3.2 to the PRC, which states that parties may propose mitigation measures "capable of avoiding or substantially lessening potential significant impacts to a tribal cultural resource or alternatives that would avoid significant impacts to a tribal cultural resource." Further, if a California Native American tribe requests consultation regarding project alternatives, mitigation measures, or significant effects to tribal cultural resources, the consultation shall include those topics (PRC Section 21080.3.2[a]). The environmental document and the mitigation monitoring and reporting program (where applicable) shall include any mitigation measures that are adopted (PRC Section 21082.3[a]).

California Health and Safety Code Section 7050.5

California law protects Native American burials, skeletal remains, and associated grave goods, regardless of their antiquity, and provides for the sensitive treatment and disposition of those remains. California Health and Safety Code Section 7050.5 requires that if human remains are discovered in any place other than a dedicated cemetery, no further disturbance or excavation of the site or nearby area reasonably suspected to contain human remains shall occur until the county coroner has examined the remains (Section 7050.5[b]). PRC Section 5097.98 also outlines the process to be followed in the event that remains are discovered. If the coroner determines or has reason to believe the remains are those of a Native American, the coroner must contact the Native American Heritage Commission (NAHC) within 24 hours (Section 7050.5[c]). NAHC will notify the "most likely descendant." With the permission of the landowner, the most likely descendant may inspect the site of discovery. The inspection must be completed within 48 hours of notification of the most likely descendant by NAHC. The most likely descendant may recommend means of treating or disposing of, with appropriate dignity, the human remains and items associated with Native Americans.

California Public Resources Code, Section 5097.98

PRC Section 5097.98 addresses the disposition of Native American burials in archaeological sites and protects such remains from disturbance, vandalism, or inadvertent destruction; establishes procedures to be implemented if Native American skeletal remains are discovered during construction of a project; and establishes the NAHC to resolve disputes regarding the disposition of such remains. It has been incorporated into Section 15064.5(e) of the CEQA Guidelines. The proposed project would be required to comply with PRC Section 5097.98 should any unknown human remains be discovered during site disturbance.

California Public Resources Code, Sections 5097.5 and 30244

PRC Section 5097.5 prohibits "knowing and willful" removal, destruction, injury, defacement, and excavation upon any historic or prehistoric ruins, burial grounds, or archaeological or vertebrate paleontological site situated on public lands (lands under state, county, city, district, or public authority ownership or jurisdiction, or the ownership or jurisdiction of a public corporation), except where the agency with jurisdiction has granted express permission. PRC Section 30244 requires reasonable mitigation for impacts on archaeological or paleontological resources that occur as a result of development on public lands.

4.14.3 Thresholds of Significance

The significance criteria used to evaluate the FMP's impacts to TCRs are based on Appendix G of the CEQA Guidelines. According to Appendix G, a significant impact related to TCRs would occur if a project would:

1. Cause a substantial adverse change in the significance of a tribal cultural resource as defined in PRC, Section 21074, as either a site, feature, place, or 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:
    a. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in PRC, Section 5020.1(k), or
    b. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in PRC, Section 5024.1(c). In applying the criteria set forth in PRC, Section 5024.1(c), the lead agency shall consider the significance of the resource to a California Native American tribe.

4.14.4 Impacts Analysis

1. Would the project cause a substantial adverse change in the significance of a tribal cultural resource as defined in PRC, Section 21074, as either a site, feature, place, or 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:

a. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in PRC, Section 5020.1(k), or

b. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in PRC, Section 5024.1(c). In applying the criteria set forth in PRC, Section 5024.1(c), the lead agency shall consider the significance of the resource to a California Native American tribe.

Less-than-Significant Impact with Mitigation Incorporated. Under CEQA, an effect to a TCR is considered a "substantial adverse change" if it is shown that the change would materially impair the significance of the historical resource. That is, a project that demolishes or materially alters in an adverse manner those physical characteristics of a historical resource conveying its historic significance would materially impair the significance of a historical resource. Therefore, such a change would constitute a "substantial adverse change" under CEQA.

No TCRs have been identified through tribal consultation under AB 52, and the Sanitation District has not identified any TCRs within the FMP area that would warrant discretionary designation of a resource as a TCR. However, TCRs could be discovered during excavation activities. In order to ensure that impacts to TCRs are less than significant, the implementation of Mitigation Measure **(MM) CUL-3** would be required.

Therefore, the FMP project's potential to impact TCRs would be less than significant with implementation of **MM-CUL-3**.

4.14.5 Mitigation Measures

MM-CUL-3 In the event of the unanticipated discovery of archaeological materials during ground-disturbing activities associated with the proposed Facilities Master Plan, the Orange County Sanitation District (Sanitation District) shall immediately cease all work activities in the area (within 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 the Sanitation District 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, in accordance with the Advisory Council on Historic Preservation's 2009 Section 106 Archaeology Guidance, shall be prepared and implemented by the qualified archaeologist in consultation with the Sanitation District. The Archaeological Resources Treatment Plan will provide for the adequate recovery of the scientifically consequential information contained in the archaeological resource. The Sanitation District shall consult with appropriate Native American representatives in determining treatment for prehistoric or Native

American resources. The treatment options after data recovery efforts occur may include returning the resource to the appropriate tribe or donation of the resource to a repository identified by the tribe. If preservation in place is not an option or re-deposition on site is not an option, the resource will be curated at an archaeological curation facility (compliant with standards established in 36 CFR 79, Sections 9, 10, and 11).

4.14.6 Level of Significance After Mitigation

Incorporation of **MM-CUL-3** would ensure that impacts to TCRs during excavation activities would be less than significant after mitigation.

4.14.7 Cumulative Impacts

Implementation of FMP projects, including implementation of **MM-CUL-3**, would not impact TCRs. Therefore, the proposed FMP would not contribute to cumulative impacts to TCRs.

4.14.8 Impact Summary

Table 4.14-1 summarizes the impacts for the FMP projects assessed at the project level at Plant 1, Plant 2, joint plant projects, and collection system projects under each threshold analyzed in this PEIR. This table also includes specific FMPs that have been analyzed at the program level, due to the geospatial nature of the cultural resource analysis.

Table 4.14-1. Summary of FMP Project Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
Would the project cause a substantial adverse change in the significance of a tribal cultural resource as defined in PRC, Section 21074?					
Plant 1					
P1-126	Primary Clarifiers Replacements and Improvements	Replace	Significant	MM-CUL-3	Less than Significant
X-006*	Waste Side-Stream Pump Station 1 Upgrade	Rehab	Significant	MM-CUL-3	Less than Significant
X-015*	Trickling Filters Rehabilitation	Rehab	Significant	MM-CUL-3	Less than Significant
X-017*	Primary Clarifiers 6–37	Rehab	Significant	MM-CUL-3	Less than Significant
X-018*	Activated Sludge (AS) 2 Rehabilitation	Rehab	Significant	MM-CUL-3	Less than Significant
X-038*	City Water Pump Station Rehabilitation	Rehab	Significant	MM-CUL-3	Less than Significant
X-039*	Plant Water Pump Station Rehabilitation	Rehab	Significant	MM-CUL-3	Less than Significant

Table 4.14-1. Summary of FMP Project Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
X-043*	DAFT Demolition	Misc. (Demo)	Significant	MM-CUL-3	Less than Significant
X-049*	Activated Sludge (AS)-1 Clarifier and RAS Pump Station Rehabilitation	Rehab	Significant	MM-CUL-3	Less than Significant
X-093	Administrative Facilities and Power Building 3A Demolition	Misc. (Demo)	Significant	MM-CUL-3	Less than Significant
X-092	Standby Generator Feeders for Plant 1 Secondary Systems	Misc.	Less than Significant	—	Less than Significant
X-048	Activated Sludge (AS)-1 Aeration Basin and Blower Rehabilitation	Rehab	Significant	MM-CUL-3	Less than Significant
P1-135	Digester Ferric Piping Replacement	Replace	Less than Significant	—	Less than Significant
X-077	Switchgear Replacement at Central Generation	Replace	Significant	MM-CUL-3	Less than Significant
X-079*	Primary Scrubber Rehabilitation	Rehab	Significant	MM-CUL-3	Less than Significant
Plant 2					
P2-126	Substation and Warehouse Replacement at Plant 2	Misc.	Significant	MM-CUL-3	Less than Significant
P2-138	Operations and Maintenance Complex at Plant 2	Replace	Significant	MM-CUL-3	Less than Significant
X-050	Activated Sludge (AS) Aeration Basin	Rehab	Less than Significant	—	Less than Significant
X-032	Truck Loading Facility Rehabilitation	Rehab	Less than Significant	—	Less than Significant
X-054	Waste Side-Stream Pump Station C Rehabilitation	Rehab	Less than Significant	—	Less than Significant
X-034	Sodium Bisulfite Station Replacement and Bleach Station Demolition	Replace	Less than Significant	—	Less than Significant
X-090	Network, Telecommunications, and Service Relocation at Plant 1	Misc.	Less than Significant	—	Less than Significant
Joint Plant Projects					
J-98	Plantwide Miscellaneous Electrical Power Distribution System Improvements	Replace	Less than Significant	—	Less than Significant
J-120	Plantwide Miscellaneous Process Control Systems Upgrades	Replace	Less than Significant	—	Less than Significant
J-133	Laboratory Rehabilitation or Replacement at Plant 1	Rehab	Less than Significant	—	Less than Significant
X-057	Plantwide Miscellaneous Yard Structures Rehabilitation or Replacement	Misc.	Less than Significant	—	Less than Significant
X-058	Plantwide Miscellaneous Yard Piping Replacement	Replace	Less than Significant	—	Less than Significant

Table 4.14-1. Summary of FMP Project Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
X-059	Plantwide Miscellaneous Tunnels Rehabilitation	Rehab	Less than Significant	—	Less than Significant
J-121	UPS System Upgrades	Replace	Less than Significant	—	Less than Significant
X-044	Steve Anderson Lift Station Rehabilitation	Rehab	Less than Significant	—	Less than Significant
Collection System Projects					
3-68*	Los Alamitos Sub-Trunk Extension	Misc.	Significant	MM-CUL-3	Less than Significant
5-68	Newport Beach Pump Station Odor Control Improvements	Misc.	Significant	MM-CUL-3	Less than Significant
X-024*	Rocky Point Pump Station Rehabilitation	Rehab	Significant	MM-CUL-3	Less than Significant
X-026*	College Avenue Force Main Rehabilitation	Rehab	Significant	MM-CUL-3	Less than Significant
X-040*	College Avenue Pump Station Replacement	Replace	Significant	MM-CUL-3	Less than Significant
X-076	Santa Ana Trunk Sewer Rehabilitation Phase II	Rehab	Significant	MM-CUL-3	Less than Significant
X-078*	Air Jumper Additions and Rehabilitation	Rehab	Significant	MM-CUL-3	Less than Significant
X-082	North Trunk Improvement Project	Replace	Less than Significant	—	Less than Significant
X-060	Newhope Placentia Chemical Dosing Station	Misc.	Less than Significant	—	Less than Significant
11-33	Edinger Pumping Station Replacement	Replace	Less than Significant	—	Less than Significant
X-063	South Santa Ana River Interceptor Connector Rehabilitation	Rehab	Less than Significant	—	Less than Significant
2-73	Yorba Linda Pump Station Abandonment	Misc.	Less than Significant	—	Less than Significant
3-67	Seal Beach Pump Station Replacement	Replace	Less than Significant	—	Less than Significant
2-49	Taft Branch Sewer Improvements	Replace	Less than Significant	—	Less than Significant
X-083	Greenville–Sullivan Sewer Relief Project	Replace	Less than Significant	—	Less than Significant

Notes: DAFT = dissolved air flotation thickeners; RAS = return activated sludge; UPS = uninterruptible power system.
* Denotes program level analysis.

4.14.9 References

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4.15 Utilities and Service Systems

This section describes the Facilities Master Plan (FMP) area's existing conditions with respect to utilities and services systems, identifies relevant regulatory requirements, and evaluates potential impacts related to implementation of the proposed FMP. The environmental impact analysis presented in this section considers impact questions from Appendix G of the California Environmental Quality Act (CEQA) Guidelines. This section provides an analysis of the following utilities and service systems topics, regarding whether the FMP would:

- Require or result in the relocation or construction of new or expanded water, or wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects.
- Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals.
- Conflict with federal, state, and local management and reduction statutes and regulations related to solid waste.

As stated in the July 2019 Initial Study (Appendix A to this program environmental impact report [PEIR]), potential impacts associated with water supply availability and wastewater treatment service were deemed less than significant for implementation of this program, due to the nature of the proposed improvements. Therefore, this section does not further analyze the following topics, regarding whether the FMP would:

- Have sufficient water supplies to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years.
- 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.

4.15.1 Existing Conditions

The FMP projects would be located at various sites throughout the Orange County Sanitation District (Sanitation District) service area, which covers an approximately 479-square-mile area within the northwestern and central portions of Orange County. The service area includes the entirety or portions of municipal boundaries for 20 cities, as well as unincorporated land, encompassing a complex array of utility and service providers, as summarized below.

Water Service

Municipal water service in the Sanitation District service area, covering northern and central Orange County, is provided by municipalities and water districts who serve customers within their respective geographic boundaries. These entities supply a combination of groundwater from the Orange County Water Basin, which is managed by the Orange County Water District (OCWD), and imported water delivered by the Metropolitan Water District of Southern California (MWD) to its member agencies. Within the OCWD boundaries approximately 60% to 70% of the water needs are met by groundwater, with the rest supplied by imported water from MWD (MWDOC 2016). Information on water service systems within the Sanitation District service area is provided below.

Orange County Water District

The OCWD is responsible for management of three of the region's significant water supplies, the Santa Ana River, the Orange County Groundwater Basin, and the Groundwater Replenishment System. The Orange County Groundwater Basin contains approximately 500,000 acre-feet of usable storage water and covers 270 square miles in northern and central Orange County, within the Sanitation District service area. The basin serves more than 2.5 million residents of central Orange County, with water extracted, treated, stored, and delivered by a series of cities, water districts, and private water companies falling within the OCWD service area (MWDOC 2016). The municipal water providers within the OCWD boundaries are the following:

- City of Anaheim
- City of Buena Park
- City of Fountain Valley
- City of Fullerton
- City of Garden Grove
- City of Huntington Beach
- City of La Palma
- City of Newport Beach
- City of Orange
- City of Santa Ana
- City of Seal Beach
- City of Tustin

The water districts within the OCWD boundaries are the following:

- East Orange County Water District
- Irvine Ranch Water District
- Golden State Water Company
- Mesa Water District
- Serrano Water District
- Yorba Linda Water District

The Groundwater Replenishment System, a joint project between OCWD and the Sanitation District, is the world's largest advanced water purification system for potable reuse. Through the Groundwater Replenishment System, reclaimed water treated by Sanitation District is added to the Orange County Groundwater Basin and injected into coastal barrier wells to keep seawater out of the basin (MWDOC 2016; OCWD 2020).

Metropolitan Water District of Southern California

Imported water delivered by MWD supplements resources from the Orange County Groundwater Basin. MWD is Southern California's wholesale water provider, with a service area of approximately 5,200 square miles that includes the Counties of Los Angeles, Orange, Riverside, San Bernardino, San Diego, and Ventura. MWD owns and operates the Colorado River Aqueduct, and the Colorado River is one of MWD's two main water sources. Under the priority system that governs the distribution of Colorado River water made available to California, MWD holds the fourth priority right of 550,000 acre-feet per year. MWD's second major water source is the State Water Project, owned by the State of California and operated by the California Department of Water Resources. The State Water Project's supply originates in Northern California with water captured from the Feather River Watershed behind Lake Oroville Dam. MWD is the largest, in terms of population served, of the 29 agencies that have long-term contracts for water service from the California Department of Water Resources. MWD's contract with the California Department of Water Resources provides for the ultimate delivery of 1,911,400 acre-feet per year, which is 46% of the total State Water Project entitlement (MWD 2016).

There are 26 member agencies of MWD, including 14 cities and 12 municipal water districts, who contract with MWD to purchase water that is sent through MWD aqueduct pipes to the respective member agencies' delivery points, and then pumped throughout the member agencies' systems for delivery to their end customers or second-

tier wholesale member agencies. MWD does not distribute water directly to end customers. Within the Sanitation District service area, the Cities of Anaheim, Fullerton, and Santa Ana are MWD member agencies and obtain their water directly from MWD for distribution to their municipal customers, and the Municipal Water District of Orange County (MWDOC) is a wholesale member agency (MWD 2016).

Municipal Water District of Orange County

MWDOC is a regional water wholesaler and resource planning agency, managing all of Orange County's imported water supply except that provided by MWD to the Cities of Anaheim, Fullerton, and Santa Ana. MWDOC serves more than 2.3 million residents in a 600-square-mile service area. MWDOC serves imported water in Orange County to 28 retail water agencies, including 18 entities within the Sanitation District service area (MWDOC 2016). Municipalities in the Sanitation District service area that are MWDOC member agencies are the following:

- City of Brea
- City of Buena Park
- City of Fountain Valley
- City of Garden Grove
- City of Huntington Beach
- City of La Habra
- City of La Palma
- City of Newport Beach
- City of Orange
- City of Seal Beach
- City of Tustin

The water districts within the Sanitation District service area that are MWDOC member agencies are as follows:

- East Orange County Water District
- Irvine Ranch Water District
- Golden State Water Company
- Mesa Water District
- Orange County Water District
- Serrano Water District
- Yorba Linda Water District

Municipal and Water District Service

Each of the municipal water service providers and water districts located in the Sanitation District service area operate their own transmission and distribution facilities that, along with Sanitation District facilities, form part of the urban infrastructure of developed Orange County. This water infrastructure includes reservoirs, treatment systems, pump stations, pipelines, and meters, allowing the agencies to store, treat, convey, and distribute water to their end customers. Pipelines are typically located underground beneath or adjacent to developed roads, within right-of-way controlled by the respective city or water district, and are often colocated with other parallel linear utility lines, such as wastewater pipelines, storm drain pipes, and electrical conduit.

Both Reclamation Plant No. 1 (Plant 1) and Treatment Plant No. 2 (Plant 2) feature an extensive network of water pipelines that serve internal uses within the respective plants. The Plant 1 potable water lines, carrying water provided by the City of Fountain Valley, are connected to a 10-inch pipe that enters the plant from the eastern side of the plant's northern border, with water conveyed by what is known as the City Water Pump Station. A smaller, separate potable water pipeline network occurs in the plant's southwestern quadrant, entering the site through a municipal line in Garfield Avenue. Exhibit 3-14 of the FMP (Sanitation District 2017) shows the potable water system in Plant 1. At Plant 2, water provided by the City of Huntington Beach is carried into the plant from a 16-inch pipeline beneath the plant's primary driveway off Brookhurst Avenue. Exhibit 4-15 of the FMP shows the Plant 2 potable water system. Plant 1 and Plant 2 also feature networks of pipelines carrying non-potable water for use in various

treatment processes, including plant water generated within the plants and, at Plant 2, reclaimed water provided by OCWD. FMP Exhibits 3-15, 3-16, 4-16, and 4-17 depict the non-potable water pipeline systems occurring in Plant 1 and Plant 2, respectively (Sanitation District 2017).

Wastewater Treatment

The Sanitation District is the sole wastewater treatment entity in its service area. A description of its existing facilities is provided in Chapter 2, Introduction, and Chapter 3, Project Description, of this PEIR. Sewer collection upstream of Sanitation District facilities is the responsibility of the various Sanitation District member agencies, the cities and special districts listed in Section 2.1.1, Sanitation District History and Governance, of this EIR. These entities maintain a series of underground pipelines, typically located in roads, that convey wastewater from their customer collection points to Sanitation District sewer mains.

Stormwater Drainage

Stormwater collection and conveyance within the Sanitation District service area is provided by the Sanitation District's constituent cities and by Orange County Public Works within the unincorporated areas, with smaller local facilities draining into a larger regional system maintained by the Orange County Flood Control District. Orange County Flood Control District facilities are administered by Orange County Public Works staff (OCFCD 2020a). The Orange County Flood Control District is separated into 13 watersheds, referred to as Watersheds A through M. Watersheds A, B, C, and D are entirely within the Sanitation District service area boundaries, with parts of Watersheds E, F, and G falling within the Sanitation District service area's boundaries (OCFCD 2020b).

Local storm drain systems are typically made up of roadway gutters, inlets, basins, and small-diameter lateral pipes located in and adjacent to existing roads that connect to the larger downstream system made of earthen channels, concrete-lined channels, culverts, and large-diameter underground pipes that serve as trunk lines. Downstream flows are eventually carried to the Pacific Ocean and, in Newport Beach, to Upper and Lower Newport Bay. Some watersheds drain into the Santa Ana River, which is primarily a concrete-lined channel as it spans Orange County, and which is under the jurisdiction of the U.S. Army Corps of Engineers. These stormwater facilities, along with Sanitation District facilities, make up part of the urban infrastructure of developed Orange County.

Electrical, Natural Gas, and Telecommunications Utilities

Southern California Edison, a subsidiary of the publicly traded company Edison International, is the electrical power service provider in most of Orange County, including the entire Sanitation District service area. Southern California Edison transmits electricity from generation plants to substations, and then distributes the electricity to its customers through an extensive series of underground conduits and overhead lines hung on a combination of wooden and steel poles. Underground conduit is typically located beneath public roadways, and overhead lines often follow road alignments.

Southern California Gas Company, a subsidiary of the publicly traded company Sempra Energy, is the natural gas service provider in all of Orange County. Southern California Gas Company maintains a series of transmission and distribution pipelines throughout the Sanitation District service area, mostly located beneath public streets.

Telecommunications service in the Sanitation District service area is variously provided by AT&T, Spectrum, and Cox Communications. These companies maintain cable networks throughout their service areas to carry signals to their customers, including underground conduit located within public roadways, and overhead lines often colocated with electric wire.

Landfills

Solid waste disposal in the Sanitation District service area is currently handled at three landfills operated by Orange County Waste & Recycling (OCWR), a department of the County of Orange. These are the Frank R. Bowerman Landfill, in Irvine; the Olinda Alpha Landfill, in Brea; and the Prima Deshecha Landfill, in San Juan Capistrano. The Olinda Alpha Landfill and the Prima Deshecha Landfill accept public and commercial waste, whereas the Frank R. Bowerman Landfill is available for commercial use only. All three landfills are permitted as Class III landfills, which accept only non-hazardous municipal solid waste for disposal; no hazardous or liquid waste are accepted. Landfill closure dates are presented in Table 4.15-1. OCWR continues to seek ways to extend their system's permitted capacity. OCWR recently worked with the City of San Juan Capistrano to extend the Prima Deshecha closure date from the previously permitted year of 2019 for Zone 1 to 2050, and to extend the future Zone 4 closure date from 2067 to 2102 (OCWR 2016, 2018).

Table 4.15-1. OCWR Landfill Closure Dates

Landfill Name	Location	Date Opened	Permitted Closure Date	Estimated Closure Date by Capacity
Frank R. Bowerman	Irvine	1990	2053	2072
Olinda Alpha	Brea	1960	2021	2028
Prima Deshecha	San Juan Capistrano	1976	2067	2102

Source: OCWR 2016, 2018.
Note: OCWR = Orange County Waste & Recycling.

4.15.2 Relevant Plans, Policies, and Ordinances

State

California Integrated Waste Management Act of 1989 (Assembly Bill 939)

The California Integrated Waste Management Act of 1989, created by Assembly Bill (AB) 939, established an integrated waste management hierarchy to guide the California Integrated Waste Management Board and local agencies in the implementation of programs geared at source reduction, recycling and composting, and environmentally safe transformation and land disposal. AB 939 also included waste diversion mandates that require all cities and counties to divert 50% of all solid waste through source reduction, recycling, and composting activities (CalRecycle 2001).

Assembly Bill 341

AB 341 builds from the goals and requirements of AB 939. AB 341 establishes a statewide policy goal of diverting a minimum of 75% of solid waste from landfills through source reduction, recycling, or composting by the year 2020. This bill also required the California Department of Resources Recycling and Recovery to issue a report by January 1, 2014, that included strategies, methods, and recommendations that would enable the state to reach the 75% waste diversion goal by 2020.

Protection of Underground Infrastructure

The California Government Code Sections 4215–4216.24, Protection of Underground Infrastructure, requires any person or organization planning to mark out their excavation area and contact a regional notification center (e.g., Underground Services Alert or DigAlert) at least 2 days, but not more than 14 days, prior to commencing the

excavation. The regional notification center notifies parties with underground infrastructure within the excavation area, enabling markout of infrastructure and, if needed, additional coordination between the parties to prevent damage to the infrastructure from the excavation activity.

Local

Orange County Recycling Construction & Demolition Program

OCWR maintains a Construction & Demolition (C&D) Program requiring projects to demonstrate diversion of 65% of their construction- and demolition-related waste. Applicants are required to develop a Construction and Diversion Compliance Work Plan estimating waste tonnage and diversion method/amount for such materials as asphalt/concrete, brick/masonry/tile, cardboard, wood, metals, and soil/rock, and submit the plan to OCWR for approval. OCWR maintains a list of approved C&D diversion facilities and franchise waste haulers that applicants can use as they develop and implement their diversion plan (OCWR 2020).

4.15.3 Thresholds of Significance

The significance criteria used to evaluate the proposed FMP's impacts to utilities and service systems are based on Appendix G of the CEQA Guidelines. According to Appendix G, a significant impact related to utilities and service systems would occur if the project would:

1. Require or result in the relocation or construction of new or expanded water, or wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects.
2. Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals.
3. Conflict with federal, state, and local management and reduction statutes and regulations related to solid waste.

As stated in the July 2019 Initial Study (Appendix A to this PEIR), potential impacts associated with water supply availability and wastewater treatment service were deemed less than significant for implementation of this program, due to the nature of the proposed improvements. Therefore, the following topics are not further analyzed in this PEIR:

- Availability of sufficient water supplies to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years.
- Availability of wastewater treatment capacity to serve the project's projected demand in addition to the provider's existing commitments.

4.15.4 Impacts Analysis

1. Would the project require or result in the relocation or construction of new or expanded water, or wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

Less than Significant Impact. The FMP proposes maintenance and improvement of public infrastructure within an urban, developed area of Orange County that is currently served by extensive infrastructure for all the service categories named above, as discussed in Section 4.15.1, Existing Conditions. Other than the

wastewater treatment facilities that are themselves part of the FMP, implementing the FMP would not require construction of new or expanded facilities beyond the facilities described as part of the proposed FMP. The environmental impacts of the FMP's proposed wastewater treatment facilities are addressed throughout this PEIR, and no additional assessment of impacts is necessary in this section.

Plant 1 and Plant 2 Projects

Plant 1 and Plant 2 FMP projects would occur in the vicinity of small-diameter water pipelines present throughout the sites that carry municipal potable water, reclaimed water, and plant water, as well as above-ground electrical lines, underground electrical conduit, and telecommunications lines. These facilities are operated by Sanitation District and serve on-site uses, including the wastewater treatment processes and Sanitation District personnel activities, with no downstream connections to customers beyond the Sanitation District facilities. Many of the Plant 1 projects, such as P1-126, Primary Clarifiers 1 through 5 Replacements and Improvements; X-093, Administrative Facilities and Power Building 3A; X-048, Activated Sludge (AS)-1 Aeration Basin and Blower Rehabilitation; and X-090, Network, Telecommunications, and Server Relocation, would demolish facilities connected to existing utility connections. This demolition would require briefly taking the connected lines out of service and reestablishing connections to ensure continued service elsewhere throughout the plant. At Plant 2, the FMP indicates plant water piping would need to be modified as part of X-032, Truck Loading Facility Rehabilitation. Other Plant 2 projects, such as P2-138, Operations and Maintenance Complex at Plant 2; and X-034, Sodium Bisulfite Station Replacement and Bleach Station Demolition; and the joint plant project X-044, Steve Anderson Lift Station Rehabilitation, entail demolishing and replacing facilities with existing utility connections, similar to those described above for Plant 2, The utility disconnection and reconnection are integral components of the respective projects that are addressed by the typical engineering planning, design, and construction processes. The size and extent of these utility replacements, and their lack of connection to wider off-site uses outside the Sanitation District facilities, mean that their footprint is minimal and the area affected by temporary shutdowns or bypass connections would be limited; therefore, they would not themselves cause significant environmental impacts.

Collection System Projects

As a result of the extensive existing utility and public service infrastructure throughout the Sanitation District service area, most FMP collection system projects are located in the vicinity of existing infrastructure operated by the various public and private entities identified in Section 4.15.1. This includes Sanitation District pipelines that run parallel to or intersect with existing water transmission and delivery pipelines, stormwater drainage pipelines and channels, overhead electrical wires and underground electrical conduit, underground natural gas pipelines, and overhead and underground telecommunications lines. This proximity of various entities' utility assets is a routine occurrence, and the Sanitation District's standard project planning process as part of engineering design includes identifying existing underground or overhead utilities occurring in the vicinity of its projects, in consultation with the various providers listed in Section 4.15.1.

Preliminary consideration of potential conflicts with existing utilities was part of the FMP development process, and has been incorporated into individual project information sheets and budget planning, where applicable. Many collection system projects would avoid utilities conflicts by implementing trenchless rehabilitation methods such as cured-in-place pipe (CIPP) lining instead of trench-based pipe replacement. Avoidance of complex utilities conflicts that themselves could cause significant environmental impacts, such as natural gas pipelines, large-diameter water transmission pipelines, and large-diameter storm

drains that cannot be easily addressed by temporary shutdowns or establishment of temporary bypass systems, is one factor in considering whether a pipeline segment is a good candidate for trenchless rehabilitation. In this respect, the FMP planning process has already served to avoid significant environmental impacts due to utilities conflicts. Of the collection system projects subject to project-level and program-level impact review in this PEIR, the FMP projects with potential utilities conflicts are presented in Table 4.15-2.

Table 4.15-2. Collection System Projects with Potential Utility Conflicts

Project Number	Project Name	Project Type	City/County	Construction Start (Month Year)	Construction End (Month Year)
Project-Level Analysis					
X-082	North Trunk Improvement Project	Replace	City of Tustin County of Orange	May 2024	Nov 2025
X-083	Greenville–Sullivan Sewer Relief Project	Replace	City of Santa Ana	May 2025	May 2027
2-49	Taft Branch Sewer Improvements	Replace	City of Orange	Feb 2028	Sept 2029
X-063	South Santa Ana River Interceptor Connector Rehabilitation	Rehab	City of Anaheim	Jun 2029	Dec 2031
Programmatic Analysis					
X-071	Edinger/Springdale Trunk Sewer Rehabilitation	Rehab	City of Huntington Beach	Oct 2030	Jun 2032
X-065	Tustin–Orange Interceptor Sewer at Reach 17 Rehabilitation	Rehab	City of Orange	Dec 2031	Dec 2032
X-067 (X-085)	Hoover–Western Sub-Trunks Sewer Rehabilitation	Rehab	City of Westminster	May 2034	Nov 2035
X-066	Tustin–Orange Interceptor Sewer at Reach 18 Rehabilitation	Rehab	City of Orange	Jul 2034	Dec 2036
X-068	North Trunk Rehabilitation	Rehab	City of Orange	Jun 2037	Dec 2037
X-084	Tustin Avenue Sewer Relief	Replace	City of Santa Ana	May 2033	May 2034
X-086	Santa Ana River Sewer Relief	Replace	City of Anaheim	Sep 2034	Aug 2037

As potential utility conflicts are identified during the project design process, Sanitation District engineers will coordinate with engineers and right-of-way representatives of the affected service provider, including the municipalities listed in Table 4.15-2 and private power and telecommunications companies, to ensure facilities are adequately protected during construction. This coordination would also determine if temporary or permanent relocation of underground or overhead facilities is warranted, and establish agreements for mutually acceptable terms of the relocation. Temporary and permanent relocation of utilities such as small-diameter water pipelines and electrical conduit in an urban area such as the Sanitation District service area is a common component of infrastructure improvement projects, and the scale of any such relocation associated with FMP implementation would be minor and would not have the potential to cause environmental impacts that would be considered significant under CEQA. The project-related impact due to construction or relocation of utilities and public service infrastructure would be less than significant.

Construction of nearly all the FMP projects addressed in this PEIR entail excavation. Because of this proximity between FMP facilities and other entities' infrastructure, the Sanitation District is required to comply with California Government Code Sections 4215–-4216.24 and coordinate with the regional notification center to prevent unintended impacts on underlying pipelines and conduit. While utility conflicts would be captured by the design process described above, mandatory coordination with the regional notification center would further avoid the potential for accidental breaches of utilities during construction. Compliance with the referenced regulation during construction would ensure that the impact would be less than significant.

2. *Would the project generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?*

3. *Would the project conflict with federal, state, and local management and reduction statutes and regulations related to solid waste?*

Less than Significant Impact. Implementation of the FMP projects will generate solid waste in the form of construction and demolition debris that will need to be hauled off site and disposed of in a landfill by the Sanitation District's construction contractors. Construction and demolition material will include asphalt and concrete removed from paved areas; concrete, metal, and plastic pipe sections; concrete, brick, masonry, and wood from buildings planned for rehabilitation; and cardboard and plastic packaging materials. The debris requiring off-site disposal will vary in volume and type depending on the project. For each FMP project, the Sanitation District's contractor will be required to comply with OCWR's C&D Program and establish a plan for the diversion of at least 65% of this debris to approved C&D facilities that will reuse, recycle, or repurpose the material. If OCWR updates the C&D Program to adjust the required percentage or make other substantive changes in their requirements throughout the life of the FMP, the contractor would be responsible for complying with the C&D Program requirements at the time construction occurs. Compliance with this OCWR program will ensure that each project's impact with respect to generation of solid waste during the construction phase is less than significant.

With respect to the FMP's long-term operational impacts, the FMP does not propose facilities or processes that would increase the Sanitation District's generation of solid waste requiring off-site disposal. Any increase in treatment capacity resulting from FMP implementation is a response to existing and future demands, and is not itself the product of the FMP. The Sanitation District, through its biosolids facilities, is seeking to reduce its operational solid waste disposal volume. Solid waste disposal impacts of the biosolids program are assessed and documented in the Sanitation District's 2018 Biosolids Master Plan Program Environmental Impact Report (Sanitation District 2018). The FMP's operational impacts relative to solid waste would be less than significant.

4.15.5 Mitigation Measures

The FMP is not anticipated to result in significant impacts pursuant to CEQA related to utilities and service systems; therefore, no mitigation measures are required.

4.15.6 Level of Significance After Mitigation

No mitigation measures are required.

4.15.7 Cumulative Impacts

Because the FMP is a multi-year program, projects planned for Plant 1 and Plant 2 and collection system projects proposed throughout the service area would be implemented over time. This would limit the potential for combined Sanitation District projects to result in cumulative impacts on utilities due to overlapping impact areas and timelines. Plant 1 and Plant 2 feature on-site utility systems operated by the Sanitation District for their own uses, which lack downstream connections to off-site systems and customers. As phased projects are implemented within Plant 1 and Plant 2, this means any temporary cumulative impact on utility systems would be contained within the plants and would not affect other service providers in neighboring areas. Further, many of the plant projects are themselves utility upgrades, meaning that the overarching purpose of the projects is to enhance efficient functioning of the Sanitation District system and making avoidance of cumulative utility impacts critical to the purpose of the individual projects and the entire FMP. As collection system projects are implemented throughout the Sanitation District service area during the life of the FMP, it is possible that some will coincide with facility improvement projects undertaken by other utility and service providers. When this occurs, the inter-agency coordination process between the Sanitation District, municipalities, and private service providers during the planning and design process for FMP projects will identify potential overlaps in construction processes and affected facilities, and will ensure that any potential conflicts are appropriately addressed. As noted in Section 4.15.4, Impacts Analysis, the FMP has limited its collection system pipeline projects' impacts on major utilities by identifying segments that are feasible for trenchless construction, as opposed to trench-based work that could cause major disruption. This approach reduces the potential for the FMP's contribution to cumulative impacts that may result from non-Sanitation District projects.

Solid waste disposal is, in essence, a cumulative impact, as waste from all manner of uses throughout a given region is deposited together in local landfills. It is the mission of OCWR to plan for and manage this collective impact as it develops and monitors landfill space, and to establish programs to reduce the permanent waste load entering its facilities. As with the FMP projects, cumulative projects will be required to comply with the OCWR C&D Program, and with any additional waste diversion requirements that may be established during the life of the FMP. Compliance with these relevant requirements is designed to limit individual projects' contribution to the cumulative solid waste impact in local landfills.

4.15.8 Impact Summary

Table 4.15-3 summarizes the impacts for the FMP projects assessed at the project level at Plant 1, Plant 2, joint plant projects, and collection system projects under each threshold analyzed in this PEIR.

Table 4.15-3. Summary of FMP Project Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
Would the project require or result in the relocation or construction of new or expanded water, or wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?					
Plant 1					
P1-126	Primary Clarifiers Replacements and Improvements	Replace	Less than Significant	—	Less than Significant

Table 4.15-3. Summary of FMP Project Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
X-093	Administrative Facilities and Power Building 3A Demolition	Misc. (Demo)	Less than Significant	—	Less than Significant
X-092	Standby Generator Feeders for Plant 1 Secondary Systems	Misc.	Less than Significant	—	Less than Significant
X-048	Activated Sludge (AS)-1 Aeration Basin and Blower Rehabilitation	Rehab	Less than Significant	—	Less than Significant
P1-135	Digester Ferric Piping Replacement	Replace	Less than Significant	—	Less than Significant
X-077	Switchgear Replacement at Central Generation	Replace	Less than Significant	—	Less than Significant
X-090	Network, Telecommunications, and Server Relocation at Plant 1	Misc.	Less than Significant	—	Less than Significant
Plant 2					
P2-126	Substation and Warehouse Replacement at Plant 2	Misc.	Less than Significant	—	Less than Significant
P2-138	Operations and Maintenance Complex at Plant 2	Replace	Less than Significant	—	Less than Significant
X-050	Activated Sludge (AS) Aeration Basin	Rehab	Less than Significant	—	Less than Significant
X-032	Truck Loading Facility Rehabilitation	Rehab	Less than Significant	—	Less than Significant
X-054	Waste Side-Stream Pump Station C Rehabilitation	Rehab	Less than Significant	—	Less than Significant
X-034	Sodium Bisulfite Station Replacement and Bleach Station Demolition	Replace	Less than Significant	—	Less than Significant
Joint Plant Projects					
J-98	Plantwide Miscellaneous Electrical Power Distribution System Improvements	Replace	Less than Significant	—	Less than Significant
J-120	Plantwide Miscellaneous Process Control Systems Upgrades	Replace	Less than Significant	—	Less than Significant
J-133	Laboratory Rehabilitation or Replacement at Plant 1	Rehab	Less than Significant	—	Less than Significant
X-057	Plantwide Miscellaneous Yard Structures Rehabilitation or Replacement	Misc.	Less than Significant	—	Less than Significant
X-058	Plantwide Miscellaneous Yard Piping Replacement	Replace	Less than Significant	—	Less than Significant
X-059	Plantwide Miscellaneous Tunnels Rehabilitation	Rehab	Less than Significant	—	Less than Significant
J-121	UPS System Upgrades	Replace	Less than Significant	—	Less than Significant
X-044	Steve Anderson Lift Station Rehabilitation	Rehab	Less than Significant	—	Less than Significant

Table 4.15-3. Summary of FMP Project Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
Collection System Projects					
5-68	Newport Beach Pump Station Odor Control Improvements	Misc.	Less than Significant	—	Less than Significant
X-076	Santa Ana Trunk Sewer Rehabilitation Phase II	Rehab	Less than Significant	—	Less than Significant
X-082	North Trunk Improvement Project	Replace	Less than Significant	—	Less than Significant
X-060	Newhope Placentia Chemical Dosing Station	Misc.	Less than Significant	—	Less than Significant
11-33	Edinger Pumping Station Replacement	Replace	Less than Significant	—	Less than Significant
X-063	South Santa Ana River Interceptor Connector Rehabilitation	Rehab	Less than Significant	—	Less than Significant
2-73	Yorba Linda Pump Station Abandonment	Misc.	Less than Significant	—	Less than Significant
3-67	Seal Beach Pump Station Replacement	Replace	Less than Significant	—	Less than Significant
2-49	Taft Branch Sewer Improvements	Replace	Less than Significant	—	Less than Significant
X-083	Greenville–Sullivan Sewer Relief Project	Replace	Less than Significant	—	Less than Significant
Would the project generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals? *Would the project conflict with federal, state, and local management and reduction statutes and regulations related to solid waste?*					
Plant 1					
P1-126	Primary Clarifiers Replacements and Improvements	Replace	Less than Significant	—	Less than Significant
X-093	Administrative Facilities and Power Building 3A Demolition	Misc. (Demo)	Less than Significant	—	Less than Significant
X-092	Standby Generator Feeders for Plant 1 Secondary Systems	Misc.	Less than Significant	—	Less than Significant
X-048	Activated Sludge (AS)-1 Aeration Basin and Blower Rehabilitation	Rehab	Less than Significant	—	Less than Significant
P1-135	Digester Ferric Piping Replacement	Replace	Less than Significant	—	Less than Significant
X-077	Switchgear Replacement at Central Generation	Replace	Less than Significant	—	Less than Significant
X-090	Network, Telecommunications, and Server Relocation at Plant 1	Misc.	Less than Significant	—	Less than Significant

Table 4.15-3. Summary of FMP Project Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
Plant 2					
P2-126	Substation and Warehouse Replacement at Plant 2	Misc.	Less than Significant	—	Less than Significant
P2-138	Operations and Maintenance Complex at Plant 2	Replace	Less than Significant	—	Less than Significant
X-050	Activated Sludge (AS) Aeration Basin	Rehab	Less than Significant	—	Less than Significant
X-032	Truck Loading Facility Rehabilitation	Rehab	Less than Significant	—	Less than Significant
X-054	Waste Side-Stream Pump Station C Rehabilitation	Rehab	Less than Significant	—	Less than Significant
X-034	Sodium Bisulfite Station Replacement and Bleach Station Demolition	Replace	Less than Significant	—	Less than Significant
Joint Plant Projects					
J-98	Plantwide Miscellaneous Electrical Power Distribution System Improvements	Replace	Less than Significant	—	Less than Significant
J-120	Plantwide Miscellaneous Process Control Systems Upgrades	Replace	Less than Significant	—	Less than Significant
J-133	Laboratory Rehabilitation or Replacement at Plant 1	Rehab	Less than Significant	—	Less than Significant
X-057	Plantwide Miscellaneous Yard Structures Rehabilitation or Replacement	Misc.	Less than Significant	—	Less than Significant
X-058	Plantwide Miscellaneous Yard Piping Replacement	Replace	Less than Significant	—	Less than Significant
X-059	Plantwide Miscellaneous Tunnels Rehabilitation	Rehab	Less than Significant	—	Less than Significant
J-121	UPS System Upgrades	Replace	Less than Significant	—	Less than Significant
X-044	Steve Anderson Lift Station Rehabilitation	Rehab	Less than Significant	—	Less than Significant
Collection System Projects					
5-68	Newport Beach Pump Station Odor Control Improvements	Misc.	Less than Significant	—	Less than Significant
X-076	Santa Ana Trunk Sewer Rehabilitation Phase II	Rehab	Less than Significant	—	Less than Significant
X-082	North Trunk Improvement Project	Replace	Less than Significant	—	Less than Significant
X-060	Newhope Placentia Chemical Dosing Station	Misc.	Less than Significant	—	Less than Significant
11-33	Edinger Pumping Station Replacement	Replace	Less than Significant	—	Less than Significant
X-063	South Santa Ana River Interceptor Connector Rehabilitation	Rehab	Less than Significant	—	Less than Significant

Table 4.15-3. Summary of FMP Project Impacts

Project Number	Project Name	Project Type	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
2-73	Yorba Linda Pump Station Abandonment	Misc.	Less than Significant	—	Less than Significant
3-67	Seal Beach Pump Station Replacement	Replace	Less than Significant	—	Less than Significant
2-49	Taft Branch Sewer Improvements	Replace	Less than Significant	—	Less than Significant
X-083	Greenville–Sullivan Sewer Relief Project	Replace	Less than Significant	—	Less than Significant

Note: UPS = uninterruptible power system.

4.15.9 References

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Sanitation District. 2018. ESA, 2018. *Orange County Sanitation District Biosolids Master Plan, Program Environmental Impact Report*. Prepared by ESA. February 2018.

5 Other CEQA Considerations

Consistent with California Environmental Quality Act (CEQA) Guidelines Section 15126.2, this section summarizes the findings with respect to the growth-inducing effects, significant irreversible environmental changes, cumulative impacts (when considered with other projects), significant unavoidable environmental impacts, and effects found to be less than significant of the proposed Orange County Sanitation District (Sanitation District) Facilities Master Plan (FMP).

5.1 Growth Inducement and Indirect Impacts

The CEQA Guidelines require that an environmental impact report (EIR) evaluate the growth-inducing impacts of a proposed action (Section 15126.2[e]). A growth-inducing impact is defined by the CEQA Guidelines as follows:

> [T]he 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.... It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment.

Population Growth

A project can have direct and/or indirect growth-inducement potential. Direct growth inducement would result if a project involved construction of new housing or a wastewater treatment plant. 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. Increases in population could strain existing community service facilities, requiring construction of new facilities that could cause significant environmental impacts.

Economic Growth

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.

Implementation of the FMP would require construction workers to repair, rehabilitate, and construct individual FMP project facilities. Construction firms would bid on construction contracts for various project activities identified in the FMP, and the selected firms would assign employees they currently employ to each construction job. It is anticipated that construction workers would not need specialized training and would be located within the greater Orange County/Los Angeles area. As such, construction activities associated with the FMP projects would not cause a substantial change in the labor force resulting in unplanned population growth because the contractors are hired for the specific projects and then move on to work on other construction projects in the region.

Operational activities as a result of the FMP are not anticipated to change. As discussed in Section 2.2, Program Background, the 2017 FMP (Sanitation District 2017) and 2019 update present a series of Capital Improvement Program (CIP) projects proposed to be implemented by the Sanitation District through 2040 to rehabilitate, replace, and optimize their existing facilities in continued service to residents and businesses within their service area. FMP projects addressed in this program environmental impact report (PEIR) include facility improvements at

Reclamation Plant No. 1 in Fountain Valley, facility improvements at Treatment Plant No. 2 in Huntington Beach, joint plant improvements at both facilities, and collection system improvements (i.e., pipeline, pump station, interplant, and lift station projects). These are not new facilities in a new area, but rather are existing facilities that are proposed for rehabilitation, equipment replacement and efficiency upgrades. Moreover, once constructed, operation of FMP facilities would not require the hiring of additional employees, as operational and maintenance activities would continue to be performed by existing Sanitation District staff.

Further, the FMP does not involve construction of new homes or businesses that would result in direct population growth; nor does the FMP involve new extensions of infrastructure into areas currently unserved by a wastewater treatment provider. Some FMP projects may involve the upsizing of existing infrastructure, such as pipelines and wastewater treatment facilities; however, these activities would be undertaken not to respond to or accommodate population growth, but rather to respond to increased volumes of stormwater captured by the Sanitation District during peak storm events. As Orange County has urbanized, there are more impervious surfaces, which prevents water percolating directly into the ground. As a result, storm events can produce high volumes of water that the Sanitation District collects in its collection system. Pipelines designed and constructed decades ago may need to be upsized to accommodate these larger volumes of stormwater.

5.2 Significant and Unavoidable Environmental Impacts

This section was prepared in accordance with CEQA Guidelines Section 15126.2(c), which requires the discussion of any significant environmental impacts that cannot be avoided if a project is implemented. These include impacts that can be mitigated but cannot be reduced to a less-than-significant level. An analysis of environmental impacts caused by the FMP has been conducted and is contained in this PEIR. In Chapter 4, Environmental Analysis, 15 issue areas were analyzed in detail. Table 1-1, Summary of Facilities Master Plan Impacts, in Chapter 1, Executive Summary, summarizes the FMP's impacts, mitigation measures, and levels of significance before and after mitigation. According to the analysis presented in Chapter 4, the FMP would result in significant unavoidable adverse impacts to vehicle miles traveled (VMT).

As discussed in Chapter 4.13, Transportation, the FMP projects would occur over a period of approximately 20 years from 2021 through 2040, and would generate temporary construction-related traffic that would cease after the construction activity is completed. New trips generated from future operations and maintenance activities are anticipated to be nominal. Per the California Office of Planning and Research's Technical Advisory, a project that would generate fewer than 110 trips per day generally may be assumed to cause a less-than-significant transportation impact. Although the FMP projects are not land use projects and would not generate permanent trips, they would generate temporary construction worker trips over an extended period. Therefore, the criteria of fewer than 110 trips has been used as a screening threshold for individual near-term and long-term projects within the overall FMP.

Although all the individual near-term projects and long-term projects under the FMP could be screened using the small project threshold of 110 trips per day, with some FMP projects occurring concurrently, the trip generation would exceed 110 trips per day for a number of days over the period of 20 years (see Section 4.13 for details). The VMT generated from these individual projects would be attributable to worker commute trips and haul trips. Although the approximate trip lengths for worker commute, vendor, and haul trips can be estimated using default values for the Orange County region from the California Emissions Estimator Model land use emissions computer model, it is not feasible to predict those precisely or to effectively predict trip lengths for specific projects because different contractors will be hired for different projects, and it is not known from where they will travel.

The overall FMP and the individual projects within it are generally consistent with construction activities in terms of the temporary nature of activities, trip generation characteristics, and the types of vehicles and equipment required. However, reducing worker, vendor, and haul trip lengths for the FMP projects is not feasible because the location and duration of individual activities would vary, and trip length is difficult to reduce based on the fixed location of the projects. Further, carpooling or accessibility to alternative modes of transportation may not be effectively implemented for workers of these individual projects because workers will likely travel from different areas across the county or region that may or may not have transit, or they may need to travel from employment facilities or construction yards to pick up/drop off equipment, tools, and/or work vehicles. Therefore, the FMP would cause an increase in VMT over the span of its implementation. Since measures to reduce the VMT generated by workers and trucks are limited, and there are no thresholds or significance criteria for construction-related VMT, to be conservative, the FMP's impacts related to conflicting with CEQA Guidelines Section 15064.3(b) would be significant and unavoidable.

5.3 Significant Irreversible Environmental Impacts

Section 15126.2(d) of the CEQA Guidelines requires that an EIR analyze the extent to which a project's primary and secondary effects would impact the environment and commit nonrenewable resources to uses that future generations will not be able to reverse. Construction of the FMP projects would consume fossil fuels, a nonrenewable resource, to power construction vehicles and equipment. However, operation of the FMP projects would not increase the use of fossil fuels.

Uses of nonrenewable resources during the initial and continued phases of the FMP may be irreversible, since a large commitment of such resources makes removal or nonuse thereafter unlikely. Primary impacts, and particularly, secondary impacts (such as a highway that provides increased access to a previously inaccessible area) generally commit future generations to similar uses. Also, irreversible damage can result from environmental accidents associated with a project.

Construction Impacts

Construction of the FMP projects would not result in a wasteful, inefficient, or unnecessary use of energy, electricity, natural gas, or petroleum. Because construction equipment uses fossil fuels, construction would generate daily emissions from off-road equipment and vehicle trips and would exceed the South Coast Air Quality Management District (SCAQMD) construction oxides of nitrogen (NO_x) threshold of 100 pounds per day in 11 of the 20 years of project construction (see Section 4.2, Air Quality, for details). To reduce the potential for criteria air pollutants associated with construction, specifically mass daily NO_x emissions and associated regional air quality impacts and particulate matter 10 microns or less in diameter (PM_{10}) and associated localized significance threshold and health risk (cancer risk) impacts, as a result of construction of the combined FMP projects, the Sanitation District will implement **Mitigation Measure (MM) AQ-1**. Therefore, with incorporation of mitigation, the maximum daily construction emissions from combined FMP projects would not exceed the SCAQMD mass daily construction thresholds for any air pollutant, including NO_x. Additionally, cumulative construction-related impacts would be less than cumulatively considerable with mitigation incorporated.

Operational Impacts

Implementation of the FMP would occur throughout Orange County along the Sanitation District service area. As a result of the extensive coverage of existing utility and public service infrastructure throughout the Sanitation District service area, most FMP projects are located in the vicinity of existing infrastructure operated by the various public and private entities (see Section 4.15, Utilities and Service Systems, for details). Some FMP projects may involve the upsizing of existing infrastructure, such as pipelines and wastewater treatment facilities. During operation, energy, including electricity, natural gas, and petroleum, would be consumed. In addition, the FMP projects would not result in a net increase in operational energy use and instead, would potentially improve energy efficiency at replacement buildings and by replacing older equipment with more energy efficient equipment. As such, the FMP is not anticipated to consume substantial amounts of energy in a wasteful manner (see Section 4.15, Utilities and Service Systems, and Section 4.5, Energy, for details), and it would not result in significant impacts from consumption of utilities. Additionally, FMP projects would not generate greenhouse gas emissions that exceed SCAQMD thresholds during construction or operation activities (see Section 4.7, Greenhouse Gas Emissions, for details). The FMP projects would not result in a net increase in operational criteria air pollutant emissions and therefore, cumulative operational-related impacts would be less than cumulatively considerable.

5.4 Effects Found Not to Be Significant

Section 15128 of the CEQA Guidelines requires a statement that briefly indicates the reasons that various possible significant effects of a project were determined not to be significant and were therefore not discussed in detail in the EIR. As stated in the CEQA Guidelines, such a statement may be contained in an attached copy of an Initial Study. The Initial Study for the FMP is included in this PEIR as Appendix A. As described and substantiated in Appendix A, the following issue areas were not found to be significant and were not further analyzed in the PEIR: agriculture and forestry resources, mineral resources, population and housing, recreation, and wildfire.

5.5 References

Sanitation District (Orange County Sanitation District). 2017. *2017 Wastewater Collection and Treatment Facilities Master Plan*. Prepared by Carollo Engineers and Brown and Caldwell. December 2017.

6 Alternatives

6.1 Introduction

Pursuant to the California Environmental Quality Act (CEQA) Guidelines, environmental impact reports (EIRs) are required to "describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives" (14 CCR 15126.6[a]). The EIR "must consider a reasonable range of potentially feasible alternatives that will foster informed decision making and public participation" (14 CCR 15126.6[a]). This alternatives discussion is required even if these alternatives "would impede to some degree the attainment of the project objectives, or would be more costly" (14 CCR 15126.6[b]).

The inclusion of an alternative in an EIR does not constitute definitive evidence that the alternative is in fact "feasible." The final decision regarding the feasibility of alternatives lies with the decision maker for a given project, who must make the necessary findings addressing the potential feasibility of an alternative, including whether it meets most of the basic project objectives or reduces the severity of significant environmental effects per CEQA (California Public Resources Code, Section 21081; see also 14 CCR 15091). This chapter identifies potential alternatives to the proposed Facilities Master Plan (FMP) and evaluates them, as required by CEQA.

6.2 Proposed FMP Objectives and Impacts

6.2.1 FMP Objectives

The following objectives have been established for the proposed FMP:

1. Maintain the wastewater conveyance and treatment system of the Orange County Sanitation District (Sanitation District) in optimal condition and full functionality.
2. Safely extend the service life of existing Sanitation District facilities.
3. Meet existing and projected demands for wastewater conveyance and treatment loads in the Sanitation District's service area.
4. Ensure the Sanitation District system can accommodate the expanded Groundwater Replenishment System operations approved in 2016.
5. Maximize efficient use of existing Sanitation District property, right-of-way, and existing facilities.
6. Provide operational redundancy where needed to prevent service outages.
7. Minimize disruption in service as projects are implemented.
8. Comply with existing regulations governing wastewater treatment and disposal.

6.2.2 FMP Impacts

Based on the analysis presented in Chapter 4, Environmental Analysis, the proposed FMP would have significant impacts with regard to the following resources: aesthetics, air quality, biological resources, cultural resources, geology and soils (paleontological resources), hazardous materials, noise, and transportation. Environmental impacts to these resources would be mitigated to less than significant levels.

6.3 Alternatives Considered but Rejected

As described in this section, alternatives considered but rejected include location and design alternatives. Section 15126.6(a) of the CEQA Guidelines states that an EIR shall describe "a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project," as well as provide an evaluation of "the comparative merits of the alternatives." Under Section 15126.6(a) of the CEQA Guidelines, an EIR does not need to consider alternatives that are not feasible, nor need it address every conceivable alternative to the project. The range of alternatives "is governed by the 'rule of reason' that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice" (14 CCR 15126.6[f]).

Maintenance projects and activities proposed under the FMP are generally small projects at specific, existing locations of wastewater conveyance and treatment infrastructure with limited options for methods of construction. Based on the nature of the proposed FMP (operation and maintenance of an existing wastewater treatment and conveyance system throughout Sanitation District's service area), two potential alternatives were identified but ultimately rejected for further analysis. The following discussion presents the alternatives that were considered but rejected, and explains why they were rejected. These alternatives are not discussed in further detail and have been eliminated from further consideration.

6.3.1 Alternative Locations

CEQA requires that the discussion of alternatives focus on alternatives to the project or its location that are capable of avoiding or substantially lessening any significant effects of the project. The key question and first step in the analysis is whether any of the significant effects of the project would be avoided or substantially lessened by putting the project in another location. Only locations that would avoid or substantially lessen the significant effects of the project need be considered for inclusion in the EIR (14 CCR 15126.6[f][2]).

Because the proposed FMP involves the maintenance, repair, and upkeep of an existing wastewater treatment and conveyance system, as well as maintenance projects to rehabilitate and replace facilities and infrastructure as needed during the 20-year planning period, an alternative site analysis is not appropriate. The proposed FMP location within Orange County comprises the Sanitation District's treatment plants, pump stations, and collection system pipelines and appurtenant structures within Orange County. Rehabilitation, replacement, and maintenance needs have been identified at specific locations associated with the existing wastewater treatment and conveyance system; therefore, it would not be feasible to move the project activities to another location. Relocating activities to other sites would not meet the proposed FMP objectives. As a result, alternative locations were rejected and are not analyzed in detail in this program environmental impact report (PEIR).

6.3.2 Deferred Maintenance Alternative

A second alternative that was considered was a Deferred Maintenance Alternative, which would defer maintenance to future years. It would also focus on rehabilitation of facilities and equipment instead of replacement. While this may reduce environmental impacts in the short term, it has great potential to increase them in the long term. Deferred maintenance could increase the risk of pipeline rupture and leakage, potentially resulting in downstream biological resource, geology and soils (erosion), and hydrology and water quality impacts. Rehabilitation of equipment, instead of replacement, could also potentially cause increased impacts (air quality, noise, transportation) if, for example, greater numbers of trips and activities become necessary to maintain equipment when a replacement could have avoided those impacts and would have been more cost effective.

Furthermore, the FMP's identified significant impacts would not necessarily be avoided or substantially lessened by implementation of the Deferred Maintenance Alternative. The proposed FMP activities would still be implemented, and the resulting construction-related disturbance would still occur at some point in time. Thus, this Deferred Maintenance Alternative does not meet the criteria for an alternative to avoid or substantially lessen any of the significant effects of the proposed FMP.

6.4 No Project Alternative

Section 15126.6(e) of the CEQA Guidelines requires that an EIR evaluate and analyze the impacts of the "No Project" Alternative, which reflects the "circumstances under which the Project does not proceed." The No Project Alternative in this case assumes that the existing wastewater treatment and conveyance system in Orange County would continue to operate without the implementation of proposed FMP projects or activities. Instead, the Sanitation District would implement projects on an as-needed basis and might combine them if it made financial or practical sense to do so. However, grouping projects together might increase environmental impacts if projects were to be constructed together that normally would have been planned over a longer term under an FMP.

6.4.1 Comparison of Impacts of the No Project Alternative to the Proposed FMP

Aesthetics

Under the No Project Alternative, the proposed rehabilitation, upgrade, and replacement of existing structures and the proposed implementation of FMP projects to address access or infrastructure issues would not occur as part of the proposed FMP. However, the projects identified in the proposed FMP would still be implemented over time as individual projects on an as-needed basis as infrastructure continues to age and requires the aforementioned maintenance and other necessary modifications to ensure the reliability of the Sanitation District's wastewater conveyance and treatment system. While routine maintenance would still occur, maintenance could potentially be delayed since it would not occur as part of the proposed FMP.

As previously mentioned, under the No Project Alternative, individual projects would be implemented as needed; thus, the quality of facilities and equipment could further degrade and could cause unsightly views of facilities that would otherwise be maintained as part of the proposed FMP's long-term plan, which would additionally include mitigation to reduce impacts to the overall visual quality and the visual character of any natural-appearing landscapes in the FMP area. As such, needed repairs associated with individual projects could impact a larger area than under a routine operations and maintenance activity, thus leading to a large disturbance area and increased visual degradation of the aesthetic environment. Therefore, due to the potential for greater impacts to visual quality and character and stronger visual contrast, the No Project Alternative would have greater impacts compared to the proposed FMP in terms of aesthetics.

Air Quality

Under the No Project Alternative, the proposed rehabilitation, upgrade, and replacement of existing structures and the proposed implementation of FMP projects to address access or infrastructure issues would not occur as part of the proposed FMP. However, the projects identified in the proposed FMP would still be implemented over time as individual projects on an as-needed basis.

Under the analysis for the proposed FMP, impacts associated with air quality resulting from the construction and operation of the FMP projects would be less than significant with incorporation of applicable mitigation. Specifically, mitigation would be implemented to reduce maximum oxides of nitrogen (NO_x) emissions and project-generated exhaust particulate matter 10 microns or less in diameter (PM_{10}) and particulate matter 2.5 micros or less in diameter ($PM_{2.5}$) emissions generated during construction activities. However, without the long-term planning of the FMP, facilities would continue to age, and maintenance activities would be implemented as needed to ensure optimal service to businesses and residents within the Sanitation District service area. As such, it is likely that various facilities would require maintenance at the same time, and construction activities would occur simultaneously. Thus, the No Project Alternative would likely generate more air pollutant emissions and contribute to a cumulative impact.

Additionally, without the implementation of the proposed FMP, the condition of facilities could further degrade to a point where extensive maintenance is needed and could require longer periods of construction. As such, the worker trips and heavy equipment associated with construction could be required for longer than anticipated with a planned maintenance schedule and could potentially generate more criteria air pollutant emissions as a result. Thus, under the No Project Alternative, it is possible that more air quality impacts could occur as a result of implementing projects in groups and exacerbating the conditions of aging facilities. Therefore, the No Project Alternative could potentially generate more criteria air pollutant emissions and would have greater impacts compared to the proposed FMP in terms of air quality.

Biological Resources

Under the No Project Alternative, the FMP projects (i.e., rehabilitation, replacement, and upgrades), which would maintain Sanitation District facilities to provide reliable wastewater conveyance and treatment service to residents and businesses in the Sanitation District's service area would not occur as part of the proposed FMP. However, the projects identified in the proposed FMP would still be implemented over time as individual projects on an as-needed basis as infrastructure continues to age and requires the aforementioned maintenance and other necessary modifications.

While routine maintenance would still occur, maintenance could potentially be delayed since it would not occur as part of the proposed FMP. Similar to the proposed FMP, under the No Project Alternative, any biological resources near facilities proposed for the aforementioned activities would potentially be impacted. The facilities identified for maintenance in the proposed FMP exist in an urban environment, so impacts include impacts to nesting birds or erosion during construction activities, which could impact downstream waterways and habitat.

Under the proposed FMP, impacts would be mitigated to a less-than-significant level. However, if, under the No Project Alternative, a greater area of ground disturbance was necessary for the rehabilitation, upgrade, or replacement of existing structures, there would be greater impacts than those that are being mitigated under the proposed FMP. Therefore, the No Project Alternative would have greater impacts compared to the proposed FMP with regard to biological resources.

Cultural Resources

Under the No Project Alternative, the FMP projects (i.e., rehabilitation, replacement, and upgrades), which would maintain Sanitation District facilities to ensure a reliable wastewater conveyance and treatment system, would not occur as part of the proposed FMP. However, the projects identified in the proposed FMP would still be implemented over time as individual projects on an as-needed basis.

Without the long-term planning of facility maintenance, facilities would continue to age and would implement maintenance activities as needed in order to provide optimal service to businesses and residents within the Sanitation District service area. As such, it would be possible that various facilities would require maintenance at the same time and construction activities would be carried out simultaneously, potentially creating a cumulative impact to cultural resources. Additionally, without the long-term planning of the proposed FMP, the condition of facilities could further degrade resulting in the need for more extensive ground-disturbing activities, which could impact a larger area and impact cultural resources.

Thus, under the No Project Alternative, it is possible that more impacts to cultural resources could occur as a result of implementing projects simultaneously and causing more ground disturbance, which may increase the potential for impacts to cultural resources. Therefore, the No Project Alternative would have greater impacts compared to the proposed FMP with regard to cultural resources impacts.

Energy

Under the No Project Alternative, the proposed rehabilitation, upgrade, and replacement of existing structures and the proposed implementation of FMP projects to address access or infrastructure issues would not occur as part of the proposed FMP. However, the projects identified in the proposed FMP would still be implemented over time as individual projects on an as-needed basis.

Under both the proposed FMP and the No Project Alternative, energy, including electricity, natural gas, and petroleum, would be consumed during construction and operation activities. However, under the analysis for the proposed FMP, impacts associated with energy resulting from the construction and operation of the FMP projects would be less than significant. Construction of the FMP projects would not result in a wasteful, inefficient, or unnecessary use of energy. In addition, the FMP projects would not result in a net increase in operational energy use and instead, would potentially improve energy efficiency at replacement buildings. Additionally, the FMP projects would not conflict with the various local plans that would reduce energy use, including the City of Fullerton Climate Action Plan (CAP), the City of Huntington Beach Greenhouse Gas Reduction Program, the City of La Habra CAP, and the City of Santa Ana CAP.

However, without the long-term planning of the proposed FMP, facilities would continue to age and would implement maintenance activities as needed, which means the Sanitation District would lose the opportunity to plan for facility upgrades in a manner that would be most energy efficient (either by upgrading and rehabilitating facilities in the same geography or by planning for rehabilitation and replacement in the most efficient way possible). Additionally, if facilities degrade to a point where more extensive maintenance is needed, they could potentially require longer periods of construction. As such, the worker trips and heavy equipment associated with construction of the projects could require more than that anticipated with a planned maintenance schedule and could potentially increase energy demand. Thus, under the No Project Alternative, it is possible that more energy impacts could occur as a result of implementing projects in groups and exacerbating the conditions of aging facilities. Therefore, the No Project Alternative could potentially generate more fossil fuels and electricity usage, and would have greater impacts compared to the proposed FMP in terms of energy.

Geology and Soils

Under the No Project Alternative, the proposed rehabilitation, upgrade, and replacement of existing structures and the proposed implementation of FMP projects to address maintenance and the need for replacement would not

occur as part of the proposed FMP. However, the projects identified in the proposed FMP would still be implemented over time as individual projects on an as-needed basis.

As discussed in the analysis under the FMP, construction of the projects would have less-than-significant impacts to soil erosion with incorporation of mitigation. However, under the No Project Alternative, projects implemented under an as-needed basis would have increased potential for occurrences of soil erosion as a result of delaying rehabilitation or replacement of old facilities and equipment.

Without the long-term planning of the proposed FMP, the condition of facilities could further degrade and would potentially result in the need for more extensive ground-disturbing activities, which could impact a larger area. Construction methods would include temporary aboveground sewer bypassing, open-trench excavation for new sewer extensions or replacement, shoring, dewatering, and potential microtunneling and jack and bore methods for installation at sensitive crossings (e.g., busy intersections, railroad spurs, freeways, or flood control channels). These construction activities and methods could result in temporary, short-term impacts related to soil erosion and possible off-site sedimentation of downstream drainages, creeks, the Santa Ana River, and ultimately the Pacific Ocean.

However, under the proposed FMP, long-term planning would ensure that facilities would undergo the appropriate maintenance (i.e., rehabilitation, replacements, upgrade) to ensure reliability of the wastewater conveyance and treatment system and prevent facilities further deterioration, which could potentially cause more extensive maintenance in the future. Therefore, the No Project Alternative would have greater impacts compared to the proposed FMP in terms of geology and soils.

Greenhouse Gas Emissions

Under the No Project Alternative, the proposed rehabilitation, upgrade, and replacement of existing structures and the proposed implementation of FMP projects to address infrastructure maintenance or replacement would not occur as part of the proposed FMP. However, the projects identified in the proposed FMP would still be implemented over time as individual projects on an as-needed basis.

Under the proposed FMP, the construction of the FMP projects would result in greenhouse gas (GHG) emissions, which are primarily associated with use of off-road construction equipment and on-road vehicles (haul trucks, vendor trucks, and worker vehicles). However, under the analysis for the proposed FMP, impacts associated with GHG emissions resulting from the construction and operation of the FMP projects would be less than significant. The estimated total GHG emissions during construction of the entire FMP projects would total approximately 33,265 metric tons carbon dioxide equivalent (MT CO_2e) over the assumed 19-year construction period. Estimated project-generated construction emissions amortized over 30 years would be approximately 1,109 MT CO_2e per year, which would not exceed the applied recommended SCAQMD threshold of 3,000 MT CO_2e per year. Because the project would be built out over a 19-year time period, estimated amortized project-generated construction emissions would be approximately 1,751 MT CO_2e per year, which is also below the 3,000 MT CO_2e per-year threshold. Additionally, implementation of the FMP projects are not anticipated to generate an increase in operational GHG emissions compared to existing conditions and may result in reduced energy-related GHG emissions. Furthermore, the FMP projects would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.

Without the long-term planning of the proposed FMP, facilities would continue to age and would implement maintenance activities as needed to ensure optimal service to businesses and residents within the Sanitation District service area. As such, it would be possible that various facilities would require maintenance at the same time; thus, various pieces of heavy equipment could potentially be in operation simultaneously and contribute more air pollutants and GHG emissions. Additionally, without the implementation of the proposed FMP, the condition of facilities could further degrade, resulting in the need for more extensive maintenance, which could require longer periods of construction.

As such, the use of heavy equipment and worker trips associated with construction of the projects could be required longer than anticipated with a planned maintenance schedule and potentially increase overall emissions. Thus, under the No Project Alternative, it is possible that more GHG emission impacts could occur as a result of implementing projects in groups and exacerbating the conditions of aging facilities. Therefore, the No Project Alternative could potentially generate more GHG emissions and would have greater impacts to the proposed FMP in terms of GHG emissions.

Hazards and Hazardous Materials

Under the No Project Alternative, the rehabilitation, replacement, and repair of existing structures would not occur as part of the FMP. However, the projects in the proposed FMP would still be implemented over time as individual projects on an as-needed basis.

Therefore, typical hazardous materials used during implementation of FMP activities, including oils, lubricants, and vehicle fuels, would still be used and transported in the proposed FMP area on an as-needed basis by Sanitation District personnel. As discussed in the analysis under the proposed FMP, however, the potential for impacts from use and transport of these quantities of hazardous materials is less than significant with incorporation of mitigation. Additionally, these materials would be removed, handled, and transported in accordance with applicable laws and regulations.

Under the No Project Alternative, projects implemented individually would be required to comply with the aforementioned laws and regulations as well as any applicable mitigation incorporated to reduce impacts associated with the use and transport of hazardous materials. Furthermore, under the No Project Alternative, there is also potential to encounter hazardous material sites, underground storage tanks, or oil and methane gas zones as part of project construction. However, because under the No Project Alternative projects would be implemented on a project-by-project basis, Sanitation District facilities, pipelines, and appurtenant structure conditions would continue to deteriorate, and the risk of rupture/failure of wastewater treatment and/or conveyance systems would be higher than if the proposed FMP were implemented.

As such, if there was an equipment failure resulting in a sewage spill, there would be larger impacts than those that are being mitigated under the proposed FMP. Therefore, the No Project Alternative would have greater impacts compared to the proposed FMP in terms of hazards and hazardous materials.

Hydrology and Water Quality

Under the No Project Alternative, the rehabilitation, replacement, and repair of existing structures would not occur as part of the FMP. However, the projects in the proposed FMP would still be implemented over time as individual projects on an as-needed basis.

Under the proposed FMP, potential impacts of construction activities, construction materials, and non-stormwater runoff on water quality during the demolition and construction phase focuses primarily on sediment and certain non-sediment-related pollutants. Construction activities associated with the FMP projects and other development could temporarily increase the number of exposed surfaces that could contribute to sediments in stormwater runoff. Furthermore, materials associated with construction activities could be deposited on surfaces and carried to receiving waters in stormwater runoff. However, demolition and construction impacts associated with FMP project implementation would be minimized through compliance with local, state, and federal regulations pertaining to water quality standards. Additionally, mitigation would be incorporated to reduce impacts to stormwater runoff to a less-than-significant level.

However, without the long-term planning of facility maintenance, facilities would continue to age, and the planned long-term roll-out of maintenance activities needed to ensure optimal service to businesses and residents within the Sanitation District service area may have to be sped up or grouped together, thereby increasing the potential for downstream water quality impacts or more mitigation if larger groupings of projects have to be done together that could have larger areas of ground disturbance or more extensive repair or replacement. Therefore, due to increased potential for greater pipeline and equipment replacement, the occurrence of impacts to downstream water quality would be higher than with implementation of the FMP.

As such, under the No Project Alternative, water quality-related impacts would be more likely to occur. Therefore, the No Project Alternative would have greater impacts compared to the proposed FMP in terms of hydrology and water quality.

Land Use and Planning

Under the No Project Alternative, the rehabilitation, replacement, and repair of existing structures would not occur as part of the FMP. However, the projects in the proposed FMP would still be implemented over time as individual projects on an as-needed basis.

As discussed in the analysis under the FMP, however, the potential for land use policy impacts is low, and there are less-than-significant impacts associated with land use policy consistency because as part of standard practice, the Sanitation District would coordinate with local jurisdictions during implementation of FMP projects to avoid and/or minimize potential impacts.

Similarly, under the No Project Alternative, projects implemented on an as-needed basis would not conflict with land use policies, and the Sanitation District would coordinate with local jurisdictions during implementation to avoid and/or minimize potential impacts. As such, the No Project Alternative has similar impacts compared to the FMP in terms of land use and planning.

Noise

Under the No Project Alternative, the proposed rehabilitation, upgrade, and replacement of existing structures and the proposed implementation of FMP projects to address access or infrastructure issues would not occur as part of the proposed FMP. However, the projects identified in the proposed FMP would still be implemented over time as individual projects on an as-needed basis.

Construction activities under the proposed FMP and No Project Alternative would generate noise from the use of heavy equipment (e.g., excavators, tractors, backhoes, cement and mortar mixers, pumps, and other similar

equipment) at the sites or vehicles transporting material to or from the project sites. Additionally, under both scenarios, construction of the projects would potentially generate significant groundborne vibration impacts from heavy equipment operations. As analyzed under the proposed FMP, mitigation would reduce these impacts to a less than significant level.

However, under the No Project Alternative, it is possible that various facilities would require maintenance at the same time, and projects, if financially possible, would be carried out simultaneously due to the immediate need for repair or replacement. In the event that projects are implemented simultaneously, more construction activity would be ongoing, potentially causing a cumulative impact to noise from the operation of construction equipment.

Additionally, as infrastructure continues to deteriorate, it is possible that maintenance would become more extensive and require longer periods of construction than anticipated in the proposed FMP. Therefore, the No Project Alternative has greater environmental impacts compared to the proposed FMP in terms of noise.

Public Services (Fire and Police Protection Services)

Under the No Project Alternative, the proposed rehabilitation, upgrade, and replacement of existing structures and the proposed implementation of FMP projects to address access or infrastructure issues would not occur as part of the proposed FMP. However, the projects identified in the proposed FMP would still be implemented over time as individual projects on an as-needed basis.

Projects implemented under the proposed FMP would be subject to mitigation to reduce impacts to fire and protection services. Under the No Project Alternative, facilities would continue to age and would implement maintenance activities as needed to ensure optimal service to businesses and residents within the Sanitation District service area. As such, the projects would not propose a use that would generate the need for additional fire and police protection services. However, it would be possible that various facilities would require maintenance at the same time and construction activities would be carried out simultaneously.

Construction activities would primarily be located within existing streets and as such would be subject to partial lane and/or road closures which could impact emergency vehicle access. However, as with any construction that would occur with public streets, full-lane closures would not occur, and traffic control plans would be required by the appropriate jurisdiction to mitigate impacts to emergency vehicle access. Therefore, the No Project Alternative is environmentally similar compared to the proposed FMP in terms of public services.

Transportation

Under the No Project Alternative, the proposed rehabilitation, upgrade, and replacement of existing structures and the proposed implementation of FMP projects to address access or infrastructure issues would not occur as part of the proposed FMP. However, the projects identified in the proposed FMP would still be implemented over time as individual projects on an as-needed basis.

Without the long-term planning of facility maintenance (rehabilitation, replacement, and upgrades), facilities would continue to age, and maintenance projects would be implemented as needed to ensure optimal service to businesses and residents within the Sanitation District service area. As such, it would be possible that various facilities would require maintenance at the same time. Thus, in the event construction of multiple projects happened simultaneously, an increase in vehicle trips from haul trucks and vendor/delivery trucks could occur creating additional traffic in the vicinity of the project sites.

Under the analysis of the proposed FMP, construction would primarily take place within existing roadways and would potentially result in partial lane and/or road closure. However, the Sanitation District would coordinate with appropriate jurisdictions and implement mitigation, which would include a traffic control plan to reduce impacts associated with construction at the collection system sites.

Under the No Project Alternative, the Sanitation District would still coordinate with the appropriate jurisdictions prior to construction and would implement the applicable mitigation and required traffic control plans. However, without the implementation of the proposed FMP, the condition of facilities could require longer periods of construction. As such, the need for more extensive repairs could result in an extended period of construction requiring more vehicle trips than anticipated with the proposed FMP. Therefore, the No Project Alternative would have greater impacts compared to the proposed FMP in terms of traffic and circulation.

Tribal Cultural Resources

Under the No Project Alternative, the FMP projects (i.e., rehabilitation, replacement, and upgrades), which would maintain Sanitation District facilities to ensure a reliable wastewater conveyance and treatment system, would not occur as part of the proposed FMP. However, the projects identified in the proposed FMP would still be implemented over time as individual projects on an as-needed basis.

As such, it would be possible that various facilities would require maintenance at the same time, and construction activities would be carried out together potentially creating a cumulative impact to Tribal Cultural Resources. Additionally, without the long-term planning of the proposed FMP, the condition of facilities could further degrade, resulting in the need for more extensive ground-disturbing activities, which could impact a larger area and impact an area of Tribal Cultural Resource sensitivity.

Thus, under the No Project Alternative, it is possible that more impacts to Tribal Cultural Resources could occur as a result of implementing projects simultaneously and in ways that may increase ground disturbance. Therefore, the No Project Alternative would have greater impacts when compared to the proposed FMP in terms of Tribal Cultural Resources.

Utilities and Service Systems

Under the No Project Alternative, the FMP projects would not occur as part of the proposed FMP. However, the projects identified in the proposed FMP would still be implemented over time as individual projects on an as-needed basis. Sanitation District facilities require continual monitoring and maintenance to ensure a reliable wastewater treatment and conveyance system and to minimize the potential for emergency situations. Rehabilitation, replacement, and repair of existing structures, as well as maintenance of facilities, are necessary to maintain reliable infrastructure.

As discussed in the analysis of utilities and service systems under the proposed FMP, the FMP projects would have less-than-significant impacts to stormwater infrastructure and solid waste disposal infrastructure. Implementing the proposed FMP would not require construction of new or expanded facilities beyond the facilities described as part of the project. With respect to the long-term operational impacts, the proposed FMP would not propose facilities or processes that would increase the Sanitation District's generation of solid waste requiring off-site disposal. Any increase in treatment capacity resulting from implementation of the proposed FMP is a response to existing and future demands, and are not themselves the product of the proposed FMP.

Under the No Project Alternative, the repair, upgrade, and replacement of existing structures would not occur on a regular basis as part of the proposed FMP. However, projects identified in the FMP would still be implemented on an as-needed basis. As such, any projects implemented on an as-needed basis would serve to rehabilitate, replace, and/or repair existing facilities and would not involve the construction of new or expanded facilities nor increase the Sanitation District's generation of solid waste. Therefore, the No Project Alternative would have similar impacts to the proposed FMP in terms of utilities and service systems.

6.4.2 Conclusion

As explained above, the No Project Alternative would have greater impacts in twelve resource areas: aesthetics, air quality, biological resources, cultural resources, energy, geology and soils, GHG emissions, hazardous and hazardous materials, hydrology and water quality, noise, transportation, and tribal cultural resources. The No Project Alternative would have similar impacts in three resource areas: land use and planning, public services, and utilities and service systems. The adoption of the No Project Alternative would meet some of the project objectives identified by the Sanitation District for ongoing maintenance activities and meeting ever-evolving wastewater regulations, but it would not meet the objective to efficiently use the existing Sanitation District property, rights-of-way, and existing facilities. In addition, because the No Project Alternative would potentially result in increased impacts to aesthetics, air quality, biological resources, cultural resources, energy, geology and soils, GHG emissions, hazardous and hazardous materials, hydrology and water quality, noise, transportation, and tribal cultural resources, this alternative is environmentally inferior to the proposed FMP.

6.5 Reduced Project Alternative

The Reduced Project is the list of FMP projects without the Strategic Initiative Projects (SIPs) listed below in Table 6-1. SIPs are projects that enhance the operational efficiency and functioning of the Sanitation District's system, but if they were removed or if funding was not available, these projects would not be pursued; thus, the FMP without these projects represents a Reduced Project.

Table 6-1. Strategic Initiative Projects That Would Be Removed under the Reduced Project Alternative

Project Number	Project Name	Project Type	Construction Start (Month Year)	Construction End (Month Year)
2-73	Yorba Linda Pump Station Abandonment	Misc.	Aug 2024	May 2025
7-68	MacArthur Dual Force Main Improvements	Rehab	Dec 2022	Jan 2024
J-133	Laboratory Rehabilitation or Replacement at Plant 1	Rehab	Oct 2024	Apr 2026
P2-138	Operations and Maintenance Complex at Plant 2	Replace	2021	2022
J-98	Plantwide Miscellaneous Electrical Power Distribution System Improvements	Replace	Mar 2021	Dec 2037
P2-126	Primary Clarifiers Replacements and Improvements	Replace	Jun 2024	Mar 2029
X-093	Administrative Facilities and Power Building 3A Demolition	Misc. (Demo)	Nov 2025	Dec 2026

6.5.1 Comparison of Impacts of the Reduced Project Alternative to the Proposed FMP

Aesthetics

Under the Reduced Project Alternative, the SIPs identified in Table 6-1 would be removed from the projects to be implemented under the proposed FMP. However, the remaining FMP projects would still be implemented through the long-term planning of the proposed FMP. All projects under the FMP would incorporate mitigation to reduce impacts to the overall visual quality and the visual character of any natural-appearing landscapes in the FMP area.

Implementation of the SIPs would enhance the operational efficiency and functioning of the Sanitation District's wastewater conveyance and treatment system. Some of the SIPs may also enhance the visual landscape, although that is not their primary goal. As such, the Reduced Project Alternative would remove projects that would have visually improved the landscape, such as the lab rehabilitation project (project J-133), which would result in a more aesthetically pleasing building.

However, despite the Reduced Project Alternative removing projects that could have visually improved the landscape, the Reduced Project Alternative would create less temporary disturbance and lower visual degradation from construction activities. Therefore, the Reduced Project Alternative would have similar impacts when compared to the proposed FMP in terms of aesthetics.

Air Quality

Under the Reduced Project Alternative, the SIPs identified in Table 6-1 would be removed from the projects to be implemented under the proposed FMP. However, the remaining FMP projects would still be implemented through the long-term planning of the proposed FMP.

Under both the proposed FMP and the Reduced Project Alternative, construction activities would generate daily emissions from off-road equipment and vehicle trips, which would potentially result in significant air quality impacts. Under the analysis for the proposed FMP, impacts associated with air quality resulting from the construction and operation of the FMP projects would be less than significant with incorporation of applicable mitigation. Specifically, mitigation would be implemented to reduce maximum NO_x emissions and project-generated exhaust PM_{10} and $PM_{2.5}$ emissions generated during construction activities. Similarly, under the Reduced Project Alternative, mitigation would require that prior to commencement of construction activities for each project, the Sanitation District shall require its construction contractor to demonstrate that all 50-horsepower or greater diesel-powered equipment is powered with California Air Resources Board-certified Tier 4 Final engines.

However, under the Reduced Project Alternative, fewer projects would be implemented and thus, would require less construction activity throughout the FMP planning area. Additionally, the removal of projects would lower the combined maximum daily construction emissions produced during peak years of construction (see Section 4.2, Air Quality, for further details). As such, the Reduced Project Alternative would potentially generate fewer criteria air pollutant emissions than anticipated in the proposed FMP. Thus, under the Reduced Project Alternative, it is possible that less air pollutant emissions would be generated without implementation of the previously identified SIPs (see Table 6-1). Therefore, the Reduced Project Alternative would have fewer impacts when compared to the proposed FMP in terms of air quality.

Biological Resources

Under the Reduced Project Alternative, the SIPs identified in Table 6-1 would be removed from the projects to be implemented under the proposed FMP. However, the remaining FMP projects would still be implemented through the long-term planning of the proposed FMP.

Similar to the proposed FMP, under the Reduced Project Alternative, any biological resources near facilities proposed for project activities would potentially be impacted. The facilities identified for maintenance in the proposed FMP exist in an urban environment, so impacts include impacts to nesting birds or erosion during construction activities, which could impact downstream waterways and habitat. Under the proposed FMP, impacts would be mitigated to a less-than-significant level. Similarly, under the Reduced Project Alternative, mitigation would be incorporated to reduce impacts to biological resources to a less-than-significant level.

Additionally, removal of the SIPs from the proposed FMP, specifically projects 2-73, J-133, and J-98, would further reduce potential impacts associated with biological resources due to the reduction in ground disturbances caused by construction activities. The remaining projects proposed to be removed under the Reduced Project Alternative would result in no impact to biological resources under the proposed FMP and as such would not change the impact under the Reduced Project Alternative. Therefore, because the Reduced Project Alternative would remove projects that would potentially result in significant impacts, the Reduced Project Alternative would have fewer impacts when compared to the proposed FMP in terms of biological resources.

Cultural Resources

Under the Reduced Project Alternative, the FMP projects (i.e., rehabilitation, replacement, and upgrades), which would maintain Sanitation District facilities to ensure a reliable wastewater conveyance and treatment system, would not include the previously identified SIPs (see Table 6-1). However, the remaining FMP projects would still be implemented through the long-term planning of the proposed FMP.

Although, the SIPs would enhance the operational efficiency and functioning of the Sanitation District's wastewater conveyance and treatment system, these projects would not be pursued if funding was not available under the proposed FMP. Additionally, without the implementation of the SIPs, the proposed FMP would impact a smaller area and reduce the likelihood of impacting an area with cultural resources. Thus, under the Reduced Project Alternative, it is possible that fewer impacts to cultural resources would occur as a result of implementing fewer projects, which would decrease the total amount of ground disturbance. Therefore, the Reduced Project Alternative would have fewer impacts when compared to the proposed FMP in terms of cultural resources.

Energy

Under the Reduced Project Alternative, the SIPs identified in Table 6-1 would be removed from the projects to be implemented under the proposed FMP. However, the remaining FMP projects would still be implemented through the long-term planning of the proposed FMP.

Under both the proposed FMP and the Reduced Project Alternative, energy, including electricity, natural gas, and petroleum, would be consumed during construction and operation activities. However, under the analysis for the proposed FMP, impacts associated with energy resulting from the construction and operation of the FMP projects would be less than significant. Construction of the FMP projects would not result in a wasteful, inefficient, or unnecessary use of energy. In addition, the FMP projects would not result in a net increase in operational energy use and instead, would potentially improve energy efficiency at replacement buildings. Additionally, the FMP

projects would not conflict with the various local plans that would reduce energy use, including the City of Fullerton CAP, the City of Huntington Beach Greenhouse Gas Reduction Program, the City of La Habra CAP, and the City of Santa Ana CAP. Because the Reduced Project Alternative would reduce the number of projects being implemented, it is assumed that the overall energy used during construction and operation of the FMP projects would decrease.

However, under the Reduced Project Alternative, project numbers P2-126, P2-128, and J-133, which would include structural replacements and addition of a new structure, would be removed from projects to be implemented. The aforementioned projects are not expected to increase operational energy use and are rather anticipated to increase building energy efficiency. As such, the Reduced Project Alternative would remove the option for more energy-efficient structures that would have otherwise been implemented in the proposed FMP. Therefore, because the Reduced Project Alternative would decrease energy used during construction and also remove projects that provide opportunities to replace equipment and facilities with more energy efficiency, it is assumed that the Reduced Project Alternative would not result in significant change to energy use. Thus, the Reduced Project Alternative would have similar impacts when compared to the proposed FMP in terms of energy.

Geology and Soils

Under the Reduced Project Alternative, the FMP projects (i.e., rehabilitation, replacement, and upgrades), which would maintain Sanitation District facilities to ensure a reliable wastewater conveyance and treatment system, would not include the previously identified SIPs (see Table 6-1). However, the remaining FMP projects would still be implemented through the long-term planning of the proposed FMP.

Although the SIPs would enhance the operational efficiency and functioning of the Sanitation District's wastewater conveyance and treatment system, these projects would not be pursued if funding was not available under the proposed FMP. Under the FMP, the geology and soils impacts are primarily soil erosion impacts. As discussed in the analysis under the FMP, construction of the projects would have less-than-significant impacts to soil erosion with incorporation of mitigation.

A reduced project would involve less construction and thus, would have less soil disturbance and would thereby reduce soil erosion impacts. Similarly, under the Reduced Project Alternative, mitigation would be incorporated to reduce any potential impacts in regard to soil erosion. Additionally, with the reduction of projects, there would be less overall ground disturbance resulting from less construction. The remaining projects implemented by the proposed FMP would still be subject to long-term planning and would ensure that facilities undergo the appropriate maintenance (i.e., rehabilitation, replacements, upgrade) to maintain reliability of the wastewater system and prevent facilities further deterioration. Therefore, the Reduced Project Alternative would have fewer impacts compared to the proposed FMP in terms of geology and soils.

Greenhouse Gas Emissions

Under the Reduced Project Alternative, the SIPs identified in Table 6-1 would be removed from the projects to be implemented under the proposed FMP. However, the remaining FMP projects would still be implemented through the long-term planning of the proposed FMP.

Under both the proposed FMP and the Reduced Project Alternative, the construction of the FMP projects would result in GHG emissions, which are primarily associated with use of off-road construction equipment and on-road vehicles (haul trucks, vendor trucks, and worker vehicles). However, under the analysis for the proposed FMP, impacts associated with GHG emissions resulting from the construction and operation of the FMP projects would

be less than significant. The estimated total GHG emissions during construction of the entire FMP projects would total approximately 33,265 MT CO_2e over the assumed 19-year construction period. Estimated project-generated construction emissions amortized over 30 years would be approximately 1,109 MT CO_2e per year, which would not exceed the applied recommended South Coast Air Quality Management District threshold of 3,000 MT CO_2e per year. Because the project would be built out over a 19-year time period, estimated amortized project-generated construction emissions amortized would be approximately 1,751 MT CO_2e per year, which is also below the 3,000 MT CO_2e per-year threshold. Additionally, implementation of the FMP projects are not anticipated to generate an increase in operational GHG emissions compared to existing conditions and may result in reduced energy-related GHG emissions. Furthermore, the FMP projects would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.

As previously discussed, the Reduced Project Alternative would propose fewer projects than the proposed FMP and consequently would produce fewer GHG emissions generated by off-road construction equipment and on-road vehicles associated with construction. Therefore, the Reduced Project Alternative would have fewer impacts when compared to the proposed FMP in terms of GHG emissions.

Hazards and Hazardous Materials

Under the Reduced Project Alternative, the FMP projects (i.e., rehabilitation, replacement, and upgrades), which would maintain Sanitation District facilities to ensure a reliable wastewater conveyance and treatment system, would not include the previously identified SIPs (see Table 6-1). However, the remaining FMP projects would still be implemented through the long-term planning of the proposed FMP.

As such, under the proposed FMP and Reduced Project Alternative, typical hazardous materials used during implementation of FMP projects, including oils, lubricants, and vehicle fuels, would be used and transported in the proposed FMP area by Sanitation District personnel. Additionally, under the proposed FMP and Reduced Project Alternative, there is potential to encounter hazardous material sites, underground storage tanks, or oil and methane gas zones as part of project construction. As discussed in the analysis under the proposed FMP, mitigation would be incorporated to reduce impacts associated with hazardous materials and sites to a less-than-significant level. Additionally, these materials would be removed, handled, and transported in accordance with applicable laws and regulations.

Under the Reduced Project Alternative, the same mitigation would still be incorporated as well as adherence to applicable laws and regulations to reduce potential impacts associated with hazardous material and sites. However, under the Reduced Project Alternative, fewer FMP projects would be implemented and as such would result in less hazardous materials being used and transported throughout the FMP planning area. Therefore, the Reduced Project Alternative would have fewer impacts when compared to the proposed FMP in terms of hazards and hazardous materials.

Hydrology and Water Quality

Under the Reduced Project Alternative, the SIPs identified in Table 6-1 would be removed from the proposed FMP. However, the remaining FMP projects would still be implemented through the long-term planning of the proposed FMP.

Under the analysis of the proposed FMP, potential impacts of construction activities, construction materials, and non-stormwater runoff on water quality during the demolition and construction phase focuses primarily on sediment and certain non-sediment-related pollutants. Construction activities associated with the FMP projects and other

development could temporarily increase the number of exposed surfaces that could contribute to sediments in stormwater runoff. Furthermore, materials associated with construction activities could be deposited on surfaces and carried to receiving waters in stormwater runoff. However, demolition and construction impacts associated with FMP project implementation would be minimized through compliance with local, state, and federal regulations pertaining to water quality standards.

Because the Reduced Project Alternative would only reduce the previously identified SIPs, potential impacts resulting from the remaining FMP projects would remain the same. As such, compliance with local, state, and federal regulations pertaining to water quality standards, impacts under the Reduced Project Alternative would be less than significant. However, because the Reduced Project Alternative would remove the previously identified SIPs (see Table 6-1), there would potentially be fewer impacts to water quality resulting from less demolition and construction activities. As such, under the Reduced Project Alternative, the overall water quality-related impacts would be reduced. Therefore, the Reduced Project Alternative would have fewer impacts when compared to the proposed FMP in terms of hydrology and water quality.

Land Use and Planning

Under the Reduced Project Alternative, the SIPs identified in Table 6-1 would be removed the proposed FMP. However, the remaining FMP projects would still be implemented through the long-term planning of the proposed FMP.

As discussed in the analysis under the proposed FMP, however, the potential for land use policy impacts is low, and there are less-than-significant impacts associated with land use policy consistency because as part of standard practice, the Sanitation District would coordinate with local jurisdictions during implementation of FMP projects to avoid and/or minimize potential impacts.

Similarly, under the Reduced Project Alternative, projects implemented would not conflict with land use policies, and the Sanitation District would coordinate with local jurisdictions during implementation to avoid and/or minimize potential impacts. As such, the Reduced Project Alternative would have similar impacts when compared to the FMP in terms of land use and planning.

Noise

Under the Reduced Project Alternative, the SIPs identified in Table 6-1 would be removed from the proposed FMP. However, the remaining FMP projects would still be implemented through the long-term planning of the proposed FMP.

Construction activities under the proposed FMP and Reduced Project Alternative would generate noise from the use of heavy equipment (e.g., excavators, tractors, backhoes, cement and mortar mixers, pumps, and other similar equipment) at the sites or from vehicles transporting material to or from the project sites. Additionally, under both scenarios, construction of the projects would potentially generate significant groundborne vibration impacts from heavy equipment operations. As analyzed under the proposed FMP, mitigation would reduce these impacts to a less-than-significant level.

However, under the Reduced Project Alternative, fewer projects would be implemented overall and as such would result in less construction in the FMP planning area. Thus, by reducing construction activities, overall noise impacts would be reduced as well. Therefore, the Reduced Project Alternative would have fewer impacts when compared to the proposed FMP in terms of noise.

Public Services (Fire and Police Protection Services)

Under the Reduced Project Alternative, the FMP projects (i.e., rehabilitation, replacement, and upgrades), which would maintain Sanitation District facilities to ensure a reliable wastewater conveyance and treatment system, would not include the previously identified SIPs (see Table 6-1). However, the remaining projects would still be implemented through the long-term planning of the proposed FMP.

Although the SIPs would enhance the operational efficiency and functioning of the Sanitation District's wastewater conveyance and treatment system, these projects would not be pursued if funding was not available under the proposed FMP. As discussed in Chapter 4.12, Public Services, the FMP projects would not generate the need for additional fire and police protection services. Construction activities for the collection system would primarily take place within existing roadways and would potentially result in partial lane closures that could block emergency vehicle access. In the event of partial lane closures, emergency vehicles responding to an emergency could experience delays that could hinder response times and performance objectives. However, the Sanitation District would coordinate with appropriate jurisdictions and implement mitigation, which would include a traffic control plan, to reduce impacts associated with construction at the collection system sites.

Similarly, under the Reduced Project Alternative, the Sanitation District would still coordinate with the appropriate jurisdictions prior to construction and would implement the applicable mitigation and required traffic control plans. Additionally, under the Reduced Project Alternative, fewer projects would implemented, and as such there would be less construction activity within the proposed FMP planning area. As such, the amount of partial lane closures would be reduced, and impacts to emergency vehicle access would be less than anticipated from the proposed FMP. Therefore, the Reduced Project Alternative would have fewer impacts when compared to the proposed FMP in terms of public services.

Transportation

Under the Reduced Project Alternative, the SIPs identified in Table 6-1 would be removed from the proposed FMP. However, the remainder of the FMP projects would still be implemented through the long-term planning of the proposed FMP.

Under the analysis of the proposed FMP, construction for collection system projects would primarily take place within existing roadways and would potentially result in partial lane closure. However, the Sanitation District would coordinate with appropriate jurisdictions and implement mitigation, which would include a Traffic Control Plan to reduce impacts associated with construction at the collection system sites.

Similarly, under the Reduced Project Alternative, the Sanitation District would still coordinate with the appropriate jurisdictions prior to construction and would implement the applicable mitigation and required traffic control plans. Additionally, under the Reduced Project Alternative, fewer projects would implemented and as such there would be less construction activity within the proposed FMP planning area. Thus, vehicle trips from haul trucks and vendor/delivery trucks would not occur as often as they would under the proposed FMP. As such, the Reduced Project Alternative would likely create less traffic in the FMP area as compared to the proposed FMP. Therefore, the Reduced Project Alternative would have fewer impacts when compared to the proposed FMP in terms of traffic and circulation.

Tribal Cultural Resources

Under the Reduced Project Alternative, the FMP projects (i.e., rehabilitation, replacement, and upgrades), which would maintain Sanitation District facilities to ensure a reliable wastewater conveyance and treatment system, would not include the previously identified SIPs (see Table 6-1). Although the SIPs would enhance the operational efficiency and functioning of the Sanitation District's wastewater conveyance and treatment system, these projects would not be pursued if funding was not available under the proposed FMP.

Additionally, without the implementation of the SIPs, the proposed FMP would impact a smaller area and reduce the likelihood of impacting an area of Tribal Cultural Resource sensitivity. Thus, under the Reduced Project Alternative, it is possible that fewer impacts to Tribal Cultural Resources would occur as a result of implementing fewer projects, which would decrease the total amount of ground disturbance. Therefore, the Reduced Project Alternative would have fewer impacts when compared to the proposed FMP in terms of Tribal Cultural Resources.

Utilities and Service Systems

Under the Reduced Project Alternative, the SIPs identified in Table 6-1 would be removed from the proposed FMP.

As discussed in the analysis of utilities and service systems under the proposed FMP, the FMP projects would have less-than-significant impacts to stormwater infrastructure and solid waste disposal infrastructure. Other than the wastewater treatment facilities that are themselves part of the project, implementing the proposed FMP would not require construction of new or expanded facilities beyond the facilities described as part of the project. With respect to the long-term operational impacts, the proposed FMP would not include facilities or processes that would increase the Sanitation District's generation of solid waste requiring off-site disposal. Any increase in treatment capacity resulting from implementation of the proposed FMP is a response to existing and future demands and is not the product of the proposed FMP.

As such, under the Reduced Project Alternative, the reduction in projects would not result in the need for the construction of new or expanded facilities nor increase the Sanitation District's generation of solid waste. Therefore, the No Project Alternative would have similar impacts when compared to the proposed FMP in terms of utilities and service systems.

6.5.2 Conclusion

As explained above, the Reduced Project Alternative would have fewer impacts in eleven resource areas: air quality, biological resources, cultural resources, geology and soils, GHG emissions, hazardous and hazardous materials, hydrology and water quality, noise, public services, transportation, and tribal cultural resources. Additionally, the Reduced Project Alternative would have similar impacts in four resource areas: aesthetics, energy, land use and planning, and utilities and service systems.

However, the Reduced Project Alternative would only partially meet all the objectives set by the Sanitation District. By not implementing the projects identified in Table 6.1, the Reduced Project Alternative would remove the opportunity to install more energy-efficient structures and reduce construction timing efficiency, and would not optimally meet the goals set by the Sanitation District. Therefore, because the Reduced Project Alternative would only partially meet all of the project objectives identified by the Sanitation District, it is environmentally inferior to the proposed FMP.

6.6 Environmentally Superior Alternative

If an alternative is considered clearly superior to the proposed project relative to identified impacts, Section 15126.6 of the CEQA Guidelines requires that alternative to be identified as the environmentally superior alternative. By statute, if the environmentally superior alternative is the No Project Alternative, an EIR must also identify an environmentally superior alternative among the other alternatives.

Two alternatives to the proposed FMP, other than the No Project Alternative and the Reduced Project Alternative, were considered; however, these alternatives were not further considered and analyzed for the reasons stated in Section 6.3, Alternatives Considered but Rejected.

Based on the analysis provided in 6.4, the No Project Alternative would be considered environmentally inferior in twelve resource areas: aesthetics, air quality, biological resources, cultural resources, energy, geology and soils, GHG emissions, hazardous and hazardous materials, hydrology and water quality, noise, transportation, and tribal cultural resources. The No Project Alternative would, however, be considered neutral with regard to three resource areas: land use and planning, public services, and utilities and service systems.

However, based on the analysis provided in Section 6.5, the Reduced Project Alternative would be considered environmentally superior in eleven resource areas: air quality, biological resources, cultural resources, geology and soils, GHG emissions, hazardous and hazardous materials, hydrology and water quality, noise, public services, transportation, and tribal cultural resources. Additionally, the Reduced Project Alternative would have similar impacts in four resource areas: aesthetics, energy, land use and planning, and utilities and service systems. Additionally, the Reduced Project Alternative would allow for maintenance of the existing wastewater treatment and conveyance system and associated infrastructure in a streamlined manner as compared to the No Project Alternative, which would only implement projects on an as-needed basis.

However, the Reduced Project Alternative would only partially meet all the objectives set by the Sanitation District. As previously discussed, by not implementing the projects identified in Table 6.1, the Reduced Project Alternative would remove the opportunity to install more energy-efficient structures and reduce construction timing efficiency, and would not optimally meet the goals set by the Sanitation District.

However, despite the Reduced Project Alternative only partially meeting the objectives set by the Sanitation District, the Reduced Project Alternative would remain environmentally superior as compared to the No Project Alternative. Therefore, the Reduced Project Alternative is considered to be the environmentally superior alternative.

Table 6-2 shows the comparison of alternatives by resource area and determines the total impacts that are environmentally superior to the proposed FMP.

Table 6-2. Comparison of Alternatives to Proposed FMP

Impact	Alternative 1: No Project/No FMP	Alternative 2: Reduced Project
Aesthetics	−1	0
Air Quality – Construction	−1	+1
Air Quality – Operation	0	0
Biological Resources	−1	+1

Table 6-2. Comparison of Alternatives to Proposed FMP

Impact	Alternative 1: No Project/No FMP	Alternative 2: Reduced Project
Cultural Resources	−1	+1
Energy – Construction	−1	0
Energy – Operation	0	0
Geology and Soils	−1	+1
Greenhouse Gas Emissions	−1	+1
Hazards and Hazardous Materials	−1	+1
Hydrology and Water Quality	−1	+1
Land Use and Planning	0	0
Noise – Construction	−1	+1
Noise – Operation	0	0
Public Services	0	+1
Transportation – Construction	**−1**	**+1**
Transportation – Operation	0	0
Tribal Cultural Resources	−1	+1
Utilities and Service System	0	0
Total (environmentally superior only)	**0**	**11**
Avoids an impact or eliminates need for mitigation?	No	Yes

Notes: 0 = similar impact; −1 = greater impact; +1 = less impact. **Bold** for environmental resource categories where the proposed FMP would result in a significant and unavoidable impact following implementation of all feasible mitigation.

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