Orange County Feeder Relining Project

Proposed Mitigated Negative Declaration

Metropolitan Report No. 1428

August 2014

The Metropolitan Water District of Southern California

Proposed
Mitigated Negative Declaration

Orange County Feeder Relining Project

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Of Southern California Report No. 1428

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ACRONYMS AND ABBREVIATIONS

Acronym/Abbreviation	Definition
AADT	Average annual daily traffic
AB 32	Assembly Bill 32
amsl	Above mean sea level
Basin	South Coast Air Basin
BMPs	Best management practices
CAAQS	California Ambient Air Quality Standards
Caltrans	California Department of Transportation
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CCC	California Coastal Commission
CDC	California Department of Conservation
CDFG	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CMP	Congestion Management Program
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CO	Carbon monoxide
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
Coastal Act	California Coastal Act of 1976
CTE	Coal tar enamel
DAMP	Drainage Area Management Plan
DPM	Diesel particulate matter
DWR	Department of Water Resources
EPA	U.S. Environmental Protection Agency
FEMA	Federal Emergency Management Agency
FMMP	Farmland Mapping and Monitoring Program
GHG	Greenhouse gas
GWP	Global warming potential
HCP	Habitat Conservation Plan
I-405	Interstate 405
IPCC	Intergovernmental Panel on Climate Change
LOS	Level of service

LUST	Leaking Underground Storage Tank
MATES III	Multiple Air Toxics Exposure Study III
Metropolitan	Metropolitan Water District of Southern California
MLD	Most likely descendant
MND	Mitigated Negative Declaration
MT	Metric tons
MTBE	Methyl tertiary butyl ether
N_2O	Nitrous oxide
NAAQS	National Ambient Air Quality Standards
NACE	National Society of Corrosion Engineers
NAHC	Native American Heritage Commission
NCCP	Natural Community Conservation Plan
NFA	No Further Action
NO_2	Nitrogen dioxide
NO_X	Nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
OCF	Orange County Feeder
OCIWMD	Orange County Integrated Waste Management Department
OCTA	Orange County Transportation Authority
OES	Office of Emergency Services
PCBs	Polychlorinated biphenyls
PCS	Pressure Control Structure
PM	Particulate matter
PM10	PM less than or equal to 10 microns in diameter
PM2.5	PM less than or equal to 2.5 microns in diameter
proposed project	Orange County Feeder Project
PRS	Pressure relief structure
ROG	Reactive organic gases
RWQCB	Regional Water Quality Control Board
SARWQCB	Santa Ana Regional Water Quality Control Board
SCAQMD	South Coast Air Quality Management District
SF_6	Sulfur hexafluoride
SO_2	Sulfur dioxide
SR	State Route
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board

TACs	Toxic air contaminants
USGS	U.S. Geological Survey
Weymouth Plant	F. E. Weymouth Water Treatment Plant
WPCP	Water Pollution Control Plan

SECTION 1
PROPOSED PROJECT DESCRIPTION

1.1 Project Background and Purpose

The Metropolitan Water District of Southern California (Metropolitan) comprises 26 cities and water districts that provide drinking water to nearly 18 million people in portions of Los Angeles, Orange, San Diego, Riverside, San Bernardino, and Ventura Counties. Metropolitan delivers an average of 1.7 billion gallons of water per day to a 5,200-square-mile service area.

The 22-mile long Orange County Feeder (OCF) conveys treated water from the F. E. Weymouth Water Treatment Plant (Weymouth Plant) in the city of La Verne to numerous communities in Los Angeles and Orange Counties.

The OCF is constructed of welded steel pipe and precast concrete pipe that ranges from 33 to 42 inches in diameter along its length. However, at the proposed project location, the OCF consists of a 36-inch diameter welded steel pipe with bell-and-spigot joints. A coal tar enamel (CTE) lining protects the inside of the pipe against corrosion. The CTE, which was applied when the pipeline was installed in the 1940s, is nearing the end of its service life and requires replacement. CTE-related failures could lead to unplanned shutdowns.

The purpose of the proposed project is to ensure the reliability of water deliveries to member agencies. An inspection of the OCF in 2005 revealed that most of the pipeline had some level of corrosion, and the internal CTE was blistering or peeling away from the internal steel face of the pipe, thereby exposing the metal to corrosion. The CTE lining is nearing the end of its service life, and the pipeline will continue to corrode if not relined. The proposed project would require removing the existing CTE lining, relining the pipeline with cement mortar, and installing bonding bars between pipe sections to make the pipeline electrically continuous. Maintenance and replacement of worn or outdated components (i.e., above ground existing air release valves, vacuum valves) would also be completed as part of this proposed project.

The objectives of the proposed project are listed below.

- Reline approximately 9.5 miles of the OCF with mortar lining.
- Install bonding bars between the pipe sections to enable the installation of an effective cathodic protection system for corrosion prevention.
- Replace the existing boilerplate-type flanges and outlets with Metropolitan standard-size outlets at proposed excavation sites, as needed.

1.2 Project Location

The Orange County Feeder Project (proposed project) would occur entirely within Orange County in the cities of Santa Ana, Costa Mesa, and Newport Beach and an unincorporated portion of Orange County (Figures 1-1 and 1-2). Work on the pipeline would begin in Santa Ana at station 1467+30, adjacent to the John Garthe Reservoir, and proceed in a southerly direction through Costa Mesa and an unincorporated portion of Orange County. It would terminate in Newport Beach at station 2053+43 (Figures 1-3a through 1-3e).

From station 1467+30, the pipeline extends in a southerly direction along the east side of the Bristol Street centerline until it crosses 17th Street. At that point, the pipeline alignment crosses to the west side of Bristol Street and continues southerly for approximately 4 miles. South of the intersection of Bristol Street/Jamboree Road in Newport Beach, the pipeline runs beneath the Fletcher Jones Motorcars facility and the San Diego Creek channel west of State Route (SR) 73. The pipeline continues south, crossing MacArthur Boulevard and Bison Avenue, then follows Mesa View Drive and San Miguel Drive to station 2053+43, adjacent to San Miguel Park. Figure 1-4 shows the land use designations along the project alignment.

1.3 Project Description

Metropolitan is proposing to reline approximately 9.5 miles of the 22-mile long, below-ground OCF, which is Metropolitan's major water conveyance pipeline to Orange County. As depicted in Figures 1-3a through 1-3e, the proposed project alignment begins at station 1467+30 in the city of Santa Ana, passes through the city of Costa Mesa and an unincorporated area of Orange County, and terminates at station 2053+43 in the city of Newport Beach.

To complete the proposed project, sections of the pipeline would be shut down and dewatered in a phased manner. The project alignment would be divided into five reaches, based on the location of existing Metropolitan sectionalizing valves or control structures. During project implementation, each reach would be isolated by closing valves or installing bulkheads. These reaches, listed from north to south, are discussed below. Table 1-2 provides details regarding construction phasing by reach. Figure 1-2 shows the project alignment, construction reaches, and storage areas.

The project would replace the existing inner CTE liner with mortar lining. This would involve cleaning the inside face of the pipe, removing existing CTE, installing bonding bars between pipe sections, and lining the inside of the existing pipeline with cement mortar. During this process, cement mortar would be cast onto the interior wall of the existing pipe by hand or with the use of a lining machine. The optimum distance for installing a cement mortar lining in a 36-inch pipe is approximately 750 feet; therefore, access points would be designated along the OCF approximately every 1,500 feet to allow the relining to extend 750 feet in each direction.

Access to the pipeline for routine maintenance, inspection, and repairs is generally through manholes, which are spaced approximately 1,500 feet apart along the length of the pipeline. These manholes are generally within the street rights-of-way or existing Metropolitan easements. Figure 1-5 provides a conceptual graphic of a typical manhole structure.

To enable the lining machine and associated equipment to enter or exit the pipeline at an access site, an 8-foot section of the pipeline would be removed and, where required, a manhole with a 36-inch standard-size street outlet would be installed (Figure 1-5). The existing CTE would be removed prior to application of the new lining. All pipeline work would occur within existing Metropolitan rights-of-ways. The project also includes replacement of manholes, flanges, and outlets with new standard pipe accessories at the excavation sites, where necessary. A combination of mechanical cleaning methods (i.e., scraping or abrasive blasting) would be used to remove the CTE prior to relining the pipe. The removal work would meet "near white" visual standard No. 2, as defined by the National Society of Corrosion Engineers (NACE).

After the CTE is removed, the pipeline would be inspected, bonding bars would be installed between pipe sections that were removed for access, and pipe joints would be repaired prior to mortar application. Pipe sections that were removed for access would be replaced with welded steel pipe. Table 1-1 provides details regarding construction.

Figure 1-1
Proposed Project Site
Orange County Feeder Relining Project

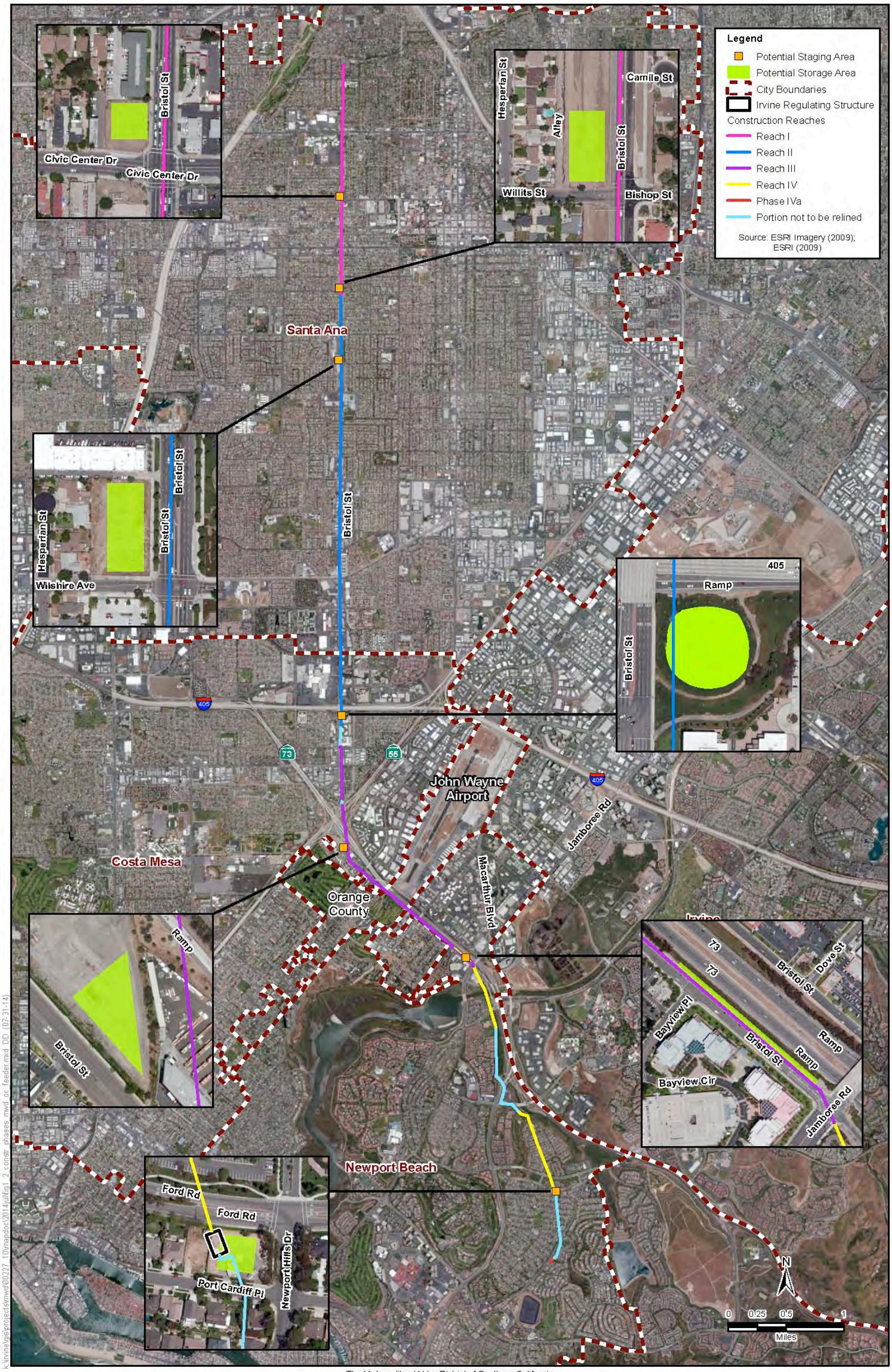

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Figure 1-2
Construction Reaches and Staging Areas
Orange County Feeder Relining Project

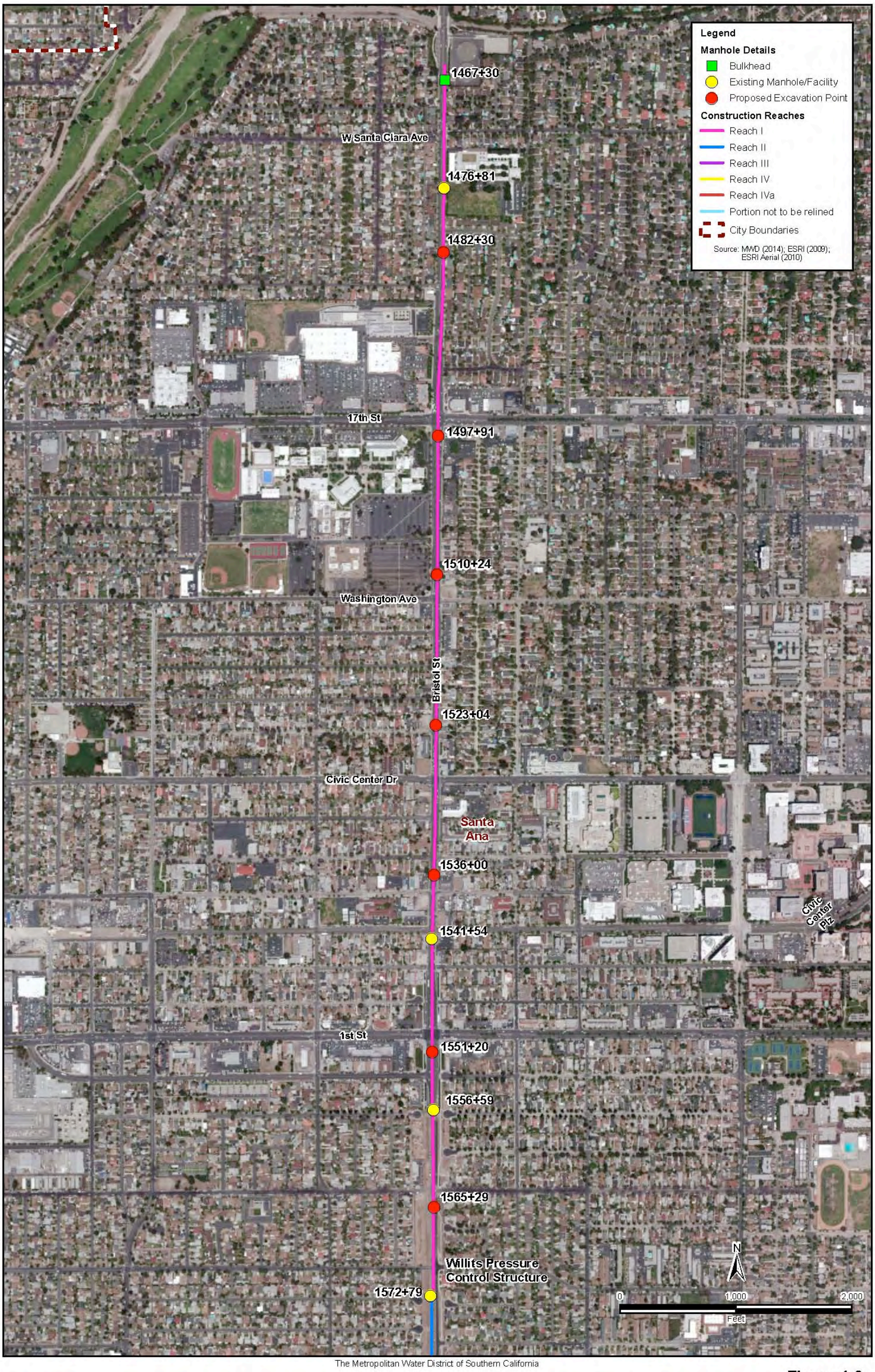

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Figure 1-3a
Construction Reach 1 and Manhole Details
Orange County Feeder Relining Project

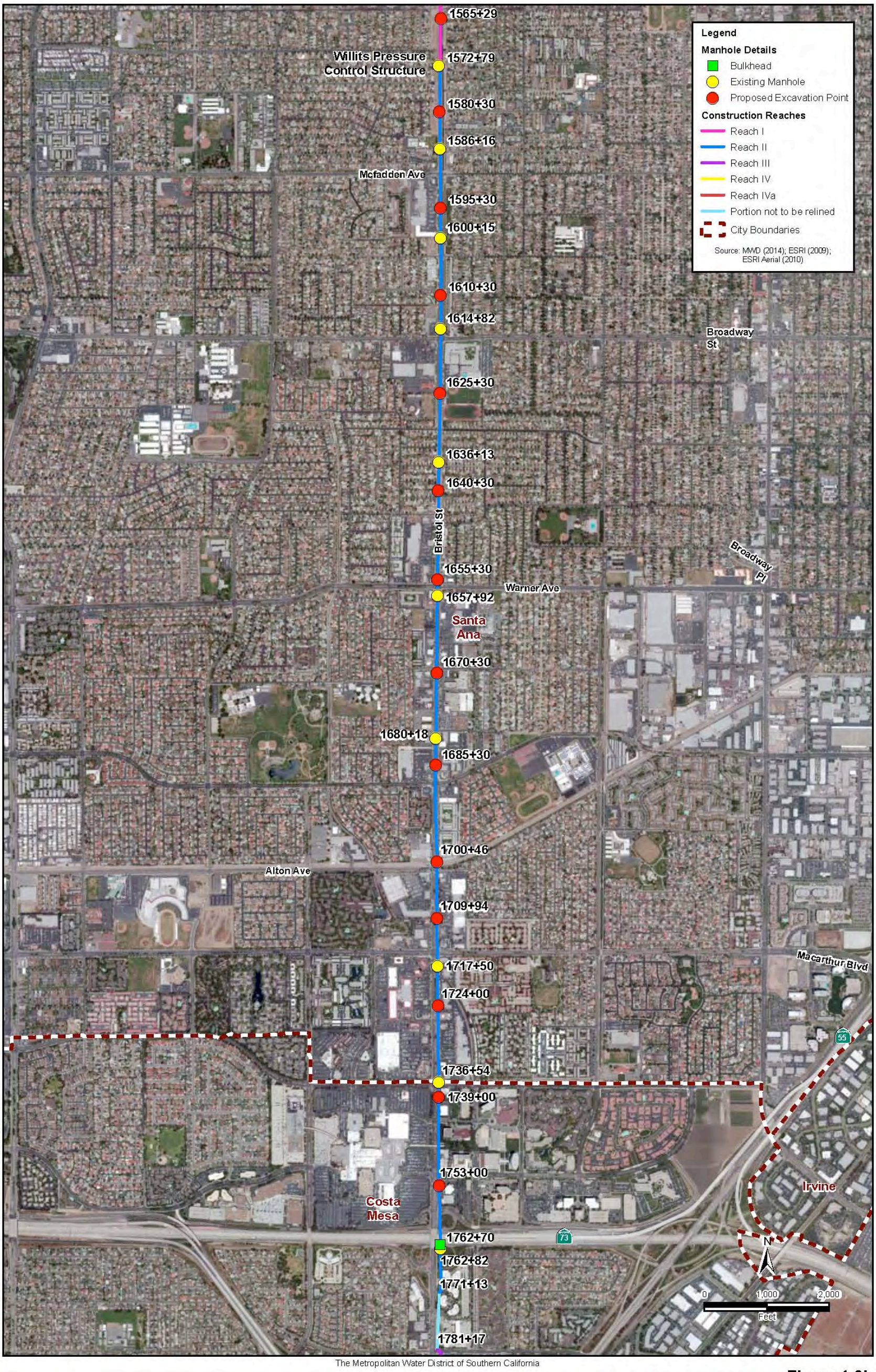

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Figure 1-3b
Construction Reach 2 and Manhole Details
Orange County Feeder Relining Project

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Figure 1-3c
Construction Reach 3 and Manhole Details
Orange County Feeder Relining Project

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Figure 1-3d
Construction Reach 4 and Manhole Details
Orange County Feeder Relining Project

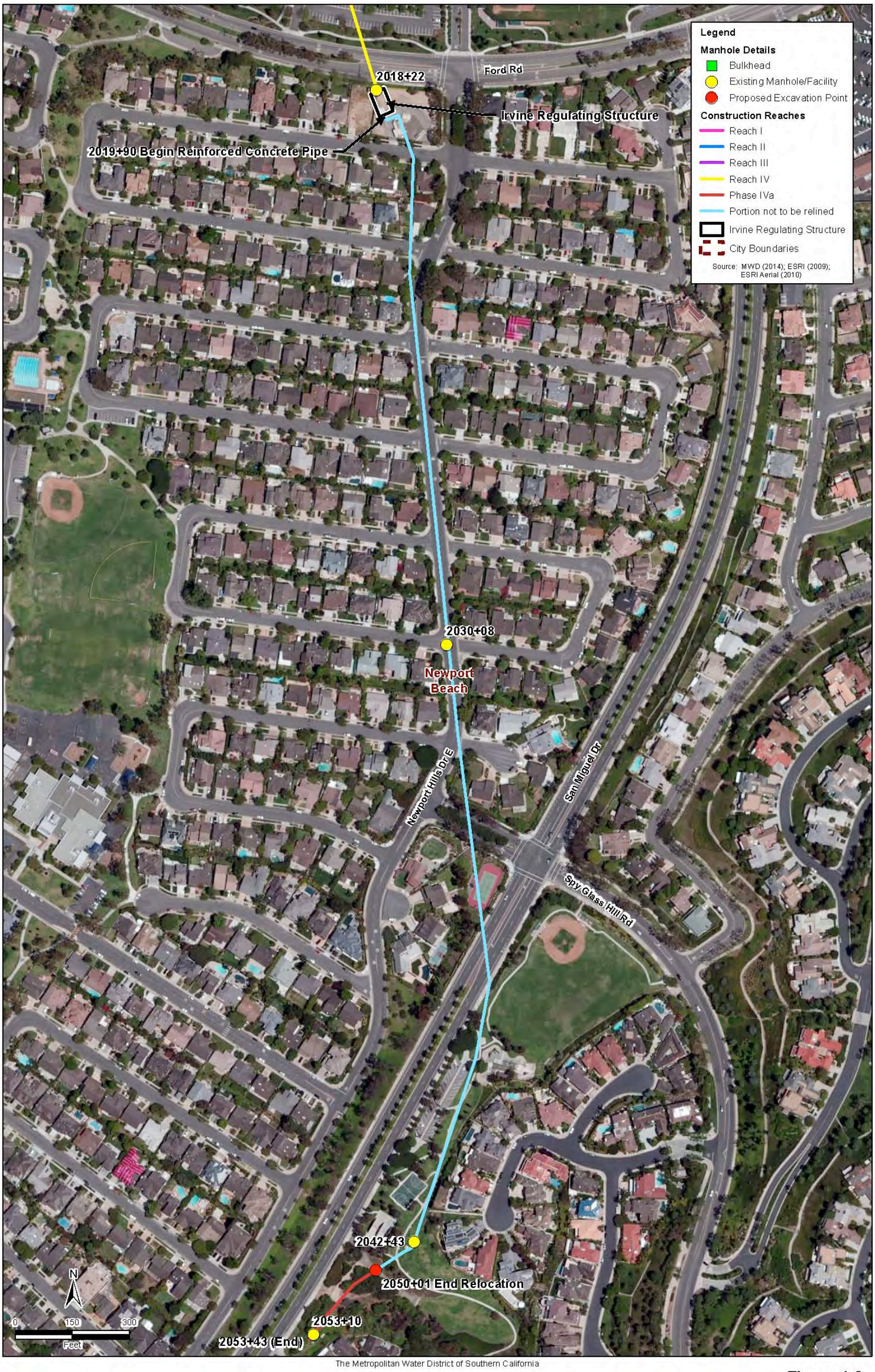

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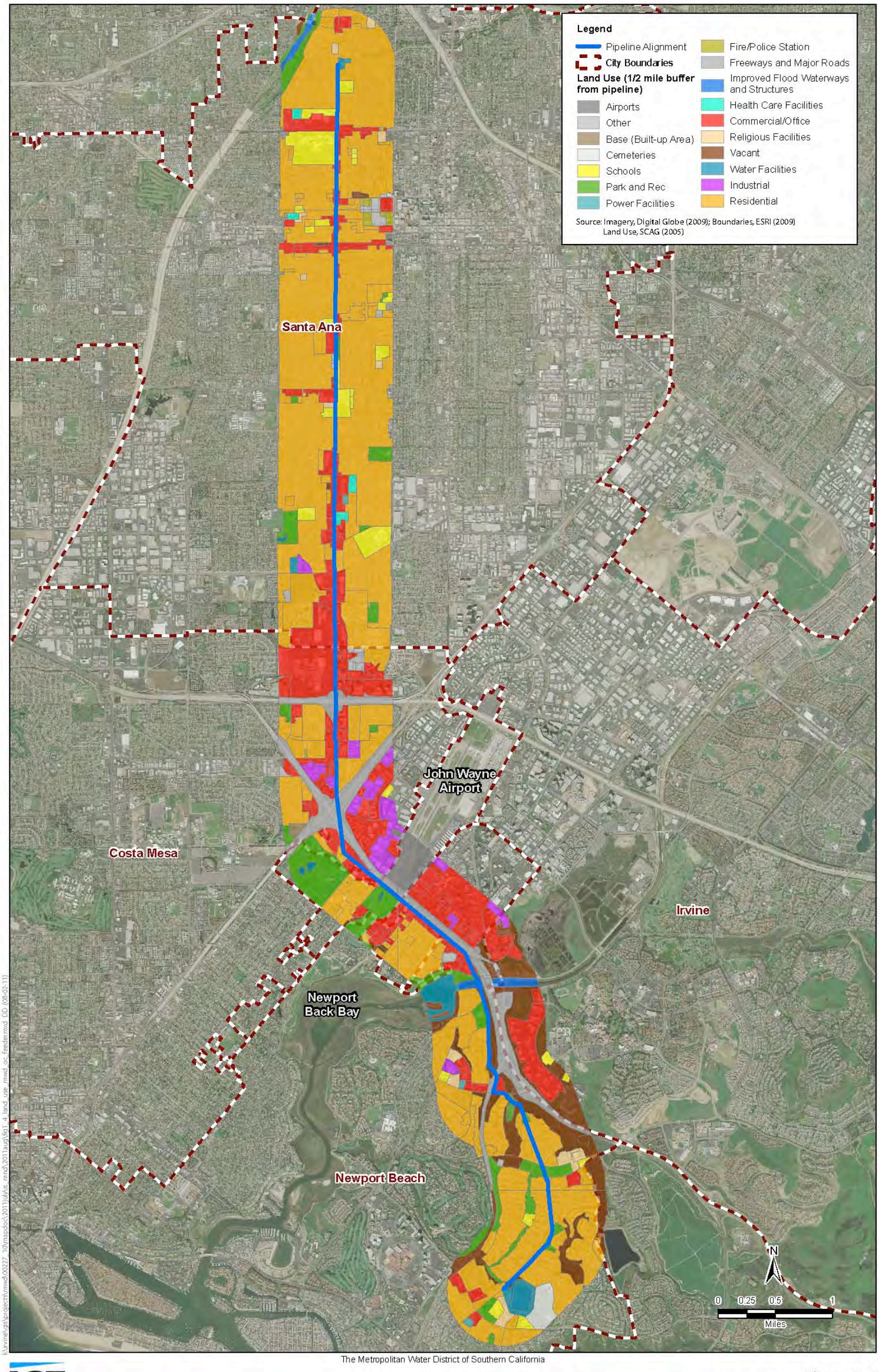
Figure 1-3e
Construction Reach 4a and Manhole Details
Orange County Feeder Relining Project



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ICF INTERNATIONAL

Figure 1-4
Land Use Designations
Orange County Feeder Relining Project

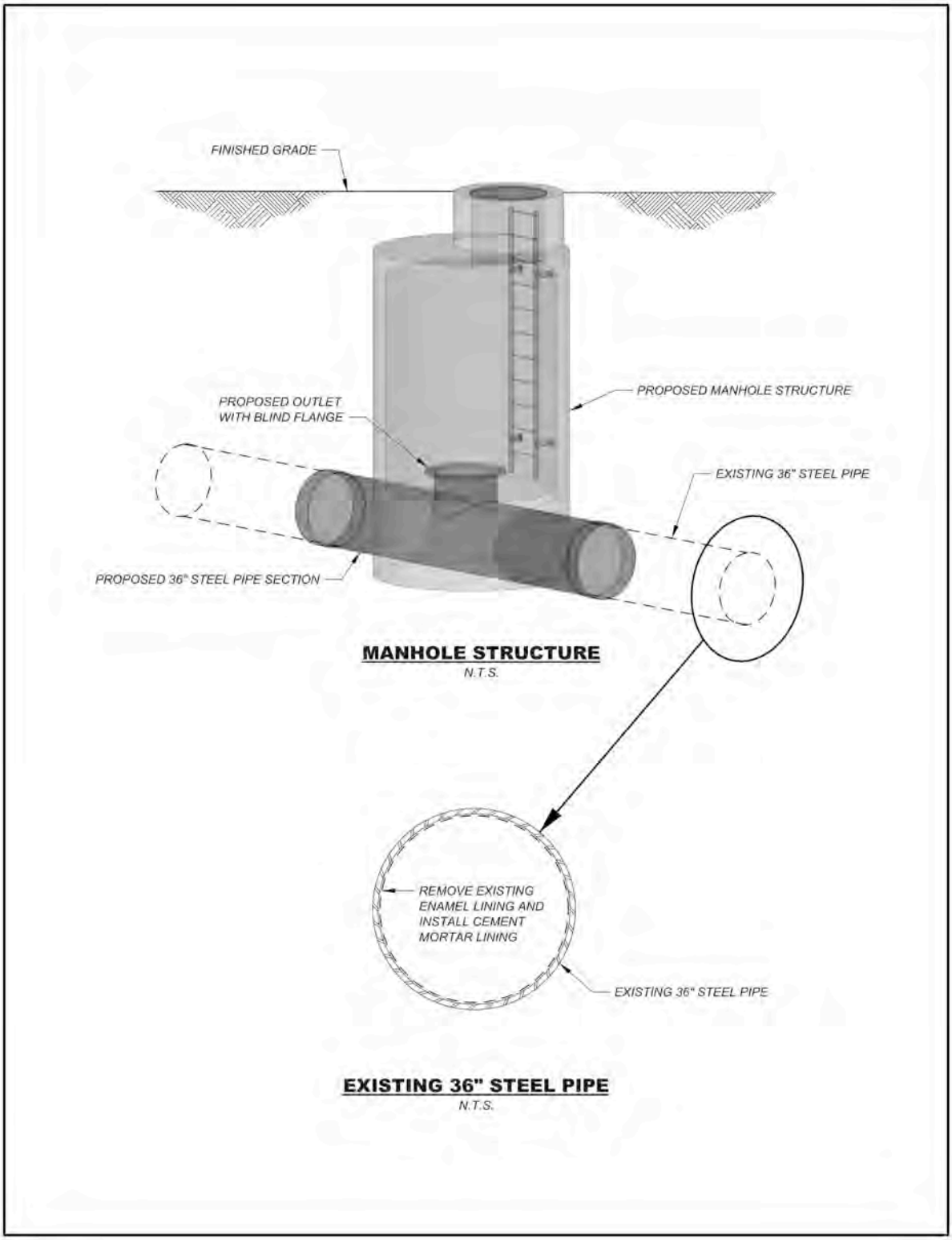

Figure 1-5
Manhole Structure
Orange County Feeder Relining Project

Table 1-1. Construction Details

Activity	Details	Materials Import, Equipment, and Estimated Hauling/Delivery Trips	Materials Export, Equipment, and Estimated Hauling/Delivery Trips
1) Isolate each reach	• Isolate each reach by using valves or bulkheads to segregate the pipeline while under construction • Deliver water to cities and agencies through other pipelines in the system	• None; only worker trips to site	• None; only worker trips to site
2) Dewater the reach under construction	• Dewater over a period of 6 to 12 hours • Discharge water into the storm drain or sewer system in compliance with National Pollutant Discharge Elimination System (NPDES) permits • Dewater entire reach prior to start of construction	• Workers travelling to the construction site • Several water pumps	• Water released to storm drain system • Worker trips away from site
3) Excavate existing or proposed manhole to access the pipeline at 1,500-foot intervals (on average)	• Install shoring system and excavate the proposed pipeline section • Implement traffic management plan	• Workers travelling to the construction site • One excavator • One loader/backhoe • One jackhammer • One small truck with crane • One sweeper	• At each pipeline section, excavated dirt would require two truck trips per day to remove spoils
4) Remove existing pipeline section or manhole for access	• Remove an 8-foot-long section of the pipeline to gain access • Remove CTE within the pipeline section and store at the staging location	• Workers travelling to the construction site • New pipeline section; two truck trips per day • One industrial saw • One small truck with crane • One dump truck	• Old pipeline section; one truck trip per section per day • Hazardous materials; one truck trip per section per day to the staging location • One truck trip for the project from the staging location to the nearest hazardous waste facility (either Nevada or Idaho)
5) Remove CTE from inner lining of the pipeline	• Remove CTE and dispose of in compliance with regulatory requirements • Transport all CTE waste and dispose of in compliance with regulatory requirements	• Workers travelling to the construction site • One vacuum truck	• Hazardous materials removal; maximum of one truck trip per day

Activity	Details	Materials Import, Equipment, and Estimated Hauling/Delivery Trips	Materials Export, Equipment, and Estimated Hauling/Delivery Trips
6) Install bonding straps to protect the pipeline cathodically from corrosion	• Install bonding straps to render pipeline electronically continuous where needed • Place two Z-bars across each pipe joint for bonding	• None; only worker trips to site • Welding equipment	• None; only worker trips from site
7) Reline pipeline with mortar	• Clean and prepare the surface • Apply mortar lining	• Workers traveling to the construction site • Two concrete trucks with pumps • Mortar lining machine	• None
8) Replace new pipeline sections and manholes	• Replace pipeline sections that were removed to gain access with shop-fabricated sections • Construct standard manholes to access the pipeline • Weld and line new sections after adjacent pipeline has been relined with the selected material • Fill the excavation with approved backfill material, per specifications	• Workers traveling to the construction site • One loader/backhoe • One small crane truck • One roller • One sweeper • One paver • One paving equipment truck • One pipe delivery truck	• Manhole construction materials; two truck trips per day
9) Refill pipe and provide chlorine disinfection	• Once the lining work is completed, open valves and/or remove bulkheads to allow water into the pipeline • Disinfect by filling the pipe with water, adding chlorine, then dechlorinating prior to disposal. The dechlorinated water would be discharged into nearby storm drains in compliance with NPDES permits	• None; only worker trips to site	• None; only worker trips away from site

Table 1-2. Construction Phasing by Reach

Reach	Reach Start	Reach End	Approximate Length	Approximate Construction Duration
1	Station 1467+30, located near John Garthe Reservoir, Santa Ana	Willits PCS, at station 1572+79, Santa Ana	2 miles	2.5 months
2	Willits PCS, at station 1572+79, Santa Ana	Station 1717+47	3.8 miles	3.5 months
	Station 1717+47 to station 1718+68	Relocated section—relining not required		
	Station 1718+68	Station 1771+13, Costa Mesa		
3	Station 1771+13 to station 1781+17	Relocated section—relining not required	2.4 miles	3 months
	Station 1781+17, Costa Mesa	Station 1805+60		
	Station 1805+60 to station 1807+55	Relocated section—relining not required		
	Station 1807+55	Station 1909+00		
4	Station 1909+00, Newport Beach	Station 1939+88	1.35 miles	2.5 months
	Station 1939+88 to station 1981+47	Relocated section—relining not required		
	Station 1981+47	Station 2018+22		
4a	Station 2050+01	Station 2053+43	.06 mile	
Source: Metropolitan 2014				

1.3.1 Reach 1

Located entirely on Bristol Street in Santa Ana, Reach 1 is approximately 2 miles long, beginning at station 1467+30 (located near John Garthe Reservoir). From this point, the pipeline travels south about 2 miles to the Willits Street Pressure Control Structure (PCS) at station 1572+79 (Figure 1-3a), the terminus of Reach 1.

Within Reach 1, Bristol Street is predominantly residential with some commercial uses. It has two traffic lanes in each direction as well as a center median. Its major intersections are at East 17th Street, Civic Center Drive West, West Santa Ana Boulevard, and West 1st Street.

The existing OCF pipeline has access manholes, a service connection, and a PCS within this reach. These existing facilities, in addition to the eight new excavation points listed below and shown in Figure 1-3a, may be used to access the pipeline.

- Station 1467+30 (bulkhead installation)
- Station 1482+30
- Station 1497+91
- Station 1510+24
- Station 1523+04
- Station 1536+00
- Station 1551+20
- Station 1565+29

1.3.2 Reach 2

Located entirely on Bristol Street, Reach 2 is approximately 3.8 miles long. It begins at the Willits Street PCS (station 1572+79) in Santa Ana and ends near Metropolitan's Red Lion pressure relief structure (PRS) at station 1771+13 (Figure 1-3b) in Costa Mesa. Reach 2 includes a previously relocated pipeline between stations 1717+47 and 1718+68. This relocated section would not require relining.

Within Reach 2, Bristol Street is predominantly residential, with some commercial uses. It has three traffic lanes in each direction as well as a center median. Its major intersections are at West McFadden Avenue, West Edinger Avenue, West Warner Avenue, West Segerstrom Avenue, West MacArthur Boulevard, Sunflower Avenue, and the San Diego Freeway (Interstate 405 [I-405]).

Metropolitan has existing facilities, including manholes, pipeline access manholes, a PCS, and a service connection, within this reach. These existing facilities, in addition to the 14 new excavation points listed below and shown in Figure 1-3b, may be used to access the pipeline.

- Station 1580+30
- Station 1595+30
- Station 1610+30
- Station 1625+30
- Station 1640+30
- Station 1655+30
- Station 1670+30
- Station 1685+30
- Station 1700+46
- Station 1709+94
- Station 1724+00
- Station 1739+00
- Station 1753+00
- Station 1762+70 (bulkhead installation)

1.3.3 Reach 3

Reach 3 is approximately 2.4 miles long. It begins near the Red Lion PRS (station 1771+13) in the city of Costa Mesa and ends at station 1909+00 near the intersection of Jamboree Road and South Bristol Street in Newport Beach.

Reach 3 includes two pipeline sections that were previously relocated. The first relocated section is approximately 1,056 feet long and runs from station 1771+13 to station 1781+17. The second relocated section is about 195 feet long and runs from station 1805+60 to station 1807+55. These relocated pipeline sections would not require relining (Figure 1-3c).

Located in a predominantly commercial area, Reach 3 includes a major intersection at Bristol Street and Baker Street. The alignment passes under the Corona del Mar Freeway (SR-73) and Costa Mesa Freeway (SR-55) interchange in Costa Mesa, then crosses under a commercial parcel and rejoins the Bristol Street alignment along the southbound side of the street. In this reach, Bristol Street has three southbound lanes. The alignment continues through major intersections at Santa Ana Avenue/Red Hill Avenue and Irvine Avenue/Campus Drive as well as through parts of unincorporated Orange County, finally ending north of Jamboree Road.

Metropolitan has existing facilities, including manholes, pipeline access manholes, pressure control structures, and service connections, within this reach. These existing facilities, in addition to the 10 new excavation points listed below and shown in Figure 1-3c, may be used to access the pipeline.

- Station 1789+20
- Station 1797+44
- Station 1814+00
- Station 1825+50
- Station 1833+36
- Station 1847+85
- Station 1862+88
- Station 1877+88
- Station 1893+96
- Station 1902+00 (bulkhead installation)

1.3.4 Reach 4

Reach 4 is approximately 1.3 miles long. It begins north of the intersection of Jamboree Road and South Bristol Street at station 1909+00 and ends at Metropolitan's Irvine Cross Feeder regulating structure at station 2018+22 in Newport Beach.

Reach 4 is in an area that is predominantly residential, with commercial uses toward the northern end of the reach. The pipeline section from approximately station 1905+85 to station 1944+45 is within the Coastal Zone. Hand application of the mortar lining is proposed for a portion of the pipeline (approximately station 1921+02 to station 1926+15) because of access restrictions/limitations (e.g., it would be difficult to maneuver the lining machine inside the pipeline under the Newport Back Bay siphon). Hand application would also minimize surface disturbances.

Two excavation sites are proposed within the Coastal Zone. Proposed station 1916+50 is within the Fletcher Jones Motorcars facility, and proposed station 1933+65 is near a park, on an existing asphalt pad along an improved public utility access road.

Major intersections in Reach 4 include South Bristol Street, Jamboree Road, University Drive, MacArthur Boulevard, and Bison Avenue.

The pipeline alignment from station 1939+88 to 1981+47 (approximately 4,943 feet) has been relocated and does not require relining. The last portion of the Reach 4 alignment begins at the end of the relocated pipe section, runs south along Mesa View Drive under Bonita Canyon Drive and Ford Road, and ends at the Irvine Cross Feeder regulating structure at station 2018+22 (Figure 1-3d).

Metropolitan has existing facilities, including manholes, pipeline access manholes, and a PCS, within this reach. These existing facilities, in addition to the six proposed excavation points listed below and shown in Figure 1-3d, may be used to access the pipeline.

- Station 1916+50
- Station 1933+65
- Station 1985+22
- Station 1992+50
- Station 2003+00
- Station 2013+13

1.3.5 Reach 4a

Located within a residential area, Reach 4a is the shortest reach within the project alignment, starting near station 2050+01 and ending at station 2053+43 in Newport Beach (Figure 1-3e). This 342-foot portion of the pipeline would be relined by hand. One new excavation point, station 2050+01, is proposed within this section. An existing manhole may be used for access at station 2053+10 (Figure 1-3e).

1.4 Construction Characteristics

Construction activities would include staging, excavating, cutting the pipeline section, removing the existing CTE liner, installing bonding bars, relining the pipeline with mortar, and installing new manholes, (see Figure 1-2). The extracted CTE may contain polychlorinated biphenyls (PCBs), asbestos, and lead, all of which are hazardous materials. The material would be tested, removed, and disposed of in accordance with all applicable regulations. The hazardous materials would be stored at a secured temporary hazardous waste storage facility within the contractor's laydown area before being transported for permanent disposal. The construction contractor and state-certified hazardous waste hauler would comply with all local, state, and federal regulations regarding the use, transport, and disposal of hazardous materials. At the end of construction activities at each reach, stored hazardous materials would be transported to the nearest facility that accepts such hazardous materials (currently, such facilities are located in Nevada and Idaho).

It is anticipated that approximately 39 new manholes would be constructed as part of this project. As new manholes are constructed, some existing manholes along the alignment may need to be abandoned. In addition, some air-release vacuum valves that are currently below ground would be raised above ground and covered by a 12- by 36-inch enclosure, subject to approval by the city in which they are located. It is anticipated that construction work at each new access point would last approximately 3 weeks and that several access points would be under construction at any given time.

Most construction activities would occur within street rights-of-way and along adjacent greenbelt areas. Should construction affect a greenbelt, landscaping would be replaced to match existing conditions and comply with applicable requirements of the appropriate jurisdiction. Resurfacing activities along any disturbed roadways would comply with the local jurisdiction's ordinances regarding construction. As is standard practice with all Metropolitan construction projects in street rights-of-way, a Dig Alert would be sent to the utility companies so they can mark their utilities on the ground prior to the start of construction.

In order to complete the repairs, water service would be temporarily suspended by installing bulkheads upstream of the work area and dewatering the pipeline. Upon completion of the work within the reach, the bulkhead would be removed, the pipeline would be refilled and disinfected before returning to it service.

Construction storage and staging areas for equipment and materials would be required along the pipeline (Figure 1-2). It is anticipated that one storage area would be required for each reach. The storage area would provide space for the contractor's trailer and worker parking as well as parking for construction equipment and waste storage. The required staging area would include an approximate 12- by 100-foot (1,200-square-foot) work area at street level, with entry and exit points above the pipeline. The excavated trench would be approximately 8 feet wide by 12 feet long and approximately 10 feet deep. Approximately 15 construction workers would be present at each access point for the duration of construction.

Table 1-3 identifies potential construction staging and construction storage areas.

Table 1-3. Potential Construction Storage Area Locations*

Reach	Approximate Pipeline Station Number	Location	Approximate Area (feet)	Current Use	General Plan Designation
1	1526+00	Northwest corner of North Bristol Street and West Civic Center Drive in the city of Santa Ana	100 x 120	Vacant undeveloped, fenced parcel	Commercial
1	1568+00	Northwest corner of South Bristol Street and West Willits Street in the city of Santa Ana	100 x 200	Vacant undeveloped, fenced parcel	Open space
2	1602+00	Northwest corner of South Bristol Street and West Wilshire Avenue in the city of Santa Ana	100 x 250	Vacant undeveloped, fenced parcel	Professional administrative office
2	1765+00	South of I-405 on the east side of Bristol Street in the city of Costa Mesa	100 x 200	Parcel within circular freeway exit	Caltrans
3	1826+50	Southeast Bristol Street, west of SR-73 and southeast of SR-55, in the city of Costa Mesa	200 x 300	Vacant, undeveloped storage area	Commercial
3	1880+00	Along Bristol Street at Jamboree Road in the city of Newport Beach.	300 x 25	Vacant right-of-way	Caltrans
4	2018+00	Metropolitan Irvine regulating structure, northwest corner of Newport Hills Drive and Port Cardiff Place in the city of Newport Beach	100 x 100	Metropolitan facility	Public facilities
* Listed from north to south					

1.6 Construction Schedule

Construction would occur over a period of approximately 8 months (September to April) for two consecutive years. The project would be divided into five reaches, with work occurring in one reach at a time. Within each reach, the pipeline would be accessed through the proposed access points shown in Figures 1-3a through 1-3e and relined section by section, with work occurring in approximately 1,500-foot intervals along the alignment (see Table 1-2 for the approximate duration of construction). Work at each proposed station would last approximately 3 weeks, with work occurring at several stations concurrently. Construction within reaches would be performed over approximately 2.5 to 3.5 months.

Construction would generally occur during daytime hours, in accordance with the local jurisdiction's ordinances. Metropolitan's standard construction hours are 7 a.m. to 6 p.m., which are stricter than all of the affected jurisdictions' weekday standards (see Table 1-4, below, for permitted construction hours by jurisdiction). However, nighttime or 24-hour construction work may be necessary to minimize traffic impacts and shorten the pipeline shutdown schedule. Metropolitan would coordinate with each jurisdiction regarding construction work hours, and a traffic plan would be submitted to each local jurisdiction for its approval.

Table 1-4. Permitted Construction Activity Hours

Jurisdiction	Weekday Hours	Saturday Hours	Sunday and Holiday Hours
City of Santa Ana	7 a.m.–8 p.m.	7 a.m.–8 p.m.	Not permitted
City of Costa Mesa	7 a.m.–7 p.m.	9 a.m.–6 p.m.	Not permitted
City of Newport Beach	7 a.m.–6:30 p.m.	8 a.m.–6 p.m.	Not permitted
Orange County	7 a.m.–8 p.m.	7 a.m.–8 p.m.	Not permitted
Source: Noise ordinances from the Cities of Santa Ana, Costa Mesa, and Newport Beach and Orange County, 2013.			

1.7 Construction Best Management Practices

The proposed project includes compliance with the applicable regulatory agencies' requirements. In addition, it would incorporate design features to avoid or minimize impacts on the environment.

The following standard best management practices (BMPs) are part of and applicable to the proposed project and would be included in the project design.

1.7.1 Dust Control Measures

The following dust control measures would be implemented to reduce the amount of particulate matter in the atmosphere from human-made fugitive dust sources. These measures are required by the South Coast Air Quality Management District (SCAQMD) under its Fugitive Dust Rule (Rule 403). Fugitive dust emissions from construction activities can be largely reduced with implementation of the standard conditions contained in Rule 403, as identified below.

- Suspend all excavating and grading operations when wind speeds (as instantaneous gusts) at the project site exceed 25 miles per hour.
- Sweep public streets when visible soil materials are carried to adjacent streets. Install wheel washers where vehicles enter paved roads and from unpaved roads.
- Minimize the area disturbed from clearing, grading, earthmoving, or excavation operations.
- Cover all trucks when hauling dirt, sand, soil, or other loose materials or maintain at least 2 feet of freeboard (vertical space between the top of the load and top of the trailer).
- Revegetate previously vegetated areas, as necessary.

1.7.2 Water Quality Measures

The following water quality control measures would be implemented to prohibit the unauthorized discharge of pollutants, including municipal, commercial, and industrial wastewater discharges, from a point source to U.S. waters.

Because this project falls within the category of "routine maintenance projects," a water pollution control plan (WPCPs) would be implemented instead of a stormwater pollution prevention plan (SWPPP) for pipeline relining activities that are located within the Metropolitan easement area or public rights-of-way. For construction staging areas outside the Metropolitan easement area or public rights-of-way (i.e., new areas), a SWPPP would be implemented to meet the requirements under General Permits for Discharges of Stormwater Associated with Construction Activity and to reduce the potential for erosion to occur. It should be noted this permit exemption will be further verified with the State Water Resources Control Board (SWRCB) during the final design phase.

The provisions of the SWPPP would include, but not be limited to, the following:

- Install silt and sediment screens at the toe of the slope and around the perimeter of any area to be graded prior to initiation of grading activities.
- Maintain and repair sediment and erosion controls, as needed.
- Cover or mulch all exposed soil areas associated with the proposed project before the onset of precipitation if rainfall is forecast during grading activities.

BMPs would be implemented to reduce the potential for project-related spills and control and minimize potential contributions of pollutants to stormwater runoff.

Erosion and sedimentation control practices would include, but not be limited to, the following:

- Install straw wattle and/or sand bags to contain sediment on-site and prevent erosion and sedimentation in creeks, tributaries, and ponds.
- Control runoff to limit increases in sediment in stormwater runoff (e.g., through use of straw bales, silt fences, or sand bags) around work areas.
- Perform equipment maintenance at staging areas, with measures in place to contain spills from diesel fuel, gasoline, other petroleum products, and CTE waste. Control measures may include use of absorbent pads, providing appropriate cleaning supplies and equipment, and signage or other features to mark hazardous materials.
- Return excavation areas to preconstruction contours. Contain sediment within excavated areas by not blowing, sweeping, or hosing debris into streets, storm drain inlets, or other conveyances.
- Repair and maintain constructed-related equipment and vehicles in designated areas (i.e., staging and storage areas).
- Wash CTE removal equipment within the pipeline.
- Dispose of contaminated waste generated from cleaning the CTE removal equipment as hazardous waste.

1.7.3 Materials and Waste Management

The construction contractor's use and storage of materials and fuel within the staging and work areas would adhere to standard BMPs to reduce the potential for spills associated with the proposed project. These BMPs would include, but not be limited to, the following:

- Store construction materials and debris originating from the project in a manner that precludes their uncontrolled entry to soils and/or water.
- Store potentially contaminating materials and wastes in covered leak-proof containers.
- Locate storage areas away from heavy traffic areas and protect from rainfall infiltration.
- Store potentially contaminating materials on a surface that prevents spills from permeating the ground surface and in an area that is secure from unauthorized entry at all times.
- Store incompatible materials separately from each other.
- Refuel equipment outside of sensitive areas (e.g., rivers, nearby schools, agricultural facilities, etc.).

Waste management measures would cover the proper handling, packaging, transporting, and disposal of all hazardous waste, including, but not limited to, aerosol spray cans, vehicle fluids, and cleaning cans, brought on-site or generated on-site through incidental use. The proposed project would include a project-specific emergency response plan for spills. The emergency response plan would be in place prior to start of construction and consider fire response, absorbents for surface leaks, the methods and schedule for the removal of fuel or other hazardous material from leaking primary containers, and preparation of a report regarding a release to the underlying soils or drainage channels.

CTE may contain hazardous substances such as PCBs, asbestos, or lead. All work would be performed within the pipeline, with appropriate engineering controls and work practices to ensure that no sealant material, dust, or residues would be released to the environment. Removal, storage, and disposal of the extracted CTE would be in compliance with all applicable rules and regulations. To minimize the risk of CTE contamination to the local environment, appropriate BMPs would be utilized, including, but not limited to, the following:

- Surface and stormwater would be diverted or otherwise controlled.
- Surface and stormwater that enters the contractor's work area would be controlled, treated, and disposed of in a lawful manner.
- The timing of site preparation and other work would consider the rainy season and make provisions for storm events during the construction period to the greatest extent possible.
- The discharge of any substance in concentrations toxic to human, animal, plant, or aquatic life would be prohibited.
- All construction sites would be graded and maintained to ensure that erosion is minimized.
- Routine maintenance and visual inspections of the BMPs would be performed to ensure proper operation. The BMPs would be corrected, as necessary, to ensure that they are effective and in compliance with the SWPPP.
- Direct discharges of waste to areas of special biological significance would not occur (e.g., coastal areas, the Newport Beach Natural Community Conservation Plan area).

CTE waste would be tested, and any hazardous material would be temporarily stored at the staging location and then transported to the nearest facility that accepts this type of waste (currently in Nevada or Idaho).

1.7.4 Light and Glare

The following light management measures would be implemented to reduce the amount of light spillover resulting from project-related construction activities. These measures would reduce lighting impacts on adjacent sensitive receptors.

- Lighting would be directed away from neighborhoods and other sensitive receptors.

1.8 Project Operation and Maintenance

When the OCF relining project is complete, operation of the pipeline will be unchanged. No new extra maintenance activities would be required as a result of this project. Although new manholes would be installed as part of this project, this would not result in new or intensified maintenance activities because these new manholes would replace existing manholes that would be decommissioned. Furthermore, access to some portions of the pipeline would be improved because manholes that are currently located in intersections or in the middle of the roadway would be relocated to the side of the road. Accordingly, future routine maintenance and inspection would result in fewer traffic disruptions.

1.9 Surrounding Land Uses

The pipeline is located primarily within the public right-of-way of existing streets or easements through commercial, residential, and park areas. Land uses adjacent to the pipeline alignment are summarized in Table 1-5, below.

The project area extends through an unincorporated area of Orange County as well as the cities of Santa Ana, Costa Mesa, and Newport Beach. Figure 1-4 shows the land use designations along the project alignment. As indicated above, the land uses identified in the local jurisdictions within the project area are largely commercial and residential but also include schools, parks, and open spaces.

Table 1-5. Surrounding Land Uses

Jurisdiction	Construction Reach	Adjacent Land Uses
City of Santa Ana	1	John Garthe Reservoir Santiago Elementary School Mendez Intermediate School Santa Ana College General residential General commercial George Washington Carver Elementary School Johnson Chapel AME Church Vacant lots
	2	Martin Luther King Jr. Elementary School Mater Dei High School Sepulveda Elementary School Coastal Communities Hospital Jefferson Elementary School General residential General commercial
City of Costa Mesa	3	General commercial General residential
Orange County	3	General commercial John Wayne Airport
City of Newport Beach	4	San Diego Creek/Upper Newport Bay Bonita Creek Park and Field Arroyo Park and Field Bonita Canyon Sports Park General residential San Miguel Park and Field
City of Newport Beach	4a	General residential

1.10 Public Agencies Whose Approval May Be Required for Subsequent Actions (e.g., permits, financing approval, or participation agreement)

- City of Santa Ana
- City of Costa Mesa
- City of Newport Beach
- Orange County
- California Coastal Commission
- California Department of Transportation
- California Department of Toxic Substances Control
- Santa Ana Regional Water Quality Control Board
- Orange County Flood Control District

SECTION 2
INITIAL STUDY

2.1 Introduction

This proposed Mitigated Negative Declaration (MND) complies with Section 15071 of the California Environmental Quality Act (CEQA) Guidelines. The initial study, environmental checklist, and evaluation of the potential environmental effects were completed in accordance with Section 15063(d)(3) of the State CEQA Guidelines to determine if the proposed project would have a significant effect on the physical environment.

A "no impact" or "less-than-significant impact" determination indicates that the proposed project would not have a significant effect on the physical environment for that specific environmental category. No environmental category was found to have a potentially significant adverse impact with implementation of the proposed project.

2.2 Draft Initial Study and Environmental Checklist Form

1.	Project Title:	Orange County Feeder Relining Project
2.	CEQA Lead Agency Name and Address:	The Metropolitan Water District of Southern California P.O. Box 54153 Los Angeles, CA 90054-0153
3.	Contact Persons and Phone Numbers:	Brenda S. Marines, (213) 217-7902 Malinda Stalvey, (213) 217-5545
4.	Project Location:	The project area extends through four jurisdictions, including the cities of Santa Ana, Costa Mesa, and Newport Beach and an unincorporated area of Orange County
5.	Project Proponent's Name and Address:	The Metropolitan Water District of Southern California P.O. Box 54153 Los Angeles, CA 90054-0153
6.	General Plan Designation:	The pipeline is located within the public rights-of-way of existing streets or along easements through commercial, residential, and park areas.
7.	Zoning:	N/A
8.	Description of the Project:	The proposed project would reline approximately 9.5 miles of the OCF. The OCF pipeline is a welded steel pipeline, approximately 36 inches in diameter. It has bell-and-spigot joints and is lined with CTE to protect the inside of the pipeline. The CTE liner is blistering or peeling away from the internal steel face of the pipeline and exposing the pipeline to corrosion. The proposed project would remove the existing CTE liner, reline the pipeline with cement mortar lining, and install bonding bars between the pipe sections to enable the installation of an effective cathodic protection system for corrosion prevention. Maintenance and replacement of worn or outdated components (i.e., aboveground air release valves, vacuum valves) would also be completed as part of this project.
9.	Surrounding Land Uses and Setting:	The pipeline is located within the public rights-of-way of existing streets, such as Bristol Avenue, or along easements through existing commercial, residential, and park areas.

10. Other Agencies Whose Approval May Be Required (e.g., permits, financing approval, or participation agreement):	• Regional Water Quality Control Board, San Diego Region, for the issuance of National Pollutant Discharge Elimination System permit • California Department of Toxic Substances Control for Permit by Rule • California Department of Transportation • Encroachment permits from the cities of Santa Ana, Costa Mesa, and Newport Beach, as well as the County of Orange

2.3 Environmental Factors Potentially Affected

The environmental factors checked below (☒) could be affected by this project, involving at least one impact that is a "potentially significant" impact, as indicated by the checklist on the following pages.

☐	Aesthetics	☒	Hazards & Hazardous Materials	☐	Public Services
☐	Agriculture Resources	☐	Hydrology/Water Quality	☐	Recreation
☐	Air Quality	☐	Land Use/Planning	☒	Transportation/Traffic
☒	Biological Resources	☐	Mineral Resources	☐	Utilities/Service Systems
☒	Cultural Resources	☒	Noise	☐	Mandatory Findings of Significance
☐	Geology/Soils	☐	Population/Housing		

2.4 Determination

On the basis of this initial evaluation,

I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared. ☐

I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared. ☒

I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required. ☐

I find that the proposed project MAY have a "potentially significant" or "potentially significant unless mitigated" impact on the environment, but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards and (2) has been addressed by mitigation measures based on the earlier analysis, as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed. ☐

I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (1) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards and (2) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required. ☐

Signature _____ Date 8/5/14

Deirdre M. West, Environmental Planning Team Manager

SECTION 3
EVALUATION OF ENVIRONMENTAL IMPACTS

	Potentially Significant	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
I. AESTHETICS				
Would the project:				
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☒	☐
d) Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

ENVIRONMENTAL SETTING

The OCF is an underground pipeline that passes through urban areas in Orange County. Generally, Orange County consists of urban and suburban views, with intermittent views of surrounding natural features (e.g., mountains and the ocean), depending on the particular location within the county. Typically, views along the pipeline are of differing land uses, primarily residential, commercial, and industrial. Some recreational and open space areas such as nature preserves (e.g., Upper Newport Bay) and parks provide higher quality views.

The visual character along the OCF alignment (Reaches 1, 2, and most of 3) consists primarily of Southern California urban streetscapes within the cities of Santa Ana and Costa Mesa and a combination of urban streetscape and open space areas within the city of Newport Beach (some of Reaches 3, 4, and 4a). The urban streetscape includes homes; a variety of low-density one- to three-story commercial buildings; public facilities, such as schools, hospitals, and libraries; roads; and sidewalks. In the city of Costa Mesa, near South Coast Plaza and Interstate 405, several high-rise office buildings are adjacent to the alignment. The urban streetscape throughout the project area is of low to moderate visual quality and not unique from other Southern California streetscapes. In addition, it is generally fragmented, given the different types of land uses that occur adjacent to the alignment. Where the alignment extends through open space and parks, the visual character is generally of high quality, such as along Upper Newport Bay and in the parks and recreational areas identified in Section XV, Recreation.

Viewers along the alignment consist of residents adjacent to the alignment, workers in the commercial and office buildings adjacent to the alignment, drivers on the roads that the alignment follows, and recreationists in the open space areas adjacent to the alignment. Typically, the viewers who are most sensitive to visual changes in the environment are residential viewers because they cannot move away from their views and outdoor recreationists because the views they typically experience are high-quality open space views. Office workers and drivers have low visual sensitivity because office workers are not located at their viewing locations permanently, and drivers' views are typically temporary as they move along a road.

There are no designated state scenic highways along or near the alignment (California Department of Transportation 2011). Additionally, the Orange County General Plan, Transportation Element, Figure IV-11, does not identify any locally designated scenic highways near the alignment (County of Orange 2011). San Joaquin Hills Road is identified as a local landscape corridor in the Scenic Highway Plan of the Transportation Element; however, this road is approximately 0.25 mile west of the termination point of the alignment (County of Orange 2011).

General plans for the cities of Santa Ana, Costa Mesa, and Newport Beach were reviewed to determine if there are designated scenic vistas near the alignment. The City of Newport Beach General Plan, Figure NR3, identifies part of Jamboree Road and a small portion of the Corona del Mar Freeway (State Route 73 [toll road]) where it crosses San Diego Creek as Coastal View Roads (City of Newport Beach 2006); however, these locations are approximately 800 and 400 feet west and east of the alignment. The general plans for Santa Ana and Costa Mesa do not identify any scenic vistas within the alignment or adjacent to the alignment.

Nighttime views along Reaches 1, 2, and most of 3 consist of urban streetscapes. In general, lights line the city streets for safety and security purposes. Some of Reaches 3, 4, and 4a extend through parks and open space. The parks that have active recreation, such as baseball or soccer fields, are lit for part of the night (typically until 10 p.m.). Passive parks or open space areas receive indirect light that spills from streetlights and surrounding land uses, such as residences, John Wayne Airport, and other typical urban land uses.

METHODOLOGY

Impacts on aesthetics are discussed in terms of the criteria identified in Appendix G of the State CEQA Guidelines.

IMPACT ANALYSIS

The project would have no long-term operational impacts because the surface above the pipeline would be restored to existing conditions upon completion of construction activities. Construction impacts are discussed below.

a) Have a substantial adverse effect on a scenic vista?

No Impact.

No scenic vistas were identified near the alignment. As described previously, the nearest scenic vistas are approximately 800 and 400 feet west and east of the alignment, along Jamboree Road and a small portion of the Corona del Mar Freeway (City of Newport Beach 2006). No scenic views would be obstructed or altered by project-related construction equipment, vehicles, or personnel. Construction activities would occur along Jamboree Road; the Corona del Mar Freeway is approximately 0.5 mile east of Jamboree Road. Construction may occur at proposed stations 1916+50 and 1933+65, which are not within road sections designated as having coastal views. Furthermore, views of the pipeline or proposed construction sites from the Corona del Mar Freeway, Jamboree Road, or San Joaquin Hills Road are generally obscured by distance and intervening vegetation. Construction activities associated with the proposed project would be minor in scope, concentrated around excavation points, and temporary. They would not have a long-term adverse effect on a scenic vista. Therefore, there would be no impact on scenic vistas.

b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

No Impact.

There are no state or locally designated scenic highways near the alignment. Furthermore, there are no rock outcroppings that are of significant visual quality within the project site. No damage to significant trees or historic building would occur.

c) Substantially degrade the existing visual character or quality of the site and its surroundings?

Less-than-Significant Impact.

The presence of construction equipment and vehicles has the potential to degrade visual character and quality. However, construction would be temporary, and once completed, the visual character and quality of the site and its surroundings would be similar to existing visual conditions.

Reaches 1, 2, and most of 3 extend through existing multi-lane urban roads in the cities of Santa Ana, Costa Mesa, and Newport Beach, respectively. The visual character in these reaches is described above as "urban streetscape." Generally, the visual character and quality of this area is considered low to moderate because of the fragmented nature of the different land uses and the non-unique value of the views in this area; however, there are some sensitive viewers (e.g., residents) along these reaches. Construction activities within each reach would take 2.5 to 3.5 months to complete. Construction would generally occur within daytime hours, in accordance with the local jurisdiction's noise ordinance and traffic requirements (see below for a discussion of possible nighttime work). Construction would take place within the street right-of-way, with some construction laydown areas immediately adjacent to the road(s). The street-level staging areas (manhole construction sites) would be approximately 1,200 square feet in area, creating a relatively small footprint. The construction site would represent a small portion of the viewshed for most viewers in the vicinity. Additionally, construction activities in urban areas are a common sight. For these reasons, the proposed project would not result in a permanent change in visual quality or character.

The storage areas would be located mostly within parking lots, existing commercial areas, and maintenance areas and therefore would not degrade any high-quality views. Unless a resident is immediately adjacent to the street, views of construction in the street would be blocked for most viewers in the surrounding homes because of interceding buildings and landscaping. For those areas where residents can see the project site, given the short-term construction schedule (i.e., 2.5 to 3.5 months for the entire reach [approximately 3 weeks at each station]), the continuous movement of the construction site between the manholes within a reach, and the fact that the work being performed would be in the middle of existing roads, construction activities would not substantially degrade the existing visual character or quality of the road(s) and urban streetscape. The impacts would be less than significant.

Part of Reach 3 and all of Reach 4 and Reach 4a extend through parks and open space and are adjacent to parkland or open space areas in the city of Newport Beach. The visual character of these reaches is described above as "parks and open space." Generally, the visual character and quality of these reaches is considered moderate to high because of the unique value of the views. However, because these parks and open spaces are located in urban areas, construction activities are a common sight. Sensitive viewers would be residents and recreationists. Construction within these reaches would be performed over approximately 2.5 to 3.5 months. Construction would generally occur within daytime hours, in accordance with the local jurisdiction's noise ordinance and traffic requirements (see below for a discussion of possible nighttime work). The presence of construction equipment, vehicles, and personnel within parks and open space would temporarily diminish the visual quality experienced by recreational users and nearby residents. However, once construction is complete, visual conditions associated with the parks and open space would be similar to the current condition. Given the short duration of construction and the small footprint of the construction site, the proposed project would not substantially degrade the existing visual character or quality of the existing parks and open space. Therefore, impacts would be less than significant.

d) Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?

Less-than-Significant Impacts.

Construction would generally occur within daytime hours, in accordance with the local jurisdiction's noise ordinance; however, nighttime construction work may be considered by Metropolitan to shorten the water shutdown time or required by the local jurisdiction to reduce traffic impacts. Nighttime or 24-hour construction work may be necessary to minimize traffic impacts and shorten the pipeline shutdown schedule. The nighttime work would require using lights within the road(s). This light would not be any different from the light produced by the streetlights along the road(s) in Reaches 1, 2, and most of 3. Within the cities of Santa Ana and Costa Mesa, land uses along Bristol Street are a mix of residential and commercial uses. Residents along Bristol Street are shielded from any potential nighttime light spill from construction work in the street by walls along their property lines. In addition, any light would be directed downward and onto the construction site, thereby reducing the potential for any

spillover impacts. In Newport Beach, the proposed manhole sites would occur in residential areas; however, any light would be directed downward and onto the construction site, thereby reducing the potential for any spillover impacts. Therefore, the temporary use of construction lights, if needed, would not create a new source of substantial light or glare when compared with existing conditions. Impacts related to light and glare would be less than significant.

The parts of Reaches 3, 4, and 4a that are located within active parks experience direct light for part of the night from baseball and soccer fields. The parts of Reaches 3 and 4 that are in open space or passive parks experience indirect light from the spill effect of surrounding urban land uses. Furthermore, views in these areas at night are typically dark and cannot be experienced by sensitive viewers such as residents or recreationists. Construction-related lights would be directed downward and onto the construction site, thereby reducing the potential for any spillover impacts. Therefore, the temporary use of construction lights, if needed, would not create a new source of substantial light or glare. Impacts would be less than significant.

	Potentially Significant	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
II. AGRICULTURAL RESOURCES				
In determining whether impacts on agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland.				
Would the project:				
a) Convert prime farmland, unique farmland, or farmland of statewide importance, as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use or a Williamson Act contract?	☐	☐	☐	☒
c) Involve other changes in the existing environment, which, because of their location or nature, could result in the conversion of farmland to non-agricultural use?	☐	☐	☐	☒

ENVIRONMENTAL SETTING

The proposed project would be located in an urban environment, consisting primarily of residential and commercial land uses. According to the California Department of Conservation's (CDC's) Farmland Mapping and Monitoring Program (FMMP), none of the land uses adjacent to the proposed project involve Prime Farmland, Farmland of Statewide Importance, Unique Farmland, or Important Grazing Land. The only agricultural resource within the vicinity of the project area is a collection of agricultural fields, which are considered to be Farmland of Statewide Importance by the FMMP (California Department of Conservation, Division of Land Resources Protection 2009). The fields are located approximately 1.2 miles east of manhole 1736+54, near Bristol and Sunflower Avenues in the city of Santa Ana.

METHODOLOGY

For the purposes of this CEQA analysis, a potentially significant impact on agricultural resources would occur if construction or operation of the proposed project would conflict with existing agricultural operations or result in the conversion of farmland to non-agricultural uses. The Orange County Important Farmland Map on the CDC FMMP website was reviewed to determine if farmland resources are present and whether the proposed project would result in impacts on agricultural resources or otherwise conflict with nearby farmland resources.

IMPACT ANALYSIS

The project would have no operational impacts. Construction impacts are discussed below.

a) Convert prime farmland, unique farmland, or farmland of statewide importance, 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.

As described above, no agricultural resources have been designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance within the immediate project vicinity, as shown on the most recent available FMMP mapping for Orange County. The proposed project would not result in changes to or conflicts with existing land uses surrounding the OCF pipeline; therefore, there is no possibility of agricultural uses being converted to a non-agricultural use. No impacts would occur.

b) Conflict with existing zoning for agricultural use or a Williamson Act contract?

No Impact.

Neither the OCF alignment nor any nearby land use is under a Williamson Act contract. There are no agricultural resources within the vicinity of the project alignment, as shown on the most recent FMMP mapping for Orange County. In addition, no parcels adjacent to the project alignment are zoned for agricultural use. No impacts related to existing agricultural zoning or a Williamson Act contract would occur.

c) Involve other changes in the existing environment, which, because of their location or nature, could result in the conversion of farmland to non-agricultural use?

No Impact.

The proposed project would be located in an urban environment. Although new manholes would need to be constructed, this would occur along the existing OCF pipeline. Upon completion of construction, the OCF pipeline would continue to function as a water conveyance system. There are no agricultural uses within the vicinity of the project site, and no conversion of farmland to non-agricultural use would occur. Therefore, no impacts would occur.

	Potentially Significant	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
III. AIR QUALITY				
Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☒
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☒	☐
c) 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 (including releasing emissions that exceed quantitative thresholds for ozone precursors)?	☐	☐	☒	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐

ENVIRONMENTAL SETTING

Climate and Meteorology

The project is located within the South Coast Air Basin (Basin), which is a coastal plain with connecting broad valleys and low hills. The Basin lies in the presence of the semi-permanent high-pressure zone of the eastern Pacific. As a result, the climate is mild, 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. The extent and severity of the air pollution problem in the Basin is a function of the area's natural physical characteristics (weather and topography) as well as human-made influences (development patterns). Factors such as wind, sunlight, temperature, humidity, rainfall, and topography all affect the accumulation and dispersion of pollutants throughout the Basin, making it an area of high pollution potential.

The greatest air pollution impacts in the Basin occur from June through September and are generally attributed to the large amount of pollutant emissions, light winds, and shallow vertical atmospheric mixing. This condition frequently reduces pollutant dispersion, thus causing elevated air pollution levels. Pollutant concentrations in the Basin vary with location, season, and time of day. Ozone concentrations, for example, tend to be lower along the coast, higher in the near inland valleys, and lower in the far inland areas of the Basin and adjacent desert.

Overview of Pollutants

The federal and state governments have established National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS), respectively, for six criteria pollutants: ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), lead, and particulate matter (PM), which consists of

PM less than or equal to 10 microns (PM10) in diameter and PM less than or equal to 2.5 microns in diameter (PM2.5). Ozone and NO_2 are considered to be regional pollutants because these pollutants affect air quality on a regional scale. Pollutants such as CO, SO_2, and lead are considered to be local pollutants. PM is considered both a regional and a local pollutant.

The pollutants of concern in Orange County are ozone, CO, and PM. The following discussion describes these criteria pollutants. Toxic air contaminants (TACs) are also discussed, although there are no established federal or state standards for these pollutants.

Ozone is a nearly colorless, odorless gas that irritates the lungs and damages materials and vegetation. Ozone is not emitted directly into the air but formed by a photochemical reaction in the atmosphere. Ozone precursors, which include reactive organic gases (ROG) and nitrogen oxides (NO_X), react in the atmosphere in the presence of sunlight to form ozone. Because photochemical reaction rates depend on the intensity of ultraviolet light and air temperature, ozone is primarily a summer air pollution problem. ROG and NO_X are emitted by mobile sources and stationary combustion equipment.

Carbon monoxide is a highly toxic, odorless, colorless gas that binds to hemoglobin in the bloodstream in the place of oxygen molecules. Motor vehicles are the dominant source of CO emissions in most areas. High CO levels develop primarily during winter when periods of light winds combine with the formation of ground-level temperature inversions (typically from the evening through early morning). These conditions result in reduced dispersion of vehicle emissions. Motor vehicles also exhibit increased CO emission rates at low air temperatures.

Particulate matter refers to finely divided solids or liquids such as soot, dust, aerosols, and mists. Suspended particulates aggravate chronic heart and lung disease problems, produce respiratory problems, and often transport toxic elements. Suspended particulates also absorb sunlight, producing haze and reducing visibility. PM is caused primarily by dust from grading and excavation activities, agricultural uses, and motor vehicles, particularly diesel-powered vehicles. PM10 causes a greater health risk than larger particles because these fine particles can more easily penetrate the defenses of the human respiratory system.

Similar to PM10, PM2.5 is generated primarily by combustion in motor vehicles, particularly diesel engines, as well as industrial sources and residential/agricultural activities such as burning. It is also formed through the reaction of other pollutants. Similar to PM10, these particulates can increase the chance of respiratory disease and cause lung damage and cancer.

Toxic air contaminants are pollutants (i.e., particulate emissions from diesel-fueled engines, benzene, perchloroethylene, and methylene chloride) that may result in an increase in mortality or serious illness or pose a present or potential hazard to human health. Health effects of TACs include cancer, birth defects, neurological damage, damage to the body's natural defense system, and diseases that lead to death. TACs effects tend to be local rather than regional. The majority of the estimated health risks from TACs can be attributed to a relatively few compounds, the most important being PM from diesel-fueled engines (i.e., diesel PM [DPM]).

Local Air Quality

The existing air quality conditions in the project area are a result of monitoring data collected in Orange County. The results are used to designate areas as nonattainment, maintenance, attainment, or unclassified areas for the NAAQS and CAAQS. The four designations are further defined as follows:

- Nonattainment: Assigned to areas where monitored pollutant concentrations consistently violate the standard in question.
- Maintenance: Assigned to areas where monitored pollutant concentrations exceeded the standard in question in the past but are no longer in violation of that standard.
- Attainment: Assigned to areas where pollutant concentrations meet the standard in question over a designated period of time.
- Unclassified: Assigned to areas where data are insufficient to determine whether a pollutant is violating the standard in question.

Table III-1 summarizes the attainment status of Orange County with regard to the NAAQS and CAAQS. The Orange County portion of the Basin fails to meet national or state standards for ozone, PM10, and PM2.5; therefore, it is considered a nonattainment area for these pollutants.

Table III-1. Attainment Status for the Orange County Portion of the Basin

Pollutants	National Ambient Air Quality Standards (Federal Classification)	California Ambient Air Quality Standards (State Classification)
1-hour Ozone	None	Nonattainment
8-hour Ozone	Nonattainment, Extreme	Nonattainment
PM10	Attainment	Nonattainment
PM2.5	Nonattainment	Nonattainment
CO	Attainment/Maintenance	Attainment
NO_2	Attainment/Maintenance	Attainment
SO_2	Attainment	Attainment
Sources: U.S. Environmental Protection Agency 2013; California Air Resources Board 2013.		

Local Health Risk

The SCAQMD has completed an ambient air monitoring and evaluation study in the Basin (i.e., Multiple Air Toxics Exposure Study III [MATES III]). MATES III was a follow-up to previous air toxics studies in the Basin and part of the SCAQMD Governing Board's Environmental Justice Initiative. The MATES III study concluded that the average carcinogenic risk throughout the Basin, which was attributed to TACs, is approximately 1,200 in one million. Mobile sources (e.g., cars, trucks, trains, ships, aircraft, etc.) are the greatest contributors. About 83.6% of all risk is attributed to DPM emissions. According to MATES III, the project area is within a cancer risk zone of approximately 357 to 945 in one million, depending on proximity to major highway facilities (SCAQMD 2008a).

Sensitive Receptors

SCAQMD defines a sensitive receptor as "a person in the population who is particularly susceptible to health effects due to exposure to an air contaminant." Land uses (sensitive sites) where sensitive receptors are typically located are residences, schools, playgrounds, childcare centers, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes (SCAQMD 2005).

For the project, construction-related air emissions would be generated mainly from construction activities at the pipeline access sites. Such activities would occur at identified access locations along the project alignment, as shown in Figure 1-4. As shown in Figure 1-4, land uses around the access sites and storage areas include single- and multi-family residential units, health care facilities, schools, parks, and open space. Some sensitive land uses directly adjacent to the pipeline alignment are summarized in Table 1-5.

METHODOLOGY

Thresholds of Significance

According to criteria set forth in SCAQMD's *Air Quality Significance Threshold* (2011), *Localized Significance Threshold Methodology* (2008b), and *Particulate Matter (PM) 2.5 Significance Thresholds and Calculation Methodology* (2006) guidance documents, the project would have a significant impact due to construction emissions if any of the following were to occur:

- Regional emissions from both direct and indirect sources exceed any of the following SCAQMD-prescribed threshold levels during construction: 75 pounds a day (lbs/day) for ROG, 100 lbs/day for NO_X, 550 lbs/day for CO, 150 lbs/day for PM10, 150 lbs/day for SO_X, and 55 lbs/day for PM2.5.

- Localized emissions from on-site construction equipment and site disturbance activity exceed any of the following SCAQMD Localized Significance Thresholds (LSTs): 81 lbs/day for NO_X, 485 lbs/day for CO, 4 lbs/day for PM10, and 3 lbs/day for PM2.5.[1]

Construction-Generated Emissions

As noted in the project description, construction activities are anticipated to occur over two winter seasons (mid-September to mid-April). The project is divided into five reaches. Within each reach, the pipeline would be accessed through proposed access points, as shown in Figures 1-3a through 1-3e, and relined section by section, at approximately 1,500-foot intervals along the pipeline alignment. Therefore, construction activities are expected to occur at the pipeline access sites. Once the construction work (i.e., CTE removal, pipe joint bonding bar welding, and mortar lining installation) for a pipeline section is completed, the access site would be covered with a new manhole and construction would move to the next access site for the following pipeline section. It is anticipated that construction work at each access site would take approximately 3 weeks and include access site excavation and pipeline work as well as access site recovery work. Table 1-1 details the construction activities, equipment, and anticipated truck trips associated with project construction. For the purposes of quantifying daily and annual construction emissions, the construction equipment, hours of operation, on-road vehicle trips, and durations associated with activities at each access site were developed for the following key construction activities: pipeline dewatering, access point trench excavation, access point pipeline removal, CTE removal, bonding bar welding and mortar lining installation, access point pipeline installation, manhole installation at access points, and access point backfill.

A detailed construction schedule requires information regarding contractor methods and site conditions, which have not yet been determined. Therefore, for the purpose of this impact analysis, it is assumed that CTE removal could occur together with pipeline relining along the upstream section and access point recovery/excavation along the upstream/downstream locations within the same reach.

Appendix B includes construction data for key construction activities as well as the construction sequence used to quantify maximum daily emissions.

Construction emissions (i.e., vehicle tailpipe emissions, fugitive dust, and greenhouse gas [GHG] emissions) for each activity were calculated using SCAQMD's California Emissions Estimator Model (CalEEMod), version 2013.2.2. CalEEMod uses emission factors from the U.S. Environmental Protection Agency (EPA) AP-42 and California Air Resources Board (CARB) vehicle emission models as well as studies commissioned by California agencies. Each construction activity would result in combustion exhaust emissions from on-site construction equipment and construction workers' commutes. The excavation would include fugitive dust emissions associated with ground disturbance. Emissions associated with heavy-duty diesel construction equipment are based on CalEEMod defaults for horsepower ratings and updated load factors from the Carl Moyer Program[2] (CARB 2011). Emissions associated with on-road delivery and haul trucks assume that all trucks are heavy-heavy-duty diesel trucks that travel the CalEEMod default trip length of 20 miles per round trip. Fugitive PM10 and PM2.5 emissions estimates take into account compliance with SCAQMD Rule 403, which requires implementing the best available fugitive dust control measures during active operations that would be capable of generating fugitive dust emissions from on-site earthmoving activities, construction/demolition activities, and construction equipment travel on paved and unpaved roads.

Table III-2 summarizes the estimated daily regional emissions for each activity as well as the maximum daily construction emissions based on the construction sequences developed for the impact analysis. Emissions calculation worksheets and air quality modeling outputs are provided in Appendix B.

[1] Derived from SCAQMD Localized Significance Threshold tables (for construction), Source Receptor Area 17 (Central Orange County), 1-acre site disturbance area, 25-meter receptor distance from the pipeline alignment to the sensitive receptors. A small portion of the project area (Newport Beach) falls in the Source Receptor Area 20 (Central Orange County Coastal); significant thresholds for the area are higher than the thresholds for Area 17; therefore, for the purpose of the analysis, the more conservative thresholds for Area 17 are used for the entire project area.

[2] The Carl Moyer Program achieves reductions in emissions of key pollutants necessary for California to meet its clean air commitments under regulatory requirements.

Table III-2. Estimated Regional Construction Emissions

Construction Activity	Regional Construction Emissions (pounds/day)					
	ROG	NO_X	CO	SO_X	PM10	PM2.5
Pipeline Dewatering	1.96	13.13	10.19	0.02	1.23	1.06
Access Point Trench Excavation	0.98	9.51	7.97	0.01	0.93	0.59
Access Point Pipeline Removal	0.94	8.65	6.83	0.01	0.75	0.51
CTE Removal	1.18	8.10	6.76	0.01	0.82	0.63
Pipe Joint Bonding Bar Welding and Mortar Lining Installation	2.72	18.20	14.42	0.02	1.45	1.11
Access Point Pipeline Installation	0.77	7.48	6.01	0.01	0.66	0.42
Manhole Installation at Access Point	0.42	4.34	4.09	0.01	0.46	0.23
Access Point Backfill	1.09	9.89	7.72	0.01	1.02	0.67
Maximum Daily Construction Emissions	5.98	45.70	36.87	0.06	4.21	3.00
SCAQMD Regional Significance Threshold	75	100	550	150	150	55
Exceed Significant Threshold?	**No**	**No**	**No**	**No**	**No**	**No**

Notes:
Maximum daily emissions are assumed to occur with the overlap of access point trench excavation, CTE removal, bonding bar welding and mortar lining installation, and access point backfill.
Totals may not add due to rounding.

Table III-3 summarizes the estimated daily on-site emissions for each activity and the maximum daily on-site emissions based on the construction sequences developed for the impact analysis.

Table III-3. Estimated Localized Construction Emissions

Construction Activity	Localized Construction Emissions (pounds/day)					
	ROG	NO_X	CO	SO_X	PM10	PM2.5
Pipeline Dewatering	1.87	13.01	8.93	0.01	1.00	1.00
Access Point Trench Excavation	0.80	8.59	5.55	0.01	0.54	0.48
Access Point Pipeline Removal	0.75	7.05	4.53	0.01	0.43	0.41
CTE Removal	1.04	7.24	4.89	0.01	0.54	0.54
Pipe Joint Bonding Bar Welding and Mortar Lining Installation	2.54	17.28	12.00	0.02	1.06	1.00
Access Point Pipeline Installation	0.59	5.88	3.70	0.01	0.34	0.32
Manhole Installation at Access Point	0.24	2.75	1.79	0.00	0.14	0.13
Access Point Backfill	0.86	8.23	4.78	0.00	0.58	0.54
Maximum Daily Construction Emissions	5.24	41.34	27.31	0.04	2.73	2.56
SCAQMD Localized Significance Threshold	None	81	485	None	4	3
Exceed Significant Threshold?	**-**	**No**	**No**	**-**	**No**	**No**

Notes:
Maximum daily emissions are assumed to occur with the overlap of access point trench excavation, CTE removal, bonding bar welding and mortar lining installation, and access point backfill.
Totals may not add due to rounding.

IMPACT ANALYSIS

The project would have no operational impacts. Construction impacts are discussed below.

a) Conflict with or obstruct implementation of the applicable air quality plan?

No Impact.

The project would involve relining an existing pipeline, without any capacity enhancements. This would not directly support or induce a new population and/or employment growth or development. The project would not conflict with the policies and requirements in the Orange County General Plan or SCAQMD air quality management plans. Although the project would generate emissions during project construction, these emissions would be short term and would cease after project completion. The project would not conflict with or obstruct implementation of the applicable air quality plan.

b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Less-than-Significant Impact.

Construction of the proposed project has the potential to create air quality impacts through the use of heavy-duty construction equipment, construction workers' vehicle trips, material deliveries, and trips by heavy-duty haul trucks. In addition, excavation activities would result in fugitive dust emissions. 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. The assessment of construction air quality impacts considers each of these potential sources.

Table III-2 and Table III-3 summarize the estimated regional and local daily emissions for each activity and the maximum daily construction emissions based on the construction sequences developed for the impact analysis. Maximum daily emissions are assumed to occur with the overlap of access point trench excavation, CTE removal, bonding bar welding and mortar lining installation, and access point backfill. Fugitive PM10 and PM2.5 emissions estimates take into account compliance with SCAQMD Rule 403. As shown in Table III-2 and Table III-3, maximum daily criteria pollutant emissions would not exceed SCAQMD regional construction-period thresholds for any pollutant. Consequently, the impact of construction-related emissions from the project is considered less than significant.

c) 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 (including releasing emissions that exceed quantitative thresholds for ozone precursors)?

Less-than-Significant Impact.

The Basin is currently in nonattainment status for ozone and PM2.5 under the NAAQS as well as for ozone, PM10, and PM2.5 under the CAAQS. This is the result of past and present projects and will be further impeded by reasonably foreseeable future projects. SCAQMD has developed air quality significance thresholds to ensure attainment of the NAAQS and CAAQS; therefore, exceedance of SCAQMD threshold levels is considered a significant cumulative impact. As discussed under Item III (b) and shown in Table III-2, criteria pollutant emissions would not exceed SCAQMD regional thresholds during construction of the proposed project. Therefore, the project would not result in a cumulatively considerable net increase in criteria pollutant emissions. The cumulative impact is less than significant.

d) Expose sensitive receptors to substantial pollutant concentrations?

Less-than-Significant Impact.

Project construction would emit localized pollutants through on-site use of heavy-duty construction equipment. Fugitive dust from ground-disturbing activities could also be emitted. These localized emissions could expose nearby sensitive receptors to substantial pollutant concentrations.

SCAQMD has developed a set of localized mass emission thresholds that can be used to evaluate localized impacts that may result from construction- and operations-period emissions. According to SCAQMD, only those emissions that occur on-site are to be considered in the localized emissions analysis. Consistent with SCAQMD's *Localized Significance Threshold Methodology*, emissions related to haul trucks and employee commuting during construction are not considered in the evaluation of localized impacts. As shown in Table III-3, maximum daily on-site emissions during construction would not exceed the appropriate LSTs for the project area. Therefore, project construction would not create substantial pollutant concentrations.

With respect to TACs, the closest sensitive land uses are the residential areas surrounding the project site. Construction would occur over a period of approximately 8 months and two winter seasons, which is substantially shorter than the assumed 70-year exposure period used to estimate lifetime cancer risks. Further, SCAQMD does not consider diesel-related cancer risks from construction equipment to be an issue because of the short-term nature of construction activities. Construction activities associated with the project would be sporadic, transitory, and short term in nature. As such, construction of the project alone is not anticipated to result in an elevated health risk to exposed persons because of the short-term nature of construction-related diesel exposure. The impact would be less than significant.

e) Create objectionable odors affecting a substantial number of people?

Less-than-Significant Impact.

According to the SCAQMD *CEQA Air Quality Handbook* (1993), land uses associated with odor complaints typically include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting areas, refineries, landfills, dairies, and fiberglass molding facilities. The project does not include any uses identified by SCAQMD as being associated with odors. Odors resulting from construction of the project are not likely to affect a substantial number of people because construction activities would be short term at any work site along the project alignment. Potential odor emitters during construction activities include asphalt paving. SCAQMD Rule 402 prohibits the discharge of pollutants that can cause a nuisance to nearby receptors, while Rule 1108 limits the amount of ROG emissions from cutback asphalt. Given mandatory compliance with SCAQMD rules for all projects, no construction activities or materials are proposed that would create a significant level of objectionable odors. Odor impacts during short-term construction would be less than significant.

	Potentially Significant	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
IV. BIOLOGICAL RESOURCES				
Would the project:				
a) 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 Wildlife or the U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service?	☐	☐	☐	☒
c) 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?	☐	☐	☐	☒
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species, or with established native resident migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☒	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒
f) Conflict with the provisions of an adopted habitat conservation plan, natural conservation community plan, other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

ENVIRONMENTAL SETTING

The OCF project runs through areas within the cities of Santa Ana, Costa Mesa, and Newport Beach and in a small unincorporated county area (1,178 linear feet). Additionally, portions of the easement are within the California Coastal Commission (CCC) Coastal Zone and the boundary of the Natural Communities Conservation Plan (NCCP). A major portion of the pipeline runs along Bristol Street in the cities of Santa Ana and Costa Mesa as well as unincorporated Orange County. The manholes that provide access to the pipeline are within street rights-of-way, intersections, Metropolitan easements, city pedestrian pathways, and unimproved utility access roads.

Vegetation

Four major land use/vegetation classifications span the OCF project area (i.e., urban/residential, arroyo willow thickets, California sagebrush – California buckwheat scrub, and cattail marsh).

Urban/Residential

This vegetation classification/habitat type dominates the majority of the project area. Most species within this area can be characterized as ornamental or landscape species, such as landscape pines (*Pinus canariensis, P. sylvestris*), various ornamental iceplants (*Malephora crocia, Mesembryanthemum crystallinum, M. nodiflorum*), pepper trees (*Schinus molle, S. terebinthifolius*), jacaranda (*Jacaranda mimosifolia*), English ivy (*Hedera helix*), rosemary (*Rosmarinus officinalis*), magnolia (*Magnolia grandiflora*), edible fig (*Ficus carica*), mulberry (*Morus alba*), eucalyptus (*Eucalyptus camaldulensis, E. globulus*), European olive (*Olea europaea*), tree-of-heaven (*Ailanthus altissima*), and ornamental palms (*Phoenix dactylifera, Washingtonia filifera, W. robusta*).

Vacant lots are scattered throughout the urban/residential portion of the project area. These sites are dominated by nonnative grasses (*Bromus diandrus, B. madritensis, Hordeum marinum),* along with escaped ornamental annuals and perennials, ruderal annuals (*Sonchus oleracus, S. asper, Picris echiodes, Centuare melitensis, Lactuca serriola*), and nonnative shrubs (*Nicotiana glauca, Salsola tragus*).

Four open space parks occur within the Reach IV project area (i.e., Arroyo Park, Bonita Canyon Park, San Miguel Park, and Big Canyon Reservoir). With the exception of a portion of Arroyo Park, which is dominated by arroyo willow thickets (see below), these areas contain vegetation similar to that described above in that they are characterized by nonnative ruderal grasses as well as ornamental or landscape plantings.

Arroyo Willow Thickets (*Salix lasiolepis* Shrubland Alliance)

This vegetation classification/habitat type occurs where the pipeline easement crosses San Diego Creek and parallels Bonita Creek south. Dominant species include willow species (*Salix goodingii, S. laevagata, S. lasiolepis*), mule fat (*Baccharis salicifolia*), Fremont's cottonwood (*Populus fremontii*), blue elderberry (*Sambucus nigra* ssp. *caerulea*), and California sycamore (*Platanus racemosa*). A herbaceous understory consists of Hooker's evening primrose (*Oenothera elata* ssp. *hirsutissima*), miner's lettuce (*Claytonia parviflora*), sweetclover (*Melilotus alba, M. indica*), alkali mallow (*Malvella leprosa*), poison hemlock (*Conium maculatum*), and mugwort (*Artemisia douglasiana*).

California Sagebrush – California Buckwheat Scrub (*Artemisia californica – Eriogonum fasciculatum* Shrubland Alliance)

This vegetation classification/habitat type (primarily Diegan coastal sage scrub) occurs along the borders of San Diego Creek and Bonita Creek. Originally constructed as mitigation associated with construction and maintenance of SR 73, these areas are generally characterized by California buckwheat (*Eriogonum fasiculatum*), California sagebrush (*Artemisia californica*), and black sage (*Salvia mellifera*).

Additional small patches of coastal sage scrub occur intermittently as a transitional buffer, consisting of native upland species, ruderal species, and ornamental or landscape plantings along portions of the pipeline easement. These ecotonal areas include coyote brush (*Baccharis piluaris*), garland chrysanthemum (*Chrysanthemum coronarium*), encelia (*Encelia californica*), Kellogg's tarplant (*Hemizonia kelloggii*), telegraph weed (*Heterotheca grandiflora*), big saltbush (*Atriplex lentiformis*), bullthistle (*Cirsium vulgare*), mustards (*Brassica rapa*, *Hirshfeldia incana*), fennel (*Foeniculum vulgare*), western ragweed (*Ambrosia philostachya*), common horseweed (*Conyza canadensis*), castor bean (*Ricinus communis*), star thistle (*Centuaria melitensis*), and sow thistles (*Sonchus asper*, *S. oleraceus*).

Cattail Marshes (*Typha* [*angustifolia, domingensis, latifolia*] Herbaceous Alliance)

This vegetation classification/habitat type occurs around the periphery of San Diego Creek and in a detention basin for SR-73. Species present include broad leaved cattail (*Typha latifolia*), tall flatsedge (*Cyperus eragrostis*), California bulrush (*Scirpus californicus*), English plantain (*Plantago lanceolata*), Mexican sprangletop (*Leptochloa uninerva*), Bermuda grass (*Cynodon dactylon*), saltgrass (*Distichlis spicata*), alkali mallow (*Malvella leprosa*), curly dock (*Rumex crispus*), saltmarsh fleabane (*Pluchea odorata*), tamarisk (*Tamarix ramosissima*), and giant reed (*Arundo donax*).

METHODOLOGY

Existing information regarding the site was reviewed, including the California Natural Diversity Database (CNDDB) (California Department of Fish and Wildlife [CDFW] 2014) and California Native Plant Society (CNPS) databases (2014) for the project quadrangles (i.e., Anaheim, Laguna Beach, Newport Beach, and Tustin) (U.S. Geological Survey [USGS] 1965a–d). In addition, Google Earth aerial imagery, dated April 16, 2013 (Google Earth 2014), and soil survey maps (U.S. Department of Agriculture 2006) for the project area and vicinity were reviewed prior to conducting field investigations to determine the species, natural communities, and habitat types that could be present in or adjacent to the project area. In addition, a biological constraints report prepared by ICF in 2010 (ICF 2010) and the biological reconnaissance letter report (ICF 2014) for the project were reviewed.

Plant communities were classified according to *A Manual of California Vegetation* (Sawyer, Keeler-Wolf, and Evens 2009). Taxonomic nomenclature for plants follows *The Jepson Manual, Higher Plants of California* (Baldwin et al. 2012).

A qualified biologist conducted a habitat-based reconnaissance-level survey of the project area from May 17 to May 20, 2011. On March 3, 2014, a qualified biologist visited the natural areas in the southern portion of the project area to determine if conditions were consistent with the 2011 findings. During the 2011 field survey, the project area and a 250-foot buffer area were reviewed for special-status plant and wildlife species as well as potentially suitable habitat for special-status plant and wildlife species. Searches were conducted on foot where access permitted. In areas where access was restricted, binoculars and/or a spotting scope was used to evaluate the habitat, which was confirmed with aerial imagery available on Google Earth. During the 2014 field survey, all areas with potential excavation points within natural areas were visited, and aerial imagery (Google Earth 2014 [imagery date April 16, 2013]) was reviewed to confirm that conditions were consistent with previous findings.

IMPACT ANALYSIS

The project would have less-than-significant operational impacts. Construction impacts are discussed below.

a) *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 Wildlife or U.S. Fish and Wildlife Service?*

Less than Significant with Mitigation Incorporated.

The results of the CNDDB and CNPS database search and the review of Google Earth imagery, previous work done in support of the project, and the field surveys conducted in May 2011 and March 2014 indicate that two special-status plant species and nine special-status wildlife species have moderate to high potential to occur in habitats on or adjacent to the OCF alignment. These include the following: Coulter's saltbush (*Atriplex coulteri*), southern tarplant (*Centromadia parryi* ssp. *australis*), Santa Ana sucker (*Catostomus santaanae*), tidewater goby (*Eucyclogobius newberryi*), Belding's orange-throated whiptail (*Aspidoscelis hyperythra*), western pond turtle (*Emys marmorata*), California least tern (*Sternula antillarum browni*), California gnatcatcher (*Polioptila californica californica*), least Bell's vireo (*Vireo bellii pusillus*), white-tailed kite (*Elanus caeruleus*), and yellow-breasted chat (*Ictera virens*).

The majority of the OCF easement lies within an urban environment that is bordered by businesses, residences, utilities, roads, and highways. Most areas outside the built environment are non-vegetated or ruderal in nature. Of the five reaches associated with the project, only Reach 4 contains suitable habitat for special-status species because it crosses San Diego Creek and runs adjacent to Bonita Creek. This area supports a variety of natural habitats, including aquatic, coastal sage scrub, and riparian. In addition, the majority of the natural areas mapped within the vicinity of the OCF are associated with the Bonita Creek portion of Reach 4 that has already been relined. All project reaches have the potential to support nesting birds protected by the Migratory Bird Treaty Act. Mitigation measure BIO-1 was prepared to avoid potential impacts on non-sensitive nesting birds and raptor species.

In areas where the pipeline would be relined, the majority of the work would be accomplished by accessing the pipeline through existing manholes (stations), which occur outside of undeveloped natural areas and within previously disturbed areas associated with maintenance of the easement, paved areas, and utility access roads. No

construction activities, including staging and excavation, would occur outside of previously disturbed areas, and no vegetation occurring in an undeveloped natural area would need to be trimmed or removed as part of the project. However, some stations are immediately adjacent to natural areas. These include stations 1916+50 and 1933+65. Station 1916+50 is located north of San Diego Creek, within paved areas inside the Fletcher Jones Motorcars facility, which is adjacent to a small area of coastal sage scrub and riparian habitat. Station 1933+65 is located south of San Diego Creek on a paved public utility access road and is adjacent to riparian habitat associated with Bonita Creek.

Because no work would occur within San Diego and Bonita Creeks, their aquatic habitats, or other natural areas and no work would require vegetation removal or trimming, no impacts on Coulter's saltbush, southern tarplant, Santa Ana sucker, or tidewater goby are expected to occur. In addition, because no work or vegetation removal and/or trimming would occur within or immediately adjacent to coastal sage scrub habitat capable of supporting Belding's orange-throated whiptail, no impacts on this species are expected to occur. California least tern has the potential to forage within San Diego Creek; however, no work would occur adjacent to the creek or Upper Newport Bay. No impacts on California least tern are expected to occur.

Work is scheduled to occur from September to April, which is outside of the majority of the nesting bird season (nesting season is February 15 to August 31). Raptor species including, but not limited to, red-tailed hawk (*Buteo jamaicensis*), red-shouldered hawk (*Buteo lineatus*), and white-tailed kite (*Elanus caeruleus)* may begin nesting activities as early as February 15. If work occurs between February 15 and August 31 in areas within 300 to 500 feet of natural areas that are capable of supporting raptor nesting, (e.g., at stations 1916+50 and 1933+65), impacts on these species may occur. Additionally, stations 1916+50 and 1933+65 are adjacent to coastal sage scrub and riparian habitats that are capable of supporting nesting special-status songbird species such as least Bell's vireo, California gnatcatcher, and yellow-breasted chat. If work occurs at these stations during the nesting bird season, impacts on these species may occur. Mitigation measures BIO-1 and BIO-2 were prepared to avoid potential impacts on nesting bird species, including raptors and special-status species.

Station 1933+65, which is immediately adjacent to Bonita Creek, supports potential habitat for western pond turtle. Given their strict aquatic habitat requirements and propensity to move only within drainages and aquatic/riparian habitat, the potential for the species to move outside of the adjacent riparian habitat and into the construction site is extremely low. Therefore, the potential for impacts on western pond turtle are remote and considered less than significant.

Mitigation Measures

Mitigation Measure BIO-1

If construction activities are scheduled to occur from February 15 to August 31, a qualified biologist will conduct surveys for active nests no more than 5 days prior to the start of work. If no active nests are found, no further actions will be required. However, if nesting activity is observed, the nest site and vicinity (buffer to be determined by the biological monitor) must be protected until nesting activity has ended or as otherwise directed by a qualified biologist.

Mitigation Measure BIO-2

If work at stations 1916+50 and 1933+65 is expected to occur from February 15 through April 1, a qualified biologist who is experienced with conducting surveys for California gnatcatcher, yellow-breasted chat, and least Bell's vireo will conduct a pre-construction survey for lands within 500 feet of the stations no more than 5 days prior to the start of work. If it is determined that coastal California gnatcatcher, yellow-breasted chat, and/or least Bell's vireo are nesting within 500 feet of the stations, then the biologist will establish appropriate buffers to avoid indirect impacts on the species. The extent of the buffers will take into account the habitat and landscape position in relation to the stations. No work will occur within the buffer until the biologist determines that nesting activities have ceased and that no potential impacts will occur.

Mitigation Measure BIO-3

All vehicle and equipment maintenance and refueling will occur in areas at least 0.25 mile away from waterways or wetlands. Spill prevention and response plans will be prepared prior to the initiation of construction activities. All necessary equipment for containing and cleaning up a spill on-site during construction shall be within 0.25 mile of natural vegetation associated with San Diego Creek or Bonita Creek or other waterways.

b) 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 Wildlife or the U.S. Fish and Wildlife Service?

No Impact.

The majority of the work would be accomplished by accessing the pipeline through existing manholes. Both the pipeline easement and manholes occur in a previously disturbed footprint associated with maintenance of the easement, pedestrian trails, and utility access roads. No construction activities would occur outside of these previously disturbed areas, and no natural vegetation outside the OCF alignment would be cleared as part of the project. No impacts on riparian habitat or any other sensitive natural community would occur as a result of the proposed project.

c) 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?

No Impact.

According to the USGS 7.5-minute quadrangle maps of the project area, several large water conveyance features intersect or are located near the OCF easement. These include:

- Concrete flood control channel north of the SR-55 and SR-73 intersection
- San Diego Creek
- Bonita Creek
- Unnamed tributary to Bonita Creek, south of Bison Drive

Project plans, a review of aerial imagery, and investigations made during the biological surveys indicate that the manhole locations that would be used to access the pipeline and staging areas are located outside of jurisdictional areas. No impact would occur.

d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species, or with established native resident migratory wildlife corridors, or impede the use of native wildlife nursery sites?

Less-than-Significant Impact.

Wildlife corridors are likely to exist in the natural areas located from San Diego Creek to the Bonita Canyon residential community. The majority of the work would be accomplished by accessing the pipeline through existing manholes located in previously disturbed areas associated with maintenance of the easement, pedestrian trails, and utility access roads. Because of the low-impact nature of the work and because the work would occur in previously disturbed areas and primarily outside of the peak hours for wildlife movement, no substantial direct impacts are expected to occur as a result of implementation of the proposed project, and no indirect impacts on wildlife movement are expected.

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

No Impact.

The majority of the work would be accomplished by accessing the pipeline through existing manholes. Both the pipeline easement and manholes occur in a previously disturbed footprint associated with maintenance of the easement, pedestrian trails, and utility access roads. No trees would be removed as part of the project, and no impacts on resources protected by local ordinances would occur. No impact would occur.

f) Conflict with the provisions of an adopted habitat conservation plan, natural conservation community plan, other approved local, regional, or state habitat conservation plan?

No Impact.

California Coastal Commission Jurisdiction

The Coastal Act and its policies are focused primarily on new development and new facilities that would be sited in the Coastal Zone. It is also concerned with maintaining recreational uses and access to Coastal Zone areas and protecting the coastal environment. Permits are not required for the repair or maintenance of existing facilities that do not alter service capacity, new or increased service to developments that are permitted or exempted under the Coastal Act, the placement of additional facilities on existing poles, or the placement of underground facilities, provided such undergrounding is limited to public road or railroad rights-of-way or public utility easements and provided there is no removal of major vegetation and the site is restored as close as reasonably possible to its original condition.

Portions of the project area located in Newport Beach and are within the Coastal Zone (Coastal Zone is generally between OCF stations 1899+15 and 1939+80). The activities proposed by Metropolitan involving repair of the OCF within CCC jurisdiction would not result in any impacts on existing vegetation or tree species. The proposed activities include accessing two manholes on existing paved easements and applying mortar lining between the manhole access points. The first manhole access point would be within the Fletcher Jones Motorcars facility (station 1916+50), and the second would be near the northeastern corner of a paved public utility access road at Bonita Creek Park (station 1933+65).

Metropolitan has obtained an exemption from the CCC for work that would be conducted in the Coastal Zone. Accordingly, the project would be consistent with the Coastal Act, and impacts related to the Coastal Act would not occur.

Natural Communities Conservation Plan Jurisdiction

The project site is located within the Central/Coastal NCCP/HCP boundary and reserve lands. Operation and maintenance of existing and future infrastructure facilities is a permitted use within the reserve system and included as authorized incidental take under this NCCP/HCP. Furthermore, the OCF is included in the NCCP as Figure 27, which shows existing uses and infrastructure within the reserve area. Given the engineering, proposed work plans, and operations and maintenance information provided by Metropolitan, the OCF would occur only within existing infrastructure. The existing infrastructure includes paved access roads, unpaved access roads, city streets, built environments (e.g., Fletcher Jones Motorcars facility), paved and unpaved pedestrian pathways, manholes, Metropolitan facilities, and residential communities. Additionally, the proposed timeframe for work is scheduled to occur between September and April. To ensure compliance with the NCCP/HCP, Metropolitan is proposing to institute the mitigation measures described above to ensure avoidance of direct and indirect impacts on special-status species.

	Potentially Significant	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
V. CULTURAL RESOURCES				
Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource, as defined in Section 15064.5?	☐	☐	☐	☒
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	☐	☒	☐	☐
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐
d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☐

ENVIRONMENTAL SETTING

The project area is situated on the Orange County Plain, a broad, level expanse of land that is an extension of the Los Angeles Basin. Prior to historical settlement of the area, the plain was characterized by extensive inland prairies and a lengthy coastal strand, with elevations approximately 500 feet above mean sea level (amsl). The Orange County Plain is traversed by several large watercourses, most notably the Santa Ana River. Marshlands fed by fresh or salt water also once covered many portions of the area, and there were extensive tidal marshes by Upper Newport Bay.

Historically, the project area was primarily agricultural land that surrounded small towns, such as Santa Ana, until the end of World War II. Orange County has since been urbanized, with full development of open land, hillsides, mesas, and the coast. All of this has resulted in extensive reshaping of the natural landscape.

METHODOLOGY

Cultural Resources Records Search

A records search for previously recorded archaeological sites and previous cultural resource surveys along the project corridor and within a 1-mile radius was conducted at the South Central Coastal Information Center at California State University, Fullerton to capture any potential for undiscovered cultural resources in the vicinity of the project. The record searches reveal that five cultural resources have been recorded as crossing the OCF alignment. However, no isolated finds have been recorded within the project alignment. A total of 111 cultural resources have been recorded within 1 mile of the project area. Several previous cultural surveys have been conducted within or adjacent to the project right-of-way, primarily because of mitigation efforts for development or freeway construction.

Archaeological Field Survey

A reconnaissance survey of the project area was conducted on June 7, 2011. No prehistoric or historical cultural resources were identified during this survey.

Paleontological Research

Geological maps (Morton and Miller 1981), paleontological information, and the geotechnical and soils reports prepared for the project were reviewed for pertinent information regarding the project setting.

IMPACT ANALYSIS

The project would have no operational impacts. Construction impacts are discussed below.

a) Cause a substantial adverse change in the significance of a historical resource, as defined in Section 15064.5?

No Impact.

The records search indicates that 27 buildings have been recorded adjacent to the pipeline alignment, primarily along North Bristol Street between 17th Street and Walnut Street in Santa Ana. These buildings are early to mid-twentieth-century homes, businesses, and a church. All work proposed for the project would use the current pipeline right-of-way, which is located primarily in city streets, with some portions crossing parks and open lands. No buildings or built environment resources would be altered or demolished for this project. Therefore, the project would have no impact on the significance of existing historic resources in the vicinity of the project.

b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?

Less than Significant with Mitigation Incorporated.

Five archaeological sites were recorded as crossing the project alignment. All of these sites are found within the portion of the project south of SR 55 and John Wayne Airport, near Upper Newport Bay and Bonita Canyon Creek. All of these sites were destroyed by previous construction. Table V-1 lists these resources, proceeding from north to south along the project alignment.

Table V-1. Sites Recorded along Pipeline

Site	Recorded	Latest Update	Status
CA-ORA-687	1949	1967	Destroyed by construction of SR-73
CA-ORA-57	1938	1991–1993	Destroyed by construction of SR-73 and auto dealership
CA-ORA-206	1966	1994	Destroyed by construction of SR-73
CA-ORA-220	1965	1981	Destroyed by development of school
CA-ORA-483	1974	1981	Destroyed by development of school

It is unlikely but possible that portions of these sites could remain intact below the ground surface in areas that were not disturbed by extensive subsequent development. The existing OCF pipeline right-of-way was excavated in 1946 and is already disturbed. However, there is a slight chance that prehistoric cultural materials could be exposed during removal of pipeline sections for access, grading, or other activities. Disturbance of significant archaeological resources would result in a significant adverse impact under CEQA, but application of mitigation measure CULT-1 would reduce any unforeseen impacts associated with the proposed project to a less-than-significant level.

Mitigation Measures

Mitigation Measure CULT-1

If cultural resources are encountered during ground-disturbing activities, work in the immediate area will be halted, and an archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for Archaeology (National Park Service 1983) will be contacted immediately to evaluate the find. If necessary, the evaluation may require preparation of a treatment plan and archaeological testing for California Register of

Historical Resources eligibility. If the discovery proves to be significant under CEQA and cannot be avoided by the project, additional work, such as data recovery excavation, may be warranted to exhaust the data potential of the resource, thereby reducing any impact to a less-than-significant level.

c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Less than Significant with Mitigation Incorporated.

The project area is situated on late Pleistocene alluvial and marine deposits. The entire project area has alluvial surface deposits composed of younger Quaternary alluvium derived from extensive sheet wash across the Orange County Plain. These younger Quaternary alluvial deposits are unlikely to contain significant fossil resources. However, older Quaternary alluvial deposits underlying these sediments, probably at depths of 5 to 10 feet, do have the potential to contain paleontological resources. However, the existing OCF pipeline right-of-way has already been excavated in the past and therefore is already disturbed. As a result, the potential for cultural resources to be identified during ground disturbance in the area is extremely low. However, because the potential for previously unknown archaeological resources to be discovered cannot be completely ruled out, mitigation measure CULT-1 would be implemented in the unlikely event that cultural resources are encountered. With incorporation of mitigation measure CULT-1, impacts associated with the proposed project would be reduced to a less-than-significant level.

d) Disturb any human remains, including those interred outside of formal cemeteries?

Less than Significant with Mitigation Incorporated.

The OCF pipeline project does not traverse a formal cemetery and is not adjacent to a formal cemetery. The project parcel is not known to contain human remains interred outside formal cemeteries, nor is it known to be located on a burial ground. The record search for the project indicated that prehistoric archaeological sites within the OCF pipeline have not yielded Native American burials. Therefore, it is highly unlikely that the proposed project would disturb any human remains during construction. If human remains are encountered, the project would follow mitigation measure CULT-2 and prescribed California laws. Impacts would be less than significant with mitigation.

Mitigation Measure CULT-2

If human remains are found, Section 7050.5 of the State of California Health and Safety Code states that no further disturbance shall occur until the county coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. In accordance with this code, in the event of an unanticipated discovery of human remains, the Orange County Coroner will be notified immediately. If the human remains are determined to be prehistoric, the coroner will notify the Native American Heritage Commission (NAHC), which will determine and notify a most likely descendant (MLD). The MLD will complete an inspection of the site within 48 hours of notification and may recommend scientific removal and nondestructive analysis of human remains and items associated with Native American burials.

	Potentially Significant	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
VI. GEOLOGY AND SOILS				
Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death, involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the state geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	☒
ii) Strong seismic ground shaking?	☐	☐	☐	☒
iii) Seismically related ground failure, including liquefaction?	☐	☐	☐	☒
iv) Landslides?	☐	☐	☐	☒
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c) 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 landslides, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☒	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☒	☐
e) Have soils that would be incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒

ENVIRONMENTAL SETTING

The 9.5-mile-long OCF pipeline falls within the Anaheim, Newport Beach, Tustin, and Laguna Beach U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle maps. Physiographically, the project is situated on the coastal plain of Orange County. The terrain slopes gently from the north and northeast toward the ocean. The Santa Ana River flows into the coastal plain and drains the interior Upper Santa Ana Valley. The coastal plain is bordered on the south by the Pacific Ocean, on the east by the San Joaquin Hills, on the northeast by the Santa Ana Mountains, on the north by the Puente Hills, and on the west by the coastal plain of Los Angeles County. The highest elevations in the project vicinity are approximately 1,100 feet amsl in the San Joaquin Hills, the lower slopes of which lie approximately 1 mile east of the southern terminus of the project (Department of Water Resources 1961 and 1975).

METHODOLOGY

Potential impacts on geology and soils related to the OCF pipeline project were determined by evaluating the geologic and soils framework in and around the project boundaries and analyzing how the project could affect or be affected by geologic and soil conditions, particularly those threshold conditions required by CEQA. To perform the impact analysis, numerous project reports, maps, and studies were consulted and are referenced within this section.

IMPACT ANALYSIS

The project would have no operational impacts. Construction impacts are discussed below.

a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death, involving:

i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the state geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.

No Impact.

The project site is not located within an Earthquake Fault Zone, and no active faults cross the site (California Department of Conservation 1986). Additionally, the proposed project is not in a surface fault rupture zone. Fault rupture occurs when the ground surface over a fault breaks as a result of seismic activity. No impact would occur as a result of project construction.

ii) Strong seismic ground shaking?

No Impact.

Southern California is a seismically active region that is prone to earthquakes; therefore, there is the potential for the project site to experience strong ground shaking in the future from local and regional faults. However, no new habitable structures would be built during construction activities; thus, no workers would permanently occupy the site. Because the proposed project would not include any habitable structures, there would be no potential for impacts associated with strong seismic ground shaking.

iii) Seismically related ground failure, including liquefaction?

No Impact.

The proposed project would not include any new habitable structures and would not result in any persons permanently occupying any section of the pipeline alignment. According to the Seismic Hazards Zones Maps published by the State of California (California Department of Conservation, Division of Mines and Geology 1999a and 1999b), two sections of the pipeline are within areas that are considered susceptible to liquefaction (i.e., a section approximately 5.75 miles north of Interstate 405 and a section extending approximately 1.5 miles south of Jamboree Road).

Because the proposed project would not include any habitable structures or result in any persons permanently occupying any section of the pipeline alignment, the proposed project would not result in any adverse impacts related to liquefaction. Implementation of the project would not increase the risk of liquefaction at the two areas described previously. There is no potential for impacts on people or structures.

iv) Landslides?

No Impact.

The proposed project would not include any new habitable structures and would not result in any persons permanently occupying any section of the pipeline alignment. There are no significant slopes within the boundaries of the project site, and it is not anticipated that significant slopes would be created by project implementation.

According to the Seismic Hazards Zones Maps published by the State of California (California Department of Conservation, Division of Mines and Geology 1999a and 1999b), only a very short section of the proposed project would be located near potential earthquake-induced landslide zones. This one short section is at the southern terminus of the project, northeast of Big Canyon Reservoir and approximately 500 feet from the landslide zone. Because the proposed project would not include any habitable structures or result in any persons permanently occupying any section of the pipeline alignment, the proposed project would not result in any adverse impacts related to landslide hazards at the areas described previously. There is no potential for impacts.

b) Result in substantial soil erosion or the loss of topsoil?

Less-than-Significant Impact.

Construction of the proposed project would require ground surface disturbance during excavation and trenching activities. However, the construction contractor would prepare and comply with the WPCP for excavation sites and the SWPPP for staging areas, which would provide erosion control measures. This would include wetting unearthed and exposed soils to prevent fugitive dust during windy conditions or when construction vehicles traverse the project site during grading and site preparation activities. In the event of heavy precipitation, the provisions of the SWPPP and WPCP would be incorporated to prevent any exposed soils from being transported off-site as runoff. The erosion potential of the proposed project during operation would be minimized because surfaces that would be disrupted during construction would be repaved or otherwise covered with hardscape, thereby preventing soil erosion following the completion of construction. The ground would be restored to its previous condition after construction is completed. Impacts would be less than significant.

c) 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 landslides, lateral spreading, subsidence, liquefaction, or collapse?

Less-than-Significant Impact.

During construction, surface soils would be disturbed as a result of excavation associated with the installation of new manholes and/or bulkheads. However, because of the urbanized landscape of the area, fill soils are expected to be found along the pipeline alignment as a result of original construction of the OCF pipeline in 1946 and adjacent commercial, industrial, and residential development. The proposed project would not be located on unstable soil, and construction and operation of the proposed project would not cause any soils to become unstable such that landslides, spreading, subsidence, or collapse would result on- or off-site. Furthermore, all excavated soil would be transported and disposed of off-site and replaced with selected fill.

The project would not involve the extraction of water or petroleum, which could cause subsidence. Any removed soil would be replaced. As described above in Item (a)(iii), two areas of the proposed Reach 4 alignment would be located in an area that may be prone to liquefaction. However, because the existing pipeline is situated within fill material and no habitable structures would occupy the pipeline alignment, impacts would be less than significant.

d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?

Less-than-Significant Impact.

The OCF alignment is generally underlain by loamy sediments, which are not typically expansive because of their low to moderate clay content (U.S. Department of Agriculture 2011). Expansive soils are fine-grained soils (generally high-plasticity clays) that expand when water is added and contract when they become dry. Accordingly, changes in the water content of an expansive soil can result in severe distress to structures constructed upon these soils. Expansive soils may be present in limited areas along the alignment, but if encountered, they would not pose a significant hazard because the project proposes to rehabilitate existing water distribution pipelines, thereby reducing the risk of water contacting any unknown expansive soils. Because the proposed project would not include any new habitable structures, no persons or property would be at risk from the presence of expansive soils. The impacts would be less than significant.

e) Have soils that would be incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?

No Impact.

The proposed project would not include the use of septic tanks or alternative wastewater disposal systems. No impacts would occur.

	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
VII. GREENHOUSE GAS EMISSIONS				
Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b) Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

ENVIRONMENTAL SETTING

GHG is any gas that absorbs infrared radiation in the atmosphere. Such absorption traps heat within the atmosphere, maintaining the earth's surface temperature at a level higher than would be the case in the absence of GHGs. Increasing levels of GHGs resulting from human activities have increased levels of most of these naturally occurring gases in the atmosphere, which has and will continue to result in an increase in the temperature of the earth's lower atmosphere, a phenomenon that is commonly referred to as "global warming." Warming of the earth's lower atmosphere induces a suite of additional changes, including changes in global precipitation patterns; ocean circulation, temperature, and acidity; global mean sea level; species distribution and diversity; and the timing of biological processes. These large-scale changes are collectively referred to as "global climate change."

GHGs are both naturally occurring and artificial. Examples of GHGs that are produced both by natural processes and industry include carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). Examples of GHGs created and emitted primarily through human activities include fluorinated gases and sulfur hexafluoride (SF_6). The primary GHGs generated by construction activities are CO_2, CH_4, and N_2O. The Intergovernmental Panel on Climate Change (IPCC) estimates that CO_2 accounts for more than 75% of all anthropogenic (i.e., human-made) GHG emissions. Three-quarters of anthropogenic CO_2 emissions are the result of fossil fuel burning, and approximately one-quarter result from land use change (IPCC 2007). CH_4 is the second-largest contributor of anthropogenic GHG emissions. It results from growing rice, raising cattle, combustion, and mining coal (National Oceanic and Atmospheric Administration 2014). N_2O, although not as abundant as CO_2 or CH_4, is a powerful GHG. Sources of N_2O include agricultural processes, nylon production, fuel-fired power plants, nitric acid production, and vehicle emissions.

California GHG emissions in 2010 totaled approximately 448.1 million metric tons (MT) of carbon dioxide equivalent (CO_2e) (California Air Resources Board 2014). GHG emissions other than CO_2 are commonly converted into CO_2e, which takes into account the differing global warming potential (GWP) of various gases. For example, the IPCC finds that N_2O has a GWP of 310 and CH_4 has a GWP of 21. Thus, emissions of 1 metric ton of N_2O and 1 metric ton of CH_4 are represented as the emissions of 310 metric tons and 21 metric tons of CO_2e, respectively. This method allows for the summation of different GHG emissions into a single total.

METHODOLOGY

Thresholds of Significance

There are currently no adopted quantitative thresholds relevant to construction of the proposed project. The SCAQMD has adopted a 10,000 MT significance threshold level for industrial facilities where SCAQMD is the lead agency. However, this significance threshold level is not applicable to the proposed project because it does not involve an industrial facility. Although SCAQMD has drafted a 3,000 MT significance threshold level for commercial/residential projects, no threshold has been proposed or adopted for construction or public works projects (SCAQMD 2008). Other quantitative thresholds have been adopted or recommended by other public agencies,

including other air districts, or recommended by experts throughout the state. These include the 900 MT threshold level contained within the California Air Pollution Control Officers Association's (CAPCOA's) *CEQA and Climate Change* report (CAPCOA 2008) and the thresholds adopted in jurisdictions throughout the state. CAPCOA's 900 MT threshold level is the lowest quantitative threshold within the state. Thus, for purposes of this analysis, both direct and indirect GHG emissions from the project are discussed with respect to CAPCOA's 900 MT threshold level. Note that GHGs and climate change are exclusively cumulative impacts; there are no non-cumulative GHG emissions impacts from a climate change perspective (CAPCOA 2008). Therefore, in accordance with the scientific consensus regarding the cumulative nature of GHGs, the analysis herein analyzes the cumulative contribution of project-related GHG emissions.

Construction-Generated GHG Emissions

Construction of the project would generate GHG emissions as a result of on-site construction equipment usage, off-site vehicle trips by construction workers, and travel to and from the project site by haul/delivery trucks. Construction-related GHG emissions were estimated for each construction phase using CalEEMod software, following the same assumptions described in Section III, Air Quality. The construction assumptions and emissions calculation worksheets are provided in Appendix B. The estimated GHG emissions during construction are provided in Table VII-1. Consistent with CAPCOA and SCAQMD draft guidelines, construction emissions are summed and amortized over a 30-year project life to obtain annual GHG emissions.

Table VII-1. Estimated Construction GHG Emissions

Construction Phase	Construction GHG Emissions (metric tons)			
	CO_2	CH_4	N_2O	CO_2e
Year 1 (Reach 1 to Reach 2)	195.45	0.04	0.00	196.19
Year 2 (Reach 3 to Reach 4a)	127.15	0.02	0.00	127.63
Total Construction Emissions	322.59	0.06	0.00	323.82
Thirty-year Amortized Annual Construction Emissions				10.79
CAPCOA Threshold				900
Exceed Significant Threshold?				**No**

IMPACT ANALYSIS

The project would have no operational impacts. Construction impacts are discussed below.

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Less-than-Significant Impact.

As shown in Table VII-1, the project's contribution to GHG emissions is estimated to be 10.79 metric tons of CO_2e per year, which is far below the 900 MT threshold chosen for CO_2e. This table reflects emissions from the operation of heavy equipment during excavation and hauling activities. The increase in GHG emissions from this project during construction would be a small fraction of the regional, statewide, and worldwide total inventory. The project would involve construction activity only; however, it would not construct new homes or businesses. Therefore, the project would not generate any long-term sources of GHG emissions. The project-generated GHG emissions would have a less-than-significant impact on the environment.

b) Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Less-than-Significant Impact.

Considering the comparatively small volume of estimated GHG emissions and the short-term construction schedule, project-generated GHG emissions are deemed negligible at a cumulative level. The project's GHG emissions, considered alone or along with global emissions, would not be enough to cause substantial climate change. As discussed above, project construction emissions would be below the CAPCOA threshold of 900 MT, which was developed to help lead agencies achieve the GHG emissions-reduction goals of Assembly Bill 32 (AB 32). As such, the proposed project would be consistent with the AB 32 goal of reducing statewide GHG emissions to 1990 levels by 2020. The project would not conflict with this GHG emissions-reduction plan. No impact related to conflicts with plans, policies, or regulations for reducing greenhouse gas emissions would occur.

	Potentially Significant	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
VIII. HAZARDS AND HAZARDOUS MATERIALS				
Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☒	☐	☐
b) 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?	☐	☒	☐	☐
c) Emit hazardous emissions or involve handling hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school?	☐	☒	☐	☐
d) 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, create a significant hazard to the public or the environment?	☐	☒	☐	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
h) Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☐	☒

ENVIRONMENTAL SETTING

The project area extends approximately 9.5 miles, beginning in Santa Ana, continuing through Costa Mesa and an unincorporated part of Orange County, and terminating in Newport Beach. The majority of the pipeline in the project area runs within street rights-of-way, which are surrounded by single- and multi-family residential, commercial, and roadway land uses. In addition, several schools are adjacent to the project area within the city of Santa Ana; several parks and open space areas are located within and adjacent to the project area in the city of Newport Beach. Existing commercial properties located along the OCF route include restaurants, gas stations, a hotel and retail stores.

Potential Existing Hazardous Materials

Lands near the project area that may contain hazardous materials are identified in Table VIII-1. As shown, 20 sites were identified through an environmental database search as being active and located near the project area. Active sites are classified as having ongoing environmental monitoring and/or pending site remediation.

Table VIII-1. Active Environmental Cleanup Sites Adjacent to the Project Area

Approximate Distance from Centerline (miles)	Site Name	Address	City	Status	Information Obtained during Environmental Database Review
0.08 mile	Montgomery Ward Auto Service Center	1351 W. 17th Street	Santa Ana	LUST cleanup. Gasoline-affected groundwater.	Site is open. Verification monitoring as of January 1999.
0.03 mile	(former) Chevron service station	1251 W. 17th Street	Santa Ana	LUST cleanup. Gasoline-affected soil and groundwater.	Soil impact isolated to UST area within site. Site now a Burger King restaurant.
0.02 mile	Arco #1782	1303 N. Bristol Street	Santa Ana	LUST cleanup. Gasoline-affected soil and groundwater.	Vapor extraction ongoing. No Further Action (NFA) letter submitted to regional board on May 3, 2011.
0.02 mile	Thrifty Oil #376	801 N. Bristol Street	Santa Ana	LUST cleanup. Gasoline-affected soil and groundwater.	Remediation ongoing. Vapor concentrations at asymptotic levels. Vapor extraction system being modified into a groundwater pump and treat system.
0.02 mile	Thrifty Oil #008	704 N. Bristol Street	Santa Ana	LUST cleanup. Gasoline-affected soil and groundwater.	Remediation complete. Compound and monitoring well abandonment letter sent to regional board March 24, 2011.
0.02 mile	(former) Shell #510	510 N. Bristol Street	Santa Ana	LUST cleanup. Gasoline-affected soil and groundwater.	Majority of impacts on soil located near the former UST cavity and dispenser islands. Groundwater contamination detected in wells east of site (off-site).
0.02 mile	(former) UNOCAL #7470	114 S. Bristol Street	Santa Ana	LUST cleanup. Gasoline-affected groundwater.	Groundwater monitoring under way. Site vacant. USTs, dispenser islands, and associated piping removed in 2003.
0.03 mile	7-Eleven store #18167	1020 S. Bristol Street	Santa Ana	LUST cleanup. Gasoline-affected soil and groundwater.	Groundwater monitoring under way.
0.05 mile	(former) Los Amigos Dry Cleaners	1312 W. Edinger Avenue	Santa Ana	Cleanup program site.	Former dry cleaning facility. Soil NFA was granted in February 2010. Groundwater monitoring under way.
0.02 mile	G&M Oil #24	3301 S. Bristol Street	Santa Ana	LUST cleanup. Gasoline-affected soil and groundwater.	Soil vapor extraction has been performed on-site. As of August 2010, contamination exists in soil near dispenser islands and pad—all within site. Ozone sparging system being installed.

Approximate Distance from Centerline (miles)	Site Name	Address	City	Status	Information Obtained during Environmental Database Review
0.03 mile	(former) ARCO #3085	3301 S. Bristol Street	Santa Ana	LUST cleanup. Affected groundwater.	No soil impacts found. Vapor extraction wells on-site. Groundwater monitoring ongoing. Currently an In-N-Out restaurant.
0.03 mile	Chevron #9-1921	3801 S. Bristol Street	Santa Ana	LUST cleanup. Gasoline-affected groundwater and soil.	Contamination in soil detected in vicinity of USTs and dispenser islands within site. USTs were located on southern portion of site, closest to Callens Common.
0.10 mile	(former) Unocal	3900 S. Bristol Street	Santa Ana	LUST cleanup. Gasoline-affected soil.	Case opened in 1994. No specific information regarding contamination status. City of Santa Ana was lead oversight agency. Site is currently a large retail building.
0.03 mile	G&M Oil #21	2995 Bristol Street	Costa Mesa	LUST cleanup. Gasoline-/diesel-affected groundwater.	Groundwater monitoring and remediation under way.
0.02 mile	Bristol Plaza Chevron	300 Bristol Street	Costa Mesa	LUST cleanup. Gasoline-affected groundwater.	Groundwater remediation complete (per contractor). Closure being requested (as of the fourth quarter of 2010).
0.01 mile	Chevron #20-2016	2121 Bristol Street	Newport Beach	LUST cleanup. Gasoline-/diesel-affected groundwater.	Groundwater remediation under way. Closure requested (as of January 2011).
0.10 mile (southern tip of runway)	Orange County Airport	18601 Airport Way	Santa Ana	DTSC site cleanup program. Inactive; pending evaluation as of July 2005.	Media affected; contaminants not specified.
0.11 mile	Chevron #20-1093	1240 Bison Avenue	Newport Beach	LUST cleanup. Gasoline-/diesel-affected groundwater.	Thirty-seven cubic yards of soil removed in 1997 as part of a remediation effort. Site currently undergoing groundwater monitoring.
0.16 mile	Unocal COP #6521	2690 San Miguel Drive	Newport Beach	LUST cleanup. Gasoline-affected groundwater.	Soil has been remediated. Groundwater remediation ongoing.
0.07 mile (northwest tip of reservoir)	Newport Beach Big Canyon Reservoir	3300 Pacific View Drive	Newport Beach	DTSC evaluation site.	Media affected; contaminants not specified.

Source: www.geotracker.com and www.envirostor.com. Accessed: June 1, 2011.
LUST = leaking underground storage tank
UST = underground storage tank
NFA = No Further Action
DTSC = Department of Toxic Substances Control

Existing Schools

Existing school facilities located within 0.25 mile of the project area are listed in Table VIII-2, below.

Table VIII-2. Existing School Facilities

School Name	Address	Approximate Distance from Project Area (miles)
Schools within the City of Santa Ana		
Santiago Elementary School	2212 North Baker Street	0.01
Gonzalo Felicitas Mendez Fundamental Intermediate School	2000 North Bristol Street	0.04
Love 2 Learn Preschool and Kindergarten	1200 West 17th Street	0.12
Middle College High School	1530 West 17th Street	0.15
Santa Ana College	1530 West 17th Street	0.03
Wilson Elementary School	1317 North Baker School	0.15
Heroes Elementary School	1111 W Civic Center Drive	0.16
George Washington Carver Elementary School	1401 West Santa Ana Boulevard	0.07
Lydia Romero-Cruz Elementary School	1512 West Santa Ana Boulevard	0.23
Mater Dei High School	1202 West Edinger Avenue	0.01
Jose Sepulveda Elementary School	1801 South Poplar Street	0.07
Jefferson Elementary School	1522 West Adams Street	0.19
Saddleback High School	2802 South Flower Street	0.22
Schools within the City of Costa Mesa		
Playmates Paularino Pre-School	795 Paularino Avenue	0.20
Giant Step Learning Center	758 Saint Claire Street	0.19
Schools within the City of Newport Beach		
Tutor Time	1550 Bristol Street	0.10
Newport Montessori School	20221 SW Cypress Street	0.22
Roy O. Anderson Elementary School	1900 Port Seabourne Way	0.20
Abraham Lincoln Elementary School	3101 Pacific View Drive	0.12
Source: Google Earth 2011.		

Existing Airports and Airstrips

The two airports within Orange County are John Wayne Airport and Fullerton Municipal Airport. Fullerton Municipal Airport is not in the vicinity of the project area; however, John Wayne Airport is located at 18601 Airport Way in Santa Ana, which is approximately 0.10 mile north of the project area and within the project area, along Bristol Street.

The project area is not located within the vicinity of a private airstrip. The closest airstrip is Los Alamitos Army Airfield, approximately 10 miles northwest of the project area.

Emergency Response Plan

The Orange County Sheriff's Department has an Emergency Management Bureau, which establishes emergency preparedness and emergency response procedures for disasters throughout the county. The bureau's Emergency Response Plan is prepared in accordance with guidelines from the State Office of Emergency Services (OES). The

Emergency Response Plan identifies relevant county organizations and provides a detailed description regarding the responsibility of each agency during a disaster (County of Orange 2011). In addition, each of the cities within the project area (i.e., Santa Ana, Costa Mesa, and Newport Beach) has its own fire and police department to provide emergency response services. The departments coordinate with the Emergency Management Bureau regarding the development and implementation of emergency response plans.

Wildland Fire Hazard Zone

The project area is not located within or adjacent to a high fire hazard area or wildland fire hazard zone, as shown in the Orange County General Plan Safety Element.

METHODOLOGY

The hazards and hazardous waste impact analysis assesses potential direct and indirect impacts related to hazards and hazardous materials and determines whether the project would result in a significant impact with respect to the thresholds discussed below.

IMPACT ANALYSIS

Because the project consists of improvements to an existing underground water conveyance pipeline and no activities would occur post-construction, the project would have no operational impacts. Construction impacts are discussed below.

a) *Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?*

Less than Significant with Mitigation Incorporated.

The proposed project would improve the existing OCF pipeline by relining its interior. This would include excavation around portions of the existing pipeline, removal of the existing CTE, and relining the pipeline with the mortar lining, as discussed in the project description. Hazardous material considerations related to these activities include potential exposure to PCBs, asbestos, and lead, which may be present in the existing CTE liner. Removal of the CTE liner is necessary prior to application of the mortar lining to the pipe interior. Various methods could be utilized to remove the CTE liner, including abrasive blasting and/or scraping. As shown in Table VIII-3, it is estimated that approximately 150 cubic yards of CTE waste would be generated. Abrasive blasting (i.e., with sand, glass, garnet, etc.) would involve the removal of CTE patches by using pressurized abrasive particulates. Dust and particulate matter generated from abrasive blasting would be contained within the pipeline by utilizing sheets/tarps to ensure that CTE dust or particulate matter would not reach the surface. A decontamination area would be set up at the pipeline entrance for equipment cleanup. For both CTE removal methods, CTE waste would be vacuumed, placed in drums, and stored temporarily at the contractor's storage area, then, at the end of the construction reach, disposed of at the nearest hazardous materials facility that accepts such waste (currently in Nevada or Idaho). The abrasive materials would also be disposed of along with the CTE waste. With these abrasive materials included, the total amount of waste could be up to five times the CTE volumes listed in Table VIII-3.

Asbestos may be present in flange gaskets or other equipment, and lead-based coatings may be found in service connections, pipe vaults, and on other appurtenances. In addition, other hazardous materials that are typically used in construction projects (such as solvents, adhesives, gasoline, and oils) would be transported, used, and disposed of during construction. The construction method proposed for this project would involve the transport and disposal of these hazardous materials, as further described below.

Table VIII-3. Estimated Volumes of Coal Tar Enamel to Be Removed during Project Activities

Reach	Pipeline Length (feet)	Approximate CTE Volume to Be Removed (cubic yards)
Reach 1	10,549	32
Reach 2	19,717	60
Reach 3	12,588	38
Reach 4	6,763	20
Reach 4a	342	1
Total Length	49,959	150

Construction Methods

In compliance with DTSC and Toxic Substances Control Act requirements, PCBs, asbestos, and lead would be tested prior to disposal, as outlined in mitigation measure HZ-1. The project may encounter asbestos materials from flange gaskets or other parts of the existing pipeline. To prevent potential exposure to asbestos, the project would comply with SCAQMD regulations related to the potential for asbestos releases (as provided in mitigation measure HZ-2). Metropolitan would sample and test pipeline materials to ensure appropriate handling and disposal. The waste would be stored at a secured temporary hazardous waste storage facility within the contractor's laydown area before being transported for permanent disposal. The construction contractor and state-certified hazardous waste hauler would comply with all local, state, and federal regulations regarding the use, transport, and disposal of hazardous materials. As a result of adherence to all applicable regulations and implementation of mitigation measures HZ-1 and HZ-2, project impacts related to the routine transport, use, or disposal of hazardous materials would be less than significant with mitigation incorporated.

Mitigation Measures

Mitigation Measure HZ-1

> The coal tar enamel lining will be removed from the pipeline interior in accordance with applicable laws and regulations for hazardous wastes and placed in storage containers. Metropolitan will sample and test removed pipeline materials to determine whether there are concentrations of PCBs, asbestos, and/or lead in these materials. Testing for PCBs, asbestos, and lead will be done through EPA Method 8082, Method 600/R-93/116, and Soluble Threshold Limit Concentration regulatory requirements, as defined by DTSC. If PCBs are found in the pipeline materials, the waste would be disposed of pursuant to CFR Title 40, part 761.

Mitigation Measure HZ-2

> Contractor will comply with South Coast Air Quality Management District Rule 1403, Asbestos Emissions from Demolition/Renovation Activities, during all construction and demolition activities.

b) 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?

Less than Significant with Mitigation Incorporated.

As described under Item VIII (a), the project would remove CTE and other parts of the existing pipeline that are likely to contain hazardous materials, including PCBs, asbestos, and lead. Project activities may generate water that may contain these hazardous materials. In addition, typical construction-related hazardous materials used during construction of the proposed project include gasoline, oil, and solvents. It is possible that any of these substances could be released during construction, transport, and disposal activities. However, as described previously, compliance with federal, state, and local regulations; implementation of mitigation measures HZ-1 and HZ-2; and implementation of construction BMPs, a water pollution control plan or SWPPP would ensure that all hazardous materials would be used, stored, and disposed of properly, which would minimize potential impacts related to a

hazardous materials release during construction activities. As a result, the project is not expected to create a significant hazard for the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials; therefore, hazardous materials impacts related to potential for upset and accident conditions would be less than significant with mitigation incorporated.

c) Emit hazardous emissions or involve handling hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school?

Less than Significant with Mitigation Incorporated.

As shown in Table VIII-2, there are several school facilities within 0.25 mile of the 9.5-mile-long project area. As described above in Items VIII (a) and (b), hazardous materials would be transported and disposed of. Some school facilities are adjacent to the pipeline alignment and within the general proximity where CTE removal would take place. Once removed, these hazardous materials would be transported along roadways in the vicinity of school facilities. As described previously, all of the hazardous material handling and transport would be completed in compliance with applicable federal, state, and local regulations. Compliance with the applicable regulations would reduce the level of impact from hazardous waste releases. Additionally, mitigation measures HZ-1 and HZ-2 have been included to ensure that hazardous materials or substances are appropriately handled based on the type of material requiring disposal. Also, as described in Section III, Air Quality, the proposed project would not generate hazardous levels of air emissions and therefore would result in less-than-significant impacts with mitigation incorporated.

d) 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, create a significant hazard to the public or the environment?

Less-than-Significant Impact with Mitigation.

No hazardous materials sites are known to be within the project area. As shown in Table VIII-1, 20 properties adjacent to the project area were identified during environmental database research as potential areas for hazardous materials. Eleven of these sites are undergoing groundwater remediation and/or monitoring. Because of the depth and long reach of the pipeline, contaminated groundwater and/or perched groundwater may be encountered at proposed station excavations along the alignment. Disposal of contaminated groundwater would comply with NPDES permit requirements prior to discharge into the storm drains. Because there is a possibility of encountering groundwater during excavation and there are 20 known hazardous materials sites along the alignment, it is possible that groundwater encountered during excavation activities could be contaminated. The safety risks posed by the potential for encountering groundwater are addressed through the groundwater mitigation measure (HZ-3) described below. As described under Section 1.7, if groundwater is encountered during construction, all work would be halted to investigate the potential for hazardous content, and a professional who specializes in the handling and identification of hazardous materials would be consulted. These BMPs would minimize potential health and safety risks for Metropolitan contractors in the event that contaminated groundwater is encountered during project activities and reduce potential impacts related to groundwater-contaminated areas to a less-than-significant level.

The remaining nine sites (i.e., those not undergoing groundwater contamination issues) are listed as having had or currently having affected soil. Of the nine sites, eight are listed in the Leaking Underground Storage Tank (LUST) database. The remaining site was found in DTSC's Cleanup Program database, a former dry cleaning facility that was granted No Further Action (NFA) soil cleanup status in 2010. Of the eight LUST sites, four were listed as active, three were listed as remediated, and one was listed as unknown status (as of 1994). All four active sites were listed as current or former gasoline fueling stations with gasoline-affected soil in the vicinity of the current (or former) underground storage tanks and dispensing islands. There are no records of soil contamination extending beyond property lines in any of the cases reviewed. However, mitigation measure HZ-4 that would require termination of ground-disturbing activities in the event that suspicious odors or content is observed in soils would ensure that potential impacts related to hazardous materials in soils would be less than significant.

Implementation of the proposed project would not result in significant impacts related to existing hazardous materials within the project area. Impacts on the public or environment related to existing hazardous materials would be less than significant after compliance with existing regulations, including appropriate health and safety measures, as required by the Occupational Safety and Health Administration and the groundwater control mitigation measures.

Mitigation Measures

Mitigation Measure HZ-3

Groundwater flow is unlikely but may be encountered during excavation and construction. A groundwater plan shall be developed prior to construction, and discharges will be in accordance with applicable rules and regulations. The provisions of the groundwater plan will include, but not be limited to, the following:

- Construction personnel will seek the professional recommendation of a consultant who specializes in the handling and identification of hazardous materials. The identification of possible hazardous materials typically involves groundwater sampling, analysis, and recommendations for remediation.
- All construction activities will be suspended in the immediate area until the groundwater is investigated for potentially hazardous content.
- If groundwater contamination is encountered in any location during the project, the construction contractor will notify the Regional Water Quality Control Board (RWQCB) and the Orange County Environmental Health Division if the contamination is petroleum related; the construction contractor will notify the Orange County Environmental Health Division if the contamination is non-petroleum related and seek guidance regarding assessment and remediation requirements.
- If dewatering activities are necessary, the construction contractor will notify the RWQCB and obtain the appropriate NPDES discharge permits.

Mitigation Measure HZ-4

In the event that odiferous, stained, or discolored soil is encountered, the following measures will be taken:

- Construction personnel will seek the professional recommendation of a consultant who specializes in the handling and identification of hazardous materials. The identification of possible hazardous materials typically involves soil sampling, analysis, and recommendations for remediation.
- Construction will be suspended until the soil is properly characterized for hazardous waste content.
- The construction contractor will notify the Orange County Environmental Health Division of the findings and seek guidance regarding assessment and remediation requirements.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?

No Impact.

As described previously, a portion of the project area along Bristol Street is located approximately 0.10 mile south of John Wayne Airport in Santa Ana. However, project construction is not anticipated to occur adjacent to the airport. The closest manhole where construction would occur is station 1855+39, which is located along Bristol Street, north of the airport, and adjacent to commercial and freeway land uses.

Project activities would occur at street grade and below ground in areas outside of the airport boundary. Project activities would not interfere with air traffic flight paths or airport activities. Therefore, implementation of the proposed project would not create impacts associated with 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, resulting in a safety hazard for people residing or working in the project area. No impact would occur.

f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?

No Impact.

The project area is not located within the vicinity of a private airstrip. The closest non-public airstrip is Los Alamitos Army Airfield, approximately 10 miles northwest of the project area. As a result, implementation of the proposed project would not create impacts associated with a project in the vicinity of a private airstrip or result in a safety hazard for people residing or working in the area. No impact would occur.

g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Less-than-Significant Impact.

As described above, the Orange County Emergency Management Bureau establishes emergency preparedness and emergency response procedures for disasters throughout the county. In addition, each of the cities within the project area provides emergency response services and implements emergency evacuation plans in coordination with the county. Implementation of mitigation measure TRAN-1, described in Section XVI, would ensure that construction related traffic does not interfere with emergency response.

The majority of project activities occurs within street rights-of-way and would restrict access to areas near the manholes during construction. The obstructions would be temporary and limited to areas adjacent to the approximate 1,500-foot work area needed around each manhole. The restrictions would consist of roadway lane closures, driveway access restrictions, or detour routes. Traffic in each direction would be maintained for the duration of construction activities. Detours would be provided to divert vehicles and pedestrians around the construction areas (see Section XVI, Transportation/Traffic). In addition, coordination with local jurisdictions would occur through the traffic control plan and would take place prior to commencing construction and throughout the process to ensure that appropriate communication regarding traffic disruptions is forwarded to service providers. The project would not physically interfere with implementation of an emergency response plan, and impacts would be less than significant with implementation of the aforementioned BMPs listed in Section 1.7.

h) Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

No Impact.

Implementation of the proposed project would not increase the potential for wildland fires or expose people or structures to a significant risk of loss, injury, or death involving wildland fires.

According to the county's general plan Safety Element, the project site is not located within a high fire hazard area. In addition, the project site is largely within street rights-of way and surrounded by an urbanized environment. The proposed project activities would not involve the construction of any structures or areas for human occupancy that would increase the fire potential of the project area. Conversely, the project would improve an existing water conveyance pipeline that could be used to supply water for fire suppression. No impacts related to wildland fires would occur with implementation of the project.

Implementation of the proposed project would not result in any impacts associated with a significant risk of loss, injury, or death involving wildland fires, including in areas where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands. No impacts would occur.

	Potentially Significant	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
IX. HYDROLOGY AND WATER QUALITY				
Would the project:				
a) Violate any water quality standards or waste discharge requirements?	☐	☐	☒	☐
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☐	☒
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on- or off-site?	☐	☐	☒	☐
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site?	☐	☐	☐	☒
e) Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☒	☐
f) Otherwise substantially degrade water quality?	☐	☐	☒	☐
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒
h) Place within a 100-year flood hazard area structures that would impede or redirect flood flows?	☐	☐	☐	☒
i) Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☒	☐
j) Inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒

ENVIRONMENTAL SETTING

Land within the cities of Costa Mesa, Newport Beach, and Santa Ana is part of five watersheds: Newport Bay, Newport Coast, Talbert, Santa Ana River, and Anaheim Bay-Huntington Harbor. Watersheds are generally areas that drain to a single point or receiving water. The Talbert watershed drains to the Santa Ana River and, ultimately, the Pacific Ocean.

The Newport Bay watershed drains approximately 152 square miles and includes portions of the cities of Costa Mesa, Irvine, Laguna Woods, Lake Forest, Newport Beach, Orange, Santa Ana, and Tustin and unincorporated Orange County. The Newport Bay watershed has been divided into four subwatersheds: Lower Bay, Upper Bay, Santa Ana Delhi Channel, and San Diego Creek/Peters Canyon Wash. The Lower Bay subwatershed includes all stormwater drains and natural creeks. The Upper Bay subwatershed begins at the Pacific Coast Highway bridge and extends across the bay, including all drains to the bay, as well as Big Canyon Wash, Costa Mesa Channel, and Santa Isabella Channel. The Santa Ana Delhi Channel and its tributaries empty into the far northwestern end of Upper Newport Bay, and San Diego Creek/Peters Canyon Wash and its tributaries collectively drain into the northeastern end of Upper Newport Bay (City of Costa Mesa 2008; Orange County Public Works 2011a). The Newport Coast watershed drains to the San Joaquin Hills through Muddy Creek (Orange County Public Works 2011b).

The Santa Ana River watershed is the largest in Orange County, covering approximately 210 square miles. It includes portions of the cities of Anaheim, Brea, Costa Mesa, Huntington Beach, Orange, Placentia, Santa Ana, Villa Park, and Yorba Linda. The Santa Ana River is the main tributary to the watershed; its headwaters are in the San Bernardino Mountains, from which the river travels 75 miles, crossing central Orange County before emptying into the Pacific Ocean (Orange County Public Works 2011d). The city of Santa Ana is located in the Santa Ana River and Anaheim Bay-Huntington Harbor watersheds, which drain to the Pacific Ocean through the Santa Ana River, Santiago Creek, Bolsa Chica Channel, East-Garden Grove Wintersburg Channel, and Westminster Channel (Orange County Public Works 2011c; Orange County Public Works 2011d). Each of these watersheds is under the jurisdiction of the Santa Ana Regional Water Quality Control Board (SARWQCB) and subject to SARWQCB permit requirements as well as the objectives, water quality standards, and BMPs established in the Santa Ana River Basin Plan and Orange County Drainage Area Management Plan (DAMP).

The proposed project crosses the Santa Ana River and Newport Bay watersheds. Subwatersheds that intersect the proposed project include Greenville Banning-Santa Ana River and Lower San Diego Creek. The EPA and SARWQCB have identified the Santa Ana River and Newport Bay as impaired water bodies. Identified impairments include metals, nutrients, other organics, pathogens, pesticides, sediment, and toxicity (EPA 2010). Regulatory setting related to hydrology and water quality is provided in Appendix E.

Flooding

The pipeline alignment goes through several locations that are designated 100-year flood zones (Federal Emergency Management Agency [FEMA] 2008). Specifically, the following locations and lengths are within an area designated as a 100-year flood zone:

- South of MacArthur Boulevard between station 1717+30 and station 1718+90 in Santa Ana (Reach 2, approximately 100 feet of the pipeline is within the flood zone).
- Crossing the canal north of SR 55 in Costa Mesa and just south of station 1804+40 (Reach 3, approximately 219 feet of the pipeline is within the flood zone).
- Adjacent to John Wayne Airport just after station 1855+39 (Reach 3, approximately 598 feet of the pipeline is within the flood zone).
- Crossing San Diego Creek just east of Jamboree Road in Newport Beach (Reach 3, approximately 373 feet of the pipeline is within the flood zone).

Of the 9.5 miles of pipeline alignment, approximately 1,290 feet of it is located within an area designated as a 100-year flood zone.

The cities of Santa Ana, Costa Mesa, and Newport Beach are located within the dam inundation zone of Prado Dam (Costa Mesa 2002). Prado Dam has been designed to protect against a 100-year flood (or a 1% chance event) (Costa Mesa 2002).

Groundwater

Department of Water Resources (DWR) Bulletin 118 places the project within the coastal plain of the Orange County Groundwater Basin (Orange County Basin). The Orange County Groundwater Basin has a total surface area of 224,000 acres, or 350 square miles. Groundwater storage is estimated to be 37,700,000 acre-feet (DWR 2004). Impairments within the basin include seawater intrusion near the coast, discoloration from natural organic materials in the lower aquifer system, and increasing salinity, nitrates, and methyl tertiary butyl ether (MTBE).

Water Quality

The EPA and SARWQCB have identified the Santa Ana River and Newport Bay as impaired water bodies. Identified impairments include metals, nutrients, other organics, pathogens, pesticides, sediment, and toxicity (EPA 2010).

METHODOLOGY

The project's impacts on hydrology and water quality were analyzed for their potential to increase erosion and flooding, alter site drainage, and affect water quality through CTE removal and the presence of chlorinated water. The project's impact on hydrology would be determined by considering alterations to site drainage and the project's location within the 100-year flood zone. The project's impact on water quality would be determined by considering non-storm runoff into the coastal storm system. Coastal storm systems are connected to the ocean. Therefore, debris/pollutants may affect the water quality of the ocean.

To perform the necessary impact analysis, city (Costa Mesa, Newport Beach, and Santa Ana), county (Orange County), and state (California) guidelines were reviewed to determine which regulations are relevant to the project.

IMPACT ANALYSIS

The project would have no operational impacts. Construction impacts are discussed below.

a) Violate any water quality standards or waste discharge requirements?

Less-than-Significant Impact.

Potential project impacts would be short term because construction would be temporary. Construction within the project area would require temporary disturbance of surface soils and impervious cover. Water quality impacts associated with the proposed project could include short-term construction-related erosion, sedimentation, and contamination from hazardous materials, such as paints, solvents, cleaning agents, and metals used during construction. Groundwater and/or perched groundwater may be expected at portal excavations along the alignment; therefore, there is a possibility that construction-related contaminants could contact the groundwater. Stormwater runoff within the work access area has the potential to contaminate groundwater through contact with motor oil, car exhaust, chemicals, detergents, and any other material from construction vehicles. This runoff may also enter the storm drain system at staging areas. Sedimentation from excavation of the pipe and the construction of the new manholes could contribute to sediment contamination within the storm system if it is not properly contained.

To prevent these potential impacts, BMPs would be implemented through all stages of construction to minimize and/or prevent any possible contamination. In addition, because of the high percentage of existing impervious surface area present on the project site, sediment and debris transport processes and sheet erosion on the site would be minimal because only small amounts of soil would be exposed during construction. Exposed soil and other pervious areas within the work access/excavation areas would be regraded to existing conditions once the relining process has been completed. Accordingly, exposed pervious areas would be temporary, and all portions of the pipeline that would undergo excavation and relining would be restored to existing conditions. Excavation sites would be repaved upon completion of relining activities. The project site would not be a significant source of erosion and sediment.

The CTE within the pipe would be removed using various methods, including abrasive blasting and manual scraping. Equipment used to remove the CTE may be contaminated with PCBs, asbestos, and lead. However, as described previously, compliance with federal, state, and local regulations; implementation of mitigation measures HZ-1 and HZ-2; implementation of construction BMPs; and implementation of a water pollution control plan (WPCP) or SWPPP would ensure that all hazardous materials (including PCB-contaminated equipment) would be collected, stored, and disposed of properly, which would minimize potential impacts related to a hazardous materials release during construction activities.

Before returning the pipeline into service, the pipe would be filled with water and disinfected. The water used for disinfection would be dechlorinated and discharged to the storm drain in compliance with the requirements of the contractor-obtained NPDES permit.

Because the proposed project would involve more than 1 acre of disturbance, the project would be required to comply with the terms of the WPCP or SWPPP, as applicable. The project WPCP and SWPPP would include provisions to minimize the potential for spills of hazardous, toxic, or petroleum substances during project construction. Additionally, the contractor would implement specific erosion control and land surface water protection methods under the WPCP or SWPPP, thereby minimizing water quality degradation during construction.

The following BMPs include measures to guide management and operation of project construction sites and control and minimize the potential contribution of pollutants to stormwater runoff from these areas. These measures, to be implemented by the construction contractor, address issues related to procedures for controlling erosion and sedimentation as well as managing all aspects of the construction process, thereby ensuring control over potential water pollution sources. Erosion and sedimentation control practices typically include, but are not limited to, the following:

- Install straw wattle and/or sand bags to contain sediment on-site.
- Control runoff to limit increases in sediment in stormwater runoff (e.g., through use of straw bales, silt fences, or sand bags) around work areas.
- Perform equipment maintenance at staging areas, with measures in place to contain spills from diesel fuel, gasoline, other petroleum products, and CTE waste.
- Contain sediment from leaving excavated areas by not blowing, sweeping, or hosing debris into streets, storm drain inlets, or other conveyances.
- Repair and maintain constructed-related equipment and vehicles in designated areas (i.e., staging and storage areas.
- Clean CTE removal equipment within the constructed pipe.
- Return excavation areas to preconstruction contours.

With compliance of the required NPDES permits, WPCP or SWPPP, impacts related to the potential for violating established water quality standards or waste discharge requirements would be less than significant.

b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?

No Impact.

The proposed project involves the rehabilitation of an existing water conveyance pipeline. No changes to water usage or supply would occur as a result of the proposed project as demand would remain unchanged. The existing pipeline is located within the subsurface, and rehabilitation of it would not alter existing subsurface conditions. Therefore, construction of the proposed project would not substantially interfere with groundwater recharge or reduce aquifer volume. No impact related to groundwater supplies or recharge would occur.

c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on- or off-site?

Less-than-Significant Impact.

The project is not located in the vicinity of any existing streams or rivers and therefore poses no potential for alteration of a stream or river course. The existing drainage pattern within the project site would be temporarily affected by excavation at the manhole access areas and the addition of manholes throughout the project area. The proposed project would not permanently alter the existing drainage pattern of the site or surrounding area. Once construction is completed, the area would be returned to original/existing condition. Therefore, there would be no long-term or permanent change in drainage patterns. Compliance with the erosion control BMPs contained in the WPCP or SWPPP would ensure that erosion and siltation during construction would be minimized. A less-than-significant impact would result.

d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site?

No Impact.

As described under Item IX (c), the project has no potential to result in the alteration of an existing stream or river course. Therefore, there is no potential for on- or off-site flooding due to stream or river course alterations. Neither construction nor operation of the proposed project would alter drainage patterns such that they would cause flooding on- or off-site. Excavation would be taking place throughout the project area for access to the pipe and manhole construction. Excavations during construction would be backfilled and restored to previous conditions once the relining of a section has been completed. Given the nature of the project and its location, there is no potential for flooding as a result of the project. No impact would occur.

e) *Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?*

Less-than-Significant Impact.

The proposed project is not likely to increase or create runoff beyond existing levels. Construction of the proposed project would involve the temporary use of the site by heavy construction equipment (i.e., excavators, backhoes, and dump trucks). Additionally, equipment, materials, and/or contractor parking would be staged on the site or at the staging area for the duration of construction. These uses typically result in deposits of engine oil, antifreeze, heavy metals, transmission fluid, rubber, etc., which can be transported in surface water runoff during storm events. BMPs would be implemented to capture and treat polluted runoff from the staging area during construction, as described in the WPCP or SWPPP. Impacts would be less than significant.

f) Otherwise substantially degrade water quality?

Less-than-Significant Impact.

As discussed above in Item IX (a), the proposed project would comply with the General Construction Permit and NPDES requirements, including implementation of a WPCP or SWPPP and construction BMPs during construction activities, which would preclude substantial adverse water quality impacts. Once construction activities have been completed, the pipeline would operate as it currently does, conveying water from Metropolitan's Weymouth Water Treatment Plant in La Verne to Orange County communities. Impacts would be less than significant.

g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?

No Impact.

Approximately 1,290 feet of the 9.5-mile pipeline alignment is located within a 100-year flood hazard area; however, the project does not include the construction of housing. No impacts would occur.

h) Place within a 100-year flood hazard area structures that would impede or redirect flood flows?

No Impact.

During construction, equipment may be located within a flood hazard area. However, the construction equipment would not be large enough to impede or redirect flood flows should a flood occur. Furthermore, construction would not use a permanent structure that could impede or redirect flows. Once the pipeline is operational, it would be located underground and would not impede or redirect flood flows. Any new manholes and above ground structures (e.g. air valves) resulting from the proposed project would be generally low profile and not have enough weight or mass to impede or redirect flood flows. No impacts would occur.

i) Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?

Less-than-Significant Impact.

Approximately 1,290 feet of the entire pipeline is located within a flood hazard area; however, construction workers would not be located at these areas for extended periods of time during inclement weather. Some parts of the cities through which the pipeline extends are located within the dam inundation area of Prado Dam. There is a very low likelihood of dam failure during construction activities along the pipeline. Once the pipeline is relined, it would be located below ground level, resulting in minimal risk of damage from dam failure. Impacts would be less than significant.

j) Inundation by seiche, tsunami, or mudflow?

No Impact.

The pipeline is generally located in areas with flat topography that do not have the relief or slope to support a mudflow. Steep topography and high levels of precipitation are the primary requirements to generate a mudflow. Any excavation created by trenching activities during construction would be reinforced. Construction would not be inundated by a mudflow.

The only area of the pipeline that could be inundated by a seiche or tsunami would be the section that crosses San Diego Creek. This area is identified in Figure S1 of the Newport Beach General Plan Safety Element as being located in a 100-year tsunami inundation zone at extreme high tide. However, there would be no construction along that section of the pipeline. There is no potential for impacts related to risk of loss, injury, or death involving inundation by seiche, tsunami, or mudflow.

	Potentially Significant	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
X. LAND USE AND PLANNING				
Would the project:				
a) Physically divide an established community?	☐	☐	☐	☒
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒
c) Conflict with any applicable habitat conservation plan or natural communities conservation plan?	☐	☐	☐	☒

ENVIRONMENTAL SETTING

The OCF pipeline runs through areas within the cities of Santa Ana, Costa Mesa, and Newport Beach as well as a small portion of unincorporated Orange County (1,178 linear feet).

The majority of the land surrounding the pipeline is developed with single- and multi-family residential, commercial, and roadway/transportation land uses. In addition, several schools are adjacent to the project area within the city of Santa Ana; several park and open space areas are located within and adjacent to the project area in the city of Newport Beach. Existing land uses within and adjacent to the project area are depicted in Figure 1-4. As shown, the pipeline easement deviates away from street rights-of-way within the city of Newport Beach and runs through one commercial parcel and portions of park and open space areas.

Approximately 3,760 linear feet of the pipeline is within the Coastal Zone (in the city of Newport Beach, Reach 4). Coastal Zone areas are generally 1,000 yards (or 3,000 feet) inland from California's mean high tide and demarcated by the CCC. As shown in Figure 1-4, portions of the pipeline between approximately station 1905+85 and 1944+45 cross through, border, or are adjacent to the Coastal Zone.

Approximately 1,856 linear feet of the project alignment, between station 1913+70 and station 1985+85, is located in the Central/Coastal NCCP area (within the city of Newport Beach, Reach 4). The Central/Coastal NCCP is a habitat reserve that specifies adaptive management and impact minimization measures to protect specified target species and habitat. Portions of the pipeline cross through, border, or are adjacent to the 37,000-acre Central/Coastal NCCP reserve. The NCCP allows specific uses (i.e., infrastructure-, recreation-, and habitat-related uses).

REGULATORY SETTING

California Coastal Act/Local Coastal Program

The California Coastal Act of 1976 (Coastal Act) was created to (1) protect, maintain, and, where feasible, enhance and restore the overall quality of the Coastal Zone environment and its natural and man-made resources; (2) ensure orderly, balanced utilization and conservation of Coastal Zone resources that take into account social and economic needs; (3) maximize public access to and along the coast and public recreational opportunities in the Coastal Zone consistent with sound resource conservation principles and constitutionally protected rights of private property

owners; (4) ensure priority for coastal-dependent development over other development on the coast; and (5) encourage state and local cooperation in preparing procedures to implement coordinated planning and development for mutually beneficial uses in the Coastal Zone.

A small portion of the project area (approximately 3,760 linear feet) is within the Coastal Zone, as shown in Figure 1-4. An exemption for the project was obtained from the CCC on March 14, 2014 for the two locations (station 1916+50 and station 1933+65) within the Coastal Zone. Projects related to maintaining and improving existing necessary infrastructure are permitted activities within the Coastal Zone.

Central/Coastal Natural Communities Conservation Plan

In 1996, the Central/Coastal NCCP created a 37,000-acre nature reserve in the foothills of the Santa Ana Mountains. Assembly Bill 2172, the NCCP Act of 1991, authorized the California Department of Fish and Game (CDFG) to enter into agreements with local, state, and/or federal agencies to prepare and implement NCCPs. The NCCP program provides regional or area-wide protection and ensures perpetuation of natural wildlife diversity while allowing compatible and appropriate development and growth. The NCCP program represents a shift from focusing on preservation of individual species to habitat preservation.

As part of the Central/Coastal NCCP, a HCP and an associated implementation agreement were developed to protect target species and habitat. The implementation agreement was signed by the U.S. Fish and Wildlife Service, CDFG, and participating cities and landowners, including Metropolitan. The NCCP/HCP provides funding mechanisms, a management program, and mitigation measures, along with the protection of the 37,000-acre reserve area.

The NCCP reserve includes a small portion of the alignment (approximately 1,856 linear feet of the project alignment) between station 1913+70 and station 1985+85. This portion of the alignment would include two excavation sites, at station 1916+50 and station 1933+65. For a discussion of potential impacts on the reserve from these activities, see Section IV, Biological Resources. The proposed project consists of a water infrastructure maintenance project. Projects related to maintaining and improving existing necessary infrastructure are permitted within the reserve and conform to the NCCP.

General Plans

The project area extends through four jurisdictions, including the cities of Santa Ana, Costa Mesa, and Newport Beach and an area of unincorporated Orange County. Each jurisdiction is governed by its own general plan and zoning code, which serve as the long-range planning guide for development and direct the form and character of the community. Additionally, each of the general plans includes provisions to ensure adequate infrastructure for existing and proposed land uses. The land uses identified by the general plans along the alignment in the project area are largely commercial and residential, with smaller areas of school, park, and open space land use designations.

METHODOLOGY

The land use analysis in this section considers the project's relationship to applicable land use regulations and the relationship between the project and surrounding uses. This analysis identifies applicable plans and regulations and determines whether the project is consistent with them. Projects are considered consistent if they are compatible with the general intent of the plans and do not interfere with their primary intent. The analysis compares the project with existing land uses surrounding the project area to determine whether the project would disrupt, divide, or isolate existing neighborhoods, communities, or land uses.

IMPACT ANALYSIS

Because the project consists of improvements to an existing underground water conveyance pipeline and no additional maintenance activities (beyond existing maintenance of the pipeline) would occur after construction, the project would have no operational impacts. Construction impacts are discussed below.

a) Physically divide an established community?

No Impact.

The proposed project consists of improvements to an existing underground water conveyance pipeline. The proposed project would not involve construction of any structures or alterations that would physically divide an established community. No impact would occur.

b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?

No Impact.

California Coastal Act Consistency. The Coastal Act and its policies are focused primarily on new development and new facilities that would be sited in the Coastal Zone, maintaining recreational uses and access to Coastal Zone areas, and protecting the coastal environment (City of Newport Beach 2009, 2011). As such, there are no Coastal Act policies that are specific to improvements to and maintenance of an existing underground water conveyance facility. The proposed project does not conflict with or hinder any of the Coastal Act's principles and policy objectives. As a result, the project is consistent with the Coastal Act, and impacts related to the Coastal Act would not occur.

General Plan Consistency. The general plans of the jurisdictions within the project area provide policies that guide development and the character of land uses and neighborhoods (City of Costa Mesa 2002; City of Santa Ana 1998; City of Newport Beach 2011; County of Orange 2011). The proposed project traverses portions of three cities and an unincorporated county area. The proposed improvements to existing infrastructure would occur entirely underground and largely within street rights-of-way. Aside from additional manholes along the alignment, the project area would be restored to its original condition following completion of the project. The project would not require or result in changes to land uses or existing zoning designations. The proposed project would result in improved water conveyance infrastructure and help to ensure the provision of water services, which is a benefit that is consistent with each of the general plans. The proposed project would not conflict with general plan objectives, goals, or policies applicable to the project, and no impact would occur.

c) Conflict with any applicable habitat conservation plan or natural communities conservation plan?

No Impact.

Portions of the project are located within the Central/Coastal NCCP/HCP reserve area (County of Orange 1996). The NCCP lists, as well as conditionally lists, a number of identified species and habitats. It also lists permitted activities within the reserve. NCCP/HCP Section 5.9 describes permitted activities and policies related to infrastructure. Permitted activities include those related to public infrastructure that are necessary for public health and safety or the economy. This includes water lines and associated facilities (e.g., pump stations, pressure control facilities, and access roads). The NCCP/HCP Implementation Agreement (Section 5.3.3, page 59) lists operation, maintenance, repair, and reconstruction of existing necessary infrastructure as permitted activities. No impact would occur.

The proposed project would provide improvements to water infrastructure, which is consistent with activities permitted by the NCCP/HCP and the NCCP/HCP Implementation Agreement. No impacts would occur.

	Potentially Significant	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
XI. MINERAL RESOURCES				
Would the project:				
a) 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?	☐	☐	☐	☒
b) 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?	☐	☐	☐	☒

ENVIRONMENTAL SETTING

A review of the general plans for the cities of Santa Ana, Costa Mesa, and Newport Beach indicates that oil is the only mineral resource in the region. The West Newport and Newport Oil Fields, located in southern Costa Mesa and western Newport Beach, have the only active wells in the region. Neither of these oil fields is located within the vicinity of the proposed project. There are no active mines or other mineral extraction operations within the vicinity of the proposed project alignment.

METHODOLOGY

For the purposes of this CEQA analysis, a potentially significant impact on mineral resources would occur if construction or operation of the proposed project would result in conflicts with existing mining operations or impede the ability to extract or access resources. A review of the conservation elements of each city's general plan was conducted to determine known mineral resources in the project area.

IMPACT ANALYSIS

The project would have no operational impacts. Construction impacts are discussed below.

a) 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.

As stated previously, other than oil extraction, no mines or mineral resource recovery sites are known to be within the vicinity of the project site. The nearest known oil resource is the West Newport Oil Field, and its delineated limits are more than 4 miles southwest of the project alignment (near station 1826+50). In addition, one known oil well is approximately 1,500 feet from station 1944+25, adjacent to Bonita Creek Park (City of Newport Beach 2006a). However, this well appears to be inactive. The project proposes to repair an existing pipeline and does not propose any construction work outside of previously disturbed areas. No impacts would occur at any point along the project alignment.

b) 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.

In addition to the West Newport Oil Field, one known oil well is approximately 1,500 feet from station 1944+25. The site of the oil well is identified by the Southern California Association of Governments (2005) as vacant land. The site is designated as open space (City of Newport Beach 2006b). Construction activities associated with the project would have no effect on this known oil well because of its distance from the project. No impact on a locally important mineral resource recovery site would occur.

	Potentially Significant	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
XII. NOISE				
Would the project result in:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance or applicable standards of other agencies?	☐	☐	☒	☐
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☐	☒
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☒	☐	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☒	☐
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

ENVIRONMENTAL SETTING

Noise Terminology

Below are brief definitions for the noise terminology used in this section.

- *Sound.* Sound is caused by vibration that produces pressure waves that travel outward from the source of the disturbance. The human perception of sound varies according to the characteristics of the sound waves (e.g., period, amplitude, frequency, speed, and wavelength) and the characteristics of the media through which the sound travels (e.g., air, water, and solids).
- *Noise.* Noise is defined as unwanted sound that adversely affects any given receiver location. In general, sound waves travel away from a ground-level noise source in a hemispherical pattern. The energy contained in a sound wave is spread over an increasing area as it travels away from the source. This results in a decrease in loudness at greater distances from the noise source.
- *Decibel (dB).* Sound level meters measure the air pressure fluctuations caused by sound waves, with separate measurements made for different sound frequency ranges. The dB scale used to describe sound is a logarithmic scale, which accounts for the large range of audible sound intensities.

- *A-Weighted Decibel (dBA).* Most sounds consist of a broad range of sound frequencies. The dBA scale, which is a measure of sound intensity, is weighted to take into account human perception of different frequencies of sound. Typical A-weighted noise levels for various types of sound sources are summarized in Table XII-1.
- *Equivalent Sound Level (L_{eq}).* L_{eq} represents an average of the sound energy occurring over a specified period. In effect, L_{eq} is the steady-state sound level that would contain the same acoustical energy as the time-varying sound that actually occurs during the monitoring period. The 1-hour A-weighted equivalent sound level (L_{eq} 1[h]) is the energy average of A-weighted sound levels occurring during a 1-hour period.
- *Maximum and Minimum Sound Levels (L_{max}, L_{min}).* The maximum (L_{max}) and minimum (L_{min}) sound levels measured during a monitoring period.
- *Day-Night Level (L_{dn}).* The energy average of the A-weighted sound levels occurring during a 24-hour period, with a 10 dB penalty added to sound levels between 10 p.m. and 7 a.m.

Table XII-1. Typical A-Weighted Sound Levels

Common Outdoor Activities	Sound Level (dBA)	Common Indoor Activities
	110	Rock band
Jet flyover at 1,000 feet		
	100	
Gas lawnmower at 3 feet		
	90	
Diesel truck at 50 mph at 50 feet		Food blender at 3 feet
	80	Garbage disposal at 3 feet
Noisy urban area, daytime		
Gas lawnmower at 100 feet	70	Vacuum cleaner at 3 feet
Commercial area		Normal speech at 3 feet
Heavy traffic at 300 feet	60	
		Large business office
Quiet urban area, daytime	50	Dishwasher in next room
Quiet urban area, nighttime	40	Theater, large conference room (background)
Quiet suburban area, nighttime		
	30	Library
		Bedroom at night, concert hall (background)
Rustling of leaves	20	
		Broadcast/recording studio
	10	
Threshold of human hearing	0	Threshold of human hearing
Source: California Department of Transportation 2009.		

Because of the logarithmic decibel scale, sound levels from different noise sources cannot be added directly to give a combined noise level. Instead, the combined noise level produced by multiple sources is calculated logarithmically. For example, if one bulldozer produces a noise level of 80 dBA, then two bulldozers would generate a combined noise level of 83 dBA, not 160 dBA. For another example, if a steady stream of cars on a roadway causes an L_{eq} noise level of 60 dBA at the nearest home and occasional trucks (by themselves) cause 50 dBA, then the noise caused by the combined traffic (cars plus trucks) would be 60.4 dBA.

People generally perceive a 10 dBA increase in a noise source as a doubling of loudness. For example, an average person would perceive a 70 dBA sound level as being twice as loud as a 60 dBA sound. People generally cannot detect differences of 1 to 2 dBA between noise levels of a similar nature (e.g., an increase in traffic noise compared with existing traffic noise). However, under ideal listening conditions, some people can detect differences of 2 or

3 dBA. Under normal listening conditions, most people would perceive a 5 dBA change in sounds of a similar nature. For example, when a new sound of a different nature from the background sound occurs (e.g., backup alarms compared with quiet residential sounds), most people can detect the changes as small as 1 dBA.

When distance is the only factor considered, sound levels from isolated point sources of noise typically decrease by about 6 dBA for every doubling of distance from the noise source. When the noise source is a continuous line (e.g., vehicle traffic on a highway), sound levels decrease by about 3 dBA for every doubling of distance. The attenuation rate is used to describe the rate at which the intensity of a sound signal declines as it travels outward from its source. Noise levels can also be affected by factors other than the distance from the noise source. Topographic features and structural barriers that absorb, reflect, or scatter sound waves can affect the reduction of noise levels. Atmospheric conditions (e.g., wind speed and direction, humidity levels, and temperatures) can also affect the degree to which sound is attenuated over distance. Normally, the presence of acoustically absorptive ground, such as ground covered by grass, will increase the rate of attenuation by about 1.5 dB per doubling of distance. Thus, where absorptive ground is present, the attenuation rate for a point source will increase to about 7.5 dB per doubling of distance, and the rate for a line source will increase to about 4.5 dB per doubling of distance.

Echoes off of topographical features or buildings can sometimes result in higher sound levels (lower sound attenuation rates) than normally expected. Temperature inversions and changes in wind directions can also refract and focus sound waves toward a location at considerable distance from the noise source. These effects are usually noticeable only for very intense noise sources, such as blasting operations. As a result, the existing noise environment can be highly variable, depending on local conditions.

Ambient Noise Environment

The project alignment is located primarily along city streets in the cities of Santa Ana, Costa Mesa, and Newport Beach. Land uses along the project alignment include single- and multi-family residential units, commercial uses, schools, parks, and open space. Typical background noise levels in suburban residential areas are between 50 and 60 dBA L_{dn}. Background noise levels in urban residential areas are most likely higher, between 60 and 70 dBA L_{dn} (Federal Transit Administration 2006).

Short-term sound level measurements were conducted on June 2, 2011, with a Larson Davis Type 812 sound level meter (SLM). Noise was measured at 10 representative noise-sensitive locations, as shown in Figure 3.12-1, near the proposed pipeline alignment. During the field measurements, physical observations of the predominant noise sources were noted. The noise sources in the project area include mostly local street traffic and aircraft overflights from John Wayne Airport, which is about 1 mile east of the project alignment. Other noise sources include occasional landscaping equipment, barking dogs, and fire and police sirens.

The results of the sound level measurements are summarized in Table XII-2. The measured noise levels during daytime hours along the project alignment ranged from 51 to 59 dBA L_{eq} in residential, school, and park areas away from major streets (at sites ST-2 through ST-4 and ST-7 through ST-10). Noise levels ranged from 65 to 71 dBA L_{eq} at residential areas located directly adjacent to Bristol Street with direct line of sight to street traffic (at sites ST-1, ST-5, and ST-6).

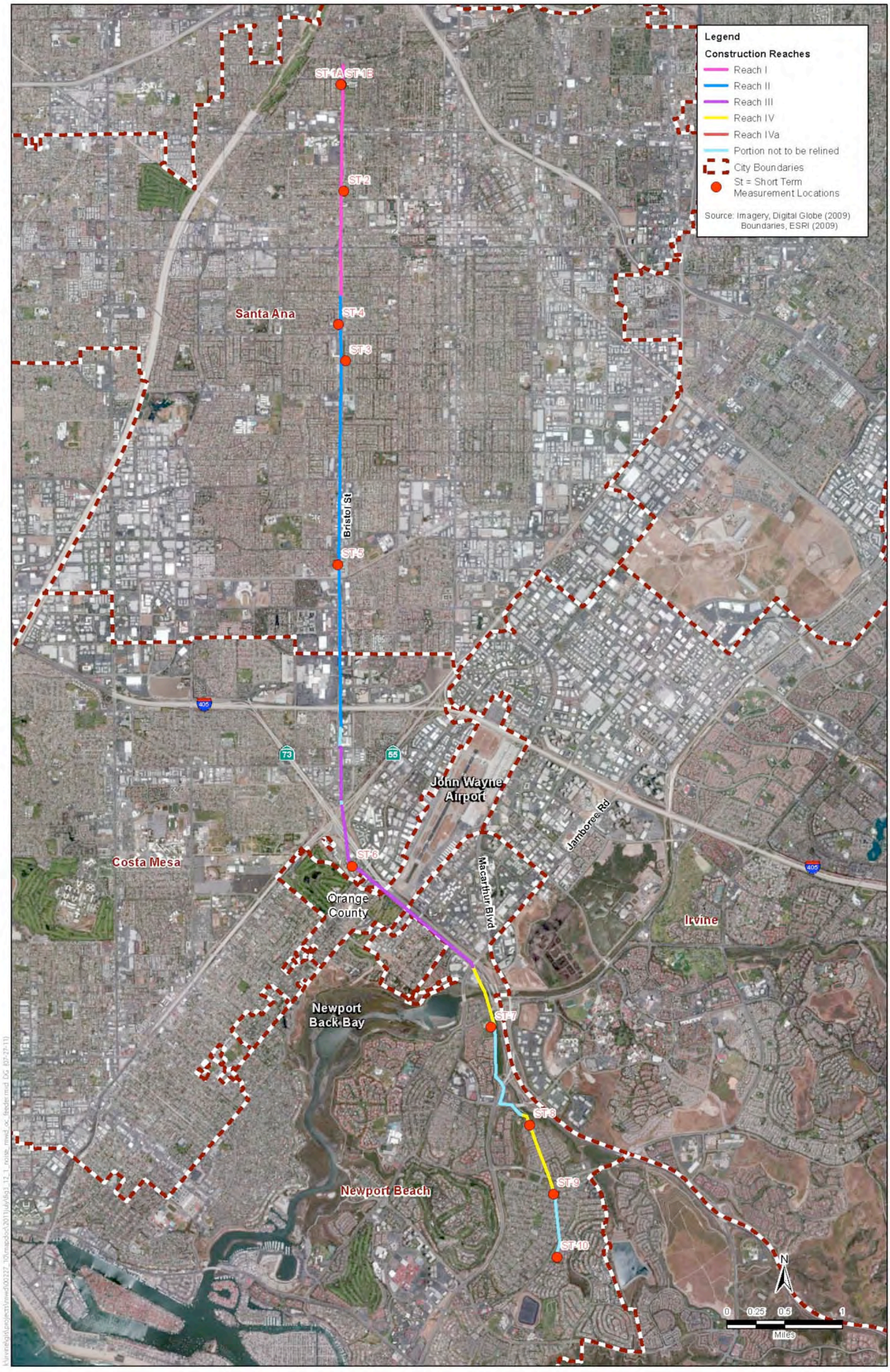

Figure 3.12-1
Noise Measurement Locations
Orange County Feeder Relining Project

Table XII-2. Short-Term Sound Level Measurement Results

Site ID	Measurement Location / Approx. Station	Measurement Period		Noise Sources	Measurement Results (dBA)		
		Start Time	Duration (minutes)		L_{eq}	L_{max}	L_{min}
ST-1	Home at 2238 Bristol Street, Santa Ana /station 1467+81	9:38	10	Traffic along Bristol Street, music from nearby homes.	64.9	74.3	47.1
ST-2	Home at 867 Bristol Street, Santa Ana/station 1523+04	10:05	10	Traffic along Bristol Street, dogs barking, people/kids talking in the house.	58.5	70.5	41.3
ST-3	Backyard of home at 1235 Magnolia Avenue, Santa Ana/station 1600+15	10:40	10	Traffic along Bristol Street, dogs barking, people/kids talking in the house, aircraft on approach to John Wayne Airport.	50.9	61.9	39.8
ST-4	Martin Luther King Jr. Elementary School, Santa Ana/station 1595+30	11:15	10	Traffic along Bristol Street, kids playing in the background.	56.5	67.9	48.3
ST-5	Park Bristol Apartments at 3050 Bristol Street, Santa Ana/station 1692+00	11:50	10	Traffic along Bristol Street, dogs barking,	71.2	80.4	49.8
ST-6	The Mission at Back Bay Apartments, 1330 SE Bristol Street, Costa Mesa/station 1633+36	2:10	10	Traffic along Bristol Street, aircraft out of John Wayne Airport.	70.2	82.4	56.0
ST-7	Bonita Creek Park/ station 1933+65	2:35	10	Traffic on Jamboree Road and MacArthur Boulevard, kids skate boarding.	55.0	65.9	49.2
ST-8	Outside Bonita Canyon community/station 1988+14	3:28	10	Traffic on SR 73, Bison Avenue, and MacArthur Boulevard.	53.3	63.9	58.2
ST-9	Empty lot (future home) beside 1956 Port Cardiff Place, Newport Beach/ station 2018+22	3:55	10	Traffic on Bonita Canyon Drive.	50.5	62.3	45.7
ST-10	San Miguel Park and surrounding homes/ station 2042+43	4:15	10	Traffic along San Miguel Drive, people playing basketball.	52.5	62.4	45.7

Noise-Sensitive Land Uses

Noise-sensitive land uses are generally defined as locations where people reside or where the presence of unwanted sound could adversely affect the use of the land. Noise-sensitive land uses typically include residences, hospitals, schools, guest lodgings, libraries that have outdoor seating areas, and certain types of recreational uses.

For the project, construction-related noise would be generated from construction activities at the pipeline access sites and from vehicles loading and unloading at the storage areas. Construction activities would occur at the identified access locations along the project alignment, as shown in Figures 1-3a through 1-3e. The storage areas along the project alignment are shown in Figure 1-2. Noise-sensitive land uses around the pipeline access sites and storage areas include single- and multi-family residential units, schools, parks, and open space. Land uses directly adjacent to the pipeline alignment are summarized in Table 1-5 (Surrounding Land Uses).

METHODOLOGY

Noise Ordinance

Many local jurisdictions have noise ordinances and/or municipal codes that define noise levels that may result in disturbance or adverse effects. City and county noise ordinances and municipal codes are used primarily to limit noise from stationary sources. In many cases, they also regulate noise generated by construction. The following sections describe the local noise regulations for the jurisdictions in which the project would be located.

City of Santa Ana

According to Santa Ana Code, construction activities that take place between the hours of 7 a.m. and 8 p.m. on weekdays are exempted from the provisions of this article. Noise sources associated with construction, repair, remodeling, or grading of any real property are also exempted, provided the activities do not take place between the hours of 8 p.m. and 7 a.m. on weekdays, including Saturday, or any time on Sunday or a federal holiday. According to Section 18-319 (Variance Procedure), the owner or operator of a noise source that violates any of the provisions of this article may file an application with the Orange County health officer for a variance.

City of Costa Mesa

According to Costa Mesa Code the following construction-related noise sources are exempted from the provisions of this chapter:

a) Emergency machinery, vehicles, or work; or

b) Construction equipment, vehicles, or work between the following approved hours, provided that all required permits for such construction, repair, or remodeling have been obtained from the appropriate city departments:

Table XII-3. Costa Mesa Hours of Construction

7 a.m. through 7 p.m.	Monday through Friday
9 a.m. through 6 p.m.	Saturdays
Prohibited all hours	Sundays and the following specified federal holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and Christmas Day

c) An applicant may request approval of a minor modification for a temporary waiver for construction equipment, vehicles, or work outside these permitted hours. The minor modification may be granted by the development services director or his/her designee.

Unless a temporary waiver is approved, construction activity outside the permitted hours shall still be subject to the city's noise regulations.

According to Section 13-285 of the Costa Mesa Code (Variance Procedure), the owner or operator of a noise source that violates any of the provisions of this chapter may file an application with the development services director for a variance from the provisions of this chapter.

City of Newport Beach

According to Newport Beach Code, Section 10.28.040 (Construction Activity—Noise Regulations), no person shall, while engaged in construction, remodeling, digging, grading, demolition, painting, plastering, or any other related building activity, operate any tool, equipment, or machine in a manner that produces loud noise that disturbs, or could disturb, a person of normal sensitivity who works or resides in the vicinity on any weekday except between the hours of 7 a.m. and 6:30 p.m., on any Saturday between the hours of 8 a.m. and 6 p.m., or on any Sunday or any federal holiday.

The maintenance, repair, or improvement of any public work or facility by public employees, by any person or persons acting pursuant to a public works contract are exempted from the provisions of this section.

County of Orange

According to Orange County Code, it shall be 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 the noise standards specified in the article. The exemption, in Section 4-6-7 of the Orange County Code, Special Provisions, is provided to noise sources associated with construction, repair, remodeling, or grading of any real property, provided said activities take place between the hours of 7 a.m. and 8 p.m., including Saturday, Sunday, and federal holidays.

Estimated Construction Noise

As described in the project description, construction activities are anticipated to occur during two winter seasons (mid-September to mid-April). The project is divided into five reaches; one reach would be worked on at a time. Within each reach, the pipeline would be accessed through the proposed access points, as shown in Figures 1-3a through 1-3e, and relined section by section, at approximately 1,500-foot intervals along the pipeline alignment. Therefore, construction activities are expected to occur at the pipeline access sites. Once the construction work for a pipeline section is completed, the access site would be covered with a new manhole and construction activities would move to the next access site for the following pipeline section. It is anticipated that construction work at each access site, from access site excavation and pipeline work to access site recovery, would take approximately 3 weeks. Table 1-1 (Construction Details) lists the construction activities, equipment, and anticipated truck trips associated with project construction.

Table XII-3 presents typical noise levels for the various types of construction equipment that would most likely be used for this project. The noise levels listed represent the A-weighted L_{max} and L_{eq}, measured at a distance of 50 feet from the construction equipment. The table also lists typical utilization factors for each piece of equipment, defined as the fraction of time that the equipment typically runs at maximum capacity. The utilization factors are used to estimate L_{eq} values from L_{max} values. For example, the L_{eq} value for a piece of equipment that operates at full power 50% of the time (acoustical use factor of 50) is 3 dB less than the L_{max} value.

Table XII-4. Typical Construction Equipment Noise Levels

Equipment	Utilization Factor (%)	L_{max} Noise Level at 50 feet from Source (dBA)	L_{eq} Noise Level at 50 feet from Source (dBA)
Backhoe	40	78	74
Concrete Pump Truck	20	81	74
Concrete Saw	20	90	83
Crane	16	81	73
Dump Truck	40	76	72
Excavator	40	81	77
Front-End Loader	40	79	75
Generator	50	81	78
Jackhammer	20	89	82
Paver	50	77	74
Pumps	50	81	78
Roller	20	80	73
Vacuum Street Sweeper	10	82	72
Welder	40	74	70
Source: Federal Highway Administration 2006.			

The noise levels shown in Table XII-3 were used to calculate the combined noise levels at various distances from the pipeline access sites. Noise generated from the work site included a point-source attenuation of 6 dB per doubling of distance. Additional attenuation resulting from atmospheric effects is also included. Any shielding effects that may result from local barriers (including topography, fences, etc.) are not included. Noise attenuation from ground absorption is not assumed because the project area is mostly paved, hard ground. The estimated construction noise levels at various distances from the work site are summarized in Table XII-4.

Because the sequence of construction, which would depend on contractor methods and specific site conditions, has not been determined, for the purpose of this impact analysis, noise generated by construction activities at an access point is estimated by assuming simultaneous operation of the three loudest pieces of equipment (concrete saw, jackhammer, and pump). The estimated construction noise levels reflect a conservative condition where the loudest pieces of equipment are assumed to operate simultaneously at the work site for a 1-hour period. In reality, construction activities would most likely be intermittent. Therefore, actual noise levels could be somewhat lower than the estimated noise levels shown in Table XII-4.

Table XII-5. Estimated Construction Noise Levels at Varying Distances

Distance from Construction Site (feet)	Estimated Construction L_{eq} (dBA)[a]
50	86
100	80
150	76
200	74
250	72
300	70
400	68
500	65

Note:
[a] Combined noise level generated by concrete saw, jackhammer, and pump is calculated using noise levels shown in Table XII-3.

IMPACT ANALYSIS

The project would have no operational impacts. Construction impacts are discussed below.

a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance or applicable standards of other agencies?

Less-than-Significant Impact.

The construction of the project would result in temporary, localized noise increases from construction equipment operating at the manhole access sites and vehicles loading/unloading at the storage areas. However, according to the noise ordinance in the project areas, temporary daytime construction activities are exempt from the noise ordinance. Therefore, no regulatory requirements are applicable to daytime construction for the proposed project. A variance would be acquired for any nighttime construction work. The impact would be less than significant because the proposed project would be required to comply with all federal, state, and local regulations related to construction noise.

b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

Less-than-Significant Impact.

The operation of heavy equipment may generate localized groundborne vibration at buildings adjacent to the construction site. Operation of high-impact equipment, such as pile drivers, would produce higher levels of vibration. Vibration from low-impact construction activity and truck traffic is typically below the threshold of

perception when the activity is more than about 50 feet from sensitive land uses (Federal Transit Administration 2006). The proposed project would not include high-impact construction equipment. Because the project would not involve high-impact equipment, this impact is expected to be less than significant, and no mitigation is required.

c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

No Impact.

The project would involve construction activities related to relining an existing pipeline. Although the project would result in temporary increases in ambient noise levels during project construction, the noise would be short term and cease after the project is completed. The project would not result in substantial permanent increases in ambient noise levels, and no impacts would result.

d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

Less than Significant with Mitigation.

Construction of the project would result in temporary, localized noise increases from construction equipment operating at the pipeline access sites and vehicles loading and unloading at the storage areas. Table XII-4 shows the estimated noise levels at varying distances from an access site. As shown in Figure 1-2 (Construction Reaches and Staging Areas) and Figures 1-3a through 1-3e (Construction Reach and Manhole Details), first-row homes and apartments on Bristol Street and Mesa View Drive are located about 50 to 100 feet from the proposed access sites. Construction activities could generate noise levels as high as 80 to 86 dBA L_{eq} when the construction site is adjacent to the first-row residences along the alignment. Although the estimated noise levels could be lower than the actual noise levels, construction noise would most likely be substantially higher than the typical ambient daytime noise levels measured at the sensitive receivers (Table XII-2). Therefore, the impact would be potentially significant during the construction period. To reduce construction noise at nearby receptors, mitigation measure NOI-1 would be incorporated into construction plans and contractor specifications.

Noise associated with activities at the storage areas includes noise from trucks while loading and unloading equipment and workers' vehicles when entering and exiting the storage areas. The noise levels generated by the vehicles would last for only a few minutes and would not be expected to result in a substantial increase in ambient noise levels in the area. Noise impacts at the storage areas would be less than significant.

Mitigation Measures

Mitigation Measure NOI-1

Metropolitan will coordinate with Orange County and the cities of Santa Ana, Costa Mesa, and Newport Beach to develop construction noise control measures and procedures. Measures to reduce temporary construction noise impacts on nearby residences may include, but not be limited to, the following:

- Develop noise control plans in coordination with local jurisdictions. The noise control plan shall be implemented and revised, as necessary and applicable.
- Comply with manufacturers' muffler requirements on all construction equipment engines.
- Turn off construction equipment when not in use, where applicable.
- Employ construction methods or equipment that will provide the lowest level of noise impact near residences.
- Use temporary noise barriers around continuously operating equipment or along construction boundaries to protect adjacent residences against excessive noise from construction activities, when practicable.
- Minimize construction activities within residential areas during evening, nighttime, weekend, and holiday periods to the extent feasible.

- Provide advance written notification of construction activities to residences and businesses around the construction site. The notification will include a brief overview of the proposed project and its purpose as well as the proposed construction activities and schedule. It also will include the name and contact information for the Metropolitan project manager or representative responsible for resolving any noise issues.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

Less-than-Significant Impact.

A portion of the project alignment is located within 2 miles of John Wayne Airport; however, the project would involve only temporary construction activities at manhole sites along the pipeline. Although the project would result in a temporary increase in ambient noise levels during project construction, the noise would be short term and cease after the project is completed. The project would not result in cumulative noise impacts on people residing or working within 2 miles of the airport. The impact would be less than significant.

f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?

No Impact.

The project is not located within the vicinity of a private airstrip. No impacts will occur.

	Potentially Significant	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
XIII. POPULATION AND HOUSING				
Would the project:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

ENVIRONMENTAL SETTING

The OCF pipeline runs through areas within the cities of Santa Ana, Costa Mesa, and Newport Beach as well as a small unincorporated county area.

METHODOLOGY

Impacts on population and housing would be related to the project's potential to result in changes to existing population or development trends.

IMPACT ANALYSIS

Because the project consists of improvements to an existing underground water conveyance pipeline and no activities would occur after construction, the project would have no operational impacts. Construction impacts are discussed below.

a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

No Impact.

The project proposes to improve and maintain an existing water conveyance pipeline. The proposed project does not include the construction of new homes or businesses. Direct population growth would not occur with implementation of the proposed project. The project would not add capacity to the pipeline or provide other enhancements that could induce population growth. Rather, the project is expected to improve infrastructure and ensure water supply services to the existing water service area. The project would not affect the location, distribution, density, or growth rate of populations within the vicinity of the project area. The project would not induce substantial population growth, either directly or indirectly, and no impacts would occur.

b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?

No Impact.

The project does not include the demolition, destruction, or displacement of any existing housing. Construction activities would occur primarily within street rights-of-way. The project proposes to improve an aging water conveyance pipeline and provide better facilities for the community. Impacts related to displacing substantial numbers of existing housing units would not occur.

c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?

No Impact.

As described above, the nature of the project is to improve an aging water conveyance pipeline and provide an upgraded waterline for the community. The project does not include the demolition or destruction of any existing housing, and no people would be displaced as a result of this project. The pipeline alignment would be restored to existing conditions upon completion of construction activities. The proposed project would not result in an impact related to the displacement of people or necessitate the construction of replacement housing.

	Potentially Significant	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
XIV. PUBLIC SERVICES				
Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered government facilities or need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services:				
a) Fire protection?	☐	☐	☒	☐
b) Police protection?	☐	☐	☒	☐
c) Schools?	☐	☐	☐	☒
d) Parks?	☐	☐	☐	☒
e) Other public facilities?	☐	☐	☒	☐

ENVIRONMENTAL SETTING

There are numerous public services and facilities within the project area, as discussed below.

Fire

The project area is served by the Santa Ana Fire Department, the Costa Mesa Fire Department, and the Newport Beach Fire Department.

The Santa Ana Fire Department provides emergency and public safety services to the city of Santa Ana through its 10 stations and 280 employees. The stations are situated throughout the city so that no location is outside a 1.5-mile radius. In addition, the city maintains a Mutual Aid Agreement for fire protection services with the cities of Fountain Valley, Garden Grove, Tustin, Irvine, and Costa Mesa. The following Santa Ana Fire Department stations are located within 0.5 mile of the proposed project:

- Santa Ana Fire Station #1, 1029 W. 17th Street (approximately 0.4 mile from station 1497+91).
- Santa Ana Fire Station #3, 419 S. Franklin Street (approximately 0.5 mile from station 1572+79).
- Santa Ana Fire Station #6, 950 W. MacArthur Boulevard (approximately 0.2 mile from station 1717+50).

The Costa Mesa Fire Department maintains six fire stations and serves an area of approximately 16.8 square miles in the city of Costa Mesa. The department maintains a 24-hour shift with 29 firefighters/emergency medical personnel as well as chief officers at each station. According to the Costa Mesa General Plan, the goal of the fire department is to maintain an average response time to emergencies of fewer than 5 minutes 80% of the time. In addition, the department is a participant in Central Net, an automatic mutual aid system, with the cities of Santa Ana, Newport Beach, and Huntington Beach as well as the Orange County Fire Authority. Under this agreement, the closest emergency response unit is dispatched to an emergency regardless of city boundary. The following Costa Mesa Fire Department stations are located within 0.5 mile of the proposed project:

- Costa Mesa Fire Station #6, 3350 Sakioka Drive (approximately 0.5 mile from station 1762+82).
- Costa Mesa Fire Station #2, 800 Baker Street (approximately 0.2 mile from station 1797+44).

The Newport Beach Fire Department maintains eight fire stations, which are strategically located within specific districts in the immediate geographical area. A total of 117 full-time firefighters and 13 full-time lifeguards are assigned to the Fire Operations Division of the department. In addition to fire suppression, the Newport Beach Fire Department also provides fire prevention and hazard reduction services within the city. This includes inspection or reviews of new construction and remodels. The only fire station within 0.5 mile of the proposed project is Santa Ana Heights Fire Station #7, located at 20401 Acacia Street, approximately 0.4 mile from proposed station 1877+88.

The city of Santa Ana is located within Division 4 of the Orange County Fire Authority (OCFA) operations service area. The cities of Costa Mesa and Newport Beach are located within Division 2; OCFA does not serve these cities. However, one OCFA fire station, Station #33, located approximately 0.9 mile east of station 1797+44, at 366 Paularino Avenue, serves John Wayne Airport.

Police

The Santa Ana Police Department maintains three stations within the city. The primary branch is located at the Santa Ana Civic Center at 60 Civic Center Plaza, approximately 0.6 mile east of project (station 1541+54). The other two police station locations, the Downtown Substation and the Westend Substation, are located more than 1 mile from the proposed project, to the east and to the west, respectively.

The Costa Mesa Police Department is located at 99 Fair Drive, approximately 0.9 mile southwest of station 1826+50. The police department recently (2008) implemented a geographically based policing strategy that divides the city into two areas according to historic service call patterns. The proposed project is located in Area 2, which encompasses the northern half of the city of Costa Mesa.

The Newport Beach Police Department maintains one station at 870 Santa Barbara Drive, which is approximately 1.6 miles west of the proposed project (station 2017+90). The pipeline alignment runs along the northern border of the city of Newport Beach through Service Areas 2 and 3 of the Newport Beach Police Department Patrol and Traffic Division.

The Orange County Sheriff's Department does not serve the cities of Santa Ana, Costa Mesa, or Newport Beach. However, the department does provide service to John Wayne Airport and harbor patrol services in Newport Bay. There are three sheriff's department offices in the vicinity of the proposed project, one of which is the Orange County Coroner's Office, which does not provide police protection service. The other two sheriff's department locations are:

- Orange County Sheriff's Department, Airport Operations, 18601 Airport Way (approximately 1.6 miles east of station 1771+00).
- Orange County Sheriff's Department, Harbor Patrol, 1901 Bayside Drive (approximately 1.5 miles southwest of project alignment terminus, station 2053+10).

Schools

The project area includes lands within the Santa Ana Unified School District and Newport-Mesa Unified School District. The schools adjacent to the project alignment are listed below.

- Santiago Elementary School, 2212 North Baker Street, Santa Ana
- Mendez Intermediate School, 2000 North Bristol Street, Santa Ana
- Carver Elementary School, 1401 West Santa Ana Boulevard, Santa Ana
- Martin Luther King Jr. School, 1001 Graham Lane, Santa Ana
- Mater Dei High School, 1202 West Edinger Avenue, Santa Ana
- Sepulveda Elementary School, 1801 South Poplar Street, Santa Ana

In addition, Santa Ana College, located at 1530 W. 17th Street, is adjacent to the project site (station 1497+91 and station 1510+24). The college is part of the Rancho Santiago Community College District.

Parks

Four parks are adjacent to and within the project area.

- Bonita Creek Park and Field, 3010 La Vida, Newport Beach
- Arroyo Park and Field, 1411 Bayswater Drive, Newport Beach
- Bonita Canyon Sports Park, 1990 Ford Road, Newport Beach
- San Miguel Park and Field, San Miguel Drive and Spyglass Hill Road, Newport Beach

Other Community Facilities

The only other community facility located adjacent to the project area is Coastal Communities Hospital, located at 2701 S. Bristol Street, just east of station 1680+12.

METHODOLOGY

To conduct this analysis, an inventory of existing public facilities and service providers in the project area was prepared and compared with the proposed project to determine what, if any, impacts on public facilities and services would occur. Potentially significant impacts on public services and facilities would occur if physical effects from the proposed project on existing fire, police, park, school, or other public facilities and services would require the construction or expansion of such facilities or affect the service providers' ability to provide adequate service ratios or response times, thereby requiring additional facilities.

IMPACT ANALYSIS

Only a portion of the project area would undergo construction at any given time, and all construction activities would be coordinated with the local jurisdictions and emergency service providers to ensure that adequate notice regarding construction disruptions is provided. The hours of construction would comply with the requirements of the local jurisdictions, which limit the hours of construction.

a) Fire protection?

Less-than-Significant Impacts.

There are no fire protection facilities adjacent to the project alignment. Construction would not affect the daily operations and functions of fire protection services such that new or expanded facilities would be required. During construction of the proposed project, equipment and personnel would be present at the entry and exit points above the pipeline. A staging area at street level measuring up to 12 by 100 feet (within one lane) may be required, possibly resulting in lane closures at various points along the pipeline alignment. This could result in traffic delays and some changes regarding access, which has the potential to increase fire response times temporarily.

Most of the project would take place along Bristol Street in the city of Santa Ana. Accordingly, access along and across Bristol Street would be reduced, which may result in some increased fire response times for the Santa Ana Fire Department. However, the City of Santa Ana has 10 fire stations throughout the city that provide coverage to areas on either side of Bristol Street. Therefore, depending upon the location of the emergency, responders could avoid crossing or using Bristol Street entirely. In addition, construction would take place within individual sections along Bristol Street. The majority of the streets through Santa Ana would be unaffected during construction. Within the cities of Costa Mesa and Newport Beach, the pipeline alignment would remain along the northern and eastern boundaries of the cities. Therefore, most emergency responders would not need to access or cross roadways that would be affected by the proposed project.

Mitigation measure TRAN-1, which would be coordinated with the public service providers in the cities of Santa Ana, Costa Mesa, and Newport Beach, would be prepared by Metropolitan prior to the start of construction to minimize any potential increases to emergency response times. Adequate emergency response times would be maintained throughout construction of the proposed project. Impacts would be less than significant.

b) Police protection?

Less-than-Significant Impacts.

Similar to fire protection service, impacts on police protection would be related to traffic delays and limited access resulting from construction equipment and staging areas adjacent to the manhole access locations along the pipeline alignment. However, police protection services in the cities of Santa Ana, Costa Mesa, and Newport Beach generally rely on a patrolling strategy that calls for police officers to be dispatched to emergency calls according to their proximity to the emergency. As such, police response times would not be affected substantially during construction because construction hours and locations would be communicated to local law enforcement agencies through implementation of TRAN-1, and emergency dispatch operations would be coordinated accordingly. A less-than-significant impact on police protection services would occur.

c) Schools?

No Impact.

The proposed project would improve an existing underground water conveyance pipeline. It does not include the construction of new homes or businesses. Therefore, direct population growth, which could result in the need for additional or expanded school facilities, would not occur with implementation of the project. The project would not add capacity to the pipeline, which could induce population growth. Rather, the project would repair and maintain existing infrastructure to ensure an adequate water supply to the existing water service area. As a result, the project would not increase school enrollment or result in the need for new or expanded school facilities. Impacts related to schools would not occur.

d) Parks?

No Impact.

The intent of the project is to improve a water conveyance pipeline for the community. Project activities would be limited to maintenance and construction along the existing underground pipeline. The project does not include the provision, expansion, or construction of park facilities. The project would not result in environmental impacts related to the construction of parks.

As described previously, the project would not result in an increase in water conveyance capacity or otherwise affect the location, distribution, density, or growth rate of the population within the vicinity of the project area. Because growth would not occur, the project would not result in an increase in the use of existing parks such that new parks would be needed or that physical deterioration of the parks would occur. The project would result in no impacts related to increased usage and physical deterioration of park facilities.

e) Other public facilities?

Less-than-Significant Impacts.

Coastal Communities Hospital in the city of Santa Ana is adjacent to the proposed project. Construction would take place within a public street right-of-way at station 1685+30, approximately 700 feet south of the hospital. Accordingly, construction would not result in any physical effects on the hospital. Although there would be some increases in traffic due to lane closures along Bristol Street, access to and from the hospital would be maintained throughout construction, and no new or altered hospital facilities would be required to serve the community. A less-than-significant impact would occur.

	Potentially Significant	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
XV. RECREATION				
a) Would the project increase the use of existing neighborhood or regional parks or other recreational facilities such that substantial physical deterioration of a facility would occur or be accelerated?	☐	☐	☐	☒
b) Would the project include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	☐	☐	☐	☒

ENVIRONMENTAL SETTING

Five recreational facilities are adjacent to and within the project area. All are located within the city of Newport Beach.

Table XV-1. Parks Within or Adjacent to the OCF Project Alignment

Park and Address	Location Relative to Project Area
Bonita Creek Park and Field 3010 La Vida Newport Beach	Adjacent. The pipeline is on the east side of the park, within the open space area. Station numbers 1931+00 to 1967+00
Arroyo Park and Field 1411 Bayswater Drive Newport Beach	Pipeline runs through an open space area of the park. Station numbers 1981+47 to 1984+88
Bonita Canyon Sports Park 1990 Ford Road Newport Beach	Pipeline runs through the park. Station numbers 2012+00 to 2016+00
San Miguel Park and Field San Miguel Drive/Spyglass Hill Road Newport Beach	Pipeline runs through a small portion of the open space area in the southern portion of the park. Station numbers 2041+50 to 2053+43
Newport Beach Golf Course 3100 Irvine Avenue Newport Beach	Pipeline runs along Bristol Street, which is adjacent to the north side of the golf course.
Source: City of Newport Beach 2010.	

Public schools also provide recreational amenities. Most school sites have areas of green open space and recreational amenities such as sports fields and courts. The schools adjacent to the project alignment are listed below.

- Santiago Elementary School, 2212 North Baker Street, Santa Ana
- Mendez Intermediate School, 2000 North Bristol Street, Santa Ana
- Carver Elementary School, 1401 West Santa Ana Boulevard, Santa Ana
- Martin Luther King Jr. School, 1001 Graham Lane, Santa Ana
- Mater Dei High School, 1202 West Edinger Avenue, Santa Ana
- Sepulveda Elementary School, 1801 South Poplar Street, Santa Ana

METHODOLOGY

Recreational impacts are assessed by considering the potential for increases in the usage of a park or recreational facility as well as the physical effects of the proposed project, which may require additional facilities to be built.

IMPACT ANALYSIS

The proposed project activities would be limited to maintenance of an existing underground water conveyance pipeline. The pipeline project would not include any residential component or other development that would increase the use of existing parks or recreational facilities or require the construction of new or expanded facilities. The surface above the pipeline would be restored to existing conditions upon completion of construction activities.

a) Would the project increase the use of existing neighborhood or regional parks or other recreational facilities such that substantial physical deterioration of a facility would occur or be accelerated?

No Impact.

Increased demand for parks and recreational facilities is generally associated with an increase in the number of housing units or the population in an area. As described in Section XIII, Population and Housing, the project would not affect the location, distribution, density, or growth rate of populations within the vicinity of the project area. The project would not result in growth that would increase the use of existing parks and recreational facilities or result in the physical deterioration of existing recreational facilities. No impact related to increased use of parks or other recreational facilities would occur.

b) Would the project include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?

No Impact.

The intent of the project is to improve an aged water conveyance pipeline and provide reliable infrastructure for the community. Project activities would be limited to maintenance of the existing underground water conveyance pipeline, with no capacity increases proposed. The project does not include construction or expansion of recreational facilities, nor is the project growth inducing, which could require the construction of new recreational facilities. The project would result in no adverse environmental impacts related to the construction of recreational facilities.

	Potentially Significant	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
XVI. TRANSPORTATION/TRAFFIC				
Would the project:				
a) Conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation, including mass transit and non-motorized travel and relevant components of the circulation system, including, but not limited to, intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☒	☐	☐
b) Conflict with an applicable congestion management program (CMP), including, but not limited to, level-of-service standards and travel demand measures or other standards established by the county congestion management agency for designated roads or highways?	☐	☐	☒	☐
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☒	☐	☐
e) Result in inadequate emergency access?	☐	☒	☐	☐
f) Conflict with adopted policies, plans, or programs regarding public transit or bicycle or pedestrian facilities or otherwise decrease the performance or safety of such facilities?	☐	☒	☐	☐

ENVIRONMENTAL SETTING

Roadway System

The project alignment runs along Bristol Street between the project's south termini (approximately 500 feet north of West Santa Clara Avenue) in the city of Santa Ana and Baker Street in the city of Costa Mesa, continues southward under SR 55 and SR-73, then returns to Bristol Street between Red Hill Avenue in the city of Costa Mesa and Jamboree Road in the city of Newport Beach. From the intersection of Bristol Street and Jamboree Road, the project alignment runs southerly under Newport Back Bay, crosses University Drive, then follows the Metropolitan easement parallel to SR-73. It then crosses MacArthur Boulevard and Bison Avenue, runs southward along Mesa View Drive, crosses Bonita Canyon Drive and Ford Road, runs along Newport Hills Drive East, and returns to San Miguel Drive between Spy Glass Hill Road and the project's south termini (approximately 1,400 feet south of Spy Glass Hill Road) in the city of Newport Beach. Figures 1-3a through 1-3e show the project alignment and street network in the project area.

As shown in Figure 1-1, regional access to the project vicinity and the pipeline alignment is provided by Interstate (I)-5, SR-22, and SR-57 from the north and SR-55, SR-73, and I-405 from the south.

Table XVI-1 lists the 2012 average annual daily traffic (AADT) volume data for the project. This is the most recent available data for the project area.

Table XVI-1. Regional Access Highways and AADT

Highway	Location	2012 AADT
I-5	1st Street/4th Street – SR-22/SR-57	350,000–362,000
	SR-22/SR-57 – Lincoln Avenue	241,000–280,000
SR-22	Harbor Boulevard – I-5/SR-57	223,000–240,000
	I-5/SR-57 – Tustin Avenue	141,000–145,000
SR-55	Victoria/22nd Street – I-405	131,000–154,000
	I-405 – Dyer Road	271,000–274,000
SR-57	I-5/SR-22 – Lincoln Avenue	246,000–251,000
SR-73	Newport Coast Drive – Jamboree Road	64,000–67,500
	Jamboree Road – SR-55	173,000
	SR-55 – I-405	106,000–116,000
I-405	Jamboree Road – SR-55	279,000–280,000
	SR-55 – SR-73	230,000–240,000
	SR-73 – Euclid Street	293,000–313,000
Source: California Department of Transportation 2014.		

Access to the project would be provided through manholes located approximately every 1,500 feet along the pipeline alignment. Local street access to the manholes and access points, as shown in Figures 1-3a through 1-3e, and the staging areas, as shown in Figure 1-2, would be provided by city arterials.

Table XVI-2 summarizes the available daily traffic volumes of local streets providing access between regional highways and the construction sites.

Table XVI-2. Major Access Roadways and Daily Traffic Volume

Jurisdiction	Access Roadway	Daily Traffic Volume (vehicles/day)
City of Santa Ana	Bristol Street	29,000–48,000 (Garden Grove Boulevard – Sunflower Avenue)[a]
	17th Street	34,000–41,000 (Fairview Street – Main Street)[a]
	1st Street	30,000–33,000 (Fairview Street – Main Street)[a]
	McFadden Avenue	14,000–20,000 (Fairview Street – Main Street)[a]
	Edinger Avenue	27,000–30,000 (Fairview Street – Main Street)[a]
	Warner Avenue	27,000–30,000 (Fairview Street – Main Street)[a]
	Segerstrom Avenue	21,000–22,000 (Raitt Street – Main Street)[a]
	MacArthur Boulevard	26,000–34,000 (Fairview Street – Flower Street)[a]
City of Costa Mesa	Bristol Street	22,000–47,000 (Sunflower Avenue – Red Hill Road)[b]
	Red Hill Road	15,000 (east of Bristol Street)[b]
	Baker Street	24,000–32,000 (Fairview Street – SR-55)[b]
Orange County	Bristol Street	32,000 (Red Hill Road – Irvine Avenue)[c]
City of Newport Beach	Irvine Avenue	20,000 (University Drive – SR-73)[b]
	Jamboree Road	45,000 (University Drive – Mac Arthur Boulevard)[c]
	University Drive	10,000 (Jamboree Road – SR-73)[a]
	Bonita Canyon Drive	26,000 (MacArthur Boulevard – SR-73)[c]
	MacArthur Boulevard	61,000 (Bonita Canyon Drive – San Joaquin Hills Road)[c]
	San Miguel Drive	12,000 (Bonita Canyon Drive – San Joaquin Hills Road)[d]

[a] 2011 daily traffic volume (Orange County Transportation Authority 2013a)
[b] 2010 daily traffic volume (Orange County Transportation Authority 2013a)
[c] 2012 daily traffic volume (Orange County Transportation Authority 2013a)
[d] 2005 daily traffic volume (City of Newport Beach 2006a)

Transit

Local public transit service in Orange County is provided by the Orange County Transportation Authority (OCTA), which provides local and community routes, express routes, and station link routes. The following bus routes use portions of the project alignment (OCTA 2014a):

- Bristol Street – Local fixed route 57, local fixed route 55, intracounty express route 216, and station link route 464
- Baker Street – Local fixed route 55

Non-motorized Transportation

Bikeways and trails located along the project alignment could be affected by project construction activities near the access points. No bikeways are identified along the pipeline alignment in the city of Costa Mesa. Bikeways are typically designated as bicycle paths, lanes, and routes, which are defined below:

- Class I bicycle paths are paved facilities that have been designated for bicycle use and are physically separated from roadways. Bicycle paths include sidewalk bikeways adjacent to streets.
- Class II bicycle lanes are striped lanes on the outside edge of roadways that have been reserved for the exclusive use of bicycles.
- Class III bicycle routes are roadways that are shared by bicycles and identified by signing.

The following bikeways and trails are identified along the project alignment (OCTA 2014b):

City of Santa Ana:

- Bristol Street between 1st Street and Edinger Avenue – Class II bicycle lane.

City of Newport Beach:

- Southeast Bristol Street between Irvine Avenue and Spruce Avenue – Class II bicycle lane.
- Bonita Creek Trail between University Drive and Bison Avenue – Class I bicycle path.

METHODOLOGY

Level-of-Service Definition and Standards

The quality of service provided by a roadway or intersection is typically described in terms of level of service (LOS). LOS is a scale used to determine the operating quality of a roadway section or intersection according to the average delay experienced by vehicles on the facility. The levels range from A to F, with LOS A representing free traffic flow and LOS F representing severe traffic congestion.

Agencies adopt LOS standards that define the level of traffic operations considered acceptable within their jurisdiction. The LOS standard is LOS D for major city-controlled intersections in Santa Ana (1998), Costa Mesa (2002), and Newport Beach (2006b). The LOS standard is LOS E for CMP highways and roadways (OCTA 2013b).

Construction-Generated Trips

Construction activities would occur mostly in the winter season (September to April). The project would be divided into five reaches and constructed over the course of approximately 2 years, with one reach worked on at a time. Within each reach, the pipeline would be accessed through proposed access points and relined section by section, at approximately 1,500-foot intervals along the pipeline alignment.

Table XVI-3 summarizes the estimated truck trips and worker trips for key construction activities. For impact analysis, it is assumed that CTE removal would occur together with pipeline relining for the upstream section and access point recovery/excavation at the upstream/downstream locations within the same reach. Table XVI-3 lists the estimated construction-generated daily trips for each activity and average daily trips for construction work in the vicinity of an access point.

Table XVI-3. Estimated Construction-Generated Traffic

Construction Activity	Average Construction-Generated Trips (vehicles/day)
Pipeline Dewatering	10 workers 20 total construction-generated trips
Access Point Trench Excavation	1 truck 15 workers 32 total construction-generated trips
Access Point Pipeline Removal	2 trucks 10 workers 24 total construction-generated trips
CTE Removal	1 truck 15 workers 32 total construction-generated trips
Pipe Joint Bonding Bar Welding and Mortar Lining Installation	2 trucks 15 workers 34 total construction-generated trips
Access Point Pipeline Installation	2 trucks 10 workers 24 total construction-generated trips
Manhole Installation at Access Point	2 trucks 10 workers 24 total construction-generated trips
Access Point Backfill	4 trucks 15 worker trips 38 total construction-generated trips
Total Average Daily Trips	100 worker vehicles 114 vehicles/day 228 total construction-generated trips (assuming all activities are concurrent)

IMPACT ANALYSIS

The project would have no operational impacts. Construction impacts are discussed below.

a) Conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation, including mass transit and non-motorized travel and relevant components of the circulation system, including, but not limited to, intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit.

Less-than-Significant Impact with Mitigation.

As shown in Table XVI-3, proposed construction activities would generate a maximum of 228 construction-related vehicle trips per day on regional highways and local streets. This would be a relatively low increase in the daily traffic volume compared with the daily traffic volumes listed in Table XVI-1 and Table XVI-2. Therefore, construction-related traffic, which would be temporary, is not expected to degrade operations on these roadways significantly.

Construction-vehicle access to the pipeline would require lane closures at access points on Bristol Street, Baker Street, and Mesa View Drive, which would temporarily decrease road capacity and potentially increase vehicle travel time. To address this issue, Metropolitan would implement Mitigation Measure TRAN-1 to minimize inconvenience due to construction traffic. The lane closures would be communicated to the community through

advance notices. Safety measures, such as signs and flagmen, would be implemented, as identified in the traffic control plan. All construction contractors would be required to implement the traffic control plan. With the traffic control plan in place, and given the relatively short duration of construction activities, impacts are expected to be less than significant, and no mitigation would be required.

Mitigation Measures

Mitigation Measure TRAN-1

Metropolitan will coordinate with Orange County and the cities of Santa Ana, Costa Mesa, and Newport Beach to develop a construction traffic control measures and procedures prior to the start of construction. Measures to reduce temporary construction traffic and transportation impacts on city streets may include, but not be limited to, the following:

- Develop traffic control plans in coordination with local jurisdictions. The traffic control plan shall be implemented and revised, as necessary and applicable.
- Provide advance written notification of construction activities to residences and businesses around the construction site. The notification will include a brief overview of the proposed project and its purpose as well as the proposed construction activities and schedule. It also will include the name and contact information for the Metropolitan project manager or representative responsible for resolving any traffic issues.
- Identify travel routes and establish optimal arrival and departure times to minimize conflicts with residents, schools, and businesses.
- Employ provisions to detour pedestrians and bicyclists for project impacts near/on sidewalks and bike lanes.
- Implement safety measures, such as signs, flaggers, cones, signage, and advance notice as appropriate.
- Cover all open trenches when not in use or at the end of each work day, as applicable.

b) Conflict with an applicable congestion management program (CMP), including, but not limited to, level-of-service standards and travel demand measures or other standards established by the county congestion management agency for designated roads or highways.

Less-than-Significant Impact.

Within the project vicinity, 1st Street, Edinger Avenue, Jamboree Road, and MacArthur Boulevard are designated as CMP roadways. The CMP intersections along these streets include 1st Street/I-5 ramps, Edinger Avenue/SR-55 ramps, Jamboree Road/SR-73 ramps, and MacArthur Boulevard/SR-73 ramps. According to the 2013 CMP (OCTA 2013b), these CMP intersections are operating at LOS D or better (the CMP standard is LOS E). Although construction-related trips would increase traffic on the regional access highways and the major local streets that connect the project sites and highways, the project would generate only a small number of truck trips and employee commuter trips compared with the daily traffic volumes for these access roads, as listed in Table XVI-1 and Table XVI-2. Furthermore, construction work would occur only temporarily during the winter seasons over 2 years. Therefore, project-generated traffic would not be expected to affect current traffic operations substantially on highways and CMP roadways in the project vicinity. This impact would be less than significant.

c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks.

No Impact.

John Wayne Airport is located in the project vicinity, about 1 mile east of the project alignment. Project construction would not result in any changes to existing air traffic patterns. There would be no impact.

d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).

Less-than-Significant Impact.

No obstacles that would affect sight distance are expected to result from project construction. The maneuvering of construction-related vehicles and equipment among general-purpose traffic on local streets could cause safety hazards. In addition, temporary lane closures could affect non-motorized travel along affected road sections. To address these issues, Metropolitan would implement a construction-period traffic control plan to ensure that all safety needs are explicitly addressed. With the construction traffic control plan in place, impacts related to traffic safety are expected to be less than significant, and no mitigation would be required.

e) Result in inadequate emergency access.

Less-than-Significant Impact with Mitigation.

Emergency access to the project vicinity could be affected by project construction; specifically, temporary lane closures and construction-related traffic could delay or obstruct the movement of emergency vehicles. However, Metropolitan would implement mitigation measure TRAN-1 to ensure unrestricted access and passage for emergency vehicles. With these provisions in place, impacts on emergency access are expected to be less than significant.

f) Conflict with adopted policies, plans, or programs regarding public transit or bicycle or pedestrian facilities or otherwise decrease the performance or safety of such facilities.

Less-than-Significant Impact with Mitigation.

Construction would require temporary lane closures on Bristol Street, Baker Street, and Mesa View Drive, which could interfere with bus services and bicycle traffic on these streets. However, lane closures would be restricted to a short distance (less than 100 feet long, in general) and short in duration. Moreover, as described in the project description, Metropolitan would implement mitigation measure TRAN-1 to maintain safe and efficient passage for buses and bicyclists. Construction activities are therefore not expected to result in significant impacts related to conflicts with alternative transportation.

	Potentially Significant	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
XVII. UTILITIES AND SERVICE SYSTEMS				
Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
c) Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☒	☐
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☐	☒
e) Result in a determination by the wastewater treatment provider that 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?	☐	☐	☐	☒
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☒	☐
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☐	☒

ENVIRONMENTAL SETTING

Utilities and service systems discussed as part of this analysis are related to water supply, wastewater, and solid waste. The following describes the utility and service system providers and facilities that serve the project area.

Water Supply

The water supply in the project area is from the Orange County groundwater basin or imported by Metropolitan and treated at the Weymouth Plant in La Verne. The OCF pipeline conveys potable water from the Weymouth Plant to member agencies within its service area. The following agencies are responsible for providing water to residents in the project area through entitlements:

- City of Santa Ana Water Department
- Irvine Ranch Water District
- Mesa Consolidated Water District
- Municipal Water District of Orange County

Wastewater

The wastewater management facilities in the project area are managed by the following agencies:

- Orange County Sanitation District
- Costa Mesa Sanitary District
- Newport Beach Utilities Department
- Irvine Ranch Water District

Solid Waste

Landfills serving the project area are owned and operated by the Orange County Integrated Waste Management Department (OCIWMD). The OCIWMD maintains three landfills within the region (i.e., the Olinda-Alpha, Frank R. Bowerman, and Prima Deshecha Sanitary Landfills). The OCIWMD Strategic Plan outlines strategies for providing adequate landfill capacity for the next 30 years.

METHODOLOGY

The following analysis assesses whether any activities associated with project construction or operation would result in any effects on water, wastewater or water treatment, storm drainage systems, or solid waste disposal.

IMPACT ANALYSIS

The project would have no operational impacts. Construction impacts are discussed below.

a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?

No Impact.

The proposed project would require dewatering of the pipe prior to replacement of the lining. The pipe would be flushed with chlorinated water upon completion of construction. The flushed water would be released into local flood control channels and sewer systems from existing storm drains. Water from dewatering activities, which is drinking water, would be clean, and the flushed water would be dechlorinated prior to release into storm drains and flood control channels. As such, no additional wastewater treatment of water from dewatering or flushed water would be required because all of the discharged water would be clean at the time of release into the storm drainage system. No wastewater treatment requirements would be violated or exceeded as a result of the proposed project.

b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

No Impact.

The purpose of the proposed project is the rehabilitation or replacement of an existing water conveyance line. No wastewater would be generated by the proposed project because the dewatered water would be potable and would not require treatment. Any flush water would be dechlorinated prior to release into the storm drainage system, thereby avoiding the need for any additional water treatment. Construction of new water or wastewater treatment facility or the expansion of an existing facility would not be required. No impact would occur.

c) Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

Less-than-Significant Impact.

The proposed construction activities, including dewatering and the disposal of flushed water, would be served by the existing storm drain system and would not require new or expanded facilities. Although construction would result in approximately 22.6 acre-feet of dewatering water and approximately 89,052 gallons of flushed water, which would

be disposed of in the storm drain system, existing facilities would not require expansion, and discharges would be permitted under the NPDES permit that Metropolitan currently has for dewatering activities. Impacts on stormwater facilities would be less-than-significant.

d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?

No Impact.

The proposed project entails rehabilitation or replacement of an existing water supply line that serves portions of Orange County under existing entitlements. The project would not result in an increase in water demand. The project intends to maintain and upgrade the existing system so that it can continue to provide an adequate supply of safe drinking water to the region. No impact on water supply would result from the proposed project. Metropolitan will coordinate with the individual cities served by the project to ensure delivery of water during periods of service disruption.

e) Result in a determination by the wastewater treatment provider that 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?

No Impact.

No new wastewater would be generated from operation of the project. Upon completion of construction, the OCF pipeline would operate as it currently does, conveying water from Metropolitan's Weymouth Plant to Orange County communities. No impact on wastewater treatment providers would occur.

f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?

Less-than-Significant Impact.

Construction of the proposed project would generate minimal amounts of solid waste from excavation, removal of fill, and removal of portions of the existing OCF pipe. Solid waste disposal would be coordinated with local landfills to ensure adequate capacity. As such, existing landfill and solid waste disposal needs for the project would be met. A less-than-significant impact would occur.

g) Comply with federal, state, and local statutes and regulations related to solid waste?

No Impact.

Construction of the proposed project would comply with federal, state, and local statutes related to solid waste. No impact would occur as a result of the proposed project.

	Potentially Significant	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
XVIII. MANDATORY FINDINGS OF SIGNIFICANCE				
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☐	☒	☐
c) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☒	☐

DISCUSSION

a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

Less-than-Significant Impact with Mitigation Incorporated.

As noted under the discussion of biological resources, the majority of the OCF easement lies within an urban environment, bordered by businesses, residences, utilities, roads, and highways. The only areas with the potential for adverse impacts on special-status species are the areas where the pipeline passes through or is adjacent to habitats associated with San Diego and Bonita Creeks. Mitigation measures have been proposed to ensure that any direct or indirect impacts on biological resources would be reduced to a less-than-significant level.

Portions of the proposed project area are located within the NCCP area. As described in Section IV, Biological Resources, and Section X, Land Use and Planning, the NCCP/HCP is a comprehensive regional plan for mitigating impacts on covered species and habitats. The NCCP/HCP provides pre-mitigation for impacts on covered species and habitats, including cumulative impacts. In addition, the lead agency may determine, on a case-by-case basis that the combination of the NCCP/HCP and habitat mitigation, such as replacement ratios, would serve to mitigate cumulative impacts to a less-than-significant level. The NCCP/HCP was approved and adopted by the U.S. Fish and Wildlife Service, California Department of Fish and Wildlife, and participating entities, including Metropolitan, and qualifies under the State CEQA Guidelines as a general plan–related planning document that may be used to evaluate cumulative impacts.

The project is a permitted activity that is specifically listed within the NCCP/HCP. Activities related to maintaining the public infrastructure necessary for the public health and safety or economic reasons are permitted within the planning area. Such infrastructure would include water lines and associated facilities (e.g., pump stations, pressure control facilities, access roads). Additionally, operation and maintenance of existing infrastructure facilities is a permitted use within the reserve and is included as authorized incidental take under the NCCP/HCP.

No intact cultural resources were identified within the project area. However, minor potential exists for significant unknown buried cultural resource deposits to exist beneath previously disturbed land surfaces; consequently, construction or grading activities that disturb these cultural resources could result in significant impacts. Mitigation measure CULT-1 has been proposed to minimize this potentially significant impact to a less-than-significant level.

In any deep excavation (more than 5 feet) there is the potential to encounter significant late Pleistocene vertebrate fossils. Disturbance of these fossils would be a potentially significant impact. Mitigation measure CULT-2 has been proposed to minimize impacts on paleontological resources to a less-than-significant level. Therefore, impacts related to environmental degradation would be less than significant after mitigation.

b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?

Less-than-Significant Impact.

As provided in more detail in the individual impact discussions of this MND, the proposed project would not result in any significant or potentially significant impacts. As described under Item III (b), it is anticipated that emissions associated with the proposed project would not be cumulatively considerable because they would fall below SCAQMD daily significance thresholds. Operation of the proposed facility would not require additional employees, nor would it generate waste. The cumulative impacts of the project would be less-than-significant.

c) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?

Less-than-Significant Impact.

The manholes that provide access to the pipeline are within street rights-of-way, street intersections, Metropolitan-owned easements, on private property, city pedestrian pathways, and unimproved utility access roads. Construction of the proposed project would result in temporary minor increases in noise, traffic, and air pollution. However, these impacts would not be significant. In addition, potential disruptions to water service would be avoided through coordination with local jurisdictions and alternative providers. All hazardous materials generated from the proposed project would be disposed of in accordance with all applicable laws and regulations, and the proposed construction activities associated with the project would have low potential for an accidental release of hazardous materials. The effects would not be substantially adverse to human beings, either directly or indirectly. The proposed project would ensure dependability of the existing water system, avoid wastage by correcting leaks, and ensure long-term reliability of the pipeline. The impacts from the proposed project would be less than significant.

SECTION 4
MITIGATION MEASURES

Implementation of the following mitigation measures would be required to reduce impacts in the areas of biological resources, cultural resources, hazards and hazardous materials, noise and vibration, and traffic and transportation:

BIO-1 If construction activities are scheduled to occur from February 15 to August 31, a qualified biologist will conduct surveys for active nests no more than 5 days prior to the start of work. If no active nests are found, no further actions will be required. However, if nesting activity is observed, the nest site and vicinity (buffer to be determined by the biological monitor) must be protected until nesting activity has ended or as otherwise directed by a qualified biologist.

BIO-2 If work at stations 1916+50 and 1933+65 is expected to occur from February 15 through August 31, a qualified biologist who is experienced with conducting surveys for California gnatcatcher, yellow-breasted chat, and least Bell's vireo will conduct a pre-construction survey for lands within 500 feet of the stations no more than 5 days prior to the start of work. If it is determined that coastal California gnatcatcher, yellow-breasted chat, and/or least Bell's vireo are nesting within 500 feet of the stations, then the biologist will establish appropriate buffers to avoid indirect impacts on the species. The extent of the buffers will take into account the habitat and landscape position in relation to the stations. No work will occur within the buffer until the biologist determines that nesting activities have ceased and that no potential impacts will occur.

BIO-3 All vehicle and equipment maintenance and refueling will occur in areas at least 0.25 mile away from waterways or wetlands. Spill prevention and response plans will be prepared prior to the initiation of construction activities. All necessary equipment for containing and cleaning up a spill on-site during construction shall be within 0.25 mile of natural vegetation associated with San Diego Creek or Bonita Creek or other waterways.

CULT-1 If cultural resources are encountered during ground-disturbing activities, work in the immediate area will be halted, and an archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for Archaeology (National Park Service 1983) will be contacted immediately to evaluate the find. If necessary, the evaluation may require preparation of a treatment plan and archaeological testing for California Register of Historical Resources eligibility. If the discovery proves to be significant under CEQA and cannot be avoided by the project, additional work, such as data recovery excavation, may be warranted to exhaust the data potential of the resource, thereby reducing any impact to a less-than-significant level.

CULT-2 If human remains are found, Section 7050.5 of the State of California Health and Safety Code states that no further disturbance shall occur until the county coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. In accordance with this code, in the event of an unanticipated discovery of human remains, the Orange County Coroner will be notified immediately. If the human remains are determined to be prehistoric, the coroner will notify the NAHC, which will determine and notify a MLD. The MLD will complete an inspection of the site within 48 hours of notification and may recommend scientific removal and nondestructive analysis of human remains and items associated with Native American burials.

HZ-1 The coal tar enamel lining will be removed from the pipeline interior in accordance with applicable laws and regulations for hazardous wastes and placed in storage containers. Contractor will sample and test removed pipeline materials to determine whether there are concentrations of PCBs, asbestos, and/or lead in these materials. Testing for PCBs,

asbestos, and lead will be done through EPA Method 8082 and Soluble Threshold Limit Concentration regulatory requirements, as defined by DTSC. If PCBs are found in the pipeline materials, the waste would be disposed of pursuant to CFR Title 40, part 761.

HZ-2 Contractor will comply with South Coast Air Quality Management District Rule 1403, Asbestos Emissions from Demolition/Renovation Activities, during all construction and demolition activities.

HZ-3 Groundwater flow is unlikely but may be encountered during excavation and construction. A groundwater plan shall be developed prior to construction, and discharges will be in accordance with applicable rules and regulations. The provisions of the groundwater plan will include, but not be limited to, the following:

- Construction personnel will seek the professional recommendation of a consultant who specializes in the handling and identification of hazardous materials. The identification of the possible hazardous materials typically involves groundwater sampling, analysis, and recommendations for remediation
- All construction activities will be suspended in the immediate area until the groundwater is investigated for potentially hazardous content.
- If groundwater contamination is encountered in any location during the project, the construction contractor will notify the Regional Water Quality Control Board (RWQCB) and the Orange County Environmental Health Division if the contamination is petroleum related; the construction contractor will notify the Orange County Environmental Health Division if the contamination is non-petroleum related and seek guidance regarding assessment and remediation requirements.
- If dewatering activities are necessary, the construction contractor will notify the RWQCB and obtain the appropriate NPDES discharge permits.

HZ-4 In the event that odiferous, stained, or discolored soil is encountered, the following measures will be taken:

- Construction personnel will seek the professional recommendation of a consultant who specializes in the handling and identification of hazardous materials. The identification of possible hazardous materials typically involves soil sampling, analysis, and recommendations for remediation.
- Construction will be suspended until the soil is properly characterized for hazardous waste content.
- The construction contractor will notify the Orange County Environmental Health Division of the findings and seek guidance regarding assessment and remediation requirements.

NOI-1 Contractor will coordinate with Orange County and the cities of Santa Ana, Costa Mesa, and Newport Beach to develop construction noise control measures and procedures. Measures to reduce temporary construction noise impacts on nearby residences may include, but not be limited to, the following:

- Develop noise control plans in coordination with local jurisdictions. The noise control plan shall be implemented and revised, as necessary and applicable.
- Comply with manufacturers' muffler requirements on all construction equipment engines.
- Turn off construction equipment when not in use, where applicable.
- Employ construction methods or equipment that will provide the lowest level of noise impact near residences.

- Use temporary noise barriers around continuously operating equipment or along construction boundaries to protect adjacent residences against excessive noise from construction activities, when practicable.
- Minimize construction activities within residential areas during evening, nighttime, weekend, and holiday periods to the extent feasible.
- Provide advance written notification of construction activities to residences and businesses around the construction site. The notification will include a brief overview of the proposed project and its purpose as well as the proposed construction activities and schedule. It also will include the name and contact information for the Metropolitan project manager or representative responsible for resolving any noise issues

TRAN-1 Metropolitan will coordinate with Orange County and the cities of Santa Ana, Costa Mesa, and Newport Beach to develop a construction traffic control measures and procedures prior to the start of construction. Measures to reduce temporary construction traffic and transportation impacts on city streets may include, but not be limited to, the following:

- Develop traffic control plans in coordination with local jurisdictions. The traffic control plan shall be implemented and revised, as necessary and applicable.
- Provide advance written notification of construction activities to residences and businesses around the construction site. The notification will include a brief overview of the proposed project and its purpose as well as the proposed construction activities and schedule. It also will include the name and contact information for the Metropolitan project manager or representative responsible for resolving any traffic issues.
- Identify travel routes and establish optimal arrival and departure times to minimize conflicts with residents, schools, and businesses.
- Employ provisions to detour pedestrians and bicyclists for project impacts near/on sidewalks and bike lanes.
- Implement safety measures, such as signs, flaggers, cones, etc…, as appropriate.
- Cover all open trenches when not in use or at the end of each work day, as appropriate.

SECTION 5
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SECTION 6
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APPENDICES

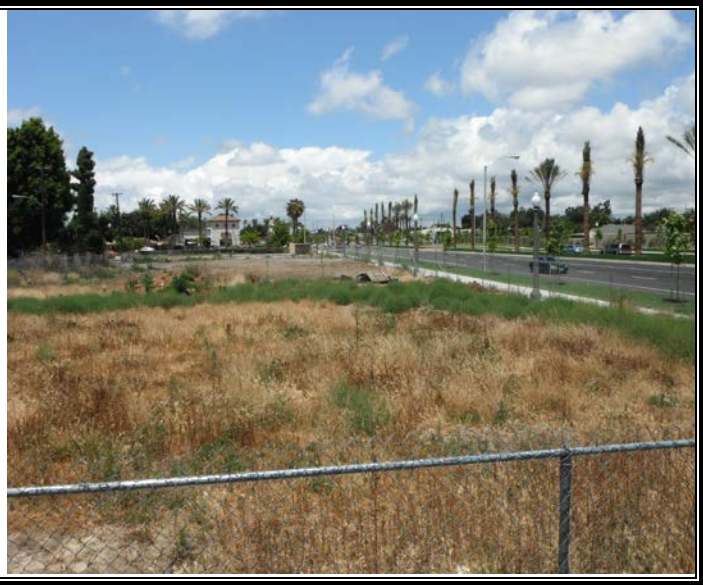
Appendix A Site Photos

Photograph: 1

Location: Bristol Street, north of Elm Street; just south of the John Garthe Reservoir (near station 1467+30).

Direction: Facing south

Comment: Beginning of OC Feeder alignment. Excavation is proposed in the number 2 (slow) lane.



Photograph: 2

Location: Bristol Street, between West Pine Street and West Myrtle Street (between station 1557+00 and station 1563+00).

Direction: Facing north

Comment: View of potential staging area in the vacant lot.

Photograph: 3

Location: Bristol Street and West Elder Avenue (near station 1610+00).

Direction: Facing south

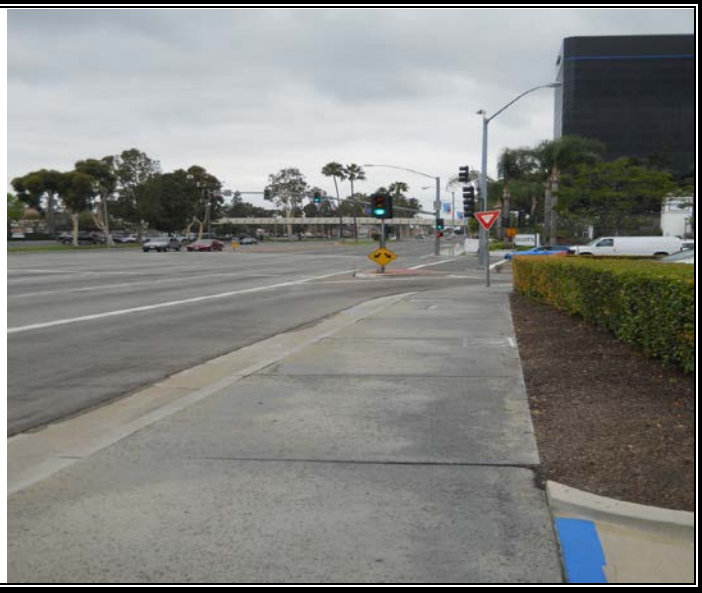
Comment: View of Bristol Street and greenbelt. Proposed excavation in the number 1 (fast) lane.

Photograph: 4

Location: Bristol Street and Bristol Plaza intersection (near station 1709+00).

Direction: Facing south

Comment: Proposed excavation in the number 2 (slow) lane.



Photograph: 5

Location: Bristol Street near Anton Boulevard (near station 1754+00).

Direction: Facing north

Comment: Proposed excavation in the greenbelt area (shrubbery). Surrounding environment includes South Coast Plaza, hotels, and businesses.

Photograph: 6

Location: Southeast quadrant of Highway 405 (near station 1762+70).

Direction: Facing east

Comment: View looking down from Bristol Street overpass onto Highway 405. Potential staging and bulkhead installation at this location (near the manhole and freeway greenbelt area).

Photograph: 7

Location: Intersection of Highway73 and Interstate 55, along the south-eastern freeway buffer near Kalmus Drive (between station 1812+00 to station 1816+00).

Direction: Facing south

Comment: Highway 55 north-bound ramp within the OC Feeder easement. Excavation is proposed in this area.

Photograph: 8

Location: Bristol Street, south of Birch Street; across from the McDonald's restaurant (near station 1874+00).

Direction: Facing northwest

Comment: Typical view of the OC Feeder alignment along Bristol Street.

Photograph: 9

Location: Terminus of Bristol Street, and intersection of Jamboree Road (near station 1908-00).

Direction: Facing northwest

Comment: View of Bristol Street and Jamboree Road along the OC Feeder alignment.

note white paint marks on asphalt next to curb

Photograph: 10

Location: Fletcher Jones Motorcars Facility at Jamboree Road and Bayview Avenue (near station 1916+50).

Direction: Facing north

Comment: Excavation is proposed at this station. The station is within the California Coastal Zone boundary.

Photograph: 11

Location: On-ramp bridge to Highway 73 near the terminus of Bristol Street; within the Newport Back Bay.

Direction: Facing west

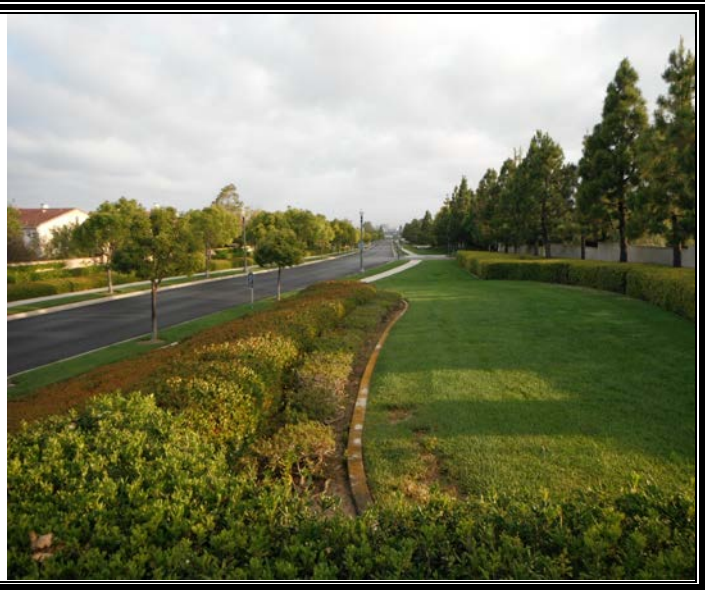
Comment: View of the Back Bay and the on-ramp in the back ground. The OC Feeder alignment crosses below the Back Bay. Hand application of mortar lining is proposed due to access restrictions/limitations. No excavation is proposed in this area.

Photograph: 12

Location: Public utility access road within Bonita Creek Park (near station 1933+50).

Direction: Facing south

Comment: Excavation is proposed at this station. The station is within the California Coastal Zone boundary.



Photograph: 13

Location: Inside northern gate of Bonita Canyon gated community, near Mesa View Drive (near station 2006+77)

Direction: Facing south

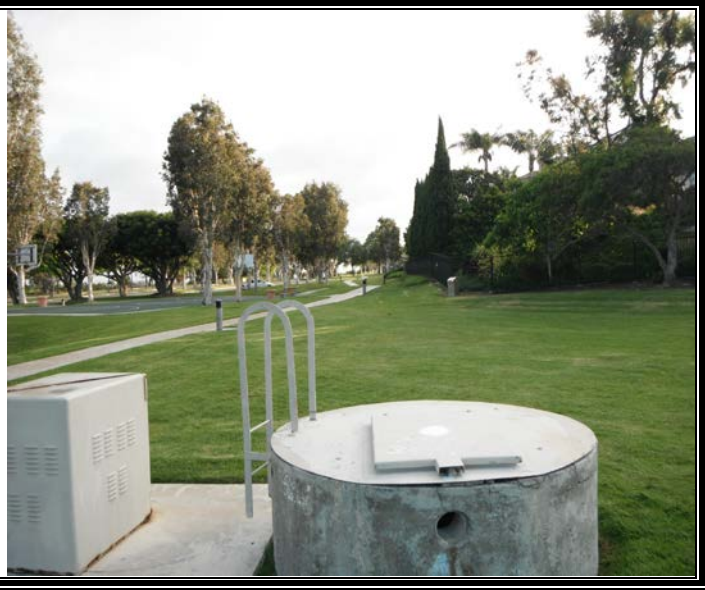
Comment: View of greenbelt within the gated community. Excavation is proposed at this station.

Photograph: 14

Location: Metropolitan Irvine Cross Feeder regulating structure location. Intersection of Ford Road, Newport Hills Drive East, and Port Cardiff Place (near station 2018+22).

Direction: Facing south

Comment: View of OC Feeder manhole in the background. Potential stating at this location.



Photograph: 15

Location: San Miguel Park (near station 2048+21).

Direction: Facing north

Comment: View of greenbelt and manhole structure. Air ventilation is proposed at this location during construction. No excavation is proposed in this area.

Appendix B Air Quality Resources

MWD OC Feeder Line Project

Daily Construction Emissions by Activity

Activity	Days per Site	On-site/ Off-site	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Total CO2	CH4	N2O	CO2e
			lb/day										lb/day			
Dewatering	1	On-site	1.87	13.01	8.93	0.01	0.00	1.00	1.00	0.00	1.00	1.00	1,414	0.17	0	1,418
		Off-site	0.09	0.12	1.27	0.00	0.22	0.00	0.23	0.06	0.00	0.06	231	0.01	0	231
		Total	1.96	13.13	10.19	0.02	0.22	1.00	1.23	0.06	1.00	1.06				
Access Point Trench Excavation	2	On-site	0.80	8.59	5.55	0.01	0.02	0.52	0.54	0.00	0.48	0.48	833	0.25	0	839
		Off-site	0.18	0.92	2.42	0.01	0.37	0.02	0.39	0.10	0.01	0.11	498	0.02	0	498
		Total	0.98	9.51	7.97	0.01	0.39	0.53	0.93	0.10	0.49	0.59				
Access Point Pipeline Removal	1	On-site	0.75	7.05	4.53	0.01	0.00	0.43	0.43	0.00	0.41	0.41	707	0.16	0	710
		Off-site	0.19	1.59	2.31	0.01	0.29	0.03	0.32	0.08	0.03	0.10	534	0.02	0	535
		Total	0.94	8.65	6.83	0.01	0.29	0.46	0.75	0.08	0.43	0.51				
CTE Removal	3	On-site	1.04	7.24	4.98	0.01	0.00	0.54	0.54	0.00	0.54	0.54	785	0.09	0	787
		Off-site	0.14	0.86	1.79	0.00	0.26	0.02	0.27	0.07	0.01	0.08	383	0.01	0	383
		Total	1.18	8.10	6.76	0.01	0.26	0.56	0.82	0.07	0.56	0.63				
Bonding Bars Welding & Mortar Relining	4	On-site	2.54	17.28	12.00	0.02	0.00	1.06	1.06	0.00	1.00	1.00	1,605	0.48	0	1,615
		Off-site	0.18	0.92	2.42	0.01	0.37	0.02	0.39	0.10	0.01	0.11	498	0.02	0	498
		Total	2.72	18.20	14.42	0.02	0.37	1.08	1.45	0.10	1.02	1.11				
Access Point Pipeline Installation	1	On-site	0.59	5.88	3.70	0.01	0.00	0.34	0.34	0.00	0.32	0.32	577	0.15	0	580
		Off-site	0.19	1.59	2.31	0.01	0.29	0.03	0.32	0.08	0.03	0.10	534	0.02	0	535
		Total	0.77	7.48	6.01	0.01	0.29	0.36	0.66	0.08	0.34	0.42				
Manhole Installation	1	On-site	0.24	2.75	1.79	0.00	0.00	0.14	0.14	0.00	0.13	0.13	287	0.08	0	288
		Off-site	0.19	1.59	2.31	0.01	0.29	0.03	0.32	0.08	0.03	0.10	534	0.02	0	535
		Total	0.42	4.34	4.09	0.01	0.29	0.17	0.46	0.08	0.15	0.23				
Access Point/ Manhole Backfill	2	On-site	0.86	8.23	4.78	0.01	0.00	0.58	0.58	0.00	0.54	0.54	686	0.20	0	690
		Off-site	0.23	1.66	2.94	0.01	0.41	0.03	0.43	0.11	0.03	0.13	650	0.02	0	650
		Total	1.09	9.89	7.72	0.01	0.41	0.61	1.02	0.11	0.56	0.67				
Maximum Daily Emissions		On-site	5.24	41.34	27.31	0.04	0.02	2.70	2.73	0.00	2.56	2.56				
		Off-site	0.73	4.35	9.56	0.02	1.40	0.08	1.48	0.37	0.07	0.44				
		Total	5.98	45.70	36.87	0.06	1.43	2.78	4.21	0.38	2.63	3.00				

Activity	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Total CO2	CH4	N2O	CO2e
	tons/occurence										MT/occurrence			
Dewatering	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.64	0.00	0.00	0.64
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.10
	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.75	0.00	0.00	0.75
Access Point Trench Excavation	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.76	0.00	0.00	0.76
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.45	0.00	0.00	0.45
	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.21	0.00	0.00	1.21
Access Point Pipeline Removal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.32	0.00	0.00	0.32
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00	0.24
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.56	0.00	0.00	0.56
CTE Removal	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.07	0.00	0.00	1.07
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.52	0.00	0.00	0.52
	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.59	0.00	0.00	1.59
Bonding Bars Welding & Mortar Relining	0.01	0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.91	0.00	0.00	2.93
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.90	0.00	0.00	0.90
	0.01	0.04	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.82	0.00	0.00	3.83
Access Point Pipeline Installation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.00	0.00	0.26
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00	0.24
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.00	0.51
Manhole Installation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.00	0.13
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00	0.24
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.37	0.00	0.00	0.37
Access Point/ Manhole Backfill	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.62	0.00	0.00	0.63
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.59	0.00	0.00	0.59
	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.21	0.00	0.00	1.22

Annual Construction Emissions - 1st Year (Reach 1 and Reach 2)

Activity	Num of activties	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Total CO2	CH4	N2O	CO2e
		tons/year										MT/year			
Dewatering	2	0.002	0.013	0.010	0.000	0.000	0.001	0.001	0.000	0.001	0.001	1.49	0.00	0.00	1.50
Excavation	22	0.022	0.209	0.175	0.000	0.009	0.012	0.020	0.002	0.011	0.013	26.57	0.01	0.00	26.68
Removal	22	0.010	0.095	0.075	0.000	0.003	0.005	0.008	0.001	0.005	0.006	12.38	0.00	0.00	12.42
CTE Removal	20	0.036	0.245	0.205	0.000	0.008	0.017	0.025	0.002	0.017	0.019	32.07	0.00	0.00	32.13
Mortar Relining	20	0.110	0.734	0.582	0.001	0.015	0.043	0.058	0.004	0.041	0.045	76.99	0.02	0.00	77.37
Pipeline Installation	22	0.008	0.082	0.066	0.000	0.003	0.004	0.007	0.001	0.004	0.005	11.09	0.00	0.00	11.13
Manhole Instal	22	0.005	0.048	0.045	0.000	0.003	0.002	0.005	0.001	0.002	0.003	8.19	0.00	0.00	8.21
Access Point Backfill	22	0.024	0.218	0.170	0.000	0.009	0.013	0.022	0.002	0.012	0.015	26.66	0.00	0.00	26.75
Total Year 1 Emissions		0.217	1.645	1.328	0.002	0.050	0.097	0.148	0.013	0.092	0.106	195.45	0.04	0.00	196.19

Annual Construction Emissions - 2nd Year (Reach 3 to Reach 5)

Activity	Num of activties	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Total CO2	CH4	N2O	CO2e
		tons/year										MT/year			
Dewatering	2	0.002	0.013	0.010	0.000	0.000	0.001	0.001	0.000	0.001	0.001	1.49	0.00	0.00	1.50
Access Point Trench Excavation	17	0.017	0.162	0.135	0.000	0.007	0.009	0.016	0.002	0.008	0.010	20.53	0.00	0.00	20.62
Access Point Pipeline Removal	17	0.008	0.074	0.058	0.000	0.002	0.004	0.006	0.001	0.004	0.004	9.57	0.00	0.00	9.60
CTE Removal	13	0.023	0.160	0.133	0.000	0.005	0.011	0.016	0.001	0.011	0.012	20.86	0.00	0.00	20.90
Mortar Relining	13	0.071	0.478	0.379	0.001	0.010	0.028	0.038	0.003	0.027	0.029	50.09	0.01	0.00	50.34
Pipeline Installation	17	0.007	0.064	0.051	0.000	0.002	0.003	0.006	0.001	0.003	0.004	8.57	0.00	0.00	8.60
Manhole Instal	17	0.004	0.037	0.035	0.000	0.002	0.001	0.004	0.001	0.001	0.002	6.33	0.00	0.00	6.35
Access Point Backfill	8	0.009	0.079	0.062	0.000	0.003	0.005	0.008	0.001	0.005	0.005	9.69	0.00	0.00	9.73
Total Year 1 Emissions		0.140	1.065	0.863	0.001	0.032	0.063	0.095	0.009	0.059	0.068	127.15	0.02	0.00	127.63

MWD OC Feeder Line Project

Construction activity and qquipment assumption

Construction Activity	Occurrence/ Frequency	Equipment - Operating hours/day per piece of equipment	Work Days per Site	Work Area or Length	Hauling Trucks (loads/day)	Workers per day
1. Pipeline Dewatering	Once per reach	4 water pumps - 8	1	-	-	10
2. Access Point Trench Excavation	one access point	1 backhoe with hydro hammer - 4 1 loader - 2 1 excavator - 4 1 boom truck - 4	2	10' x 30'	1	15
3. Access Point Pipeline Removal	one access point	1 industrial saw - 2 1 excavator - 2 1 generator - 4 1 concrete truck - 4	1	10 ft	1 (hazardous materials) + 1 (old pipeline)	10
4. CTE Removal	per ~1,500 feet	2 pressure washers - 8 2 pumps - 8	3	1,500 ft	1 (hazardous materials)	15
5. Pipe Joint Bonding Bars Welding and Mortar Lining Installation	per ~1,500 feet	2 concrete trucks with pumps - 8 2 welding Equipment - 8	4	1,500 ft	2 (lining material)	15
6. Access Point Pipeline Installation	one access point	1 excavator - 2 1 generator - 3 1 concrete truck - 4	1	10 ft	2 (new pipeline)	10
7. Manhole Installation at Access Point	one manhole	1 excavator - 3 1 boom truck - 1	1	10' x 10'	2	10
8. Access Point Backfill	one access point	1 loader - 2 1 roller - 5 1 sweeper - 8 1 paver - 5	2	10' x 30'	4 (fill and paving material)	15

Note: Hazardous materials will be delivered to Robert B. Diemer Treatment Plant in Yorba Linda, CA about 20 miles to the project corridor; and if required, hauled to hazardous materials facility in either Nevada or Idaho.

Number of occurrences, work sites, or work sections for ech activity, project-wide

Reach	Year	Length (feet)[1]	# of new manholes	# of Phase 1	# of Phase 2	# of Phase 3	# of Phase 4
Reach 1	Year 1 winter season	10,549	8	1	8	8	7
Reach 2		19,717	14	1	14	14	13
Reach 3	Year 2 winter season	12,388	10	1	10	10	8
Reach 4 & 5		7,304	7	1	7	7	5
Total	**2 years**	**49,958**	**39**	**4**	**39**	**39**	**33**

# of Phase 5	# of Phase 6	# of Phase 7	# of Phase 8
7	8	8	8
13	14	14	14
8	10	10	10
5	7	7	7
33	**39**	**39**	**39**

MWD OC Feeder Line Project

Construction Sequence assumption

The purpose of the schedule is to identify the overlapping activities that will be used to quantify the maximum daily construction trips and emissions.

	Construction Activity	Duration (days)	Daily Trips	Day 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	<----------> Beginning of next reach
1	Dewatering	1	20	Reach 1																					<-> Reach 2
2	Access Point Trench Excavation	2	32			Access 1				Access 2				Access 3				Access 4							<-> Access X
3	Access Point Pipeline Removal	1	24					Access 1				Access 2				Access 3				Access 4					<-> Access X
4	CTE Removal	3	32						Segment 1				Segment 2				Segment 3				Segment 4				<->
5	Mortar Relining	4	34										Segment 1				Segment 2				Segment 3				<->
6	Access Point Pipeline Installation	1	24														Access 1				Access 2				<->
7	Manhole Installation	1	24															Access 1				Access 2			<->
8	Access Point/Manhole Backfill	2	38																Access 1				Access 2		<->
	Total daily trips			20	32	32	24	32	64	64	24	66	98	98	58	90	122	136	96	90	90	104	72		
	Average daily trips in the vicinity of an access point			85																					

OC Feeder Construction - CalEEMod Outputs

Winter Construction Daily Emissions, 2014

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Dewatering	Trenching	10/3/2014	10/3/2014	5	1	
2	Access Point Trench Excavation	Grading	10/6/2014	10/7/2014	5	2	
3	Access Point Pipeline Removal	Trenching	10/8/2014	10/8/2014	5	1	
4	CTE Removal	Trenching	10/9/2014	10/13/2014	5	3	
5	Mortar Relining	Trenching	10/14/2014	10/17/2014	5	4	
6	Access Point Pipeline Installation	Trenching	10/20/2014	10/20/2014	5	1	
7	Manhole Installation	Trenching	10/21/2014	10/21/2014	5	1	
8	Access Point/Manhole Backfill	Paving	10/22/2014	10/23/2014	5	2	

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Access Point Pipeline Installation	Air Compressors	0	6.00	78	0.48
Mortar Relining	Cement and Mortar Mixers	0	6.00	9	0.56
Dewatering	Concrete/Industrial Saws	0	8.00	81	0.42
Access Point Pipeline Removal	Concrete/Industrial Saws	1	2.00	81	0.42
CTE Removal	Cranes	0	4.00	226	0.29
CTE Removal	Forklifts	0	6.00	89	0.20
Access Point Trench Excavation	Graders	0	8.00	174	0.41
Mortar Relining	Pavers	0	7.00	125	0.42
Mortar Relining	Rollers	0	7.00	80	0.38
Dewatering	Rubber Tired Dozers	0	1.00	255	0.40

Access Point Pipeline Removal	Rubber Tired Dozers	0	1.00	255	0.40
CTE Removal	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Dewatering	Tractors/Loaders/Backhoes	0	6.00	97	0.37
Access Point Pipeline Removal	Tractors/Loaders/Backhoes	0	6.00	97	0.37
Mortar Relining	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Access Point Trench Excavation	Tractors/Loaders/Backhoes	1	4.00	97	0.37
Access Point/Manhole Backfill	Cement and Mortar Mixers	0	6.00	9	0.56
Dewatering	Graders	0	8.00	174	0.41
Access Point/Manhole Backfill	Pavers	1	5.00	125	0.42
Access Point/Manhole Backfill	Rollers	1	1.00	80	0.38
Access Point/Manhole Backfill	Tractors/Loaders/Backhoes	1	2.00	97	0.37
Dewatering	Pumps	4	8.00	84	0.42
Access Point Trench Excavation	Tractors/Loaders/Backhoes	1	2.00	97	0.37
Access Point Trench Excavation	Excavators	1	4.00	162	0.38
Access Point Trench Excavation	Other Material Handling Equipment	1	4.00	167	0.40
Access Point Pipeline Removal	Excavators	1	2.00	162	0.38
Access Point Pipeline Removal	Generator Sets	1	4.00	84	0.42
Access Point Pipeline Removal	Other Material Handling Equipment	1	4.00	167	0.40
CTE Removal	Pressure Washers	2	8.00	13	0.30
CTE Removal	Pumps	2	8.00	84	0.42
Mortar Relining	Welders	2	8.00	46	0.42
Mortar Relining	Other Material Handling Equipment	2	8.00	167	0.40
Access Point Pipeline Installation	Excavators	1	2.00	162	0.38
Access Point Pipeline Installation	Generator Sets	1	3.00	84	0.42
Access Point Pipeline Installation	Other Material Handling Equipment	1	4.00	167	0.40
Manhole Installation	Excavators	1	3.00	162	0.38
Manhole Installation	Other Material Handling Equipment	1	1.00	167	0.40
Access Point/Manhole Backfill	Sweepers/Scrubbers	1	8.00	64	0.46

Access Point Trench Excavation	Concrete/Industrial Saws	0	8.00	81	0.72
Access Point Trench Excavation	Rubber Tired Dozers	0	1.00	255	0.40

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Dewatering	4	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Access Point Trench Excavation	4	30.00	0.00	4.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Access Point Pipeline Removal	4	20.00	0.00	4.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
CTE Removal	4	20.00	0.00	6.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Mortar Relining	4	30.00	0.00	8.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Access Point Pipeline Installation	3	20.00	0.00	4.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Access Point/Manhole Backfill	4	30.00	0.00	8.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Manhole Installation	2	20.00	0.00	4.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Clean Paved Roads

3.2 Dewatering - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.8692	13.0072	8.9278	0.0149		1.0030	1.0030		1.0030	1.0030		1,414.4569	1,414.4569	0.1668		1,417.9588
Total	**1.8692**	**13.0072**	**8.9278**	**0.0149**		**1.0030**	**1.0030**		**1.0030**	**1.0030**		**1,414.4569**	**1,414.4569**	**0.1668**		**1,417.9588**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0892	0.1212	1.2664	2.5700e-003	0.2236	1.7300e-003	0.2253	0.0593	1.5900e-003	0.0609		230.9130	230.9130	0.0126		231.1785
Total	**0.0892**	**0.1212**	**1.2664**	**2.5700e-003**	**0.2236**	**1.7300e-003**	**0.2253**	**0.0593**	**1.5900e-003**	**0.0609**		**230.9130**	**230.9130**	**0.0126**		**231.1785**

3.3 Access Point Trench Excavation - 2014

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0246	0.0000	0.0246	2.6900e-003	0.0000	2.6900e-003			0.0000			0.0000
Off-Road	0.7993	8.5928	5.5503	7.8500e-003		0.5166	0.5166		0.4753	0.4753	0.0000	833.3545	833.3545	0.2463		838.5261
Total	**0.7993**	**8.5928**	**5.5503**	**7.8500e-003**	**0.0246**	**0.5166**	**0.5413**	**2.6900e-003**	**0.4753**	**0.4780**	**0.0000**	**833.3545**	**833.3545**	**0.2463**		**838.5261**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0487	0.7367	0.5195	1.4800e-003	0.0348	0.0134	0.0482	9.5400e-003	0.0123	0.0218		151.6379	151.6379	1.3200e-003		151.6656
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1338	0.1818	1.8996	3.8600e-003	0.3353	2.6000e-003	0.3379	0.0889	2.3800e-003	0.0913		346.3695	346.3695	0.0190		346.7678

Total	**0.1824**	**0.9186**	**2.4191**	**5.3400e-003**	**0.3702**	**0.0160**	**0.3861**	**0.0985**	**0.0147**	**0.1131**		**498.0074**	**498.0074**	**0.0203**		**498.4334**

3.4 Access Point Pipeline Removal - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7538	7.0546	4.5272	6.9600e-003		0.4280	0.4280		0.4082	0.4082		706.8035	706.8035	0.1617		710.1992
Total	**0.7538**	**7.0546**	**4.5272**	**6.9600e-003**		**0.4280**	**0.4280**		**0.4082**	**0.4082**		**706.8035**	**706.8035**	**0.1617**		**710.1992**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0973	1.4734	1.0390	2.9500e-003	0.0697	0.0267	0.0964	0.0191	0.0246	0.0436		303.2758	303.2758	2.6300e-003		303.3311
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0892	0.1212	1.2664	2.5700e-003	0.2236	1.7300e-003	0.2253	0.0593	1.5900e-003	0.0609		230.9130	230.9130	0.0126		231.1785
Total	**0.1865**	**1.5947**	**2.3054**	**5.5200e-003**	**0.2932**	**0.0284**	**0.3216**	**0.0784**	**0.0261**	**0.1045**		**534.1888**	**534.1888**	**0.0153**		**534.5096**

3.5 CTE Removal - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0423	7.2422	4.9761	8.5700e-003		0.5425	0.5425		0.5425	0.5425		785.4084	785.4084	0.0930		787.3616
Total	**1.0423**	**7.2422**	**4.9761**	**8.5700e-003**		**0.5425**	**0.5425**		**0.5425**	**0.5425**		**785.4084**	**785.4084**	**0.0930**		**787.3616**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0487	0.7367	0.5195	1.4800e-003	0.0348	0.0134	0.0482	9.5400e-003	0.0123	0.0218		151.6379	151.6379	1.3200e-003		151.6656
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0892	0.1212	1.2664	2.5700e-003	0.2236	1.7300e-003	0.2253	0.0593	1.5900e-003	0.0609		230.9130	230.9130	0.0126		231.1785
Total	**0.1378**	**0.8579**	**1.7859**	**4.0500e-003**	**0.2584**	**0.0151**	**0.2735**	**0.0688**	**0.0139**	**0.0827**		**382.5509**	**382.5509**	**0.0140**		**382.8441**

3.6 Mortar Relining - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.5397	17.2782	12.0015	0.0163		1.0593	1.0593		1.0003	1.0003		1,605.0706	1,605.0706	0.4764		1,615.0750
Total	**2.5397**	**17.2782**	**12.0015**	**0.0163**		**1.0593**	**1.0593**		**1.0003**	**1.0003**		**1,605.0706**	**1,605.0706**	**0.4764**		**1,615.0750**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0487	0.7367	0.5195	1.4800e-003	0.0348	0.0134	0.0482	9.5400e-003	0.0123	0.0218		151.6379	151.6379	1.3200e-003		151.6656
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1338	0.1818	1.8996	3.8600e-003	0.3353	2.6000e-003	0.3379	0.0889	2.3800e-003	0.0913		346.3695	346.3695	0.0190		346.7678
Total	**0.1824**	**0.9186**	**2.4191**	**5.3400e-003**	**0.3702**	**0.0160**	**0.3861**	**0.0985**	**0.0147**	**0.1131**		**498.0074**	**498.0074**	**0.0203**		**498.4334**

3.7 Access Point Pipeline Installation - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5853	5.8803	3.7013	5.5900e-003		0.3362	0.3362		0.3165	0.3165		577.3555	577.3555	0.1466		580.4340
Total	**0.5853**	**5.8803**	**3.7013**	**5.5900e-003**		**0.3362**	**0.3362**		**0.3165**	**0.3165**		**577.3555**	**577.3555**	**0.1466**		**580.4340**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0973	1.4734	1.0390	2.9500e-003	0.0697	0.0267	0.0964	0.0191	0.0246	0.0436		303.2758	303.2758	2.6300e-003		303.3311
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0892	0.1212	1.2664	2.5700e-003	0.2236	1.7300e-003	0.2253	0.0593	1.5900e-003	0.0609		230.9130	230.9130	0.0126		231.1785
Total	**0.1865**	**1.5947**	**2.3054**	**5.5200e-003**	**0.2932**	**0.0284**	**0.3216**	**0.0784**	**0.0261**	**0.1045**		**534.1888**	**534.1888**	**0.0153**		**534.5096**

3.8 Manhole Installation - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.2366	2.7499	1.7895	2.7000e-003		0.1393	0.1393		0.1281	0.1281		286.5695	286.5695	0.0847		288.3479
Total	**0.2366**	**2.7499**	**1.7895**	**2.7000e-003**		**0.1393**	**0.1393**		**0.1281**	**0.1281**		**286.5695**	**286.5695**	**0.0847**		**288.3479**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	lb/day										lb/day					
Hauling	0.0973	1.4734	1.0390	2.9500e-003	0.0697	0.0267	0.0964	0.0191	0.0246	0.0436		303.2758	303.2758	2.6300e-003		303.3311
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0892	0.1212	1.2664	2.5700e-003	0.2236	1.7300e-003	0.2253	0.0593	1.5900e-003	0.0609		230.9130	230.9130	0.0126		231.1785
Total	**0.1865**	**1.5947**	**2.3054**	**5.5200e-003**	**0.2932**	**0.0284**	**0.3216**	**0.0784**	**0.0261**	**0.1045**		**534.1888**	**534.1888**	**0.0153**		**534.5096**

3.9 Access Point/Manhole Backfill - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8618	8.2314	4.7771	6.4600e-003		0.5842	0.5842		0.5375	0.5375		686.0093	686.0093	0.2027		690.2665
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.8618**	**8.2314**	**4.7771**	**6.4600e-003**		**0.5842**	**0.5842**		**0.5375**	**0.5375**		**686.0093**	**686.0093**	**0.2027**		**690.2665**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0973	1.4734	1.0390	2.9500e-003	0.0697	0.0267	0.0964	0.0191	0.0246	0.0436		303.2758	303.2758	2.6300e-003		303.3311
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1338	0.1818	1.8996	3.8600e-003	0.3353	2.6000e-003	0.3379	0.0889	2.3800e-003	0.0913		346.3695	346.3695	0.0190		346.7678
Total	**0.2311**	**1.6553**	**2.9386**	**6.8100e-003**	**0.4050**	**0.0293**	**0.4343**	**0.1080**	**0.0269**	**0.1349**		**649.6453**	**649.6453**	**0.0216**		**650.0989**

tblProjectCharacteristics

ProjectNan	LocationSc	EMFAC_ID	WindSpee	Precipitatio	ClimateZor	Urbanizatic	Operationa	UtilityComp	CO2Intens	CH4Intensi	N2OIntens	TotalPopul
OC Feeder	C	ORA	2.2	30	8	Urban	2016	Southern C	630.89	0.029	0.006	0

TotalLotAc	UsingHistoricalEnergyUseData
0	0

PollutantSe	PollutantFu	PollutantName
1	Reactive O	ROG
1	Nitrogen O	NOX
1	Carbon Mo	CO
1	Sulfur Diox	SO2
1	Particulate	PM10
1	Particulate	PM2_5
1	Fugitive PM	PM10_FUG
1	Fugitive PM	PM25_FUG
1	Biogenic C	CO2_BIO
1	Non-Biogei	CO2_NBIO
1	Carbon Dio	CO2
1	Methane (C	CH4
1	Nitrous Oxi	N2O
1	CO2 Equiv	CO2E

tblLandUse

LandUseTy	LandUseSt	LandUseUn	LandUseSi	LotAcreage	LandUseSc	Population
Industrial		0		0		0

tblConstructionPhase

PhaseNum	PhaseNam	PhaseType	PhaseStart	PhaseEndI	NumDaysV	NumDays	PhaseDescription
1	Dewatering	Trenching	2014/10/03	2014/10/03	5	1	
2	Access Poi	Grading	2014/10/06	2014/10/07	5	2	
3	Access Poi	Trenching	2014/10/08	2014/10/08	5	1	
4	CTE Remo	Trenching	2014/10/09	2014/10/13	5	3	
5	Mortar Reli	Trenching	2014/10/14	2014/10/17	5	4	
6	Access Poi	Trenching	2014/10/20	2014/10/20	5	1	
7	Manhole In	Trenching	2014/10/21	2014/10/21	5	1	
8	Access Poi	Paving	2014/10/22	2014/10/23	5	2	

PhaseNam	OffRoadEq	OffRoadEq	UsageHou	HorsePow	LoadFactor
Dewatering	Concrete/Ir	0	8	81	0.42
Dewatering	Graders	0	8	174	0.41
Dewatering	Pumps	4	8	84	0.42
Dewatering	Rubber Tir	0	1	255	0.4
Dewatering	Tractors/Lo	0	6	97	0.37
Access Poi	Concrete/Ir	0	8	81	0.72
Access Poi	Excavators	1	4	162	0.38
Access Poi	Graders	0	8	174	0.41
Access Poi	Other Mate	1	4	167	0.4
Access Poi	Rubber Tir	0	1	255	0.4
Access Poi	Tractors/Lo	1	4	97	0.37
Access Poi	Tractors/Lo	1	2	97	0.37
Access Poi	Concrete/Ir	1	2	81	0.42
Access Poi	Excavators	1	2	162	0.38
Access Poi	Generator	1	4	84	0.42
Access Poi	Other Mate	1	4	167	0.4
Access Poi	Rubber Tir	0	1	255	0.4
Access Poi	Tractors/Lo	0	6	97	0.37
CTE Remo	Cranes	0	4	226	0.29
CTE Remo	Forklifts	0	6	89	0.2
CTE Remo	Pressure W	2	8	13	0.3
CTE Remo	Pumps	2	8	84	0.42
CTE Remo	Tractors/Lo	0	8	97	0.37
Mortar Reli	Cement an	0	6	9	0.56
Mortar Reli	Other Mate	2	8	167	0.4
Mortar Reli	Pavers	0	7	125	0.42
Mortar Reli	Rollers	0	7	80	0.38
Mortar Reli	Tractors/Lo	0	7	97	0.37
Mortar Reli	Welders	2	8	46	0.42
Access Poi	Air Compre	0	6	78	0.48
Access Poi	Excavators	1	2	162	0.38
Access Poi	Generator	1	3	84	0.42
Access Poi	Other Mate	1	4	167	0.4
Manhole In	Excavators	1	3	162	0.38
Manhole In	Other Mate	1	1	167	0.4
Access Poi	Cement an	0	6	9	0.56

Access Poi	Pavers	1	5	125	0.42
Access Poi	Rollers	1	1	80	0.38
Access Poi	Sweepers/S	1	8	64	0.46
Access Poi	Tractors/Lo	1	2	97	0.37

PhaseNam	WorkerTrip	VendorTrip	HaulingTrip	WorkerTrip	VendorTrip	HaulingTrip	WorkerVeh	VendorVeh	HaulingVehicleClass
Dewatering	20	0	0	14.7	6.9	20	LD_Mix	HDT_Mix	HHDT
Access Poi	30	0	4	14.7	6.9	20	LD_Mix	HDT_Mix	HHDT
Access Poi	20	0	4	14.7	6.9	20	LD_Mix	HDT_Mix	HHDT
CTE Remo	20	0	6	14.7	6.9	20	LD_Mix	HDT_Mix	HHDT
Mortar Reli	30	0	8	14.7	6.9	20	LD_Mix	HDT_Mix	HHDT
Access Poi	20	0	4	14.7	6.9	20	LD_Mix	HDT_Mix	HHDT
Manhole In	20	0	4	14.7	6.9	20	LD_Mix	HDT_Mix	HHDT
Access Poi	30	0	8	14.7	6.9	20	LD_Mix	HDT_Mix	HHDT

PhaseNam	WorkerPer	VendorPer	HaulingPer	RoadSiltLo	MaterialSilt	MaterialMo	AverageVe	MeanVehicleSpeed
Dewatering	100	100	100	0.1	8.5	0.5	2.4	40
Access Poi	100	100	100	0.1	8.5	0.5	2.4	40
Access Poi	100	100	100	0.1	8.5	0.5	2.4	40
CTE Remo	100	100	100	0.1	8.5	0.5	2.4	40
Mortar Reli	100	100	100	0.1	8.5	0.5	2.4	40
Access Poi	100	100	100	0.1	8.5	0.5	2.4	40
Manhole In	100	100	100	0.1	8.5	0.5	2.4	40
Access Poi	100	100	100	0.1	8.5	0.5	2.4	40

PhaseNam	Demolition	DemolitionUnitAmount

PhaseNam	MaterialIm	MaterialEx	GradingSiz	ImportExpo	MeanVehic	AcresOfGr	MaterialMo	MaterialMo	MaterialSiltContent
Access Poi	0	30	Cubic Yard	0	7.1	0.1	7.9	12	6.9

PhaseNam	Architectur	Architectur	EF_Reside	ConstArea_	EF_Reside	ConstArea_	EF_Nonres	ConstArea_	EF_Nonres	ConstArea_Nonresidential_Exteric

or

ParkingLotAcreage

tblVehicleTrips

VehicleTrip	VehicleTrip	WD_TR	ST_TR	SU_TR	HW_TL	HS_TL	HO_TL	CC_TL	CW_TL	CNW_TL	PR_TP	DV_TP	PB_TP	HW_TTP	HS_TTP	HO_TTP	CC_TTP	CW_TTP	CNW_TTP

Season	EmissionTy	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS
A	FleetMix	0.511008	0.057223	0.191597	0.152361	0.041328	0.005882	0.015289	0.014281	0.001428	0.002141	0.004713	0.000509
A	CH4_IDLE	0	0	0	0	0.00131	0.001045	0.007417	0.023312	0.019208	0	0	0.005436
A	CH4_RUNI	0.011603	0.022907	0.015876	0.026504	0.012805	0.009801	0.005022	0.010796	0.002906	0	0	0.00746
A	CH4_STRE	0.008909	0.020978	0.011837	0.022276	0.02331	0.015879	0	0	0	0	0	0
A	CO_IDLEX	0	0	0	0	0.189794	0.155446	1.824523	2.807141	2.363688	0	0	1.062266
A	CO_RUNE	1.002496	2.312814	1.352868	2.131962	1.127285	0.869078	1.109377	1.74093	1.44983	5.829924	22.05212	6.133398
A	CO_STRE	2.046439	4.833653	2.910369	4.630852	4.439146	2.969092	19.12157	63.25674	10.9323	13.46886	9.772855	36.92968
A	CO2_NBIC	0	0	0	0	8.233141	9.007122	606.0444	566.6094	571.3528	0	0	570.8204
A	CO2_NBIC	284.4231	338.79	410.1379	541.1177	552.3987	537.4872	976.0211	1639.965	1055.141	1950.843	145.5397	1102.334
A	CO2_NBIC	62.48143	73.48657	88.77403	115.6989	44.48204	31.66767	55.8527	63.027	36.24555	38.21774	43.49707	129.8528
A	NOX_IDLE	0	0	0	0	0.044854	0.092181	6.271082	4.866988	5.938247	0	0	8.09214
A	NOX_RUN	0.090552	0.228833	0.153721	0.268951	1.201869	1.935025	3.150248	6.107609	4.06058	9.914742	1.176478	8.027732
A	NOX_STRI	0.138249	0.285992	0.277634	0.457615	1.36791	0.96332	2.06252	3.89158	1.522407	1.532312	0.305538	2.562815
A	PM10_IDLI	0	0	0	0	0.000465	0.001017	0.023075	0.012281	0.017907	0	0	0.027099
A	PM10_PMI	0.03675	0.03675	0.03675	0.03675	0.046241	0.062089	0.112763	0.060035	0.094005	0.633717	0.036749	0.545919
A	PM10_PM	0.008	0.008	0.008	0.008	0.008957	0.009933	0.011249	0.034724	0.010447	0.008	0.008	0.010876
A	PM10_RUI	0.001727	0.00358	0.001671	0.00198	0.007861	0.015018	0.079557	0.092774	0.053433	0.158535	0.000489	0.084668
A	PM10_STF	0.002749	0.004739	0.002644	0.002989	0.00116	0.000778	0.002965	0.004407	0.001098	0.001062	0.001581	0.007829
A	PM25_IDLI	0	0	0	0	0.000427	0.000936	0.021229	0.011299	0.016475	0	0	0.024931
A	PM25_PMI	0.01575	0.01575	0.01575	0.01575	0.019818	0.02661	0.048327	0.025729	0.040288	0.271593	0.01575	0.233965
A	PM25_PM	0.002	0.002	0.002	0.002	0.002239	0.002483	0.002812	0.008681	0.002612	0.002	0.002	0.002719
A	PM25_RUI	0.001588	0.003302	0.001542	0.001826	0.007236	0.013816	0.073191	0.085352	0.049158	0.145804	0.000398	0.077799
A	PM25_STF	0.002527	0.00437	0.002442	0.002761	0.001067	0.000706	0.00259	0.00354	0.000958	0.000913	0.001263	0.006688
A	ROG_DIUF	0.055035	0.153431	0.064369	0.077648	0.002648	0.001805	0.003373	0.002864	0.001007	0.006935	0.946549	0.039726
A	ROG_HTS	0.129866	0.277724	0.149056	0.183571	0.072016	0.052614	0.124582	0.164942	0.029388	0.126891	0.442969	0.319651
A	ROG_IDLE	0	0	0	0	0.030439	0.024094	0.159684	0.501895	0.413546	0	0	0.11703
A	ROG_RES	0.049552	0.12079	0.061855	0.078303	0.001628	0.001104	0.00201	0.001964	0.000531	0.003905	0.56393	0.017417
A	ROG_RUN	0.023877	0.059675	0.028292	0.054571	0.08235	0.086348	0.139353	0.245497	0.147367	0.72184	2.420575	0.485243
A	ROG_RUN	0.289125	0.962715	0.464734	0.557304	0.458827	0.322804	0.535521	0.61397	0.315014	0.882365	1.495565	2.366454
A	ROG_STR	0.15553	0.369345	0.208762	0.393453	0.411882	0.278911	1.225464	2.44378	0.704177	0.970691	2.098276	2.601783
A	SO2_IDLE	0	0	0	0	0.000088	0.000094	0.005992	0.005602	0.005649	0	0	0.005643
A	SO2_RUNI	0.003482	0.004039	0.004746	0.006049	0.005677	0.005459	0.009709	0.016228	0.010548	0.01946	0.001931	0.01109
A	SO2_STRE	0.00077	0.000927	0.001051	0.00135	0.000543	0.000383	0.000917	0.001722	0.000569	0.000637	0.00067	0.002005
A	TOG_DIUF	0.055035	0.153431	0.064369	0.077648	0.002648	0.001805	0.003373	0.002864	0.001007	0.006935	0.946549	0.039726
A	TOG_HTSI	0.129866	0.277724	0.149056	0.183571	0.072016	0.052614	0.124582	0.164942	0.029388	0.126891	0.442969	0.319651
A	TOG_IDLE	0	0	0	0	0.032343	0.025795	0.181788	0.571369	0.470791	0	0	0.133229
A	TOG_RES	0.049552	0.12079	0.061855	0.078303	0.001628	0.001104	0.00201	0.001964	0.000531	0.003905	0.56393	0.017417
A	TOG_RUN	0.03588	0.083517	0.044637	0.081924	0.098767	0.102077	0.16089	0.280174	0.173107	0.801931	2.659175	0.540983
A	TOG_RUN	0.289125	0.962715	0.464734	0.557304	0.458827	0.322804	0.535521	0.61397	0.315014	0.882365	1.495565	2.366454
A	TOG_STRI	0.166197	0.394501	0.222961	0.420181	0.439852	0.297944	1.310711	2.619431	0.752688	1.037813	2.255239	2.785771
S	FleetMix	0.511008	0.057223	0.191597	0.152361	0.041328	0.005882	0.015289	0.014281	0.001428	0.002141	0.004713	0.000509

S	CH4_IDLE	0	0	0	0	0.00131	0.001045	0.00699	0.021969	0.018102	0	0	0.005123
S	CH4_RUNI	0.011603	0.022907	0.015876	0.026504	0.012805	0.009801	0.005022	0.010796	0.002906	0	0	0.00746
S	CH4_STRE	0.008909	0.020978	0.011837	0.022276	0.02331	0.015879	0	0	0	0	0	0
S	CO_IDLEX	0	0	0	0	0.189794	0.155446	1.325773	2.039785	1.717553	0	0	0.771886
S	CO_RUNE	1.080137	2.467085	1.459955	2.293469	1.143566	0.874367	1.116182	1.748293	1.464495	5.808908	21.04625	6.052249
S	CO_STRE	1.645597	3.888246	2.332961	3.714501	3.643134	2.455943	15.77896	53.52945	9.009189	11.64127	8.729265	32.49088
S	CO2_NBIC	0	0	0	0	8.233141	9.007122	642.0505	600.2726	605.2978	0	0	604.7337
S	CO2_NBIC	296.3242	352.0752	426.8062	562.7817	552.3988	537.4872	976.0211	1639.965	1055.141	1950.843	145.5397	1102.334
S	CO2_NBIC	62.48143	73.48657	88.77403	115.6989	44.48204	31.66767	55.85269	63.027	36.24556	38.21774	43.49707	129.8529
S	NOX_IDLE	0	0	0	0	0.044854	0.092181	6.47281	5.023548	6.129267	0	0	8.352446
S	NOX_RUN	0.080022	0.200874	0.135536	0.23703	1.11992	1.823446	2.968288	5.78234	3.819509	9.339889	1.032229	7.55677
S	NOX_STRI	0.129175	0.267077	0.259354	0.427466	1.318026	0.928192	1.982989	3.739574	1.464257	1.469839	0.290842	2.442067
S	PM10_IDLI	0	0	0	0	0.000465	0.001017	0.019453	0.010353	0.015096	0	0	0.022844
S	PM10_PMI	0.03675	0.03675	0.03675	0.03675	0.046241	0.062089	0.112763	0.060035	0.094005	0.633717	0.036749	0.545919
S	PM10_PM	0.008	0.008	0.008	0.008	0.008957	0.009933	0.011249	0.034724	0.010447	0.008	0.008	0.010876
S	PM10_RUI	0.001727	0.00358	0.001671	0.00198	0.007861	0.015018	0.079557	0.092774	0.053433	0.158535	0.000489	0.084668
S	PM10_STF	0.002749	0.004739	0.002644	0.002989	0.00116	0.000778	0.002965	0.004407	0.001098	0.001062	0.001581	0.007829
S	PM25_IDLI	0	0	0	0	0.000427	0.000936	0.017896	0.009525	0.013888	0	0	0.021017
S	PM25_PMI	0.01575	0.01575	0.01575	0.01575	0.019818	0.02661	0.048327	0.025729	0.040288	0.271593	0.01575	0.233965
S	PM25_PM	0.002	0.002	0.002	0.002	0.002239	0.002483	0.002812	0.008681	0.002612	0.002	0.002	0.002719
S	PM25_RUI	0.001588	0.003302	0.001542	0.001826	0.007236	0.013816	0.073191	0.085352	0.049158	0.145804	0.000398	0.077799
S	PM25_STF	0.002527	0.00437	0.002442	0.002761	0.001067	0.000706	0.00259	0.00354	0.000958	0.000913	0.001263	0.006688
S	ROG_DIUF	0.081159	0.226541	0.094921	0.114193	0.003727	0.002543	0.004796	0.004167	0.001379	0.009316	1.43793	0.053865
S	ROG_HTS	0.13298	0.287616	0.153289	0.188205	0.073722	0.054062	0.126343	0.163159	0.029754	0.125207	0.478056	0.312801
S	ROG_IDLE	0	0	0	0	0.030439	0.024094	0.150487	0.472989	0.389728	0	0	0.11029
S	ROG_RES	0.070071	0.172776	0.086741	0.108891	0.002287	0.001558	0.002901	0.002932	0.000741	0.005329	0.930769	0.02411
S	ROG_RUN	0.024522	0.061694	0.029417	0.057078	0.083583	0.086772	0.13986	0.245689	0.148281	0.725878	2.349977	0.485167
S	ROG_RUN	0.273623	0.886373	0.430794	0.51836	0.442974	0.310986	0.517932	0.602124	0.306479	0.819894	1.381247	2.175871
S	ROG_STR	0.133671	0.318086	0.179927	0.339062	0.367095	0.248994	1.077756	2.106806	0.623214	0.881043	1.851898	2.342472
S	SO2_IDLE	0	0	0	0	0.000088	0.000094	0.006348	0.005935	0.005984	0	0	0.005979
S	SO2_RUNI	0.003629	0.004201	0.004941	0.006293	0.005677	0.005459	0.009709	0.016228	0.010548	0.01946	0.001913	0.011088
S	SO2_STRE	0.000763	0.000911	0.001041	0.001334	0.000529	0.000374	0.00086	0.001559	0.000536	0.000606	0.000646	0.001927
S	TOG_DIUF	0.081159	0.226541	0.094921	0.114193	0.003727	0.002543	0.004796	0.004167	0.001379	0.009316	1.43793	0.053865
S	TOG_HTSI	0.13298	0.287616	0.153289	0.188205	0.073722	0.054062	0.126343	0.163159	0.029754	0.125207	0.478056	0.312801
S	TOG_IDLE	0	0	0	0	0.032343	0.025795	0.171318	0.538462	0.443676	0	0	0.125556
S	TOG_RES	0.070071	0.172776	0.086741	0.108891	0.002287	0.001558	0.002901	0.002932	0.000741	0.005329	0.930769	0.02411
S	TOG_RUN	0.037093	0.086344	0.046541	0.085402	0.100174	0.102596	0.161458	0.280387	0.174141	0.806234	2.584854	0.540961
S	TOG_RUN	0.273623	0.886373	0.430794	0.51836	0.442974	0.310986	0.517932	0.602124	0.306479	0.819894	1.381247	2.175871
S	TOG_STRI	0.14284	0.339752	0.192166	0.362096	0.39202	0.265978	1.152637	2.258002	0.666104	0.941912	1.990266	2.50774
W	FleetMix	0.511008	0.057223	0.191597	0.152361	0.041328	0.005882	0.015289	0.014281	0.001428	0.002141	0.004713	0.000509
W	CH4_IDLE	0	0	0	0	0.00131	0.001045	0.008007	0.025166	0.020736	0	0	0.005868
W	CH4_RUNI	0.011603	0.022907	0.015876	0.026504	0.012805	0.009801	0.005022	0.010796	0.002906	0	0	0.00746

W	CH4_STRE	0.008909	0.020978	0.011837	0.022276	0.02331	0.015879	0	0	0	0	0	0
W	CO_IDLEX	0	0	0	0	0.189794	0.155446	2.513272	3.866825	3.255969	0	0	1.463266
W	CO_RUNE	0.971347	2.250508	1.310877	2.067736	1.122686	0.867309	1.107093	1.738584	1.44528	5.826953	22.18784	6.148352
W	CO_STRE	2.136923	5.046786	3.040953	4.837972	4.590661	3.067561	19.83845	65.29864	11.35038	13.79663	9.957657	38.07129
W	CO2_NBIC	0	0	0	0	8.233141	9.007122	556.3217	520.1222	524.4764	0	0	523.9876
W	CO2_NBIC	280.0304	333.8864	403.9856	533.1215	552.3988	537.4872	976.0211	1639.965	1055.141	1950.843	145.5397	1102.334
W	CO2_NBIC	62.48143	73.48657	88.77403	115.6989	44.48204	31.66767	55.85269	63.027	36.24556	38.21774	43.49707	129.8529
W	NOX_IDLE	0	0	0	0	0.044854	0.092181	5.992507	4.650785	5.674456	0	0	7.732669
W	NOX_RUN	0.087764	0.222145	0.149009	0.260742	1.178559	1.900203	3.090452	6.004526	3.986348	9.72239	1.147135	7.887855
W	NOX_STRI	0.140358	0.290383	0.281885	0.464625	1.380332	0.972074	2.082776	3.930331	1.537467	1.546425	0.308898	2.593138
W	PM10_IDLI	0	0	0	0	0.000465	0.001017	0.028078	0.014944	0.02179	0	0	0.032974
W	PM10_PMI	0.03675	0.03675	0.03675	0.03675	0.046241	0.062089	0.112763	0.060035	0.094005	0.633717	0.036749	0.545919
W	PM10_PM	0.008	0.008	0.008	0.008	0.008957	0.009933	0.011249	0.034724	0.010447	0.008	0.008	0.010876
W	PM10_RUI	0.001727	0.00358	0.001671	0.00198	0.007861	0.015018	0.079557	0.092774	0.053433	0.158535	0.000489	0.084668
W	PM10_STF	0.002749	0.004739	0.002644	0.002989	0.00116	0.000778	0.002965	0.004407	0.001098	0.001062	0.001581	0.007829
W	PM25_IDLI	0	0	0	0	0.000427	0.000936	0.025832	0.013748	0.020047	0	0	0.030336
W	PM25_PMI	0.01575	0.01575	0.01575	0.01575	0.019818	0.02661	0.048327	0.025729	0.040288	0.271593	0.01575	0.233965
W	PM25_PM	0.002	0.002	0.002	0.002	0.002239	0.002483	0.002812	0.008681	0.002612	0.002	0.002	0.002719
W	PM25_RUI	0.001588	0.003302	0.001542	0.001826	0.007236	0.013816	0.073191	0.085352	0.049158	0.145804	0.000398	0.077799
W	PM25_STF	0.002527	0.00437	0.002442	0.002761	0.001067	0.000706	0.00259	0.00354	0.000958	0.000913	0.001263	0.006688
W	ROG_DIUF	0.056351	0.161337	0.064561	0.076925	0.002864	0.001944	0.003738	0.003107	0.001071	0.008208	1.065633	0.045617
W	ROG_HTS	0.144374	0.31575	0.163706	0.199039	0.082443	0.060251	0.148096	0.208945	0.032756	0.164183	0.576136	0.402517
W	ROG_IDLE	0	0	0	0	0.030439	0.024094	0.172384	0.541813	0.446437	0	0	0.126338
W	ROG_RES	0.050312	0.123113	0.062273	0.078722	0.001692	0.001134	0.002151	0.002093	0.00054	0.004325	0.604189	0.018886
W	ROG_RUN	0.023574	0.058838	0.027859	0.053623	0.081996	0.086222	0.139194	0.245437	0.147085	0.720654	2.433709	0.48502
W	ROG_RUN	0.325209	1.142733	0.543939	0.648385	0.49835	0.352213	0.581943	0.655094	0.336702	1.025059	1.759852	2.786533
W	ROG_STR	0.160136	0.38018	0.214867	0.404974	0.4215	0.285394	1.260163	2.52119	0.72345	0.988703	2.147022	2.669694
W	SO2_IDLE	0	0	0	0	0.000088	0.000094	0.0055	0.005142	0.005185	0	0	0.00518
W	SO2_RUNI	0.003427	0.00398	0.004674	0.005958	0.005677	0.005459	0.009709	0.016228	0.010548	0.01946	0.001933	0.01109
W	SO2_STRE	0.000772	0.000931	0.001054	0.001353	0.000546	0.000385	0.000929	0.001757	0.000576	0.000643	0.000675	0.002025
W	TOG_DIUF	0.056351	0.161337	0.064561	0.076925	0.002864	0.001944	0.003738	0.003107	0.001071	0.008208	1.065633	0.045617
W	TOG_HTSI	0.144374	0.31575	0.163706	0.199039	0.082443	0.060251	0.148096	0.208945	0.032756	0.164183	0.576136	0.402517
W	TOG_IDLE	0	0	0	0	0.032343	0.025795	0.196246	0.616813	0.508235	0	0	0.143826
W	TOG_RES	0.050312	0.123113	0.062273	0.078722	0.001692	0.001134	0.002151	0.002093	0.00054	0.004325	0.604189	0.018886
W	TOG_RUN	0.035378	0.082389	0.043932	0.080633	0.098364	0.101925	0.160712	0.280108	0.172788	0.800671	2.672996	0.540731
W	TOG_RUN	0.325209	1.142733	0.543939	0.648385	0.49835	0.352213	0.581943	0.655094	0.336702	1.025059	1.759852	2.786533
W	TOG_STRI	0.171118	0.406074	0.229481	0.432484	0.450124	0.304871	1.347846	2.702463	0.773298	1.057077	2.307659	2.858562

MH
0.002239
0
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0
3.336342
7.832889
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654.5404
29.71151
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1.795252
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1.909653
0.479493
0
0.006736
0.00045
1.280184
0.096331
0
0.496212
0.145637
1.909653
0.512751

RoadPerce	RoadSiltLo	MaterialSilt	MaterialMo	MobileAver	MeanVehicleSpeed
100	0.1	4.3	0.5	2.4	40

tblWoodstoves

WoodstoveNumber	CoNumber	CaNumber	NoNumber	PeWoodstove	WoodstoveWoodMass

tblFireplaces

FireplacesI	NumberWc	NumberGa	NumberPrc	NumberNo	FireplaceH	FireplaceD	FireplaceWoodMass

ROG_EF
1.98E-05

tblAreaCoating

Area_EF_F	Area_Resi	Area_EF_F	Area_Resi	Area_EF_N	Area_Nonr	Area_EF_N	Area_Nonr	ReapplicationRatePercent
50	0	100	0	250	0	250	0	10

NumberSn	NumberSummerDays
0	250

tblEnergyUse

EnergyUse	T24E	NT24E	LightingEle	T24NG	NT24NG

WaterLand	WaterLand	IndoorWat	OutdoorW	ElectricityIr	ElectricityIr	ElectricityIr	ElectricityIr	SepticTank	AerobicPer	Anaerobic	AnaDigest	AnaDigestCogen	CombDigestGasPercent

SolidWaste	SolidWaste	SolidWaste	LandfillNoC	LandfillCap	LandfillCaptureGasEnergyRecovery

Vegetation	Vegetation	AcresBegin	AcresEnd	CO2peracre

BroadSpec	NumberOfT	CO2perTree

ConstMitig	FuelType	Tier	NumberOff	TotalNumb	DPF	OxidationCatalyst
Air Compre	Diesel	No Change	0	0	No Change	0
Cement an	Diesel	No Change	0	0	No Change	0
Concrete/I	Diesel	No Change	0	1	No Change	0
Cranes	Diesel	No Change	0	0	No Change	0
Excavators	Diesel	No Change	0	4	No Change	0
Forklifts	Diesel	No Change	0	0	No Change	0
Generator	Diesel	No Change	0	2	No Change	0
Graders	Diesel	No Change	0	0	No Change	0
Other Mate	Diesel	No Change	0	6	No Change	0
Pavers	Diesel	No Change	0	1	No Change	0
Pressure W	Diesel	No Change	0	2	No Change	0
Pumps	Diesel	No Change	0	6	No Change	0
Rollers	Diesel	No Change	0	1	No Change	0
Rubber Tir	Diesel	No Change	0	0	No Change	0
Sweepers/S	Diesel	No Change	0	1	No Change	0
Tractors/Lo	Diesel	No Change	0	3	No Change	0
Welders	Diesel	No Change	0	2	No Change	0

SoilStabiliz	SoilStabiliz	SoilStabiliz	ReplaceGr	ReplaceGr	ReplaceGr	WaterExpo	WaterExpo	WaterExpo	WaterExpo	WaterUnpa	WaterUnpa	WaterUnpa	WaterUnpa
0	0	0	0	0	0	1	2	55	55	0	0	0	0

CleanPavedRoadPercentReduction
0

tblLandUseMitigation

ProjectSett	IncreaseDe	IncreaseDe	IncreaseDe	IncreaseDi	ImproveWa	ImproveWa	ImproveDe	ImproveDe	IncreaseTr	IncreaseTr	IntegrateBi	IntegrateBi	ImprovePe	ImprovePe	ProvideTra	ProvideTra	ProvideTra	ImplementI	ImplementI	LimitParkin	LimitParkin	UnbundleP	UnbundleP	OnStreetM	OnStreetM	ProvideBR	ProvideBR	ExpandTra	ExpandTra	IncreaseTr	IncreaseTr	IncreaseTransitFrequencyHeadwaysPercentReduction

Implement	Implement	Implement	TransitSub	TransitSub	TransitSub	Implement	Implement	Workplace	Workplace	Workplace	Encourage	Encourage	Encourage	Encourage	MarketCon	MarketCon	Employee\	Employee\	Employee\	ProvideRid	ProvideRid	Implement	ImplementSchoolBusProgramPercentFamily\
0			0			0		0			0				0		0		2	0		0	

Jsing

Landscape	Landscape	Landscape	Landscape	Landscape	Landscape	UseLowVC	UseLowVC	UseLowVC	UseLowVC	UseLowVC	UseLowVC	UseLowVC	UseLowVC	UseLowVC	HearthOnly	NoHearthC	UseLowVO
0	0	0	0	50	0	100	0	250	0	250	0	0	0				

CCleaningSuppliesCheck

ExceedTitl	ExceedTitl	InstallHighI	InstallHighI	OnSiteRen	KwhGener	KwhGener	PercentOfE	PercentOfElectricityUseGenerated

ApplianceT	ApplianceL	PercentImprovement
ClothWasher		30
DishWasher		15
Fan		50
Refrigerator		15

ApplyWate	ApplyWate	ApplyWate	UseReclair	PercentOu	PercentInd	UseGreyW	PercentOu	PercentInd	InstallLowF	PercentRe	InstallLowF	PercentRe	InstallLowF	PercentRe	InstallLowF	PercentRe
0			0			0			0	32	0	18	0	20	0	20

TurfReduct	TurfReduct	TurfReduct	UseWaterE	UseWaterE	WaterEffici	MAWA	ETWU
0			0	6.1	0		

InstituteRe	InstituteRecyclingAndCompostingServicesWastePercentReduction

OperOffRo	OperOffRo	OperHours	OperDaysF	OperHorse	OperLoadF	OperFuelType

SubModule	PhaseNam	Season	Remarks
1			
3			No operation assoicated with the project. Pipeline construction would occur with ROW.
4			Updated with major pconstruction elements.
5	Access Point	Pipeline	1 excavator - 2, 1 generator - 3, 1 concrete truck - 4.
5	Access Point	Pipeline	1 industrial saw - 2, 1 excavator - 2, 1 genertor - 4, 1 concrete truck - 4.
5	Access Point	Trench E	1 backhoe with hydro hammer - 4, 1 loader - 2, 1 excavator - 4, 1 boom truck - 4.
5	Access Point/Manhole		1 loader - 2, 1 roller - 5, 1 sweeper - 8, 1 paver - 5.
5	CTE Removal		2 pressure washers - 8, 2 pumps - 8.
5	Dewatering		4 water pumps - 8.
5	Manhole Installation		1 excavator - 3, 1 boom truck - 1
5	Mortar Relining		2 concrete trucks with pumps - 8; 2 welding Equipment - 8.
6			-
9			-
25			

OC Feeder Construction

Orange County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
	0.00		0.00		0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	30
Climate Zone	8			**Operational Year**	2016
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	630.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - No operation assoicated with the project. Pipeline construction would occur with ROW.

Construction Phase - Updated with major pconstruction elements.

Off-road Equipment - 4 water pumps - 8.

Off-road Equipment - 1 backhoe with hydro hammer - 4, 1 loader - 2, 1 excavator - 4, 1 boom truck - 4.

Off-road Equipment - 1 industrial saw - 2, 1 excavator - 2, 1 genertor - 4, 1 concrete truck - 4.

Off-road Equipment - 2 pressure washers - 8, 2 pumps - 8.

Off-road Equipment - 2 concrete trucks with pumps - 8; 2 welding Equipment - 8.

Off-road Equipment - 1 excavator - 2, 1 generator - 3, 1 concrete truck - 4.

Off-road Equipment - 1 excavator - 3, 1 boom truck - 1

Off-road Equipment - 1 loader - 2, 1 roller - 5, 1 sweeper - 8, 1 paver - 5.

Grading - -

Trips and VMT - -

Construction Off-road Equipment Mitigation -

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2014	2.7221	18.1968	14.4206	0.0216	0.4249	1.0752	1.4454	0.1080	1.0150	1.1135	0.0000	2,103.0779	2,103.0779	0.4967	0.0000	2,113.5083
Total	**2.7221**	**18.1968**	**14.4206**	**0.0216**	**0.4249**	**1.0752**	**1.4454**	**0.1080**	**1.0150**	**1.1135**	**0.0000**	**2,103.0779**	**2,103.0779**	**0.4967**	**0.0000**	**2,113.5083**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2014	2.7221	18.1968	14.4206	0.0216	0.4050	1.0752	1.4454	0.1080	1.0150	1.1135	0.0000	2,103.0779	2,103.0779	0.4967	0.0000	2,113.5083
Total	**2.7221**	**18.1968**	**14.4206**	**0.0216**	**0.4050**	**1.0752**	**1.4454**	**0.1080**	**1.0150**	**1.1135**	**0.0000**	**2,103.0779**	**2,103.0779**	**0.4967**	**0.0000**	**2,113.5083**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e

Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**4.68**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Dewatering	Trenching	10/3/2014	10/3/2014	5	1	
2	Access Point Trench Excavation	Grading	10/6/2014	10/7/2014	5	2	
3	Access Point Pipeline Removal	Trenching	10/8/2014	10/8/2014	5	1	
4	CTE Removal	Trenching	10/9/2014	10/13/2014	5	3	
5	Mortar Relining	Trenching	10/14/2014	10/17/2014	5	4	
6	Access Point Pipeline Installation	Trenching	10/20/2014	10/20/2014	5	1	
7	Manhole Installation	Trenching	10/21/2014	10/21/2014	5	1	
8	Access Point/Manhole Backfill	Paving	10/22/2014	10/23/2014	5	2	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Access Point Pipeline Installation	Air Compressors	0	6.00	78	0.48
Mortar Relining	Cement and Mortar Mixers	0	6.00	9	0.56
Dewatering	Concrete/Industrial Saws	0	8.00	81	0.42
Access Point Pipeline Removal	Concrete/Industrial Saws	1	2.00	81	0.42
CTE Removal	Cranes	0	4.00	226	0.29
CTE Removal	Forklifts	0	6.00	89	0.20
Access Point Trench Excavation	Graders	0	8.00	174	0.41

Mortar Relining	Pavers	0	7.00	125	0.42
Mortar Relining	Rollers	0	7.00	80	0.38
Dewatering	Rubber Tired Dozers	0	1.00	255	0.40
Access Point Pipeline Removal	Rubber Tired Dozers	0	1.00	255	0.40
CTE Removal	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Dewatering	Tractors/Loaders/Backhoes	0	6.00	97	0.37
Access Point Pipeline Removal	Tractors/Loaders/Backhoes	0	6.00	97	0.37
Mortar Relining	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Access Point Trench Excavation	Tractors/Loaders/Backhoes	1	4.00	97	0.37
Access Point/Manhole Backfill	Cement and Mortar Mixers	0	6.00	9	0.56
Dewatering	Graders	0	8.00	174	0.41
Access Point/Manhole Backfill	Pavers	1	5.00	125	0.42
Access Point/Manhole Backfill	Rollers	1	1.00	80	0.38
Access Point/Manhole Backfill	Tractors/Loaders/Backhoes	1	2.00	97	0.37
Dewatering	Pumps	4	8.00	84	0.42
Access Point Trench Excavation	Tractors/Loaders/Backhoes	1	2.00	97	0.37
Access Point Trench Excavation	Excavators	1	4.00	162	0.38
Access Point Trench Excavation	Other Material Handling Equipment	1	4.00	167	0.40
Access Point Pipeline Removal	Excavators	1	2.00	162	0.38
Access Point Pipeline Removal	Generator Sets	1	4.00	84	0.42
Access Point Pipeline Removal	Other Material Handling Equipment	1	4.00	167	0.40
CTE Removal	Pressure Washers	2	8.00	13	0.30
CTE Removal	Pumps	2	8.00	84	0.42
Mortar Relining	Welders	2	8.00	46	0.42
Mortar Relining	Other Material Handling Equipment	2	8.00	167	0.40
Access Point Pipeline Installation	Excavators	1	2.00	162	0.38
Access Point Pipeline Installation	Generator Sets	1	3.00	84	0.42
Access Point Pipeline Installation	Other Material Handling Equipment	1	4.00	167	0.40
Manhole Installation	Excavators	1	3.00	162	0.38
Manhole Installation	Other Material Handling Equipment	1	1.00	167	0.40

Access Point/Manhole Backfill	Sweepers/Scrubbers	1	8.00	64	0.46
Access Point Trench Excavation	Concrete/Industrial Saws	0	8.00	81	0.72
Access Point Trench Excavation	Rubber Tired Dozers	0	1.00	255	0.40

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Dewatering	4	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Access Point Trench Excavation	4	30.00	0.00	4.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Access Point Pipeline Removal	4	20.00	0.00	4.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
CTE Removal	4	20.00	0.00	6.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Mortar Relining	4	30.00	0.00	8.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Access Point Pipeline Installation	3	20.00	0.00	4.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Access Point/Manhole Backfill	4	30.00	0.00	8.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Manhole Installation	2	20.00	0.00	4.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Clean Paved Roads

3.2 Dewatering - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.8692	13.0072	8.9278	0.0149		1.0030	1.0030		1.0030	1.0030		1,414.4569	1,414.4569	0.1668		1,417.9588
Total	**1.8692**	**13.0072**	**8.9278**	**0.0149**		**1.0030**	**1.0030**		**1.0030**	**1.0030**		**1,414.4569**	**1,414.4569**	**0.1668**		**1,417.9588**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0892	0.1212	1.2664	2.5700e-003	0.2236	1.7300e-003	0.2253	0.0593	1.5900e-003	0.0609		230.9130	230.9130	0.0126		231.1785
Total	**0.0892**	**0.1212**	**1.2664**	**2.5700e-003**	**0.2236**	**1.7300e-003**	**0.2253**	**0.0593**	**1.5900e-003**	**0.0609**		**230.9130**	**230.9130**	**0.0126**		**231.1785**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.8692	13.0072	8.9278	0.0149		1.0030	1.0030		1.0030	1.0030	0.0000	1,414.4569	1,414.4569	0.1668		1,417.9588
Total	**1.8692**	**13.0072**	**8.9278**	**0.0149**		**1.0030**	**1.0030**		**1.0030**	**1.0030**	**0.0000**	**1,414.4569**	**1,414.4569**	**0.1668**		**1,417.9588**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0892	0.1212	1.2664	2.5700e-003	0.2236	1.7300e-003	0.2253	0.0593	1.5900e-003	0.0609		230.9130	230.9130	0.0126		231.1785
Total	**0.0892**	**0.1212**	**1.2664**	**2.5700e-003**	**0.2236**	**1.7300e-003**	**0.2253**	**0.0593**	**1.5900e-003**	**0.0609**		**230.9130**	**230.9130**	**0.0126**		**231.1785**

3.3 Access Point Trench Excavation - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0547	0.0000	0.0547	5.9800e-003	0.0000	5.9800e-003			0.0000			0.0000
Off-Road	0.7993	8.5928	5.5503	7.8500e-003		0.5166	0.5166		0.4753	0.4753		833.3545	833.3545	0.2463		838.5261
Total	**0.7993**	**8.5928**	**5.5503**	**7.8500e-003**	**0.0547**	**0.5166**	**0.5714**	**5.9800e-003**	**0.4753**	**0.4813**		**833.3545**	**833.3545**	**0.2463**		**838.5261**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Hauling	0.0487	0.7367	0.5195	1.4800e-003	0.0348	0.0134	0.0482	9.5400e-003	0.0123	0.0218		151.6379	151.6379	1.3200e-003		151.6656
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1338	0.1818	1.8996	3.8600e-003	0.3353	2.6000e-003	0.3379	0.0889	2.3800e-003	0.0913		346.3695	346.3695	0.0190		346.7678
Total	**0.1824**	**0.9186**	**2.4191**	**5.3400e-003**	**0.3702**	**0.0160**	**0.3861**	**0.0985**	**0.0147**	**0.1131**		**498.0074**	**498.0074**	**0.0203**		**498.4334**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0246	0.0000	0.0246	2.6900e-003	0.0000	2.6900e-003			0.0000			0.0000
Off-Road	0.7993	8.5928	5.5503	7.8500e-003		0.5166	0.5166		0.4753	0.4753	0.0000	833.3545	833.3545	0.2463		838.5261
Total	**0.7993**	**8.5928**	**5.5503**	**7.8500e-003**	**0.0246**	**0.5166**	**0.5413**	**2.6900e-003**	**0.4753**	**0.4780**	**0.0000**	**833.3545**	**833.3545**	**0.2463**		**838.5261**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0487	0.7367	0.5195	1.4800e-003	0.0348	0.0134	0.0482	9.5400e-003	0.0123	0.0218		151.6379	151.6379	1.3200e-003		151.6656
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1338	0.1818	1.8996	3.8600e-003	0.3353	2.6000e-003	0.3379	0.0889	2.3800e-003	0.0913		346.3695	346.3695	0.0190		346.7678
Total	**0.1824**	**0.9186**	**2.4191**	**5.3400e-003**	**0.3702**	**0.0160**	**0.3861**	**0.0985**	**0.0147**	**0.1131**		**498.0074**	**498.0074**	**0.0203**		**498.4334**

3.4 Access Point Pipeline Removal - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7538	7.0546	4.5272	6.9600e-003		0.4280	0.4280		0.4082	0.4082		706.8035	706.8035	0.1617		710.1992
Total	**0.7538**	**7.0546**	**4.5272**	**6.9600e-003**		**0.4280**	**0.4280**		**0.4082**	**0.4082**		**706.8035**	**706.8035**	**0.1617**		**710.1992**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0973	1.4734	1.0390	2.9500e-003	0.0697	0.0267	0.0964	0.0191	0.0246	0.0436		303.2758	303.2758	2.6300e-003		303.3311
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0892	0.1212	1.2664	2.5700e-003	0.2236	1.7300e-003	0.2253	0.0593	1.5900e-003	0.0609		230.9130	230.9130	0.0126		231.1785
Total	**0.1865**	**1.5947**	**2.3054**	**5.5200e-003**	**0.2932**	**0.0284**	**0.3216**	**0.0784**	**0.0261**	**0.1045**		**534.1888**	**534.1888**	**0.0153**		**534.5096**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7538	7.0546	4.5272	6.9600e-003		0.4280	0.4280		0.4082	0.4082	0.0000	706.8035	706.8035	0.1617		710.1992
Total	**0.7538**	**7.0546**	**4.5272**	**6.9600e-003**		**0.4280**	**0.4280**		**0.4082**	**0.4082**	**0.0000**	**706.8035**	**706.8035**	**0.1617**		**710.1992**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0973	1.4734	1.0390	2.9500e-003	0.0697	0.0267	0.0964	0.0191	0.0246	0.0436		303.2758	303.2758	2.6300e-003		303.3311
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0892	0.1212	1.2664	2.5700e-003	0.2236	1.7300e-003	0.2253	0.0593	1.5900e-003	0.0609		230.9130	230.9130	0.0126		231.1785
Total	**0.1865**	**1.5947**	**2.3054**	**5.5200e-003**	**0.2932**	**0.0284**	**0.3216**	**0.0784**	**0.0261**	**0.1045**		**534.1888**	**534.1888**	**0.0153**		**534.5096**

3.5 CTE Removal - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0423	7.2422	4.9761	8.5700e-003		0.5425	0.5425		0.5425	0.5425		785.4084	785.4084	0.0930		787.3616

Total	**1.0423**	**7.2422**	**4.9761**	**8.5700e-003**		**0.5425**	**0.5425**		**0.5425**	**0.5425**		**785.4084**	**785.4084**	**0.0930**		**787.3616**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0487	0.7367	0.5195	1.4800e-003	0.0348	0.0134	0.0482	9.5400e-003	0.0123	0.0218		151.6379	151.6379	1.3200e-003		151.6656
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0892	0.1212	1.2664	2.5700e-003	0.2236	1.7300e-003	0.2253	0.0593	1.5900e-003	0.0609		230.9130	230.9130	0.0126		231.1785
Total	**0.1378**	**0.8579**	**1.7859**	**4.0500e-003**	**0.2584**	**0.0151**	**0.2735**	**0.0688**	**0.0139**	**0.0827**		**382.5509**	**382.5509**	**0.0140**		**382.8441**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0423	7.2422	4.9761	8.5700e-003		0.5425	0.5425		0.5425	0.5425	0.0000	785.4084	785.4084	0.0930		787.3616
Total	**1.0423**	**7.2422**	**4.9761**	**8.5700e-003**		**0.5425**	**0.5425**		**0.5425**	**0.5425**	**0.0000**	**785.4084**	**785.4084**	**0.0930**		**787.3616**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0487	0.7367	0.5195	1.4800e-003	0.0348	0.0134	0.0482	9.5400e-003	0.0123	0.0218		151.6379	151.6379	1.3200e-003		151.6656
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0892	0.1212	1.2664	2.5700e-003	0.2236	1.7300e-003	0.2253	0.0593	1.5900e-003	0.0609		230.9130	230.9130	0.0126		231.1785
Total	**0.1378**	**0.8579**	**1.7859**	**4.0500e-003**	**0.2584**	**0.0151**	**0.2735**	**0.0688**	**0.0139**	**0.0827**		**382.5509**	**382.5509**	**0.0140**		**382.8441**

3.6 Mortar Relining - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.5397	17.2782	12.0015	0.0163		1.0593	1.0593		1.0003	1.0003		1,605.0706	1,605.0706	0.4764		1,615.0750
Total	**2.5397**	**17.2782**	**12.0015**	**0.0163**		**1.0593**	**1.0593**		**1.0003**	**1.0003**		**1,605.0706**	**1,605.0706**	**0.4764**		**1,615.0750**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Hauling	0.0487	0.7367	0.5195	1.4800e-003	0.0348	0.0134	0.0482	9.5400e-003	0.0123	0.0218		151.6379	151.6379	1.3200e-003		151.6656
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1338	0.1818	1.8996	3.8600e-003	0.3353	2.6000e-003	0.3379	0.0889	2.3800e-003	0.0913		346.3695	346.3695	0.0190		346.7678
Total	**0.1824**	**0.9186**	**2.4191**	**5.3400e-003**	**0.3702**	**0.0160**	**0.3861**	**0.0985**	**0.0147**	**0.1131**		**498.0074**	**498.0074**	**0.0203**		**498.4334**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.5397	17.2782	12.0015	0.0163		1.0593	1.0593		1.0003	1.0003	0.0000	1,605.0706	1,605.0706	0.4764		1,615.0750
Total	**2.5397**	**17.2782**	**12.0015**	**0.0163**		**1.0593**	**1.0593**		**1.0003**	**1.0003**	**0.0000**	**1,605.0706**	**1,605.0706**	**0.4764**		**1,615.0750**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0487	0.7367	0.5195	1.4800e-003	0.0348	0.0134	0.0482	9.5400e-003	0.0123	0.0218		151.6379	151.6379	1.3200e-003		151.6656
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1338	0.1818	1.8996	3.8600e-003	0.3353	2.6000e-003	0.3379	0.0889	2.3800e-003	0.0913		346.3695	346.3695	0.0190		346.7678
Total	**0.1824**	**0.9186**	**2.4191**	**5.3400e-003**	**0.3702**	**0.0160**	**0.3861**	**0.0985**	**0.0147**	**0.1131**		**498.0074**	**498.0074**	**0.0203**		**498.4334**

3.7 Access Point Pipeline Installation - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5853	5.8803	3.7013	5.5900e-003		0.3362	0.3362		0.3165	0.3165		577.3555	577.3555	0.1466		580.4340
Total	**0.5853**	**5.8803**	**3.7013**	**5.5900e-003**		**0.3362**	**0.3362**		**0.3165**	**0.3165**		**577.3555**	**577.3555**	**0.1466**		**580.4340**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0973	1.4734	1.0390	2.9500e-003	0.0697	0.0267	0.0964	0.0191	0.0246	0.0436		303.2758	303.2758	2.6300e-003		303.3311
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0892	0.1212	1.2664	2.5700e-003	0.2236	1.7300e-003	0.2253	0.0593	1.5900e-003	0.0609		230.9130	230.9130	0.0126		231.1785
Total	**0.1865**	**1.5947**	**2.3054**	**5.5200e-003**	**0.2932**	**0.0284**	**0.3216**	**0.0784**	**0.0261**	**0.1045**		**534.1888**	**534.1888**	**0.0153**		**534.5096**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5853	5.8803	3.7013	5.5900e-003		0.3362	0.3362		0.3165	0.3165	0.0000	577.3555	577.3555	0.1466		580.4340
Total	**0.5853**	**5.8803**	**3.7013**	**5.5900e-003**		**0.3362**	**0.3362**		**0.3165**	**0.3165**	**0.0000**	**577.3555**	**577.3555**	**0.1466**		**580.4340**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0973	1.4734	1.0390	2.9500e-003	0.0697	0.0267	0.0964	0.0191	0.0246	0.0436		303.2758	303.2758	2.6300e-003		303.3311
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0892	0.1212	1.2664	2.5700e-003	0.2236	1.7300e-003	0.2253	0.0593	1.5900e-003	0.0609		230.9130	230.9130	0.0126		231.1785
Total	**0.1865**	**1.5947**	**2.3054**	**5.5200e-003**	**0.2932**	**0.0284**	**0.3216**	**0.0784**	**0.0261**	**0.1045**		**534.1888**	**534.1888**	**0.0153**		**534.5096**

3.8 Manhole Installation - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.2366	2.7499	1.7895	2.7000e-003		0.1393	0.1393		0.1281	0.1281		286.5695	286.5695	0.0847		288.3479

Total	**0.2366**	**2.7499**	**1.7895**	**2.7000e-003**		**0.1393**	**0.1393**		**0.1281**	**0.1281**		**286.5695**	**286.5695**	**0.0847**		**288.3479**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0973	1.4734	1.0390	2.9500e-003	0.0697	0.0267	0.0964	0.0191	0.0246	0.0436		303.2758	303.2758	2.6300e-003		303.3311
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0892	0.1212	1.2664	2.5700e-003	0.2236	1.7300e-003	0.2253	0.0593	1.5900e-003	0.0609		230.9130	230.9130	0.0126		231.1785
Total	**0.1865**	**1.5947**	**2.3054**	**5.5200e-003**	**0.2932**	**0.0284**	**0.3216**	**0.0784**	**0.0261**	**0.1045**		**534.1888**	**534.1888**	**0.0153**		**534.5096**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.2366	2.7499	1.7895	2.7000e-003		0.1393	0.1393		0.1281	0.1281	0.0000	286.5695	286.5695	0.0847		288.3479
Total	**0.2366**	**2.7499**	**1.7895**	**2.7000e-003**		**0.1393**	**0.1393**		**0.1281**	**0.1281**	**0.0000**	**286.5695**	**286.5695**	**0.0847**		**288.3479**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0973	1.4734	1.0390	2.9500e-003	0.0697	0.0267	0.0964	0.0191	0.0246	0.0436		303.2758	303.2758	2.6300e-003		303.3311
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0892	0.1212	1.2664	2.5700e-003	0.2236	1.7300e-003	0.2253	0.0593	1.5900e-003	0.0609		230.9130	230.9130	0.0126		231.1785
Total	**0.1865**	**1.5947**	**2.3054**	**5.5200e-003**	**0.2932**	**0.0284**	**0.3216**	**0.0784**	**0.0261**	**0.1045**		**534.1888**	**534.1888**	**0.0153**		**534.5096**

3.9 Access Point/Manhole Backfill - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8618	8.2314	4.7771	6.4600e-003		0.5842	0.5842		0.5375	0.5375		686.0093	686.0093	0.2027		690.2665
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.8618**	**8.2314**	**4.7771**	**6.4600e-003**		**0.5842**	**0.5842**		**0.5375**	**0.5375**		**686.0093**	**686.0093**	**0.2027**		**690.2665**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Hauling	0.0973	1.4734	1.0390	2.9500e-003	0.0697	0.0267	0.0964	0.0191	0.0246	0.0436		303.2758	303.2758	2.6300e-003		303.3311
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1338	0.1818	1.8996	3.8600e-003	0.3353	2.6000e-003	0.3379	0.0889	2.3800e-003	0.0913		346.3695	346.3695	0.0190		346.7678
Total	**0.2311**	**1.6553**	**2.9386**	**6.8100e-003**	**0.4050**	**0.0293**	**0.4343**	**0.1080**	**0.0269**	**0.1349**		**649.6453**	**649.6453**	**0.0216**		**650.0989**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8618	8.2314	4.7771	6.4600e-003		0.5842	0.5842		0.5375	0.5375	0.0000	686.0093	686.0093	0.2027		690.2665
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.8618**	**8.2314**	**4.7771**	**6.4600e-003**		**0.5842**	**0.5842**		**0.5375**	**0.5375**	**0.0000**	**686.0093**	**686.0093**	**0.2027**		**690.2665**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0973	1.4734	1.0390	2.9500e-003	0.0697	0.0267	0.0964	0.0191	0.0246	0.0436		303.2758	303.2758	2.6300e-003		303.3311
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1338	0.1818	1.8996	3.8600e-003	0.3353	2.6000e-003	0.3379	0.0889	2.3800e-003	0.0913		346.3695	346.3695	0.0190		346.7678
Total	**0.2311**	**1.6553**	**2.9386**	**6.8100e-003**	**0.4050**	**0.0293**	**0.4343**	**0.1080**	**0.0269**	**0.1349**		**649.6453**	**649.6453**	**0.0216**		**650.0989**